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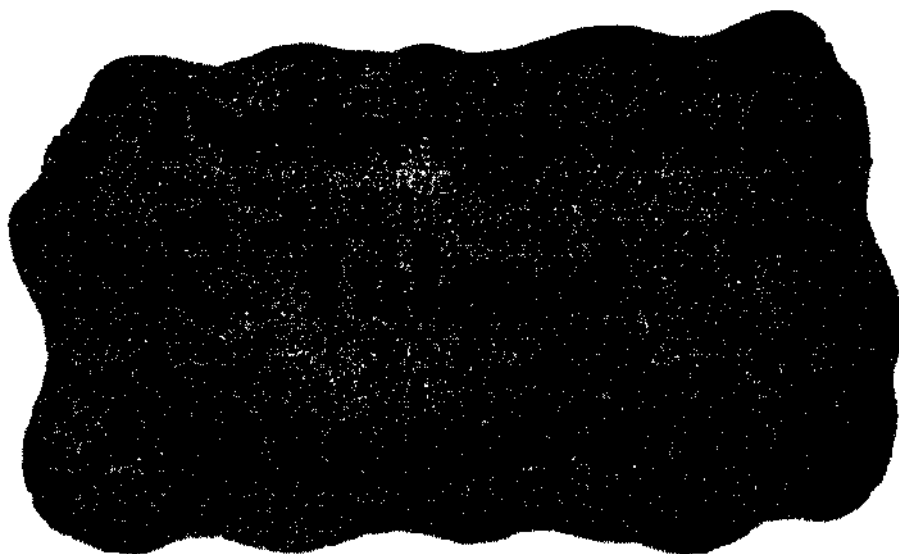
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PRINCIPLES OF INLAND TRANSPORTATION

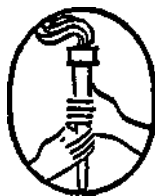


STUART
DAGGETT

*Professor of Transportation
University of California*



Third
Edition



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PREFACE TO THE FIRST EDITION



The author does not underestimate the difficulty of describing all major forms of transportation in the United States within the limits of a volume of moderate size. Yet he includes the automobile and the inland waterway and the tramway and the airplane, nevertheless, as well as the railroad, in his discussion, because he is persuaded that these different mechanisms of transport are so closely connected with one another in the common task of moving people and goods, that it is no longer possible to understand the activities of any one of them without being cognizant, in some degree, of the work of the others also. Nor is it even true that the underlying principles of transport still find their best expression in the field of any single agency.

Many interesting problems of price-fixing in the transportation world today are presented by the experience of the street railway companies; some of the most disputed calculations of cost relate to our rivers and canals; and the influence of transport upon settlement can be observed in connection with the tramway and the automobile at least as well as in connection with the railroad.

The obvious danger in extending the scope of a treatise upon transportation to cover several forms of machinery and organization, instead of only one, is that the resulting work may lack unity. The analysis may seem to be concerned with a variety of subjects, instead of with one subject under a variety of aspects. It may be that the present volume will produce such an effect. The author can only urge in his defense his belief in the essential unity in principle and in purpose of the different forms of transport, and his conviction that at the present moment more can be expected from an attempt to see the transport problem as a whole, than from continued preoccupation with its various parts.

The rest of the author's apology, if a preface is to be interpreted as an apology, must concern itself with quite another matter—namely, with the inclusion of a considerable amount of economic geography in a book devoted to transportation. It is true that the two subjects are linked together in treatises upon the principles of economics, but for many years the discussions of railroad economics, which constitute most of the recent study of the science of transportation, have concerned themselves primarily with those sides of the railroad question which have been discussed in national or state legislatures, or with problems of labor or finance which confront the railroad because it is

a corporation or an employing agency, not because it is concerned with transport.

Now it is easy to understand why excellent books have been produced upon these aspects of the railroad question; but, on the other hand, it is not unreasonable to observe that transport, in its essence, is neither corporation finance, nor big business, nor any other of a number of incidental things; but that, in the main, it is the process of moving articles and people along established routes between defined termini. If this is the fact, then it is proper that attention should be drawn both to the facilities which traffic uses and to the flow of traffic which carriers are organized to promote, as well as to the more traditional and publicly contentious questions with which legislators have been concerned. This is all that the present treatise seeks to do.

Most of the information offered to the reader has been drawn directly from official sources. The author is indebted to many people for courtesies extended in the course of the preparation of this work. He will not attempt to enumerate all the instances in which he has received friendly assistance, but he wishes to express his appreciation of the cooperation of the staffs of the Interstate Commerce Commission and the Department of Commerce at Washington, and of the offices of the United States commercial *attaches* at London, Paris, and Berlin. It would have been difficult to complete the chapters upon the English, French, and German railways without the connections which the last-named offices were able to supply. Acknowledgment should at the same time be made of facilities provided by the Ministry of Transport in England, and by the Ministries of Public Works in France and in Germany, which have made possible convenient access to published and, in France, also to unpublished, material bearing upon the transportation problem in these countries.

STUART DAGGETT

PREFACE TO THE SECOND EDITION



The preparation of a second edition has made possible a good deal of remodeling and expansion. Experience during the past five years has justified the attempt to cover a number of forms of land transportation in a single volume, and the treatment of "flows" of traffic seems as necessary, now, as when the work was first planned. Further study has suggested, however, some changes within the framework of the original treatise. The author is now omitting most of the exposition relating to the localization of sources of supply of commodities in the United States, upon the ground that elementary facts of economic geography can and should be learned before a student attacks the subject of transportation. On the other hand, certain sections of the book have been considerably enlarged. The portions which have been expanded include, for instance, the chapters on motor vehicles, street railways, and aviation. The author has also developed the subject of railroad rates, first, by presenting condensed descriptions of well-known rate structures such as the Trunk Line System, the Southern Basing Point System, etc.; and, second, by considering with greater care the theory underlying the fixing of railroad charges. In the sections relating to regulation the subject of valuation is more fully discussed, and the legal history of the Fourteenth Amendment is set forth. These are not all the changes, but they may serve as illustrations. New treatment of old problems, together with the necessary consideration of recent changes, makes the present volume more bulky, but possibly more thorough and useful, than the edition which it supplants.

This summary of changes is written for the convenience of persons who may wish to understand the more striking differences between the first and second editions of the *Principles*, without the labor of comparing the texts in detail. It may be added, however, that from the author's point of view, a revision is desirable at this time because it permits him to speculate in more leisurely fashion concerning problems which he thinks are interesting and important, upon which the experience of recent years has thrown some light. In doing this the author has sometimes asked questions which he cannot answer, and he may have expressed views the soundness of which are still a subject for debate; but where he has indulged in such vagaries he hopes that they will provoke that kind of friendly dissent which paves the way to progress.

STUART DAGGETT

PREFACE TO THE THIRD EDITION



In this third edition the text has been again very largely rearranged and rewritten. The most obvious change in form consists in the segregation of the chapters of the book into nine groups. What is probably more important than this, however, is the attempt which the author has made to simplify discussion in the earlier portions of the book by transferring the treatment of complicated situations to later sections, in so far as this can reasonably be done. The object, of course, is to provide the reader with more complete knowledge of basic facts before difficulties are thrust upon him. There have also been additions to the material presented in the second edition. The most important of these consist of new chapters on railroad classification and tariffs, theories of location, coordination, labor, finance, regulation of air transport, and national transportation policies. Coal and steel have been substituted for cotton in the discussion of commodity movements. To make place for these changes, chapters on French, German, and English railroads, that on street and interurban railways, a separate chapter on motor trucks, a chapter on valuation, and most of the discussion of railroad administration during the World War of 1914-1918 have been omitted. These excisions narrow the scope of the volume, but the additions widen it. The author regrets most the elimination of the pages on urban transportation. The other omissions are less important; as a matter of fact, it would hardly be possible to discuss European transport helpfully at the present time, the subject of valuation has declined in importance, and experiments which this country undertook in 1917-1918 in railroad management can be sufficiently considered in dealing with current practice. In general, the subject matter of the text has been considered anew, and thoroughly revised.

Grateful appreciation is again expressed to many persons and organizations who have contributed information, and now particularly to Professor Herbert E. Dougall, of Northwestern University, who has offered valuable suggestions with respect to both form and substance of the present work.

STUART DAGGETT

PART I

INTRODUCTORY



CHAPTER I

THE TRANSPORTATION SYSTEM OF THE UNITED STATES



Elements in a Modern Transportation System.—The principal elements of a transportation plant in a modern country are the following:

- i. Inland and coastal waterways, including canals, improved or canalized rivers, lakes, bays, and parts of the ocean used for coastwise navigation;
2. A road system, in most cases originally constructed for the use of draft animals, but frequently reconstructed and enlarged for motor vehicles;
3. A railroad system;
4. Pipe lines for the transportation of petroleum and its products;
5. Interurban, suburban, and urban railways, generally driven by electric power;
6. Air routes with proper landing places.

This list does not exhaust the mechanical aids which man today employs for inland movements, but it does include the more essential.

If, now, we examine the relative importance of these different forms of machinery and their location in the United States, we have the following details:

Inland Waterways.—The earliest medium of communication to be developed in a country is apt to be its waterways, and this has been true of the United States.

Coastwise traffic is important along the Atlantic and Gulf seabords because of the length of coast line in the east and south, the excellence of harbors, and the presence of large centers of population located upon the coasts or within easy reach of ocean harbors. There is also considerable, though less, traffic along the Pacific coast, and a substantial volume of business passes from one coast to the other by way of the Panama Canal. In the interior of the country the most important inland water route is unquestionably that supplied by the Great Lakes. Next to the Great Lakes comes the Mississippi River and its tributaries, and after that a long list of rivers and artificial waterways which are of lesser importance individually but which in **the** aggregate perform a transportation service of considerable magnitude. The artificial waterways on the list include the New York State Barge Canal system, the Cape Cod Canal and the various coastal canals that make up

what is known as the Intracoastal Waterway. Among the important rivers outside of the Mississippi system may be mentioned the Hudson River; the Black Warrior, Warrior, and Tombigbee rivers in Alabama; the James River in Virginia; the Sacramento and San Joaquin rivers in California; the Columbia, Willamette, Hoquiam, and Snohomish rivers in Oregon and Washington; and short sections of the Delaware, the Potomac, and the Taunton rivers emptying into the Atlantic Ocean.

According to figures compiled by the Chief of Engineers of the United States Army the traffic handled by various segments of the inland waterway system of the United States was, in 1938, as follows:

TRAFFIC ON INLAND WATERWAYS OF THE UNITED STATES, 1938

Division	Tonnage	Ton-mileage
Great Lakes	98,300,163	49,004,019,901
Mississippi River and tributaries	64,876,970	10,977,155,638
Rivers, canals, and connecting channels, excluding Great Lakes and Mississippi River system	212,877,617	6,765,350,900
Total	376,054,750	66,746,526,439

To the total of tons handled in the preceding table should be added the figure of 138,477,760 tons representing the net tonnage transported by coast-wise carriers. Ton-mileage statistics are not available for this type of movement. Passenger traffic on the inland waterways is relatively unimportant.¹

Roads.—The road system of the United States consists of more than three million miles of highway, a mileage so great that if it measured a single continuous road, that road would encircle the earth more than one hundred times. The greater part of this system is, of course, local. The system includes, however, state highways measuring 454,841 miles (1938), or more than the steam railroad mileage of the country. About 359,639 miles of the state roads are surfaced. In addition, there is a large amount of country and city construction of a relatively permanent character which state governments have never undertaken to finance.

There are no comprehensive tonnage or passenger statistics of road traffic because private carriers handle a large proportion of the total business and do not report the amount of traffic they carry. Most highway travel is by truck or by automobile. In 1938 there were 25,261,649 passenger automobiles registered in the United States, and 4,224,031 trucks. Conclusions with respect to road transport are estimates attempting to measure the use of this equipment. The information upon which such estimates rest includes: (I) ton and ton-mileage and passenger and passenger-mileage statistics furnished

¹United States War Department, *Annual Report of the Chief of Engineers, United States Army, Commercial Statistics*, 1938, pp. 2, 3, 34.

to state regulatory bodies by motor vehicle common carriers; (2) figures of registration compiled from the records of state motor vehicle departments; (3) information concerning the capacity of vehicles, their average loading, and the average mileage traveled per day. Much of this last type of data is derived from motor vehicle surveys conducted by state governments and by the United States Bureau of Public Roads and from studies of particular commodity movements such as those of livestock, fruits, vegetables, cotton, and assembled automobiles. The records of cases brought before the Interstate Commerce Commission often contain material of this sort, and the Commission has published the results, also, of two general and informing studies. As federal regulation develops we shall know more of the characteristics of interstate motor vehicle transport by common and by certain types of contract carriers, but it is not yet clear how exact data relative to private motor vehicle carriage can be obtained.

Among the estimates of intercity truck traffic which have been prepared by responsible bodies are the following:

Source of Estimate	Ton-miles
1. United States Bureau of Public Roads, 1925	8,178,000,000
2. Bureau of Railway Economics, 1928	10,276,000,000
3. Interstate Commerce Commission, 1929	15,975,000,000
4. Federal Coordinator of Transportation, 1932	29,976,800,000
5. Presidential Committee of Six, 1937	43,380,000,000

The progression in the figures given is partly due to changes in the methods of estimating, but it also reflects an undoubted increase in the volume of intercity truck movements that has taken place during the past fifteen years. For our present purposes we may use the estimate prepared by the Federal Coordinator increased to allow for the enlargement in truck registration which occurred between 1932 and 1938. This estimate, so enlarged, gives a figure of 39,210,000 ton-miles in intercity truck traffic for the year 1938. The number of tons carried, similarly estimated, may be set at 392,100,000.

Passenger business by motor vehicle, like freight business, has to be estimated. According to *Bus Transportation*, intercity busses carried 3735769,499 passengers in 1938, or slightly less than the railroads, if railroad commutation traffic be included. The average length of journey is not reported, but we do know that the operating revenues of intercity busses in 1938 amounted to \$177,400,404. The Presidential Committee of Six assumed that the average revenue per passenger-mile upon this business was 1.517 cents. If this assumption is correct, the number of passenger-miles in 1938 may be calculated, to be 11,694 million. The corresponding figure for 1937 would be 12,531 million. These totals are somewhat less than the estimates of *Bus Transportation* itself, and may be believed to be conservative.

The number of passengers carried in private automobiles is **certainly many**

times that transported in common carrier busses, though there is still less exact information concerning this traffic. We have just observed that in 1938 there were 25,261,649 passenger cars registered in the United States. Of these, 132,600 were busses and the balance, 25,129,049, were private vehicles. There is some basis for the statement that the number of persons traveling in private cars ranges from 1.8 to 2.7 per car. Possibly an annual car mileage of 8,000 miles for a private car will not be deemed excessive. If these estimates be admitted, then resultant calculations will show an annual movement in private automobiles in the United States of 442 billion passenger-miles. This was more than 20 times the business done by the rail lines. The private automobile is performing a passenger service in the United States the magnitude of which we are slow to understand because we still think of transport in terms of public agencies with which we are more familiar.

Railroads.—The railroads of a modern country constitute the major portion of its facilities for inland freight transportation.

The United States railway system, on December 31, 1938, comprised the following mileage:²

UNITED STATES RAILWAY SYSTEM—MILES OF LINE OWNED AND OPERATED, 1938

	Eastern District	Southern District	Western District	Total
Class I Carriers				
Number of roads	51	31	52.	136
Line owned	2,9240	34,640	113,535	113,535
Line operated	57,830	44,522.	131,679	134,031
All Carriers				
Number of roads	515	278	352.	1,145
Line owned	55,586	47,395	133,861	236,842
Line operated	60,257	49,180	140,389	249,826

Carriers are divided by the Interstate Commerce Commission for statistical purposes into three classes, based on the amount of their annual operating revenues: Class I, including companies with revenues above \$1,000,000; Class II, companies with revenues from \$100,000 to \$1,000,000; and Class III, companies with revenues below \$100,000. The mileage operated by Class I carriers comprises 93 per cent of all the mileage in the country. The Class I companies, moreover, control all the principal routes and are responsible for 99 per cent of the ton- and passenger-mileage. For most practical purposes the 1009 carriers with revenues below \$1,000,000 may be disregarded in discussing the railroad systems of the United States, and attention may be concentrated upon the 136 larger organizations.

²Interstate Commerce Commission, *Annual Report on the Statistics of Railways in the United States, 1938.*

Comparison with Foreign Railroads.—The railway mileage of the principal countries, in the last year for which figures are available, is shown below.³ It may be observed that the mileage of railroads in the United States is almost five times that in Russia, a country which exceeds the United States in area and population, and that it is more than twice that reported by Germany, France, Great Britain, and Italy combined. The size of our railway net is

RAILWAY MILEAGE IN THE UNITED STATES AND IN OTHER PRINCIPAL COUNTRIES

	Railway Mileage	Railway Mileage per 100 Square Miles of Territory	Railway Mileage per 10,000 Inhabitants
United States	151,82.9	8.47	18.79
Russia	51,854	0.65	3.11
Canada	41,717	1.23	41.18
Germany	41,199	19.11	5.53
British India	41,076	3.21	1.56
Australia	17,094	0.91	39.46
Argentina	16,531	1.46	10.79
France	16,417	12.43	6.43
Brazil	10,945	0.64	5.04
Great Britain	10,080	22.55	4 47
Japan	15,254	7.08	1.56
Italy	14,230	16.09	3-3 ¹
Mexico	14,220	1.86	8.59
South African Union	13,213	1.80	13.78

of course due to the great distances to be traversed in this country, as well as to an abundance of capital available for investment and to a farsighted readiness to spend money on improved forms of transportation. It should be observed, however, that the railway mileage per 100 square miles of country served is less in the United States, in spite of the impressive aggregate, than in the more thickly settled countries of Great Britain, Germany, and France. On the other hand, in relation to population, this country is better supplied than Europe, taking its place, on the whole, with certain other countries of large area and moderate density of population such as Australia, Canada, the South African Union, and the Argentine Republic.

In 1938 the railroads of the United States carried 454,507,500 passengers and 819,732,867 tons of revenue freight. Passenger- and ton-mileage figures were, respectively, 21,656,917,789 and 291,866,410,657. This is a smaller number of passengers than was handled during the same period by motor vehicles, but a considerably greater volume of freight. Indeed, the disproportion in the freight business is so great that it is often permissible to consider freight move-

³ *Statesman's Yearbook*, 1939.

merits, apart from terminal handlings, as essentially rail movements, although the activity of other forms of transportation is by no means negligible, even in this field.

Electric Railways.—Electric railways reporting to the Interstate Commerce Commission are separately treated in the Commission's tabulations. They do a comparatively small volume of business, however, and the results of their operations are not published in detail. These companies earned, in 1938, \$17,583,515 from the carriage of freight and \$19,981,364 from the carriage of passengers. If the average revenue per ton-mile on electric railway freight was 3 cents and the average revenue per passenger-mile was 2.5 cents—averages which receive some support from the Federal Coordinator and from the Presidential Committee of Six—then the ton-mileage and the passenger-mileage to be attributed to these agencies for the year 1938 was, respectively, 586,000,000 and 799,000,000.

Interurban, Suburban, and Urban Railways.—The present treatise is not concerned with urban and suburban transportation, and statistics of street and electric railways and of busses in city streets are, accordingly, omitted from the tabulations which are presented near the end of this chapter. It should be observed, however, that in 1938 city and suburban busses carried 3184 million passengers and street and electric railways carried, in 1937, more than 8 billion passengers. It is evident that these agencies perform a special service in the passenger field which is of enormous importance.

Pipe Lines.—In addition to its inland waterways and highways and railroads, the United States possesses a considerable mileage of pipe lines, used for the transportation of crude petroleum and its products. These lines carry a substantial quantity of traffic. In 1938 there were 58 companies which reported to the Interstate Commerce Commission, operating 57,046 miles of trunk lines and 38,873 miles of gathering lines, or a total of 95,919 miles in all. The volume of freight transported was stated in terms of barrels, not tons, but when the conversion is made⁴ it would appear that the pipe lines in 1938 carried the equivalent of 132 million tons and performed a service of approximately 44 million ton-miles.⁵ This was approximately one-eighth of the total tonnage transported by railroads during the same year.

Pipe line companies do not serve the public in the general way that characterizes railroad operations. Most systems are owned by, or are affiliated with, large producing organizations; indeed, over half of the large companies advised the Rayburn Committee of 1933 that they carried no oil except that

⁴On the basis of 310 pounds of crude and 277.2 pounds of gasoline to the barrel.

⁵ The exact figures are as follows:

Article	Barrels Transported	Barrel-miles
Crude oil	793,114,936	163,099,773,000
Refined	65,116,810	13,687,157,000

purchased or produced by members of the group with which they were affiliated. But whether oil is carried for few or for many shippers the volume that moves through pipes has given concern to the railroads because much of it is regarded as diverted from the railroad routes. This question of diversion will be further discussed in Chapter VIII.

Air Routes.—Air service in the United States is still a negligible factor as a carrier of either freight or passengers, although its possibilities are not to be overlooked. In 1938 air lines in the United States transported 3667 tons of express matter and 1,343,427 passengers. Express ton-mileage and passenger-mileage were, respectively, 2,173,706 and 557,719,268. Quantitatively this service is unimportant, as has just been said.⁶

Conclusion.—The accompanying tables bring together the statistics of passenger and freight movements by agencies of inland transport in the United States with which this chapter has been concerned. For convenience, the figures for passengers and for freight will be stated separately.

SUMMARY OF FREIGHT TRAFFIC IN THE UNITED STATES, 1938

Agency	Tons Carried (Millions)	Per Cent	Ton-miles (Millions)	Per Cent
Railroads	82.0	47.7	291,866	66.0
Great Lakes	98	5.7	49,004	11.1
Mississippi River and tributaries	65	3.7	10,977	1.5
Other rivers and canals	213	12.4	6,765	1.5
Pipe lines	132	7.7	44,063	9.9
Intercity trucks	392	22.8	39,210	8.9
Electric railways			586	.1
Air lines			1	.0
Total	1,720	100.0	441,473	100.0

It is evident enough from these figures that more than half of the freight hauling is still done by the railroads and by the Great Lakes carriers, and that the latter owe much of their importance to an unusual average length of haul. Apart from the railroads, the tons handled are divided between trucks, waterways, and pipe lines in the order named; this is not true, however, with respect to ton-mileage, to which waterways and pipe lines contribute much more than do motor vehicles.⁷

⁶ *Aircraft Year Book* 1939. The figures given are for domestic operations, including revenue and non-revenue traffic. Foreign operations by American air lines are excluded.

⁷ The figures in the text which purport to show the aggregate traffic handled by different agencies of transport are of unequal value.

Waterways. Waterway movements are reported by the United States War Department, and whatever estimates the Department figures contain have been subject to the scrutiny of a staff which is well equipped with technical and local information. In some cases, though not in all, statistical information is regularly collected. Text tables omit, however, 11,610,235 passengers

SUMMARY OF PASSENGER TRAFFIC IN THE UNITED STATES, 1938

Agency	Passengers Carried (Millions)	Per Cent	Passenger- miles (Millions)	Per Cent
Private passenger automobiles	55,184	98.5	442,271	92.7
Railroads	455	.8	21,657	4.5
Intercity busses	374	.7	11,694	2.5
Electric railways			799	.2
Airlines	1	.0	558	.1
Total	56,114	100.0	476,979	100.0

It is hoped that the enumeration in the present chapter will give the reader some initial conception of the size and relative importance of the principal transportation agencies in daily use in the United States. Few people visualize the extent of modern transportation facilities, and probably still fewer have their attention called to facilities which are not related to rail transportation. The railroad is and will long be our principal inland carrier of freight, but it is no longer our chief carrier of passengers, and its work is supplemented

carried on the Great Lakes in 1938, 24,189,335 passengers carried on rivers and canals, including the Mississippi, and 138,477,760 tons of coastwise freight. This is partly because no ton- or passenger-mileage statistics are available for this traffic and partly, in the case of passenger business, because the figures cover a very large amount of ferry and excursion traffic which, in the main, should be treated by itself.

Railroads, pipe lines, and air lines. Statistics relating to these carriers are official, and should be exact.

Electric railways and intercity busses. The Interstate Commerce Commission does not publish tonnage or passenger figures for electric railways, but it does publish earnings. *Bus Transportation*, a trade paper, reports passenger revenues and the number of passengers carried by intercity busses. Estimates of passenger-mileage in both of these cases rest upon assumed average receipts per passenger-mile, and the estimate of ton-mileage accomplished by electric railways likewise rests upon an assumed average rate per ton per mile. Such averages, divided into passenger or freight earnings yield quotients which represent traffic. The difficulty lies in the fact that the averages are guessed at, so that the statistics are bound to be inexact.

Intercity trucks. Figures for intercity trucks are built up from an estimate made by the Federal Coordinator of Transportation in 1932; the estimate is brought to date by considering changes in truck registration. The Coordinator's estimate seems to be the best starting point which we possess but, of course, it is a judgment and not a count. Moreover, it may not be true that truck mileage goes up and down in the same proportion as truck registration.

Private passenger automobiles. The totals presented in the text are based upon: (1) figures of registration; (2) an average of 2.2 passengers per car, drawn from examination of a number of traffic surveys; and (3) an assumed annual mileage of 8000 miles per car per year. Of these foundations, the first is official, and the second and third are more or less informed guesses. Fortunately, the number of passengers carried and the passenger-mileage performed by private automobiles is so great that the addition or subtraction of a few billion units will not alter any general conclusion which we are likely to wish to draw.

In general, it may be observed that the text tables probably understate the contribution which agencies other than the railroad make to inland transport, because some inland waterway movements are omitted, and no account is taken of transportation which is performed entirely within city limits.

even in the movement of freight by other kinds of machinery of **no mean importance.**

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CHAPTER II

THE EFFECTS OF IMPROVED TRANSPORTATION UPON INDUSTRIAL SOCIETY



Before proceeding to discuss the history and characteristics and the problems associated with the different types of transport we may, perhaps, pause to consider the general significance of the transportation systems which most modern countries in the world possess. What services do these systems perform? Wherein is a country benefited by efficient transport and wherein does it suffer when it lacks good facilities to carry persons and property from place to place?

Nature of Advantages Received.—If we ask ourselves what contribution the new mechanical devices for transport have made to modern life, the answer must be that they have rendered movements more regular and calculable, safer, more rapid, and cheaper. It is hardly necessary to produce evidence to support these statements if we recall that in England and France as late as the early nineteenth century the chief reliance for passenger travel was the horse and the stagecoach, and for freight the pack train and the wagon. Railroads move freight today at speeds of approximately 17 miles per hour, at a cost of little over 1 cent per ton per mile, and subject to damage which is less than 1 per cent of the freight rate. The speed of early nineteenth-century wagons probably did not exceed 3 or 4 miles per hour, costs ranged from 6½ cents to over 20 cents per ton-mile, and damages were certainly greater than in railroad transportation of the present day, though by how much it is impossible to say. The difference between pre-railroad and modern passenger movements is less, but it is still great.

Conditions Which Make Improvements in Transportation Possible.—Doubtless it should be pointed out that modern transportation methods are not the result of a revolution caused by a few mechanical inventions, as is sometimes assumed, but that they are also the outcome of long, slow evolution. The breaking down of political barriers, the shifting of power from military, ecclesiastical, and land-holding groups to classes interested in trade and industry, the diffusion of knowledge through better education and through the use of the printing press, the development of industrial processes not directly connected with transportation—all these and many other influences

interacted with advances in transportation technique to encourage the movement of passengers and of freight.

The following observations may be made, if we compare modern methods of land movement with those in use in England and upon the continent of Europe as late as the eighteenth century:

Effects of Improvements in the Speed of Transportation.—Generally speaking, better transportation has produced both relative and absolute effects. Thus the construction of railroads has extended to points away from the water lines the advantages formerly enjoyed by communities situated upon the coast, or on interior rivers and canals. This may be regarded as a relative change, altering the comparative position of different groups of people, while, on the other hand, the fact that the railroad has increased the productivity of labor, both along navigable streams and at interior points, may be regarded as an absolute change, affecting all workers, wherever situated and in whatever work engaged. Let us consider in some detail effects which have been brought about by the important advance in industrial technique connected with the name of railroad.

Among the most significant results of improved transportation have been those caused by the reduction in time in which transportation service has come to be performed.

Discussing the advantages of greater speed of carriage, an early writer said:

The extent of soil by which great cities are supplied with perishable articles of food is necessarily limited by the speed of transport. A ring of country immediately about a great capital, is occupied by market-gardens and other establishments for supplying the vast population collected in the city with their commodities. The width of this ring will be determined by the speed with which the articles in question can be transported. It cannot exceed such a breadth as will enable the products raised at its extreme limit to reach the center in such a time as may be compatible with their fitness for use.

It is evident that any improvement in transport which will double its speed will double the radius of this circle; an improvement which will treble its speed will increase the same radius in a threefold proportion. Now, as the actual area or quantity of soil included within such a radius is augmented, not in the simple ratio of the radius itself, but in the proportion of its square, it follows that a double speed will give a fourfold area of supply, a triple speed a ninefold area of supply, and so on. How great the advantages, therefore, are, which in this case attend increased speed, are abundantly apparent.¹

This early discussion points to one aspect of the advantages of greater speed in the movement of goods. There are, however, other and additional considerations. Thus, with respect to freight, more rapid movement reduces the volume of goods in transit, thus diminishing stocks and increasing the.

rate of turnover of articles in the course of production and sale. It also enables the producer to gauge his market more accurately by shortening the process of production from the growing or manufacture of the goods produced for sale to the final disposition of the produce, as well as by lessening the period between shipments of goods and their final sale.

With respect to passengers, greater speed brings greater comfort by shortening the period during which travelers are confined in the cramped quarters of a carriage or of a train. While many people travel for pleasure, most displacements are means to an end, not ends in themselves, so that the more quickly they are made the larger is the convenience to the public. Speed of passenger travel has its business aspects, in that modern systems of distribution are based on the assumption that the manufacturer will be able to keep in touch with his market over a wide area through visits by himself or his representatives. The commercial traveler is a product of the railway. Rapid transit tends to equalize the supply of labor in different places, lessening unemployment and standardizing wages. It has also its social aspects, for not only does increased speed of travel encourage freer movement of people, lessening differences and breaking down prejudices, but modern facilities for the carriage of passengers tend to diffuse population, to encourage the growth of suburban communities, and to do something in this way to offset the tendency to concentration which has been strengthened by the possibility of shipping goods at high speed and low cost.

Effects of Reduction in the Cost of Transporting Passengers.—In addition to the improvement in speed, we have already said that modern transportation has brought about a considerable decrease in the cost of transportation. This decrease has had the following effects:

Where the transportation of passengers is concerned, it has been the general experience that a decline in the fare charged has stimulated movements, both by encouraging habitual travelers to travel more and by bringing the cost of travel within the reach of more moderate incomes. This effect is most clear when pleasure travel is concerned, for the extent of commercial traveling is dependent upon complicated conditions relating to the sale of goods or of ultimate services, which had best be omitted in the present discussion. We indicate the tendency of travel to expand as fares decrease by saying that the demand for passenger transportation is elastic. To this statement the important qualification should be made that a reduction in fares will have little effect upon the volume of travel when such travel involves the passenger in many incidental expenses not affected by the change in the passenger tariffs which is supposed to have taken place. Thus, on the whole, reduction on long hauls involving at least temporary changes of residence for the passenger, together with heavy accessory expenses, will have less effect in increasing traffic than will a corresponding decline in fares over short distances.

To the extent that passenger movement constitutes a social service desired for its own sake, a reduction in its cost which brings it within the reach of more people, or which makes it possible for those who have traveled a little to travel more, is an important direct advantage of new transportation methods.

To the extent that passenger travel constitutes an element in the process of production of goods, a reduction in the expense of such travel tends to lower the prices at which these goods can be sold.

Effects of Reductions in the Cost of Transporting Goods.—Apart from the indirect effect produced by the lowering of passenger fares, modern means of transportation have tended to reduce the cost of goods to the consumer in two distinct ways. In the first place, a fall in the cost of movement enables consumers to enjoy the benefit of goods which are not to be had in their own immediate neighborhood, at a lessened expenditure of time and labor. There are articles which a particular district may never be able to produce, perhaps because of lack of raw material, perhaps because of lack of power, or even because of lack of skill. If such articles are bulky or heavy in proportion to their value, the cost of procuring them from other communities may under primitive conditions of transportation be prohibitive. Thus the products of agriculture were long consumed on the spot where they were produced, except where water carriage was available, because the cost of movement by land was exorbitantly high.

A second reason why a lowering of costs of transportation may frequently reduce price is that it will permit the division of labor. This is perhaps the most important result which has followed upon the improvement of our transportation machine. People not only move farther and more frequently today than they did one hundred years ago, but they send the goods which they produce greater distances, and they bring the goods which they consume from more distant points than they were accustomed to in the past, if we except from this statement certain commodities of high value which were imported by way of water routes during the Middle Ages. One result of this has been a great shifting of centers of production, with a tendency for production to occur where there exist local advantages of raw materials, labor, and power, as well as where there is only the advantage of nearness to a market.²

We have developed in modern times an extreme specialization, both in industries and in occupations. On the whole, this specialization lowers costs of production because it allows individuals or cities or even states to concentrate upon the production of a few things, and to produce these things

²Emil Sax, *Die Verkehrsmittel in Volks- und Staatswirtschaft*, Holder, Wien, 1878, pp. 27-30. Sax insists that the influence of fuel and raw materials on the location of industry becomes less, year by year, because improvements in transportation count more heavily when it comes to the carriage of articles of this sort. Under modern conditions the actual location of production is often determined by very delicate adjustments of railroad rates.

in large quantities, with great economy in labor and keen competition for distribution over wide areas. Indeed, German writers have pointed out that it is only by virtue of international specialization, particularly with respect to food products, that so-called "industrial states" have been able to devote themselves to a manufacturing industry without concern for their own dwindling output of raw materials and food.

Division of labor leads to a development of skill and to the building up of an equipment for production which would not be possible under a system of localized supply, involving usually a considerable increase, it may be said in passing, in the size of the average producing establishment. If the production which results from the division of labor is monopolized, the advantages of the newer method will go in the main to the producer; but if it is not monopolized, it will be the consumer who will gain by a lowering of the price for commodities for which he will have to pay.

Modern Methods Have Enlarged the Output of Goods Instead of Increasing the Leisure of Workers.—It is to be observed that a reduction in the cost of carriage or an increase in the division of labor would be significant even though no increase in ultimate output should take place. In the absence of an increase in output, more effective means of production would result in an increase in leisure for the working population. People would be able to maintain their customary standard of living at the expense of fewer hours of daily work, and would have time free for rest, recreation, or for forms of activity usually classed as unproductive. Probably modern methods have occasioned some relief of this sort.

Yet the characteristic result of modern technique has been not an increase in leisure but a rise in the standard of living and a greater consumption of goods. Producers have tended to maintain their former level of effort, and have found themselves, accordingly, in possession of larger quantities of goods, which they have sold in the market place to provide for themselves a more ample supply of those commodities which they have themselves desired to consume. Prices have declined, of course, in the face of such a policy, both in terms of goods obtainable for a day of human labor, and also in terms of money value; but since the decline in price has stimulated consumption, producers have still found their own net purchasing power increased, while the supply of commodities at the disposal of the general public has been notably enlarged.

Competition and Prices.—Another way in which lowered costs of transportation may reduce prices, apart from the encouragement they offer to the division of labor, is through the increased competition which arises as marketing areas become broader. We shall have excellent examples of this in later chapters of this book which deal with railroad rates and Service. The wider the market, the more generally does competition exist, and the less

can any producer depend upon local fortuitous advantages of either production or distribution. Service must be met with service, and price with price. Of course, better transportation in individual cases may cause some increases in price as well as some decreases, but even here the more uniform standard of charges remains an advantage in itself.

Experience shows that prices of commodities are most likely to be reduced by changes in the rates charged for their transportation, first, when the commodity is of low value and the average haul is long, so that the rate constitutes a material portion of the selling price of the goods; second, when the commodity in question is produced under conditions of free competition; third, when the demand for the article is inelastic; and lastly, when the costs of production, per unit other than transportation grow less as the supply increases. Extreme examples of commodities produced under these conditions are steel, textiles, and rough lumber.

On the other hand, if the supply of any commodity is limited, or even if the supply is of a character which cannot be rapidly increased, the effect of reduction in the cost of transportation is more likely to be an increase in the net revenue secured by the producer, not a decrease in the price charged to the consumer. This is true, at least over short periods of time, for grain, coal, and monopolized articles of all descriptions. In France, between 1840 and 1872, the price of oysters is said to have multiplied ninefold, because the construction of railroads opened new markets for the seacoast towns, while the supply of these bivalves only slowly increased; this phenomenon may serve as an example of the principle referred to.³

It is, however, true that noteworthy reductions in price may occur even when conditions appear at first sight to be likely to lead to increased producers' profit, as has happened in the production of coal in the United States, or in the case of agricultural supplies which are placed on the market under conditions of increasing cost, and yet have been powerfully affected with respect to price by changes in the art of transportation. In these instances the direct saving in costs of production through the decline in the railroad charge has been sufficient to lower the market price, in spite of contrary influences relating to the production of the article itself.

Equalization of the Supply of Goods.—Still another advantage growing out of our modern transportation system relates to the stabilization of the supply of consumable commodities, particularly of products of the soil. The output of articles of this type depends not only upon acreage planted and available labor supply, but also upon conditions of temperature, rainfall, and insect pests, which are only slightly within human control. It is thus more variable than the supply of manufactured goods is likely to be, and it is not inconceivable that a persistent drought may cause an entire crop failure over a con-

³ Alfred de Foville, *La transformation des moyens de transports et ses conséquences économiques et sociales*, Guillaumin, Paris, 1880, p. 228.

siderable area. Since the products of agriculture form the basis of our food supply, the seriousness of such a condition is apparent.

Fortunately, it rarely happens that a failure of crops is world wide; and transportation was able to rid the world of a recurrent scourge, famine, when it enabled consumers in less favored localities to draw quickly and cheaply upon the temporarily more abundant resources of their neighbors. Moreover, even when famine has not threatened, transportation has equalized prices in different areas by the movements which it has brought about.

Data brought together by the United States Department of Agriculture in 1911 illustrate the wide range of sources of supply of the most ordinary articles of current consumption, and show, by inference, how slight the effect of failure of any one of these sources is likely to be. To quote the report:

For the season of 1910, the quotations of Florida tomatoes appeared in the produce reports of Chicago, New York, and Kansas City, early in the winter and continued to about the middle of June, when Texas tomatoes began to appear. These were followed, in the Chicago market, by shipments from Mississippi, and about the first week of July by the produce of more northern fields. Among the states which contributed tomatoes to the Chicago trade in 1910, besides Florida, Mississippi, and Texas, were California, Tennessee, Missouri, and, of course, Illinois. New York's supply also came from a large number of states, among which were California, Florida, Texas, Mississippi, Tennessee, Virginia, North Carolina, South Carolina, New Jersey, Maryland, and Delaware, while some were imported from Cuba.

The supplies of peaches, strawberries, cantaloupes, string beans, and other products were also drawn from a wide range of territory. In 1910 there were at the same time quoted in New York City strawberries from Florida, Louisiana, Virginia, Maryland, and the Carolinas, and while some of these Southern berries were still in the market, supplies came in from New Jersey and New York. The cantaloupes used in New York, in the latter part of June and the first of July, 1910, were coming from Florida, Georgia, and the Carolinas, and also from Arizona and the Imperial Valley of California. A few weeks later melons from Maryland, Delaware, Virginia, and New Jersey met, on the same market, those from New Mexico, Nevada, and Colorado.

In April and May of the same year the asparagus sold in New York City was grown, some near the Pacific coast and some in the regions along the Atlantic. Peaches from Texas and other Western states were included with those from Eastern states in the receipts at New York.⁴

It is evident enough that the range of sources of supply referred to in the report just quoted not only provided the cities of Chicago and New York with seasonable commodities over a longer season than these cities could have counted upon had they been forced to rely upon near-by producers, but also equalized prices by limiting the effects on price of a chance falling

⁴ United States Department of Agriculture, *Yearbook*, 1911, "Reduction of Waste in Marketing," by Frank Andrews.

off in the output of any single producing region. The quotation refers to conditions in 1910; but a similar statement might be made in 1941.

Attempts to Measure the Benefits Derived from Efficient Transportation.—

From time to time attempts are made to measure the benefits which improvements in transport facilities bring to the communities in which they are installed. This is not quite the same thing as an effort to calculate the advantages of a transportation system, for such attempts generally assume the presence of some kind of more or less primitive transport, the value of which is ignored, and seek only to estimate the gains which may be expected from improvement of this plant. In spite of this weakness, which tends toward understatement, and in spite of the contrary influence of a conscious purpose in most instances to maximize the gains to be expected, calculations of benefit from transport possess considerable interest.

Benefits Measured by Gross Earnings.—There is one type of estimate that is free from the first objection mentioned in the preceding paragraph. This estimate is based upon the theory that the benefits from a transport system are defined by the gross earnings of the agencies which undertake the task of carriage. This conclusion follows from the assumption that the sum which purchasers of a service are willing to pay measures the satisfaction which they expect to secure from the service they are to enjoy. The fundamental defect of the assumption is, however, that while its gross earnings may indicate the minimum utility which we may impute to a business, such a yardstick will not measure total utility. Most users of a transport system get more than the equivalent of the rate or fare out of the services which they are able to buy, and this is true even when transportation is sold in the open market without the restraining influence of government control.

Benefits Measured by Differences in Cost.—When we consider the reduction in cost of transport attributable to the introduction of an improved plant, we pass from the attempt to calculate the gain derived from a transport system as a whole to an attempt to measure the importance attributable to an improvement in that system. Most estimates are of this sort, probably because conclusions as to public policy can be based upon the information which they yield. Thus a government seldom needs to inquire into the total significance of an existing facility, but it may often have a lively interest in the probable results of an improvement in the apparatus for transport with which a community may happen, at a given time, to be equipped.

The usual first step in ascertaining the gain from an improvement is to determine the consequent reduction in the cost of transporting a selected unit, say a ton, a stated distance, say a mile. The next step is to multiply the unit saving so arrived at by a number representing the volume of service to be performed in a given period of time. The product may serve as an expression of the total saving which the improvement in transport will produce.

At this point two possibilities present themselves. In selecting the multi-

plier by which the unit saving is to be increased reference will doubtless be made to experience. But experience may suggest two sets of figures. We may, that is to say, multiply the unit saving by the ton-mileage performed by the transport system before the improvement is effected, or we may multiply by the actual or expected ton-mileage after the existing transport system has been transformed. The first of these alternatives makes no allowance for the probable increase in business that the improvement will produce, and for this reason, as well as because of the usual desire to produce as large an estimate of gain as possible, it has rarely, if ever, been employed. The second, on the other hand, is very commonly resorted to. Its defect is that it exaggerates the social importance of better transport, instead of minimizing it as in the previous instance. This is because it neglects the fact that patrons who ship at lower rates made possible by new and lower costs do not gain to an extent measured by the difference between the old conditions and the new, but only to a lesser extent, varying in individual cases.⁵

⁵ The following simple calculation may illustrate the principle referred to in the text. Suppose a bridge has been constructed at such expense that a toll of \$1.00 per ton is required to provide interest and funds for amortization. Over the bridge pass 1000 tons daily at the dollar rate. Suppose, now, that a new bridge is built beside the first, of better design and material, which makes lower costs possible. An analysis of the effects of a reduction in tolls from \$1.00 to 50 cents which, for the sake of clearness, is divided into steps, yields the following results:

Rate	Tonnage	Increase in Tonnage	Saving to the Public					
			On Original 10,000 Tons	On New Increments				
				A	B	C	D	E
\$1.00	10,000							
.90	11,000	A—1,000	\$1,000	\$ 50.				
.80	14,000	B—3,000	1,000	100	\$ 150			
.70	18,000	C—4,000	1,000	100	300	\$ 200		
.60	23,000	D—5,000	1,000	100	300	400	\$250	
.50	30,000	E—7,000	1,000	100	300	400	500	\$350
Totals			\$5,000	\$450	\$1,050	\$1,000	\$750	\$350
Grand total			\$8,600					

According to the figures given the result of operations over the new bridge is a decrease in toll from \$1.00 to 50 cents per ton, an increase in tonnage from 10,000 tons to 30,000 tons, and a saving in social cost of \$8,600 daily, from which should be deducted enough to amortize the investment in the old bridge which has been displaced. In explanation of the calculation it may be pointed out that Column III in the table sets forth the increase in tonnage incited by each decrease in rate. The value of the service to the shippers of the original 10,000 tons may be assumed to be at least \$1.00 per ton, as movement actually occurred at this rate, so that on this tonnage each successive reduction of 10 cents per ton provides a gain of \$1000. The next additional 1000 tons did not move at a rate of \$1.00, but first offered itself at a rate of 90 cents—the value of service to the shippers of these goods may be taken at the midway point between \$1.00 and 90 cents, or 95 cents and the saving to them of the first reduction will be 5 cents, or the difference between 95 cents and 90 cents. This particular group of shippers will, however, benefit to the full extent from all subsequent, additional, reductions. In the same way it is possible to indicate the difference between the actual payments made by the shippers of each

Benefits Measured by Total Expenditure for Transport.—Finally, the advantages of improved transport are sometimes measured by comparing the total community outlay for transportation after the change with the total outlay before an improvement has taken place. It is here assumed that if, and only if, the outlay has been reduced a gain can be said to have occurred, and that the amount of the reduction is also the amount of the gain. This was a method used by J. B. Say, a French economist in the nineteenth century. Such a procedure leads to results which are as inaccurate as those criticized in the preceding paragraph. For better facilities for carriage are important because of their indirect effect upon processes of production as well as because of their direct effect upon transport. The use of new sources of supply of raw material, better access to labor, and the advantages of concentration and specialization are to be desired even when the expenditures for transportation are concomitantly increased. Indeed, it seems quite likely that modern industrial societies usually pay more in the aggregate for transport than do primitive ones, but in spite of this fact, or rather because of this fact, better transportation is significant because by its operation community costs of production are notably reduced.

Government Support Based upon the Theory of Social Benefit.—The preceding comments indicate that the benefits of better transport, while undeniably great, are difficult to measure in exact terms. On most occasions precision is unimportant; but it may be well to bear the obvious pitfalls in mind when proposals are made to install transport machinery that is not likely to pay its way and government subsidies are advocated because of the indirect savings which the new facilities will produce. It is always possible in such a case that the argument for government support is sound. On the other hand, there are always three difficulties which must be faced. In the first place, as we have just seen, the calculation of the indirect benefits which will follow new transport is difficult to make. In the second place, the building of better routes is not the only way of advancing the national welfare, nor necessarily the best when a country is already reasonably well supplied. And finally, it should not be forgotten that state resources are derived from individual contributions. A government, in collecting taxes, reduces the ability of the taxpayer to develop capital equipment from which social benefits also may be obtained, and the direct and indirect gains from state aid to or state construction of transport must be balanced against the direct and indirect losses which the restrictions of private enterprise entail.

Political and Social Effects.—This is a treatise upon the economics of transportation, and the case for the railroad and for other forms of transportation by the use of mechanical power might perhaps be closed at this point. It is an

other category, the sum of all savings serving as a measure of the total social gain from the improvement. This total is \$8600, not \$15,000, as it would be if the maximum gain of 50 cents were applied to the total tonnage of 30,000 moving after the improvement had been installed*.

adequate statement when we observe, as we have done in the foregoing pages, that modern means of transportation have increased the supply of goods, have lowered and equalized prices, and have rendered a direct service in the quick, inexpensive, and comfortable transportation of passengers which may yield as real a pleasure to those who take advantage of it as that derived from the contemplation of art or the consumption of, much-prized material goods.

We should not be unmindful, however, even in a discussion of this sort, that quick, cheap, and reliable transportation has political and cultural effects as well as economic ones. No country the size of the United States, to take this example alone, could be held together were it not for the ease of movement within its boundaries. Transportation makes for homogeneity of type, for the sympathy which comes from knowledge, and for the ease of cooperative action in non-economic as well as in economic matters which comes from uniformity in customs, a common point of view, and a likeness in environment. We talk the same language, we read the same books, we wear, in general, the same sort of clothes, we eat similar foods, and in spite of individual differences we achieve a unity of spirit which, while doubtless the result of many factors, is to an important degree a consequence of modern transportation. If we add to this the military power which results from transportation and which helps to render us secure, the importance of modern transportation machinery is made still more manifest.

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PART II

SURVEY OF AGENCIES



CHAPTER III

INLAND WATERWAYS



Let us now return to the elements in a modern transportation system which we enumerated in Chapter I, and let us carry our discussion of inland waterway, railroad, highway, urban, and air transport some steps farther than a mere list and a comparison of size. We may now have some little history in each case, and some additional description and analysis, although there will still remain problems, when we shall have completed this chapter and the four which follow, that will require consideration in later pages of this treatise. We shall begin with the subject of inland waterways for reasons of convenience and because of the early importance which this type of facility assumed.

General Characteristics of Waterway Transportation.—The essential advantage of the waterway from the point of view of transport is that it offers less resistance to traction at moderate speeds than does the road. Natural waterways, moreover, such as rivers and lakes, are navigable to some extent without preliminary expenditure of capital and labor. Communities which, by choice or accident, locate near such water routes are accordingly likely at an early stage to develop more or less elaborate systems of transportation which accelerate their growth and increase their economic strength.

The disadvantages of water routes are, however, no less obvious than their advantages. Some of these drawbacks are associated with climatic conditions. Water freezes in many latitudes at certain seasons of the year; the flow of streams varies, also, even when temperature is moderate, so that constant use of natural routes cannot be guaranteed because of drought or flood. Quite as significant are several other facts. Rivers, and to a lesser degree lakes, may be obstructed by bars, falls, or other obstacles, normal depth may be sufficient for small craft but insufficient for the larger boats required for economical handling of passengers and freight, and last but not least, water routes may not connect the points between which people and goods must move, or may connect them only by long detours. The history of inland waterway development is the story of attempts to minimize the disadvantages of water transport by canalization, improvement, and regulation. The limit of any develop-

ment is reached when the necessary expenditure for control becomes so great that it offsets the advantages which water carriage appears, at first, to present.

Inland Waterways of the United States.—We have already seen that the United States possesses an extensive system of inland waterways. These include segments which differ greatly from each other with respect to depth and freight-carrying capacity. Of the 27,200 miles of navigable waterways in the continental system in 1936, exclusive of the intracoastal route and the Great Lakes, 9800 miles had a depth of less than 4 feet, 4700 miles had a depth of 4 but less than 6 feet, and 12,700 miles had a depth of 6 feet or over.¹

Eastern and Middle Western Canals.—The first canal construction in the United States consisted of short channels around the falls of rivers. Such was the canal on the James River in Virginia, between Richmond and Westham, authorized in 1785. Such, also, was the canal on the Merrimac, near Pawtucket Falls, Massachusetts, opened in 1797,² and that on the Ohio between Louisville and Shippingport, Kentucky, completed in 1830.³ The canals around the falls of the St. Marys River between Lakes Superior and Huron, first opened in 1855, and those around the falls of the Niagara River, between Lakes Erie and Ontario, first opened in 1829, were enterprises of the same type. Canals of this description are of the most obvious utility and offer an excellent prospect of quick financial return.

Connection of Adjacent Natural Waterways.—Next in order to short detours around obstructions in navigable streams come projects for the connection of adjacent natural waterways. Canals for this purpose are usually longer and more expensive than projects on a single stream, although they too, when properly planned, are very useful. Illustrations of this type of improvement in the United States are the Middlesex Canal, connecting the Merrimac and Charles rivers in Massachusetts, opened in 1804; the Union Canal, 77 miles long, designed to furnish a channel between the Schuylkill River, near Reading, Pennsylvania, and Middletown, on the Susquehanna, completed in 1827; and the Chesapeake and Delaware Canal, connecting the waters of Chesapeake and Delaware bays, completed in 1830.⁴

Linking of River Systems.—Still a third type of canal is that which seeks to join two great systems of waterways, as, for example, the Great Lakes with the Mississippi River or the American rivers emptying into the Atlantic Ocean with the Great Lakes or with the Mississippi River and its tributaries. Gallatin's report of 1808 urged, for instance, that a canal be built connecting

¹ These figures are approximate only. The depth of streams varies at different seasons, and apart from this the official figures do not always give the elaborate detail which exact distribution of mileage would require.

² J. L. Ringwalt, *Development of Transportation Systems in the United States*, Philadelphia, 1888, p. 41.

³ F. H. Dixon, *A Traffic History of the Mississippi River System*, Government Printing Office, Washington, 1909, p. 18.

⁴ B. H. Meyer, *History of Transportation in the United States before 1860*, Carnegie Institution of Washington, Washington, 1917, chaps. v, vii.

the Mohawk River in New York with Lake Ontario, which would have provided a continuous waterway between the Great Lakes and the Hudson River;⁵ and the later Windom Committee Report of 1872, rendered like Gallatin's report to the United States Senate, not only indorsed the project for a water connection between the Hudson and Lake Ontario, but proposed: (1) a connection by canal or by a freight railway from the Ohio or Kanawha River through West Virginia to tidewater in Virginia; and (2) a communication by canal or freight railway from some convenient point on the Tennessee River in Alabama or Tennessee by the shortest and most practicable route to the Atlantic Ocean.⁶

The reason why so little was accomplished during the early decades of the nineteenth century in the way of waterway connection between the Atlantic seaboard and the Mississippi Valley was that the Appalachian Mountains lay athwart all routes except one, and that the cost of lock construction over the mountains was prohibitive. The result was that except in New York State the most ambitious projects stopped at the mountains on either side, leaving the intermediate transit to be accomplished by road or by rail.

Pennsylvania State Works.—Among the proposals, nevertheless, which had as an important purpose the improvement of transportation facilities between the Atlantic coast and the interior, at least passing mention should be made of three.

The Pennsylvania State Works were authorized by act of the state legislature of Pennsylvania in February, 1826, and were opened in March, 1834. They were designed to afford a connection between the city of Philadelphia and the West comparable with that which New York enjoyed by use of the Hudson River and the Erie Canal. As finally constructed, the Works were composed of four sections:

1. The Philadelphia and Columbia Railroad. This line commenced at the intersection of Vine and Broad Streets, Philadelphia, and terminated at Columbia on the Susquehanna, a distance of 81.6 miles.

2. The eastern and Juniata divisions of the Pennsylvania Canal, extending from Columbia to Hollidaysburg, a distance of 172 miles.

3. The Allegheny Portage Railroad. This railroad began at Hollidaysburg, rose 1398.71 feet in 10.1 miles by means of inclined planes, crossed the summit of the mountains, and then, by the use of inclined planes upon the western side, descended to Johnstown, Pennsylvania. The total distance was 36.69 miles.

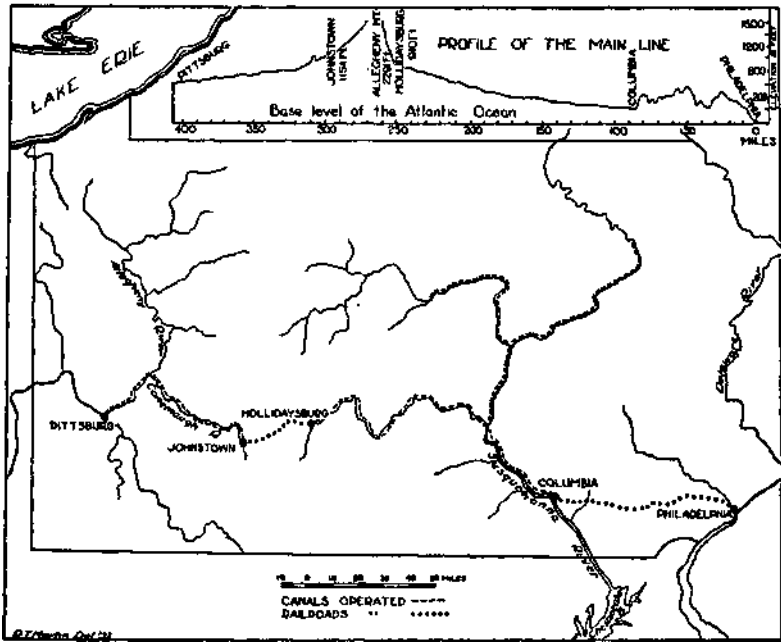
4. The western division of the Pennsylvania Canal from Johnstown through Pittsburgh to the Monongahela River, a distance of 104 miles.⁷

⁵ *Ibid.*, pp. 135-136.

⁶ *Report of the Inland Waterways Commission*, 1908, p. 587.

⁷ A. L. Bishop, *State Works of Pennsylvania*, Tuttle, Morehouse & Taylor, New Haven, Conn., 1907.

The entire distance between Philadelphia and Pittsburgh by the main line was 394.54 miles. The canals were 4 feet deep, 28 feet wide at the bottom, and 40 feet wide at the water line. The locks were 90 feet long and from 15 to 17 feet wide. The Pennsylvania State Works have attracted rather more attention from historians than they deserve, probably because of the ambitious nature of the project and its complete failure as a competitor to



PENNSYLVANIA STATE WORKS⁸

the railroad, and also because the Works affords useful evidence of the interest of seaboard cities in trans-Appalachian trade at the time when they were built. Of more permanent importance than this Philadelphia experiment were two other undertakings, one connected with the Potomac at Georgetown near Washington, D. C., and the other with the Hudson at Albany.

Chesapeake and Ohio Canal Company.—The Potomac Canal Company was organized in 1786 to open the channel of the Potomac to Cumberland and to join Cumberland with the Ohio by means of a road. In 1823, when the Erie Canal was approaching completion, the plans for improvement of the Potomac were replaced by plans for canal connection with the Ohio. The

⁸ A. L. Bishop, *The State Works of Pennsylvania*, Transactions of the Connecticut Academy of Arts and Sciences, Tuttle, Morehouse & Taylor, New Haven, Conn., 1907.

route recommended was to leave the Potomac at its mouth and to **reach** the Ohio at Pittsburgh by way of the Youghiogheny and Monongahela rivers.

This ambitious project was never accomplished, but a canal was built from Georgetown, near Washington, to Cumberland on the Potomac, under the direction of the Chesapeake and Ohio Canal Company. This canal was begun in 1828 and completed to Cumberland in 1851. It was in operation until 1924, mostly for the transportation of coal.⁹

Erie Canal.—There is no question but that the Erie Canal was the most important piece of interior waterway engineering undertaken in the United States before 1855. It ran from Albany on the Hudson to Buffalo on Lake Erie, and therefore falls within the class of improvements designed to connect river systems emptying into the Atlantic with the Great Lakes.

The great natural advantages which the Erie Canal enjoyed from an engineering point of view were, first, that its route lay through the only continuous gap in the Appalachian range between Maine and Georgia, and second, that central New York State, through which the canal passed, was well supplied with lakes and rivers which either could be used directly or could serve as sources of water supply.

These advantages made the construction of the Erie Canal possible. What made it profitable was the fact that it opened on the west upon a splendid natural highway—the Great Lakes—and that it was able to draw to itself the trade of western New York, northwestern Pennsylvania, Ohio, and Indiana, through the lake system and subsidiary canals which were presently built between the Lakes and the Ohio River. Like the Mississippi River, the Erie Canal route joined together two occupationally distinct territories. On the east lay the industrial seaboard, on the west the agricultural states of the northern Mississippi Valley. The two districts were complementary one to the other and exchanged products readily as soon as facilities were built.

Dimensions, Cost, etc.—The formal beginning of the Erie Canal was by an act of the legislature of the state of New York, dated April 15, 1817, authorizing the construction of canals between the Mohawk and Seneca rivers, and between Lake Champlain and the Hudson River. This bill passed the State Assembly by 51 to 40 votes, and the Senate by 18 to 9. It deserves to be recorded that all the representatives of the city of New York in both houses voted against it.

Actual excavation commenced at Rome on July 4, 1817; on October 26, 1825, the first boat passed through from Lake Erie to the Hudson, and in

⁹A. B. Hulbert, *Historic Highways of America*, A. H. Clark, Cleveland, Vol. XIII, 1904; J. L. Ringwalt, *Development of Transportation Systems in the United States*, Philadelphia, 1888, p. 43.

November, 1825, the completion of the canal was celebrated in New York City.¹⁰

The original dimensions were as follows:

Width at surface	40 feet
Width at bottom	28 feet
Depth of water	4 feet
Lockage	675 ½ feet
Number of locks	83
Size of locks	90 x 15 feet
Burden of boats	
Average	70 tons
Maximum	76 tons

The estimated cost of the canal was \$4,926,738, and the actual cost \$7,143,789. Between 1836 and 1862, the Erie Canal was enlarged at a cost of \$44,465,414 to take boats of 240 tons capacity with a draft of 6 feet—the depth of the canal being increased to 7 feet, the width at surface to 70 feet, and the width at bottom to 56 feet.¹¹

In 1903 the people of New York State authorized a further enlargement to a minimum depth of 12 feet, a width at surface of 123 feet, and a width at bottom of 75 feet. This was as deep a channel as the minimum ruling depth upon the Hudson River between Hudson and Waterford (11 feet). Present locks are designed to pass a self-propelled barge of 1500 tons with a towed barge of equal capacity. The estimated cost of the improvement of 1903 was \$101,000,000, but the actual expense to and including 1926 was \$254,099,279. Work was begun in 1905, and the enlarged canal was opened to traffic in 1918.

New York Barge Canal.—The Erie Canal is now known as the New York Barge Canal. Its route is indicated upon the map on page 33.

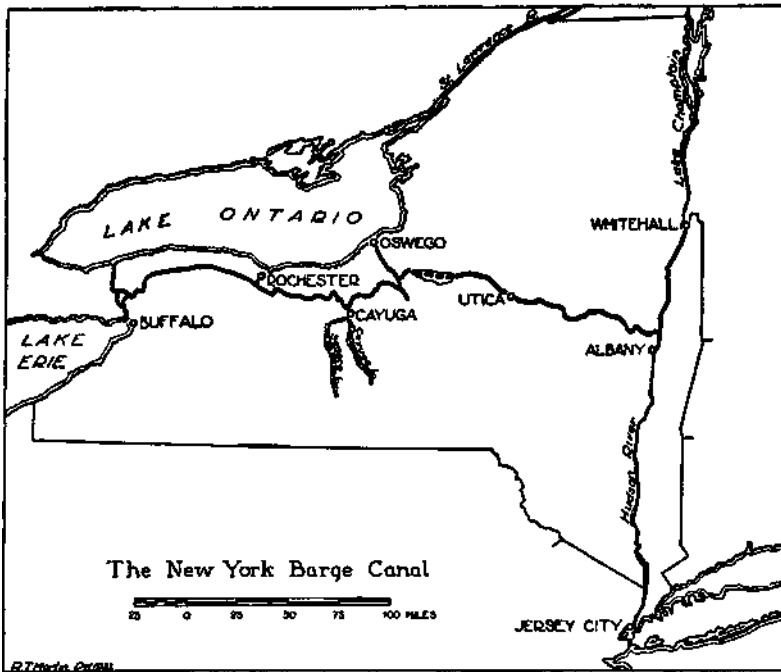
While the present route of the Barge Canal differs in detail from that of the original Erie Canal, examination of the map will show that the differences are of a minor character. Perhaps the most interesting change consists of the abandonment of most of the branches which were originally intended to extend the influence of the canal to the southern borders of New York State. The branch north from Rome, also, though not formally abandoned, is not in a condition to serve any useful purpose.¹²

What is left is a main line from the Hudson River to Lake Erie, with side routes to Oswego on Lake Ontario, to Whitehall on the way to Lake Champlain, and to Lakes Cayuga and Seneca, a total length of approximately 450 miles.

¹⁰ *Report of Inland Waterways Commission*, 1908, p. 215.

¹¹ *Ibid.*, p. 211. Figures cited in the text refer to the main Erie Canal, and not to its various branches.

¹² *Annual Report of the Department of Public Works*, State of New York, p. 20.



THE NEW YORK BARGE CANAL

Business of the Erie Canal.—Under present conditions the Erie or Barge Canal is of secondary importance, but it deserves recognition as a factor in the economic history of the United States at least as late as 1873. In its early years it provided the only inexpensive means for freight carriage between the Atlantic seaboard and the Great Lakes.

McMaster's *History of the United States* describes the traffic on the Erie Canal shortly after its completion, as follows:

Three horses, walking one before the other, dragged the boat four miles an hour, and by dint of relays every eight miles Utica was reached in just twenty-four hours. . . . At the end of the fourth day from Schenectady the jaded traveller reached Buffalo, three hundred and sixty-three miles by canal from Albany. . . . Fifty boats starting westward from Albany day after day was no uncommon sight. During 1826 nineteen thousand boats and rafts passed West Troy on the Erie and Champlain Canals. The new business created by this immense movement of freight cannot be estimated. Before the Champlain Canal was opened there were but twenty vessels on the lake. In 1826 there were two hundred and eighteen bringing timber, staves, shingles, boards, potashes, and giving employment to thousands of men in navigation, shipbuilding, and lumbering. Rochester became a flour-milling centre, and turned out one hundred and fifty thousand barrels a year. Even Ohio felt the impetus, and boats loaded with pig-iron from Madison County were seen in the basin-at Albany. Orders for cherry boards and dressed

lumber were received at Buffalo from Hartford and from dealers in Rhode Island. The warehouses along the canal bank at Buffalo were filled with the products of the East and the West; with wheat, grain, lumber, posts and rails, whiskey, fur and peltry bound for the markets of the Atlantic, and with salt, furniture, and merchandise bound for the West.

To the people of the West the opening of the canal was productive of vast benefit. Said a Columbus newspaper: "It takes thirty days and costs five dollars a hundred pounds to transport goods from Philadelphia to this city; but the same articles may be brought in twenty days from New York by the Hudson and the canal at a cost of two dollars and a half a hundred. Supposing our merchants to import on an average five tons twice a year; this means a saving to each of five hundred and sixty dollars." It meant, indeed, far more: it meant lower prices, more buyers, a wider-spread market, increased comfort for the settlers in the new States, and, what was of equal importance, an impetus to internal improvements which should open up regions into which even the frontiersman would not go.¹³

Connection Between the Great Lakes and the Mississippi River.—A connection through Ohio and Indiana was undertaken after the opening of the Erie Canal for the purpose of extending the benefits of the new waterway to districts south of the Great Lakes. Canals were built with this object between Evansville, Cincinnati, and Toledo (opened 1828), between Portsmouth on the Ohio and Cleveland (opened 1832), and between Erie, Pennsylvania, and the vicinity of Pittsburgh.¹⁴

In 1835 there was shipped from Ohio alone to New York by way of the Erie Canal 86,000 barrels of flour, 98,000 bushels of wheat, 2,500,000 staves, and much miscellaneous freight. In 1846, Buffalo exceeded New Orleans in its receipts of flour and wheat. Lard, bacon, and other western produce were also in part diverted from the southern Mississippi River route. These products, however, still went mostly by river, in contrast to breadstuffs, which tended toward the Lakes.¹⁵

Shipments over the Erie Canal.—In later years the traffic over the Erie Canal has been subject to wide variations.

Business grew steadily till 1872-1873, and then again, after the panic of 1873, up to 1880. But it is evident that after 1880 the falling off in canal business was persistent. These statements relate to absolute tonnage handled. If one considers the relative importance of canal and railroad traffic, the figures are still more striking. The accompanying chart shows the tonnage on the Erie Canal from 1837 to 1939.

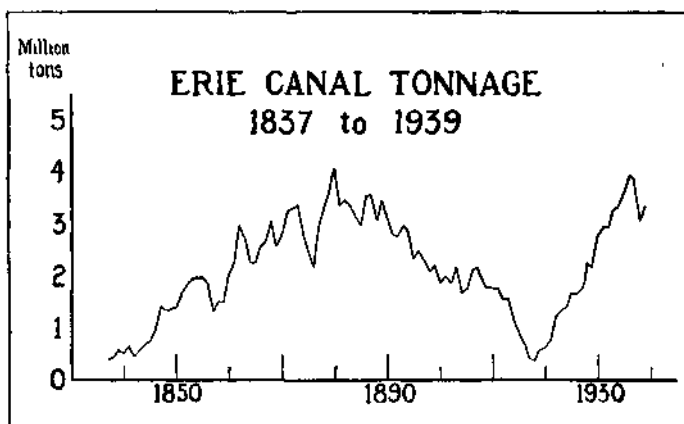
It was the decline in tonnage after 1880, and still more the decrease in the total amount of business done by the Erie Canal as compared with the rail-

¹³ McMaster, *History of the United States*, Vol. V, pp. 134-136.

¹⁴ B. H. Meyer, *History of Transportation in the United States before 1860*, Carnegie Institution of Washington, Washington, 1917, pp. 280 ff.

¹⁵ F. H. Dixon, *A Traffic History of the Mississippi River System*, Government Printing Office, Washington, 1909, p. 25; H. V. Poor, "Sketch of the Rise and Progress of the Internal Improvements and of the Internal Commerce of the United States," *Poor's Manual*, 1881.

roads, which led to the construction of the New York Barge Canal. The effect of the enlargement has been to increase the tonnage moved on the Erie Canal from 667,374 tons in 1918 to 3,643,782 tons in 1939, a large gain, but not one which has raised the canal even to the level of a moderate-sized railway from the point of view of the carriage of freight.¹⁶



Reasons for Decline in Canal Traffic.—The falling off in Erie Canal traffic is to be ascribed in part to shifts in the location of sources of production of articles upon which the canal relied. Thus the decline in iron ore was due to the decreased production of the Lake Champlain mines, the decline in lumber to the cutting of the New York and Michigan forests, and the decrease in coal shipments, at least in part, to the extensive use of bituminous coal, mined in regions not directly accessible for coal shipments.¹⁷ But this is not the whole story, for local traffic was lost to the automobile because the motor truck gave better service than the canal boat, and grain went to the railroad for the same reason. Canal service was slow, seasonal, subject to interruptions by flood or by accident to the locks, and unable to seek out and develop new types of business originating at a distance from its route.

Costs of Transportation over the Barge Canal.—According to the Federal Coordinator of Transportation, costs of canal transport include the expense of maintaining the canal, interest and amortization of the capital invested, and the direct costs of movement. These costs are substantially higher by canal than by rail. Thus in 1936 the total expense of moving grain from Buffalo and Albany was estimated by the Coordinator to be 14.7 mills per ton per

¹⁶ Forty-five per cent of the traffic on the Barge Canal, in 1939, consisted of petroleum, and 38 per cent more was made up of pig iron and billets, other iron and steel, sulphur, grain, chemicals and drugs, sand, stone, and gravel, fertilizers, and sugar. The average distance hauled was 210 miles, to be compared with an average haul of 223 miles upon the New York Central Railroad in 1938.

¹⁷ Fairlie, "New York Canals," *Quarterly Journal of Economics*, February, 1900.

mile by canal and only 8.3 mills by rail. Between New York and **Buffalo the relative figures** were 11.8 mills and 9.6 mills on sugar, 11.6 mills and 6.4 **mills on sulphur**, and 11.6 mills and 6.7 mills on iron and steel. Taking **general merchandise, the weighted cost** for all canal movements was \$4.03 **per ton** in 1936, while the cost of moving the same goods between the same destinations by rail was \$2.57-¹⁸

The estimates which we have just quoted are drawn from the report of an impartial and official observer. The general conclusion that Barge Canal transport is more expensive than rail transport when capital and maintenance expenditures are taken into account is not, moreover, seriously disputed. But partisans of canals do reply that it is no more proper to charge the cost of maintaining the Barge Canal against its users than it would be to include the cost of maintaining highways in computing the cost of moving freight over the public roads. Highways, except toll roads, are, of course, generally free, although there is a respectable body of opinion to the effect that motor trucks should pay for the public facilities which they use. It is also denied that interest on the cost of construction of the Barge Canal is a part of the cost of canal transportation. The argument here resembles that relating to the Mississippi River, except in one respect. Unlike the river, the Erie Canal earned substantial profits at one side; and there is an item, said to amount to \$42,599,717, which should be credited to the capital account of the canal. If interest on this sum were to be taken into account the credit would be still larger, but then interest on canal deficits would also have to be included.¹⁹

New York Ship Canal.—The failure of even the enlarged Erie Canal to attract expected business has led to renewed plans for its improvement. These projects have taken several forms. The most ambitious of them proposes the construction of a 20- or 25-foot waterway from Lake Erie or Lake Ontario to the Hudson River. There are three possible routes discussed: from Oswego on Lake Ontario to the Hudson River, following in general the present New York Barge Canal, but entering the Hudson at Albany via Normans Kill; from Buffalo to the Hudson, in general following the Barge Canal; and from Lake Ontario via the St. Lawrence River, Lake St. Francis, and Lake Champlain to the Hudson. In 1932 a 27-foot channel was opened in the Hudson from New York to Albany, which would give a minimum 25-foot channel from Lake Ontario to New York, or from Lake Erie to New York if the Buffalo route were adopted.

A 25-foot channel would conceivably permit ocean-going vessels with a tonnage in excess of 8000 tons to proceed from New York to the Lakes. It would, therefore, constitute a rival project to the St. Lawrence development

¹⁸ United States, Office of the Federal Coordinator, *Public Aids to Transportation*, Vol. III, p. 90.

¹⁹ *Traffic World*, August 1, 1925, p. 250.

which we shall later discuss. As compared with the **St. Lawrence route**, the line of the canal has the advantage of lying entirely within the territorial limits of the United States. Being farther south, the canal has a longer season of navigation than the St. Lawrence, and it is free from the perils of fog and iceberg which threaten northern transit. The New York Ship Canal could be built without waiting for the consent of another nation. It would land shipments from the Middle West nearer the New York market than would the St. Lawrence River, and this would mean that barge lines upon the canal might be able to secure return westbound cargoes more easily than could local transportation systems plying upon the St. Lawrence. Such are some of the arguments for the construction of a ship canal, except that the last advantage might be secured by a more modest improvement.

Engineer's Report Unfavorable.—The Engineer's Report of 1926 was emphatically of the opinion (1) that of the three routes proposed, the shortest, by way of Oswego, was the best; (2) that if a canal were built it should have a depth of 25 feet, not of 20 feet; and (3) that it was unlikely that even a 25-foot ship canal would save as much as the sum of its interest, maintenance, and operating charges.

These conclusions were based on the premise that a 25-foot canal would cost about \$506,000,000; that interest, sinking fund charges, and maintenance would amount to \$30,360,000; and that the annual probable savings would be \$22,500,000, including reductions in rates upon traffic which continued to move by rail as well as that which was diverted to the new canal. Space does not permit the reproduction of the very careful estimates of business to be expected by a ship canal through New York State, except to say that grain constituted the principal item, with coal, ore, and oil following in the order named.²⁰ It is possible, of course, that this report was unduly pessimistic, but it was the result of careful study by an independent board, and should be given weight.

Proposal to Transfer the Erie Barge Canal to the United States Government.—A plan to transfer the Erie Barge Canal to the federal government was put into concrete form as part of the Rivers and Harbors Bill of 1930. It received the backing of New York interests, and also the support of friends of the project for deepening the Illinois River at government expense, and so managed to pass the House of Representatives.²¹ However, it was opposed

²⁰ Reports from the Chief of Engineers on preliminary examination and survey of deeper waterway from the Great Lakes to the Hudson River suitable for vessels of a draft of 20 or 25 feet, 69th Congress, 1st Session, H.R. Doc. No. 288. See also 69th Congress, 2d Session, H.R. Doc. No. 7.

²¹ The attitude of some legislators with respect to rivers and harbors legislation was clearly expressed in the course of this debate. Mr. Abernethy of North Carolina, speaking to Congressmen who were opposing the improvement of the New York canals, remarked:

"I cannot figure how you gentlemen, who want to get a waterway through the St. Lawrence, can hope to benefit your proposition in the future by fighting this matter.

"When I came to Congress I found out that the only way I could get appropriations for

by legislators who were convinced that it would be a waste of public money to deepen the New York canals, and it was fought also by those who saw in the proposed plan a threat to the alternative St. Lawrence waterway improvement. The result was that the Senate amended the House resolution authorizing the federal government to take over the Erie Canal, stipulating that the acceptance of the New York canals by the United States should be an acceptance as barge canals only, to be operated at their existing depths. As so amended, the resolution passed both houses of Congress.²² The limitations in the resolution proved unacceptable to the state of New York, and the transfer did not take place.²³

Increase in Depth to Fourteen Feet.—While friends of the New York canals could not persuade the federal government to take over the New York

waterways was to cooperate with other sections of the country and to get in the swim and with the crowd that does the business.

"What has happened? I lined up with the Sainted Martin Madden. He got \$3,000,000 for the Illinois River and we got \$6,000,000 for the inland waterway from Beaufort, N.C., to Wilmington, N.C. I lined up with my good friend from Ohio, and I have lined up with all the good fellows in the House for a great system of waterways throughout the country. . . . I am in favor of connecting up the entire country with waterways. I saw the Missouri River group come into the House and put the Missouri River in the river and harbor bill. We voted for it. I have seen the Mississippi River group and I have seen the Pacific Coast group and the Atlantic Coast and Gulf groups come in here and get appropriations for waterways. When New York comes here and wishes to give us something, I say: 'Let us take it and stop this row.' " (*Congressional Record*, 71st Congress, 2d Session, April 25, 1930, p. 7749.)

²² See *Senate Report No. 715*, 71st Congress, 2d Session, and *Congressional Record*, *ibid.*, June 16, 1930, pp. 10,883-10,889.

The resolution in full reads as follows:

"The Secretary of War is authorized and empowered to accept from the State of New York the State-owned canals, known as the Erie and Oswego Canals, and to operate and maintain them at their present depth, at an annual estimated cost of \$2,500,000 as barge canals only, and not as, or with any intention to make them ship channels, or to hinder or delay the improvement of the St. Lawrence Waterway as a seaway from the Great Lakes to the ocean: *Provided*, that such transfer shall be made without cost to the United States, and without liability for damage claims arising out of said canals prior to their acquisition by the United States and shall include all land, easements and completed or uncompleted structures and appurtenances of the said waterways and their service: *And provided further*, that no project for the widening or deepening of these canals or for the elevation of bridges in connection therewith, shall proceed without subsequent authorization of Congress."

²³ The New York State Constitution provides that the legislature shall not lease, sell, abandon, or otherwise dispose of the Erie Canal, the Oswego Canal, the Champlain Canal, the Cayuga and Seneca Canal, or the terminals constructed as part of the barge canal system (Art. XV, Sec. 1). In advocating an amendment of this constitution which would make a transfer possible, Governor Roosevelt wrote the Merchants' Association of New York as follows:

"You will note that the only purpose for the transfer is to permit the United States to construct a national waterway route from the Great Lakes to the Atlantic Ocean. The language of the Rivers and Harbors Act of 1930 certainly would not come within the contemplation of this purpose.

"I think it would be advisable to obtain the constitutional authority for the transfer and then leave it to the good judgment of the Legislature of the State of New York and then the Governor to insist upon terms which adequately protect the State of New York, subject, as they always are, to the force of current public opinion." (*New York Journal of Commerce*, March 20, 1931.)

system without reserves they were able to secure considerable appropriations for enlargement of the eastern portion of the canal system. On September 28, 1933, the Chief of Engineers, United States Army, recommended to Congress the expenditure of \$27,000,000 to improve the Erie Canal from the Hudson River at Waterford to Three Rivers Point, and to improve the Oswego Canal from Three Rivers Point 24 miles northward to Lake Ontario. The New York State Legislature passed a bill known as Chapter 688, Laws of 1934, which authorized the state of New York to receive federal monies for the purpose, and the state of New York and the federal government entered into an agreement covering the character of the proposed development and defining the purposes for which federal money was to be spent. Some of the principal points of this agreement were:

1. The work should be carried out by the state of New York under the general supervision and approval of the Chief Engineer, United States Army, or his authorized agent.
2. No expenditure from federal funds should be made for:
 - a. Operation and maintenance of the canal.
 - b. Improvement of the western section of the Erie Canal, between Three Rivers Point and Tonawanda.
 - c. Easements, rights of way, and spoil areas.
 - d. Damages and claims.
 - e. Permanent structures, including terminals, locks, docks, and buildings.
3. All plans, specifications, and awards of contracts should be approved by representatives of the Chief of Engineers.²⁴

The project proposed to deepen the canal between locks to a depth of 14 feet below normal pool level,²⁵ and to increase the minimum vertical clearance of bridges and other structures to 20 feet at maximum navigable stage. The estimated cost of \$27,000,000 was on the basis of a bottom width of 104 feet in earth sections, of 120 feet in rock cuts, and of 200 feet in river and lake sections. On curves the channel was to be widened 15 per cent.²⁶ The enlargement was expected to increase the capacity of the Erie Canal from 6,800,000 tons annually to 8,800,000 tons, and to decrease operating costs by about 20 per

²⁴ New York State Waterways Association, *27th Annual Report*, 1936, pp. 26 ff.

²⁵ The existing depth was 12 feet.

²⁶ Congressional approval was given in the Rivers and Harbors Act, passed August 30, 1935 (49 Stat. 1028, 1030). It will be observed that federal money was not to be used to increase the depth of water in the canal locks. This was to be done, if necessary, by the state of New York. However, the depth of water in the locks can be less than that in the open canal without restricting navigation. A self-propelled ship can pass over lock sills of the existing 12-foot locks with a draft of 11 feet 6 inches because it will move at a speed of only one mile per hour; but between locks a draft of more than 9 feet 6 inches in a 12-foot channel is dangerous because of suction at the higher speeds. (See *Hearings before the Committee on Rivers and Harbors*, House of Representatives, 73d Congress, 2d Session, on H.R. 7593, 1934, testimony Hedden, p. 38.)

A total of \$21,000,000 was actually allotted to the project.

cent because of increased average loading of ships and barges. On June 30, 1937, the project was 22 per cent complete.²⁷

Tolls on the New York Canals.—There is some sentiment in favor of the imposition of tolls upon vessels using the New York canal system. Such tolls were levied until 1882, and were removed principally in an attempt to check the diversion of traffic from the canal to the railroad route. The arguments for the charging of tolls are: (1) that the canal costs the state of New York nearly \$7,000,000 annually, of which approximately \$2,500,000 is for operation and \$4,400,000 for interest and amortization of capital investment; (2) that 90 per cent of the tonnage is interstate,²⁸ and (3) that subsidized barge canal transportation diverts traffic from a more economical (railroad) to a less economical (canal) route. On the other hand, it is replied (1) that the net cost to the state is exaggerated, and that it amounts, in any case, to but a small part of the state's annual outlay; (2) that the canal serves shippers indirectly by preventing railroad charges from increasing; (3) that canal shipments originate at or are destined to points in New York State although they have one terminus in other states; and (4) that tolls on the canal will divert traffic to the St. Lawrence River, not to competing railroad lines. '

The present constitution of the state of New York prohibits the imposition of tolls on persons or property transported on the canals.²⁹ A bill proposing the elimination of this restriction passed the State Assembly in 1936, with railroad support, but it was not finally approved, and there is little real likelihood that New York will withdraw the financial support which it now gives to barge canal transportation.

Great Lakes.—Figures given in Chapter I show that the Great Lakes now carry a larger tonnage than all of our other inland waterways combined. Prior to the opening of the Erie Canal, however, the Lakes possessed no such importance, for western settlements before 1825 were attracted by the Ohio River rather than by the Lakes, and except in Ohio there was no large group of settlers in 1825 north of the watershed which separates the rivers emptying into the Lakes from those emptying into the Mississippi. In fact,

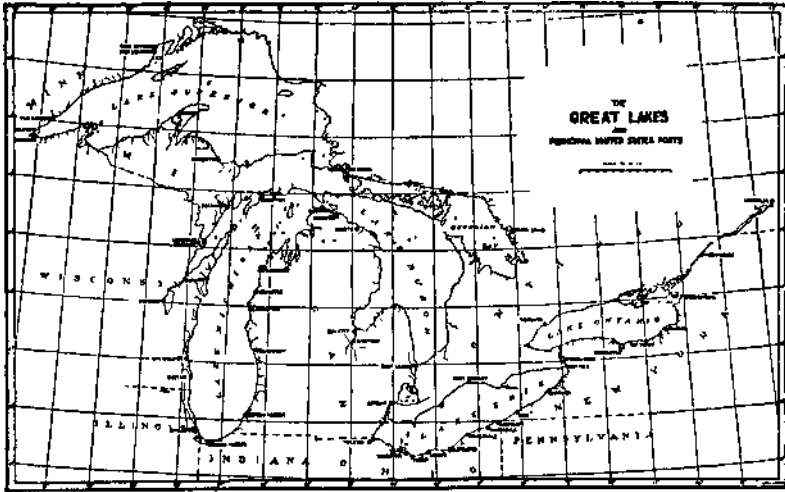
²⁷ The present federal project contains no provision for the improving of the western end of the Erie Canal between Three Rivers Point and Buffalo. This is, of course, disappointing to cities such as Rochester, Syracuse, and Buffalo. Spokesmen from Buffalo testified before the House Committee on Rivers and Harbors that the effect would be to decrease employment on the Buffalo water front and to destroy the value of much of the capital invested in that port. The Board of Engineers did not recommend the improvement of the canal between Three Rivers and Buffalo because the anticipated traffic would not, in the Board's judgment, justify the additional \$48,000,000 which the work would cost. It reasoned that Buffalo would be served indirectly by the route by way of Lake Erie, the Welland Canal, and Lake Ontario to the mouth of the Oswego Canal. An amendment to the Rivers and Harbor Bill to include the disputed section in the project was voted down (*Congressional Record*, April 8, 1935, 74th Congress, 1st Session, pp. 5274 ff.).

²⁸ United States Congress, *Hearings before the Committee on Rivers and Harbors*, 1934, testimony R. D. Hayes, Commissioner of Canals, State of New York, p. 30.

²⁹ Art. XV, Sec. 3.

even in Ohio the communities upon the Lake Erie shore were few and unimportant.³⁰ This meant that the foundations for Lake commerce were lacking until the completion of the Erie Canal on the east and the Ohio canals on the south made Lake Erie a link in a route which neither began nor ended on her shores.

The real use of the Great Lakes began with the working of the iron ore deposits of Lake Superior and with the extension of wheat production to



THE GREAT LAKES

districts west and northwest of Duluth. For such traffic, Lakes Superior, Huron, and Erie afforded a route as direct as that supplied by rail, while the depth of water and freedom for maneuvering in these inland seas made it possible to perfect a type of bulk steam carrier which reduced the cost of transportation to extremely low figures.

St. Marys Falls Canal.—There are only two points upon the Great Lakes where it has been necessary to construct extensive works in order to facilitate transportation. The first of these is at St. Marys Falls in the narrows between Lake Superior and Lake Huron, and the second is at the Falls of Niagara, between Lake Erie and Lake Ontario.

Previous to 1855, the passage of freight to and from Lake Superior necessitated a portage of one mile around the St. Marys Rapids, and traffic was relatively light.³¹ The first ship canal, built on the American side of the river, was opened in 1855, and in 1895 a canal on the Canadian side was added. The

³⁰ F. L. Paxson, *History of the American Frontier*, Houghton Mifflin, Boston, 1924, chap. xxx, p. 268.

³¹ United States Department of Commerce, Bureau of Foreign and Domestic Commerce, *Inland Water Transportation in the United States*, 1923, p. 53.

original American canal had a depth at low water of 10 feet. The Canadian canal is now 18.25 feet deep, and the improved American canal now in use has a normal low-water depth of 20 feet. The two largest American locks at St. Marys Falls have a depth of 23.3 feet at low water over the sills.³²

Welland Canal.—The other critical point in Lake navigation is between Lakes Ontario and Erie. The Welland Canal around Niagara Falls was opened in 1829, with a depth of 8 feet. This was subsequently increased to 14 feet, and then to 25 feet, where it now stands. The depth over the lock sills is 30 feet. Meanwhile, channels in the St. Clair River have been deepened until the minimum depth between Buffalo and the head of Lake Superior is between 20 and 24 feet. This permits of vessels with a capacity as high as 16,000 tons. The most favored type of modern lake freighter is 600 feet long, with a capacity of 11,000 tons, although the average vessel is, of course, still of considerably smaller dimensions.

Extent of Traffic upon the Great Lakes.—The construction of canals and the deepening of channels at the points mentioned now enable shipping lines on the Great Lakes to operate large vessels from Duluth and Fort William to Lake Erie ports, and in this way to reduce the ton-mile cost of transporting commodities such as ore and grain to a figure far below that which any other inland waterway in the United States can hope to attain. Instead of being driven from the field as the Erie Canal has been, the Lakes increased their tonnage up to about 1912 and have, on the whole, maintained it since that time. This statement is based upon the report of the Commissioner of Navigation relative to the tonnage of steam vessels documented on the northern lakes, from which the following figures are taken:

STEAM VESSELS DOCUMENTED ON THE NORTHERN LAKES, 1868-1939

Year	Number	Gross Tonnage
1868	62.4	144,117
1890		651,913
1910	2,107	1,508,469
1910	1,586	1,845,714
1930	1,115	1,478,045
1935	790	1,479,313
1939	661	1,446,730

Figures of business done show that the tons of freight handled through the St. Marys Falls Canal, which may perhaps be taken as representative of the business of the Lakes as a whole, increased up to 1916, then declined, but between 1921 and 1923 regained approximately their position of seven years before. In 1929 the number of tons passing through the canal slightly ex-

³² United States Army, Corps of Engineers, *Transportation on the Great Lakes*, Transportation Series No. 1 (Revised, 1937).

ceded the volume reported in 1923, but in 1930, 1931, and 1932 tonnage again declined, and the tonnage in 1937 had not yet reached the level attained in 1929. The character of the traffic on the Lakes will be considered in Chapter XL The similarity from several points of view of Lake and ocean navigation and the unusual size and capacity of the St. Lawrence River have led to proposals to create a ship channel between Montreal and the Lakes. This is a much more promising undertaking than either the Great Lakes-Gulf waterway or the New York Canal project, but discussion of its merits and defects will be postponed to Chapter XXV because of the many angles from which the subject must be considered.

Early Navigation upon the Mississippi.—Historically the Mississippi River has supplied a threefold service. In the first place, it has provided a means for long-distance transportation in a territory devoid of roads and remote from the sea. Secondly, the river has linked northern and southern settlements which early developed differing products that could profitably be exchanged. Thirdly, it has provided an east-and-west water route through its Ohio and Missouri River branches which was useful to the westward-moving pioneer. These three characteristics lent the Mississippi great importance during the first half of the nineteenth century.

Up to 1817, the principal craft used on western rivers were the flatboat, the ark, and the raft for downstream navigation, and the keel boat or barge for upstream navigation.³³

Steam navigation upon the Mississippi began with the steamboat *Enterprise*, which left Pittsburgh in September, 1811, and reached New Orleans in January, 1812. Regular steam service is usually dated, however, from 1817, when the steamboat *Washington* made the trip from Louisville to New Orleans and return in forty-one days, the voyage upstream consuming twenty-five days.³⁴ Thereafter the steamer rapidly displaced the keel boat and the barge, although the flatboat continued to be used until the Civil War.

From the fifties until the early eighties, steamboat transportation on the lower Mississippi was the chief agency upon which the people of the Mississippi Valley depended for the carriage of freight and passengers. Through boat lines connected Cincinnati, Louisville, and St. Louis with New Orleans; there was an equally important trade from Memphis, Greenville, and Vicksburg to New Orleans; and branch services ran up the Red, Arkansas, White, Ouachita, Yazoo, and other streams.³⁵

Likewise upon the Ohio and its tributaries, the Cumberland, Tennessee,

³³ For further details consult J. L. Ringwalt, *Development of Transportation Systems in the United States*, 1888; B. H. Meyer, *History of Transportation in the United States before 1860*, Carnegie Institution of Washington, Washington, 1917; and F. H. Dixon, *A Traffic History of the Mississippi River System*, Government Printing Office, Washington, 1909.

³⁴ Dixon, *op. cit.*, pp. 12-13.

³⁵ *Preliminary Report of the Inland Waterways Commission*, p. 133.

and Monongahela rivers, and to a less degree upon the upper Mississippi, an extensive commerce was carried on.

Diversion of River Traffic to the Railroads.—The decline in the importance of the Mississippi began even before the Civil War, with the diversion of increasing proportions of produce from the northern part of the Mississippi



(Source: United States Army, Corps of Engineers, *Transportation Lines on the Mississippi River System*, Transportation Series No. 4, 1936.)

Valley to the east-and-west route to the Atlantic seaboard. This diversion commenced, as we have seen, with the construction of the Erie Canal, and gained momentum as railroad construction developed between St. Louis and Chicago and the East. During the years 1854-1858, western produce represented but 18 per cent of the total receipts at New Orleans, as compared with 61 per cent in the early days of river commerce.³⁶

Naturally, as the grain-producing areas moved west and north, the strategic position of the railroads improved, for the river boats could not follow the farms, and transshipment of grain to the waterway from the railroad car involved additional expense.

³⁶ Dixon, *op. cit.*, p. 33.

Effect of Changes in Producing Areas in the South.—This same change occurred in the South, where traffic left the river for the rail. The following table shows the receipts of cotton at New Orleans from 1873 to 1907.

RECEIPTS OF COTTON AT NEW ORLEANS³⁷

Year	Receipts by Rail (Bales)	Receipts by River (Bales)	Percentage by River
1873	438,495	968,877	68.8
1875	406,076	750,080	64.8
1880	617,577	1,087,522	63.4
1885	1,018,261	680,376	40.1
1890	1,722,473	415,818	19.8
1899	1,935,177	343,450	15.1
1904	1,833,755	192,842	9.5
1907	1,081,053	231,381	10.0

The decline in the percentage of river receipts of cotton at New Orleans from 68.8 in 1873 to 40.1 in 1885 and 9.5 in 1904 was due in part to direct competition of parallel railroads and in part to a change in the location of cotton-producing areas analogous in effect to the changes in the location of grain districts which have just been mentioned.

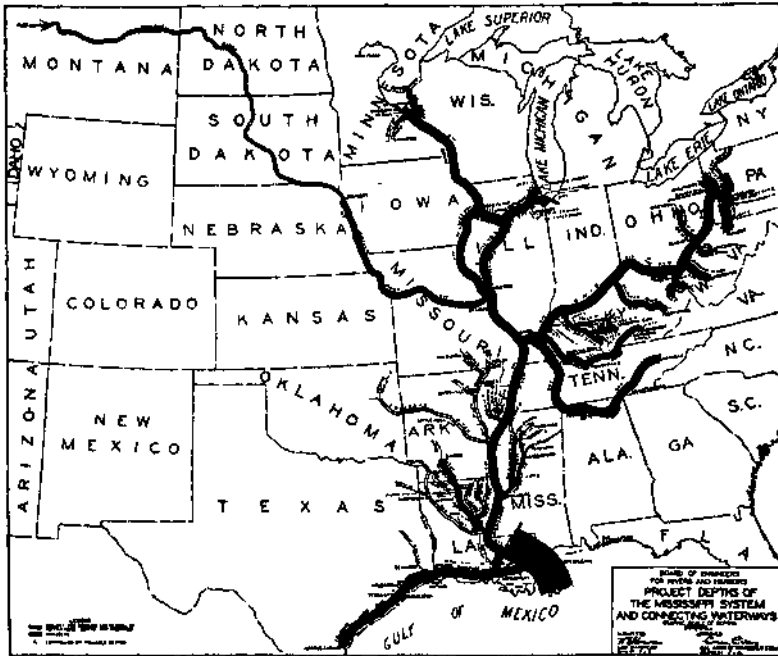
The railways at first did not parallel the river system, but extended from river ports into the interior. When, however, railroads were built parallel to the river, direct competition began between rail and water routes in which the latter were at a disadvantage. Generally speaking, river transportation was slow, subject to interruption on the upper reaches from ice, handicapped by floods, droughts, and variations in depth in different sections, poorly organized, and insufficiently equipped with terminal facilities. Railroads refused to quote through rates with the water lines, and they reduced their water-competitive rates to non-compensatory levels, recouping their losses elsewhere.³⁸

These various reasons explain the fact that during the last part of the nineteenth century and for at least twenty years prior to 1917 there was no common carriage of consequence upon the Mississippi. The question today is whether deepening of the stream for purposes of navigation, the installation of temporary services at government expense, and the improvement in relations between rail and water carriers will restore the Mississippi to something like its old commercial importance, and whether, if such a policy is successful, the results will justify the very considerable expenditures which will be incurred. Government aid is apparently necessary, for private investors are not disposed to experiment.

³⁷ *ibid.*, p. 59.

³⁸ United States, Office of the Federal Coordinator of Transportation, *Public Aids to Transportation*, Vol. III, 1939, p. 18.

Physical Improvement of the Mississippi and Its Tributaries.—Herbert Hoover, when he was Secretary of Commerce after the World War, visualized a river system composed of a north-south trunk line 1500 miles in length, reaching from New Orleans to Chicago and there connecting with the Great Lakes system, and, crossing this, a great east-west trunk line 1600 miles in length, from above Pittsburgh through Cairo to Kansas City. The addition of feeding lines on the upper reaches and tributaries of the Mississippi, the Ohio, and the Missouri rivers would produce, as Hoover saw it, 9000 miles of



PROJECT DEPTHS OF THE MISSISSIPPI RIVER SYSTEM AND CONNECTING WATERWAYS, 1936

(Source: United States Army, Corps of Engineers, *Transportation Lines on the Mississippi River System*, Transportation Series No. 4.)

connected waterways. The map reproduced above shows the segments of the Mississippi River system which the federal government has included in its developmental plan and the depths of channel, on each section, which it proposes to attain.

Ohio River.—The portion of the Mississippi River system which was earliest improved was the Ohio River. This stream flows through a so highly industrialized part of the United States, and the volume of traffic which may considerably make use of an improved waterway in the Ohio area is so great, that large sums of money can reasonably be spent to deepen and to maintain its channel. In its original condition river navigation on the Ohio was ob-

structed by snags, rocks, and bars composed of sand and gravel, as well as by the falls at Louisville. The minimum depth over bars at extreme low water was about 1 foot in the upper sections and about 2 feet in the lower section. In some of the intervening pools, however, the depth was as great as 30 feet. The slope of the river is comparatively uniform except at Louisville, where there is a low-water drop of 26 feet in a distance of 2 miles. In 1830 a private company completed a canal around the falls of the Ohio. Other work in later years was confined to the removal of obstructions, the building of contracting works to secure a low-water depth of 3 feet, and the canalization of the river from Marietta to Pittsburgh. In 1907 a project for the systematic improvement of the Ohio to produce a low-water depth of 9 feet was approved. The present project consists of 50 low dams, with sections that can be lowered flush with the bottom of the river when desired, which maintain a 9-foot depth at low water from Pittsburgh to the mouth of the stream. This project was completed in 1929, from Pittsburgh to the mouth of the Ohio. Work has been done also on tributaries of the Ohio such as the Allegheny and the Monongahela.³⁹

The obvious importance of the Ohio River, the local character of much of its traffic, and perhaps, also, the fact that navigation upon this river has been continuously in private hands, has protected government projects for the development of the Ohio from the criticism which they have encountered elsewhere. Complaints in recent years have been directed less to the general construction plan employed than to the failure of government dams to defend river communities against the ravages of the flood of 1936 and to the high expense of installing a navigation channel in particular tributaries such as the Tennessee.⁴⁰

Lakes-to-the-Gulf Waterway.—The central feature of the Hoover plan, and the second of the major improvements to be finished, was the 9-foot waterway between New Orleans and Chicago. A channel of this depth was already available as early as 1920 between New Orleans and Cairo, although this part of the river has been straightened and still further improved in later years. The greater part of the new expenditures have been for work north of Cairo. Here the route of the Lakes-to-the-Gulf waterway proceeds by way of the Chicago River, the Chicago Sanitary and Ship Canal, the Des Plaines River, the Illinois River, and the Mississippi.⁴¹

The state of Illinois originally undertook to canalize the Des Plaines and Illinois rivers so as to connect the Chicago Drainage Canal at Lockport with the navigable waters of the Illinois River near Utica, a distance of 60 miles.

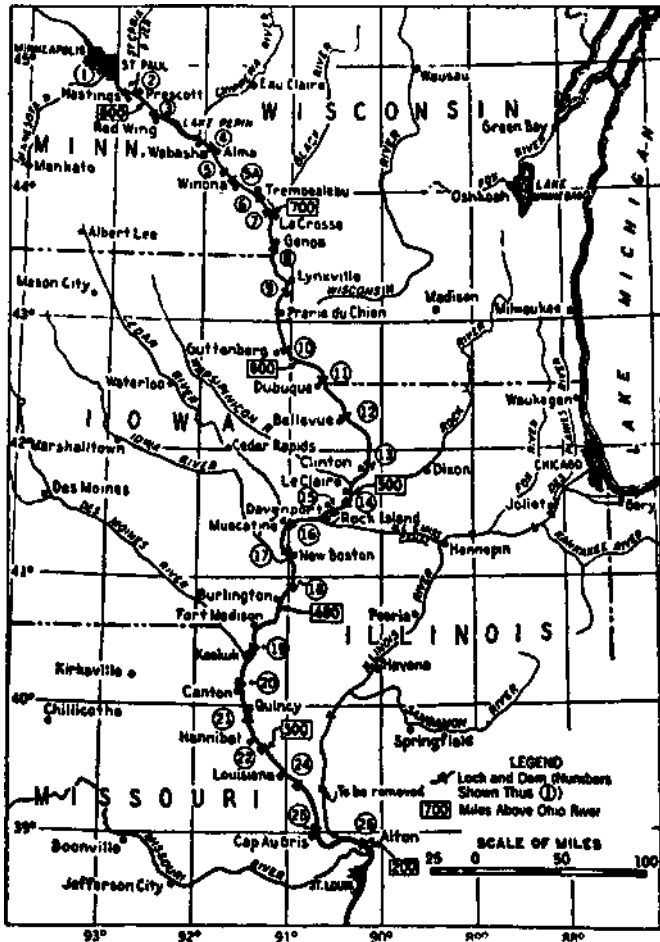
³⁹ Corps of Engineers, United States Army, *Transportation in the Mississippi and Ohio Valleys*, Transportation Series No. 2, 1929, pp. 12 ff.

⁴⁰ On flood control see *Proceedings*, American Society of Civil Engineers, March, 1937, Vol. 63, No. 3.

⁴¹ W. M. Smith, *Engineering Features of the Illinois Waterway*, American Society of Civil Engineers, *Transactions*, Vol. 98, 1933, pp. 309-338.

The project included the construction of 5 locks with a total lift of 126 feet. The state spent \$20,000,000 on this undertaking and then asked the federal government to provide an additional 6 or 7 millions to complete the work. Congress accordingly took over the state enterprise through a clause in the Rivers and Harbors Act approved July 3, 1930, and the 9-foot channel to the Lakes was finished at federal expense. The responsibility of establishing and maintaining a 9-foot channel from Utica to Cairo fell from the beginning upon the national government.⁴²

Upper Mississippi Extension.—The principal later additions to the Lakes-to-the-Gulf project have included the deepening of the Missouri River north



UPPER MISSISSIPPI WITH CANALIZATION IMPROVEMENTS AND CONNECTING WATERWAYS

(Source: United States Army, Office of Division Engineers, Upper Mississippi Division.)

⁴² A diversion or extension channel is now being built at the Chicago end connecting Calumet Harbor on Lake Michigan with the Chicago Sanitary Canal 18 miles west of Chicago. The

of St. Louis and the beginning of an elaborate construction project intended to provide a 9-foot channel upon the Mississippi between St. Louis and Minneapolis. Both of these extensions have encountered special difficulties because of the lack of sufficient water in the upper sections of the Mississippi and Missouri rivers.

The government engineers who prepared plans for a 9-foot channel between Minneapolis and Alton, Illinois, were of the opinion that neither ordinary processes of regulation and dredging nor even the building of large storage reservoirs at appropriate points could be relied upon to maintain a 9-foot depth in the Mississippi during periods of low water. The solution which they adopted required the construction of a multiplicity of dams across the river, creating a succession of pools, in each of which a 9-foot level could be established. These dams were to be low, so as not to flood adjacent country, and they were to be numerous, in order that slack water areas could be made contiguous.

The accompanying map shows the emplacements at which dams are being installed between Minneapolis and Alton, a point 8 miles above the mouth of the Missouri. In all, there will be 26 dams, each with a lock to permit the passage of vessels, in a stretch of 650 miles, or one dam for every 25 miles. The estimated cost is \$148,117,000.⁴³ A system of this sort is of little use for flood control, because the dams are not constructed for storage, and it will produce little power; the engineers in charge, however, cite as incidental advantages the preservation of wild life and fish refuges and the possibility of recreational use of the pools above the dams by residents of adjacent regions. According to the report of the Chief of Engineers in 1931 the maintenance and operating costs of the upper Mississippi River project will be \$1,750,000 annually. This, added to interest on cost of construction reckoned at 2 per cent, yields a total of approximately \$4,750,000, or \$24 per ton upon the tonnage actually transported on this portion of the river during the year 1937.

Missouri River.—On the Missouri River government efforts have been concentrated upon the project for a 6-foot channel from the mouth of the river to Sioux City, Iowa. This depth has actually been secured from the mouth of

main section of the extension route—the so-called "Sag Canal"—was constructed by the Sanitary District of Chicago as a drainage canal. It was completed at a cost of about \$14,000,000 about the year 1922. After the completion of the Lakes-to-the-Gulf waterway the United States War Department took over the new channel as a navigation route and has since expended some \$3,000,000 in widening and deepening operations. The new route has not yet diverted much traffic from the older one as its width is so much less that only small operations can be accommodated. When the canal is widened to 160 feet, as is now proposed, there will probably be some diversion. Recent traffic over the Sag route has approximated 300,000 tons a year, whereas the Main Drainage Canal is now handling about 2,500,000 tons a year.

⁴⁸ E. L. Daley, "Canalization of the Upper Mississippi," *Civil Engineering*, Vol. 6. February, 1936, pp. 104-108. The canalization of the upper Mississippi is **expected to be completed in 1940. A 9-foot depth** in most of the pools was available **in 1940.**

the Missouri to a point a few miles north of Kansas City. The difficulties in preserving this depth, together with the increased labor and expense required to maintain an adequate channel north of Kansas City, are in principal part responsible for the construction of the Fort Peck dam in Montana, 1070 miles above Sioux City. This earth dam, twice as high and considerably longer than the Gatun dam at the Panama Canal, is designed to hold back some 19 million acre-feet of water for release in low-water seasons. As a by-product it will permit the generation of power, though no power is expected at the beginning of its operation. The Fort Peck project and, indeed, the entire plan for the development of the Missouri River for purposes of navigation has been bitterly criticized as a waste of public funds in view of the relatively small traffic which the Missouri River is likely to attract.⁴⁴ On the other hand Major General Lytle Brown, Chief of Engineers, United States Army, has made the cautious statement that the dam can probably be justified on the basis of combined benefits for navigation, power, flood control, and irrigation.⁴⁵

Navigable Depths upon the Mississippi.—The effective and project depths in different portions of the Mississippi River and in some of its important tributaries were, in 1937, as follows:⁴⁶

Segment of River	Effective Depth	Project Depth
Mississippi River		
New Orleans to mouth of passes		
Via Southwest Pass	35 feet	35 feet
Via Southern Pass	30 feet	30 feet
Baton Rouge, La., to, but not including, New Orleans	Not less than 35 feet	35 feet
Mouth of Ohio to, but not including, Baton Rouge, La.	Not less than 9 feet	9 feet
Mouth of Missouri River to mouth of Ohio River	9 feet. Occasional dredging in a few localities.	9 feet
Minneapolis to mouth of Missouri River	6-9 feet, depending on stage of water. During periods of unusually low water 5-6 feet obtained in a few localities.	9 feet
Illinois Waterway		
Mouth of Illinois River to Lockport	9 feet	9 feet
Lockport to Damen Ave., Chicago (Chicago Sanitary Canal)	xx feet	9 feet
Damen Ave. to Lake St., Chicago (Chicago River)	21 feet	9 feet

⁴⁴ Henry E. Riggs, "The Fort Peck Dam and Navigation," *Railway Age*, October 31, 1936, pp. 622-626.

⁴⁵ Lytle Brown, "Waterways and Improvements in the United States," *Civil Engineering* (New York), Vol. 5, October, 1935, pp. 613-617.

⁴⁶ United States War Department, *Annual Report of the Chief of Engineers*, United States Army, *Commercial Statistics*, 1938.

Segment of River	Effective Depth	Project Depth
Illinois Waterway		
Calumet-Sag Canal, from junction with the Chicago Sanitary and Ship Canal to Blue Island, the Little Calumet and Calumet rivers	9 feet	
Ohio River		
Pittsburgh to Cairo	9 feet	9 feet
Missouri River		
Kansas City to mouth	6 feet	6 feet
Kansas City to Sioux City, Ia.		
Kansas City to Leavenworth (23 miles)	6 feet	6 feet
Leavenworth, Kan., to Rulo, Neb. (106 miles)	4 feet	6 feet
Rulo, Neb., to Sioux City, Ia. (252. miles)	3 feet	6 feet

Transportation upon the Mississippi During **the World War**.—During the acute traffic conditions in the Mississippi Valley in the winter of 1917, commercial interests of New Orleans, Louisiana, and St. Louis, Missouri, undertook the formation and financing of a corporation to build towboats and barges for operation between St. Louis and New Orleans. Due to war conditions, they were unable to secure the steel necessary for the purpose. After the passage of the Federal Control Act in 1918, an appeal was made under the provisions of Section 6, which authorized the President to

expend such an amount as he may deem necessary or desirable for the utilization and operation of canals, or for the purchase, construction, or utilization and operation of boats, barges, tugs, and other transportation facilities on the inland, canal, and coastwise waterways. . . .

A committee appointed by the Director-General of Railroads to investigate and report, recommended the utilization of the lower Mississippi River and of the so-called Warrior River waterway. The utilization of the latter was to provide service between Alabama coal and ore districts and the ports of Mobile, Alabama, and New Orleans. Both projects were authorized in modified form in June, 1918. In the following month a federal manager was appointed and instructed to commandeer and put in operation as soon as possible all available equipment on both waterways capable of being used for the transportation of freight, and also to proceed with the construction of a new fleet authorized by the Director-General.⁴⁷

Inland Waterways Corporation.—On termination of federal control, government facilities upon the Mississippi and Warrior rivers were transferred to the Secretary of War, and in 1924 Congress authorized the Secretary to incorporate the "Inland Waterways Corporation" for their administration.

⁴⁷ United States War Department v. Abilene & Southern Railway Company, *et al*, 77 I.C.C. 317, 1923.

The capital stock of the new corporation was set at a maximum of \$5,000,000, ail to be subscribed by the United States.⁴⁸

Real property and equipment held by the Secretary of War were turned over to the Inland Waterways Corporation, and the corporation was given power to borrow money. This, with \$1,500,000 of capital stock (out of \$5,000,000 authorized) issued to the United States government and paid for, and certain minor government donations, provided the corporation with funds with which to begin operation. In 1928 the authorized capital stock was increased to \$15,000,000, of which \$12,000,000 has been issued; and the total corporate assets had increased to \$25,931,677 by the end of 1938.

The Mississippi River service is between St. Paul, Minnesota, and New Orleans, and the barges also touch at Winona, Dubuque, Rock Island, Burlington, St. Louis, Cairo, Memphis, Helena, Vicksburg, and Baton Rouge. The barge line makes no attempt to serve the smaller river landings. The route to Chicago leaves the Mississippi slightly above St. Louis and proceeds by way of the Illinois River, the Des Plaines River, the Chicago Sanitary and Ship Canal, and the Chicago River to Chicago. There is service upon the Missouri River between St. Louis and Kansas City, and barges operate from Port Birmingham, on the Warrior River, down the Black Warrior and the Warrior to the Tombigbee, thence to the Alabama River, thence into the Mobile River, Mobile Bay, Mississippi Sound, Lake Borgne, and through the Lake Borgne Canal to the Mississippi River and New Orleans harbor.

There is no government service upon the Ohio River. The Inland Waterways Corporation Act of 1924 authorized the corporation to continue the operation of the transportation and terminal facilities then being operated under the direction of the Secretary of War, and this did not include the Ohio because there were no government barges upon that stream at that time. When the law was amended in 1928, and Congress provided for the extension of government service to additional tributaries of the Mississippi, the Ohio River was left out at the request of Ohio Valley interests. The result is that the Ohio River is a "preserve" for private carriers and privately owned common carriers. In 1937 the Savannah was added to the Mississippi and its tributaries as a stream to which the service of the Inland Waterways Corporation might be extended.⁴⁹

Denison Act of 1928.—Since 1928 the Inland Waterways Corporation has operated principally under the so-called "Denison Act."⁵⁰ Two provisions of this act have just been mentioned, namely, that increasing the capital stock of the corporation from \$5,000,000 to \$15,000,000, and that providing for the

⁴⁸ Brigadier General T. Q. Ashburn, U. S. A., *Waterways and Inland Seaports*, Washington, 1935, P- 30-

⁴⁹ 50 Stat. 304, 1937.

⁵⁰ 45 Stat, at L. 978, 1928. Majority and minority reports from the House Committee on Interstate and Foreign Commerce on the Denison Bill are printed in *House Report No. 1537*, 70th Congress, 1st Session, 1928.

extension of government service to tributaries of the Mississippi, not including the Ohio River, and to the Savannah River. The act contemplates three steps in the course of such an extension. First, the Chief of Engineers of the United States Army is to certify to the Secretary of War that a sufficient and dependable channel for the safe operation of suitable barges and towboats will be completed within two years; second, the Secretary of War is to cause a survey to be made for the purpose of ascertaining the amount of traffic, the terminal facilities, and the through routes and joint tariff arrangements with connecting carriers that will be available within two years; and third, after the survey has been made, and if the Secretary of War believes that water transportation can be successfully conducted on the tributary to which the corporation proposes to extend its operations, then the Secretary may extend the services of the corporation as soon as the corporation shall have boats, terminals, and other suitable facilities available for the purpose.

In addition to the clauses already mentioned, the Denison Act authorizes water carriers on the Mississippi-Warrior River systems and on the Columbia, Snake, Sacramento, San Joaquin, and Savannah Rivers to apply to the Interstate Commerce Commission for a certificate of convenience and necessity, and requires the Commission to direct rail carriers to join with certificated water lines in through routes and joint rates. This provision applies to the Inland Waterway as well as to private corporations.

It is probable that the Denison Act owed its passage to the pressure of shippers who desired the barge service to be extended⁵¹—at any rate, the authority for such extension was the most important power which the act conveyed.⁵² The scope and effect of the clauses relating to through rates, which also are important, will be considered in Chapter XXXIII. It may be added in conclusion that the law of 1928 provided for the leasing of the facilities of the Inland Waterways Corporation to private parties, not including carriers by rail; but it declared it to be the policy of Congress to continue government operation of the barge lines until navigable river channels, adequate terminal facilities, and satisfactory joint tariffs with rail carriers had been established, and until private parties were ready and willing to engage in common carrier service upon the Mississippi River and its connecting streams. No standard of adequacy was provided in the law.

Other Legislation.—The Inland Waterways Corporation exercises some authority under the Transportation Act of 1920 as well as under the Denison Act of 1928. Thus under Section 201 of the Transportation Act it may

⁵¹ See Bureau of Railway Economics, *An Economic Survey of Inland Waterway Transportation in the United States*, Washington, 1930, p. 68.

⁵² The Secretary of War, before 1924, could only continue the government operations upon the Warrior and lower Mississippi rivers that had been intrusted to him. The act of 1924 directed him to operate on the Mississippi River above St. Louis, and the Denison Act authorized him to extend to other tributaries as he might think wise.

(1) construct and operate terminal facilities, and (2) make loans to state and local governments and to transportation companies for terminal development, subject to conditions determined by the Corporation. The Corporation also exercises powers originally delegated to the Secretary of War under Section 500 of the same statute for the purpose of promoting inland waterway transportation. These powers enable it to investigate a good many subjects which interest those who use or operate water facilities, including the subjects of floating equipment and terminals, and to prepare and distribute statistics and other data relative to inland waterway transportation.⁵³

Extent of Service.—The sum at the disposal of the Inland Waterways Corporation is not large, but it has enabled the Corporation to establish a towboat service between St. Louis and New Orleans leaving both termini twice a week. Operations have not begun upon the Savannah. The scheduled time for the tows between St. Louis and New Orleans is seven days downstream and fifteen days upstream. There is a bi-weekly service between St. Louis and Chicago and between St. Louis and the Twin Cities. Towboats leave Birminghamport on the Black River for Mobile and New Orleans once a week. The scheduled time is four days from Birminghamport to Mobile and seven days in the opposite direction.⁵⁴

Private Lines.—In addition to the government services there are a number of private corporations operating upon the Mississippi River system. The Engineering Department of the United States Army prepared a list of these private operators in 1935⁵⁵ from which it appears that 500 companies then provided service upon the Mississippi River and its tributaries. Thirty-five of these were common carriers of freight, of which 16 conducted all or part of their operations upon the Ohio River. Some of these 35 carriers engaged in contract as well as in common carriage, or used their own or chartered vessels to transport freight which they, themselves, owned. In addition to the common carriers there were 172 companies which undertook contract hauling, frequently in addition to a private business. In a third group were 140 carriers occupied solely with the transportation of their own property. The passenger business was represented by 20 common carriers and 22 other companies engaged in contract, private, or excursion business. Since 12 of the common and 4 of the contract and private carriers of passengers also carried freight, this represented a net addition to the preceding figures of 8 common and

⁶⁸ Investigation of Executive Agencies of the Government. *Preliminary Report of the Select Committee to Investigate the Executive Agencies of the Government*, 75th Congress, 1st Session, Sen. Rep. 1275, 1937, chap. viii.

⁵⁴ The Federal Barge Lines operated a packet service for several years, but the use of self-propelled barges was discontinued in 1935. Although these barges made fast time when navigating, too much time was lost at terminals. (See *Civil Engineering*, July, 1936, Vol. 6, pp. 457-459.)

⁶⁵ Corps of Engineers, United States Army, *Transportation Lines on the Mississippi River System*, Transportation Series No. 4, 1936.

18 private carriers. The balance of the private business upon the Mississippi and Warrior rivers and their tributaries was made up of ferry service.

Of all the common carriers upon the Mississippi-Warrior system there are only two of importance: the American Barge Lines, operating upon the Ohio and Mississippi rivers between Pittsburgh and New Orleans and the Mississippi Valley Barge Line, operating between Cincinnati, Ohio, Louisville, Ky., and New Orleans with a connection to St. Louis. In 1935 the former of these possessed 7 towboats and 89 barges, the latter 5 towboats and 50 barges. In comparison with these private lines the Federal Barge Lines in 1935 reported 30 towboats and 236 barges. In addition to the common carriers and to the contract carriers there are some private industries, such as the Carnegie-Illinois Steel Corporation and the Standard Oil Company of Louisiana, which have large fleets. These industries are among the private carriers mentioned in the preceding paragraph.

Present Conditions upon the Mississippi.—Speaking generally of Mississippi River transportation, the changes which have occurred during recent years include the following: A marked revival of long-haul transportation; a substantial increase in the total number of carriers and in the aggregate volume of traffic handled; a noteworthy increase in the movement of higher-grade traffic and general merchandise and in traffic interchanged with rail connections; much improvement in vessel equipment, terminal facilities, and transportation methods and practices; and a greater concentration on the use of towboats and barges than in former periods.⁵⁶ These changes reflect the influence of government investment in the Mississippi and the efforts of the Inland Waterways Corporation as well as the activity of private lines. The total tonnage carried upon the river and its tributaries has increased from 25 million tons in 1920 to 65 million tons in 1938. Ton-mileage figures are not available for the years before 1925, but there has been a growth in this item from 4.5 billion ton-miles in 1925 to 11 billion ton-miles in 1938. The cost of conducting this new business will be considered in Chapter XXV.

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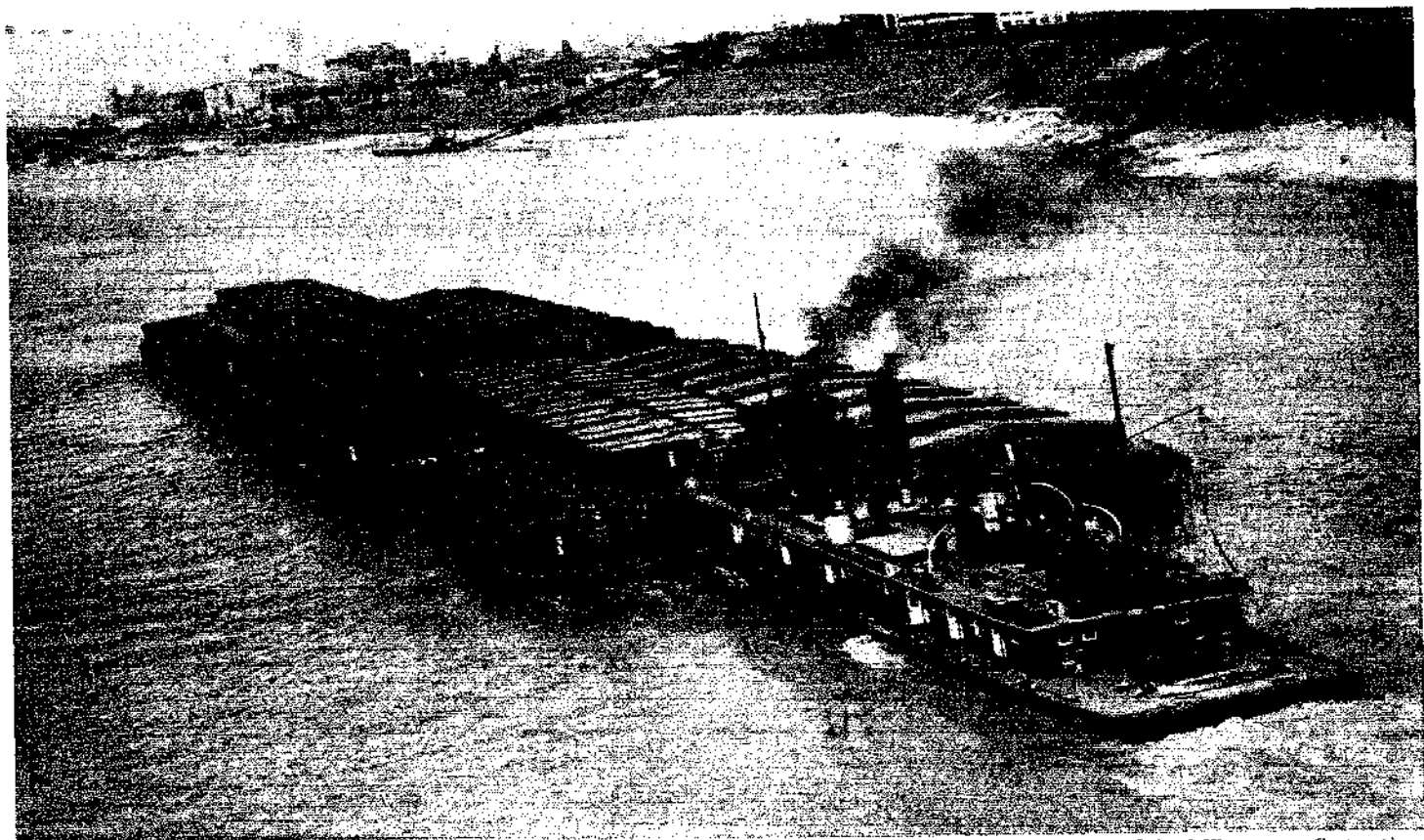
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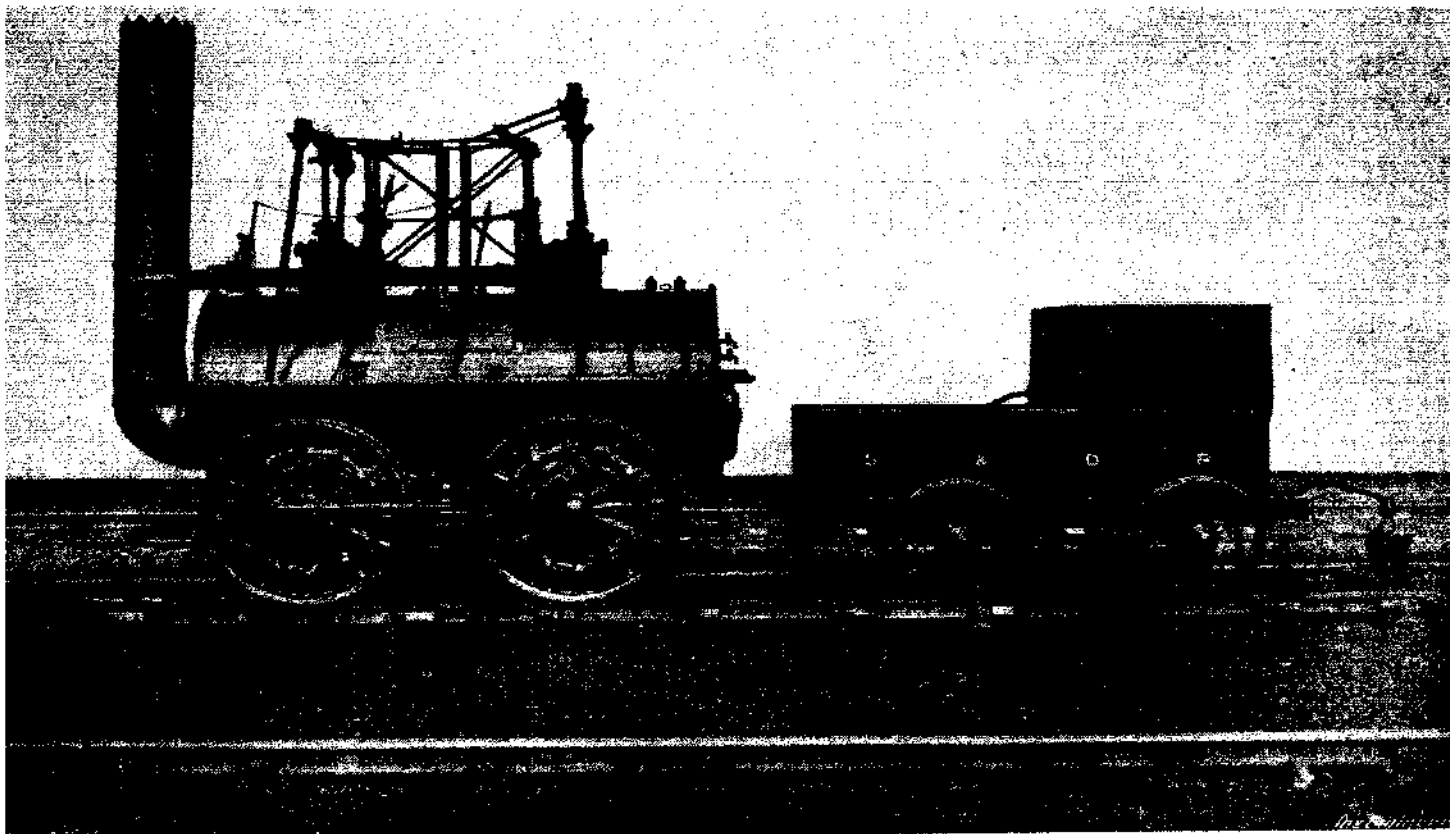
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Courtesy of the Inland Waterways Corporation

GROUP OF BARGES UPON THE MISSISSIPPI RIVER



"LOCOMOTIVE NO. 1"—STOCKTON AND DARLINGTON RAILWAY, 1825

(Source: E. L. Ahrons, *The British Steam Railway Locomotive*, The Locomotive Publishing Co., Ltd., London, 1927.)

CHAPTER IV

THE HISTORY OF AMERICAN RAILWAYS

Early Experiments with Steam Power for Transportation.—The term "rail-road" connotes two things, of which only one is specifically referred to in the name. Of these the first is the use of parallel supports known as "rails," upon which vehicles are made to run, and the second is some form of mechanical power. For the most part we are indebted to England for early experiment with both of these devices. Mechanical power in the form of steam was tried in England during the early years of the nineteenth century, notably by Richard Trevithick and George Stephenson.

Richard Trevithick gained his first experience in working and repairing pumping engines in the tin mines of Cornwall, England. In 1803 he built a steam carriage which was tried upon the public road in one of the Cornish mining towns. Somewhat altered and improved, this engine was successfully exhibited in London. In 1804, Trevithick built a locomotive to run on rails, which proved able to draw ten tons of bar iron, together with necessary carriages, water, and fuel, nine miles at the rate of five and one-half miles an hour.

George Stephenson, like Trevithick, worked as a young man with the pumping engines then used in England to keep mines clear of water, though his experience was with the coal mines of Northumberland rather than with the tin mines of Cornwall. He also operated a winding engine used to draw up coal from the pit. In 1812, when he was thirty-one years of age, he was appointed engine-wright in one of the more important collieries of his district. During the years 1813 to 1815, Stephenson interested his principals in the project of constructing a locomotive engine, mounted on wheels and driven by steam, which should replace horses in hauling the coal taken out of the mine from the mine to tidewater. Stephen's first engine of this type in 1814 drew eight loaded carriages of thirty tons weight each—at a speed of about four miles an hour on an ascending gradient of 1 in 450. His second engine, in 1815, was even more successful.¹

¹ Samuel Smiles, *Lives of the Engineers: George and Robert Stephenson*, Murray, London, 1904; Nicolas Wood, *A Practical Treatise on Railroads*, 3d ed., Longman, Orine, etc., 1838. Besides the names of Trevithick and Stephenson, those of Joseph Cugnot, a Frenchman, and

During the decade prior to 1825 a number of steam locomotives, more or less resembling those of Stephenson, were used by collieries in England. They were slow, heavy, complicated machines, strange to modern eyes; but they were more powerful than horse transport and were fairly well suited to the conditions into which they were introduced.

Development of the Permanent Way.—Meanwhile in England considerable progress had been made in improving the surface over which certain kinds of vehicles were drawn. Apart from the general improvement of the roads, there were districts in which it proved profitable to build long stretches of narrow tracks made of stone or wood in order to reduce the cost of traction. These stretches were known as "way-leaves," because in establishing them it was necessary to get permission or "leaves" for rights of way over private land, and they were serviceable for the haul of commodities like coal, particularly when the shape of the land made it possible to secure a downgrade on the loaded and an upgrade on the light or return haul between the mines and tidewater.

During the last of the eighteenth and the first part of the nineteenth centuries way-leaves, or tramways, to use a word more descriptive of the whole undertaking, multiplied, especially in the mining districts near Newcastle, and in other mining sections of England, Scotland, and Wales. When the steam engine became sufficiently developed to suggest its use in transportation it was employed to pull cars upon these local roads. Indeed, it was the supporting power of iron rails as well as the opportunity for economy arising out of a regular and abundant supply of freight that made the use of engines in mining operations profitable from the beginning. There was some question as to whether the adhesion of smooth wheels to a smooth rail would give sufficient tractive power, but experience soon showed that fears on this score were groundless.

Stockton and Darlington Railway.—It was at this stage in the perfection of English mechanical transport that persons in the northeastern part of England carried through a larger undertaking which helped to open people's eyes to the possibilities of the railroad. This undertaking was the construction of a railway from Stockton, the port of the River Tees, to Darlington, a distance of twelve miles westerly as the road was eventually laid down. The main purpose in improving communication between Darlington and Stockton was to facilitate the exporting of coal by avoiding the windings of the river. Men in Stockton, and at least one element in Darlington, proposed a canal to handle coal shipments, but in the end the advocates of a railway, led by an energetic Quaker named Edward Pease, prevailed and a railroad line was built.²

Oliver Evans, an American, should be mentioned. The experiments of Cugnot and Evans preceded those of Trevithick and Stephenson, but they led to no practical results.

² *The Diaries of Edward Pease, the Father of English Railways*, Headley Brothers, London, 1907.

The Stockton and Darlington Railroad was opened on September 27, 1825. George Stephenson was the company's engineer and responsible for most of the technical decisions made in the course of the construction of the road. These included the question as to whether rails should be of wood or of wrought or cast iron, what the weight of the rail should be, what the gauge, and, most important, what the motive power should be.

Fortunately, George Stephenson had a locomotive engine at a near-by colliery, and when the question of motor power arose he was able to put this machine through its paces before the directors of the Stockton and Darlington Company, and to convince them that the steam locomotive was reliable, powerful, and cheap. This demonstration was confirmed at the opening of the railroad, when a locomotive which Stephenson built for the purpose attained a ~~speed~~ of fifteen miles an hour and hauled a load, including passengers, coal, and merchandise, weighing about ninety tons.

The Stockton and Darlington Railway differed from most of the colliery roads which had preceded it in that it was designed to serve many shippers as a common carrier, not to handle the business of a single mine. Like some of the early American and continental railroads, it was originally intended to be free to all persons who chose to place their wagons and horses or engines upon it, provided they paid the established tolls, although it was not long after business had begun before the company found it necessary to take over the entire operation of the line.

The Stockton and Darlington was also, perhaps, the earliest railway to transport passengers by locomotive power. However, passengers were not hauled by the company's locomotives for some years after the opening of the line, but by private coaching companies which used horses, and availed themselves of the convenience of the railroad only with regard to its right of way. The beginning of regular passenger service can better be associated with the construction of the Liverpool and Manchester Railroad than with that of the Stockton and Darlington, as the latter was essentially a coal carrier.

Liverpool and Manchester Railroad.—The next important railway in England was the Liverpool and Manchester line, opened in 1830. With this company we have an undertaking (a) which contemplated from the first the carriage of passengers and miscellaneous merchandise, not, as in the case of coal railroads, the carriage of a single kind of freight; and (b) upon which locomotive engines were used from the beginning.

There is no reason to suppose that the Liverpool and Manchester Railroad was constructed because of the success of the Stockton and Darlington. In the first place, the greatest success of this last-named carrier came in the years subsequent to the opening of the longer line; and in the second place, the Stockton and Darlington was only one of many English enterprises in which the locomotive engine was rendering useful service in 1825. It is, however, a fact that the promoters of the Liverpool and Manchester took pains to acquaint

themselves with what had been accomplished along the River Tees, and that they employed George Stephenson, the expert for the Stockton and Darlington, as their engineer. These two circumstances establish a connection between the Stockton and Darlington and the Liverpool and Manchester railroads which lends continuity to the story of English railroad development.

It is of less importance to describe the local engineering difficulties which were encountered in the course of building a line from Liverpool to Manchester than to point out, first, that the controversy which arose over the best form of motor power to employ upon it was the cause of several important improvements in the locomotive engine, and second, that the attention of the country was so fixed upon this enterprise that its success finally established in England the position of the steam-driven vehicle upon the iron road.

Principles of Railroad Economics Formulated as Early as 1850.—During the twenty years after 1830 something like 12,000 miles of railway were built in England and in the principal European countries. Both in England and on the Continent, railway transportation proved itself superior to existing roads and waterways with regard to regularity of movement, ease of terminal handling, adaptation of routes to the needs of business, and in the provision of facilities for freight traffic, including responsibility for loss and damage to freight as well as the more obvious matters of speed and capacity.

Not only this, but the art of railroad operation had advanced so far by 1850 that certain general principles relating to railroad economics were then recognized. Thus we find the following statements of general application in Lardner's volume, published in 1850:

"1. The greatest railroad revenue is to be anticipated from the carriage of freight, not from the carriage of passengers."

This principle, which was contrary to the expectation of the promoters of many of the early railway lines, and to the experience of railroads like the Liverpool and Manchester during the first years of its operation, is now accepted without dispute. Rail carriers in the United States earn more than seven times as much from freight as from passengers. In 1846 and 1847 the percentage of total revenue contributed by the goods traffic on European railroads was nearly 50 per cent of the whole, and was rapidly increasing.

"2. In the field of passenger business the greatest income and the steadiest income is to be obtained from traffic which pays relatively low rates per person carried."

It has always been the practice in European countries to separate passengers into three or more classes according to the fares paid and the accommodations provided, class one including those passengers who pay the highest rates and occupy the most luxurious places, class two coming next in line, and classes three and four following. Lardner pointed out in 1850 that while the average

fare paid by first-class passengers on the principal English lines in 1847 was 2.385[^] and that paid by third-class passengers was only 0.992d., yet the total earnings from third-class passengers were nearly equal to the earnings of first-class service. It may be added that what was merely a tendency in Lardner's time has since become an accomplished fact.

"3. Railroad expenses do not vary in proportion to the volume of business handled."

This is an important principle to which we shall return in the course of our discussion of railway rates. Lardner did not assign proportions to the fixed and variable expenses of a railroad, but he did point out that large elements in each type of railroad expense, including outlays for direction and management, way and works, locomotive power, and transportation, were independent of traffic, varying with time and with the action of the weather; or, if not altogether independent of traffic, they did not vary proportionately to it, as in the case of station expenses and of that part of the wear and tear of locomotive engines which resulted from the haulage of the weight of cars, apart from the weight of their contents.

Besides enunciating these general principles, Lardner was able, as early as 1850, to make a number of very practical recommendations, stressing the importance of heavy loading, the avoidance of empty hauls, the limitation of the number of trains run, especially of express trains, the provision for mixed carriage of passengers, instead of carriages designed exclusively for service of first, second, or third classes, and suggesting that traffic as far as possible be segregated according to destination.

Early Interest in the United States.—The first rail or tramroads built in the United States were probably quite unaffected by the British experience. These were short lines constructed for industrial purposes to haul granite or other heavy loads. The rails used by these undertakings were sometimes of iron and sometimes of wood, and the motive power was the horse. In addition, there were certain more elaborate suggestions which came to nothing. Oliver Evans submitted to the consideration of the Lancaster Turnpike Company in September, 1804, a statement of the costs and profits of a steam carriage to carry 100 barrels of flour 50 miles in 24 hours, and offered to build such a carriage at a very low price. And John Stevens is known, among other things, for his proposal in 1812 to construct a railway between Lake Erie and Albany supported on pillars raised from three to five or six feet above the surface of the ground. On such a railway, with steam power, he estimated that a train of 160 tons could be drawn at a rate of four miles an hour.³ Proposals of this sort, and occasional demonstrations that steam power could actu-

³ J. L. Ringwalt, *Development of Transportation Systems in the United States*, Philadelphia, 1888, pp. 65, 70.

ally be used for transport, doubtless attracted some attention but they led to nothing practical.

As early as 1825, however, we find a definite attempt in the United States to obtain information concerning English practice. It was **in** this year that the Pennsylvania Society for the Promotion of Internal Improvements in the Commonwealth sent one William Strickland to Europe to collect information relating to the construction of canals, roads, railways, bridges, steam engines, and various industrial arts. The Society admonished Mr. Strickland that the utility of railways was appreciated in the United States but that nothing was known with certainty of the mode of constructing them or of their cost. Rails and locomotive machinery were to receive his particular attention, and he was authorized to procure a model of the most approved locomotive machine at the expense of the Society. It was in October of the same year that the trials of the famous "Rocket" occurred at Rainhill in England, and word of the success of Stephenson's engine soon reached the United States, notably increasing public interest in railway transportation.

Desire of Atlantic Seaboard Cities for Cheap Transportation to the Mississippi Valley.—It is evident that prior to 1830 many minds in this country were concerned with the subject of steam locomotion. Perhaps the principal difficulty in 1830 was less that of inventing a workable engine than that of securing capital with which to make experiments upon a large scale. Fortunately this difficulty was soon to be overcome. In Great Britain the fact which attracted practical men to the use of new transportation devices was the pressing need for better communication between the towns of Liverpool and Manchester. In the United States the deciding element was the desire to afford the principal cities of the Atlantic coast facilities for reaching the expanding markets of the Mississippi Valley. This was the influence that caused the construction of the Erie Canal and of the Pennsylvania State Works, and it was this which led to the incorporation of the Baltimore and Ohio Railroad.

Baltimore and Ohio Railroad.—Like Philadelphia and New York, Baltimore had at first intended to rely largely upon canal construction for her connection with the West. But by the early part of 1827, men of financial standing in the city had become convinced of two things: first, that the cost of a canal across the mountains would be prohibitive, and second, that a railroad was possible. A committee of citizens reported in February, 1827, that while the available facts with regard to railroad systems were not as extensive as they desired, they had gleaned from the documents that they examined upon the subject enough to leave no doubt in their minds that these roads were far better adapted to the situation and circumstances of Baltimore than a canal across the mountains would be. The committee therefore recommended that measures be taken to construct a double railroad between the city of Baltimore and some suitable point on the Ohio River by the most eligible and direct route, **and**

that a charter to incorporate a company to execute the work be obtained as early as practicable. The Baltimore and Ohio Railroad, organized in conformity with this recommendation, was chartered in February, 1827. Actual construction was begun on July 4, 1828. The first division of the road from Baltimore to Ohio reached Cumberland in November, 1842; Wheeling, West Virginia, in December, 1852; and St. Louis in 1857. While not the first railroad in the United States, or even the first railroad upon which a steam locomotive was tried, the beginning of the American railroad system is generally associated with the foundation of this company. It is at least correct to say that the Baltimore and Ohio Railroad was the first railroad of any considerable length, designed for the purpose of general passenger and freight traffic between terminals then considered to be widely separated, which was proposed and commenced in the United States; and that the first locomotive built in the United States, that of Peter Cooper, was successfully operated upon it on August 28, 1830.

Railroad Construction in the United States, 1830 to 1860.—Between 1830 and the Civil War, the total mileage in operation in the United States in different years was as follows:

Year	Mileage
1833	380
1835	1,098
1840	2,818
1845	4,633
1850	9,021
1855	18,374
1860	30,616

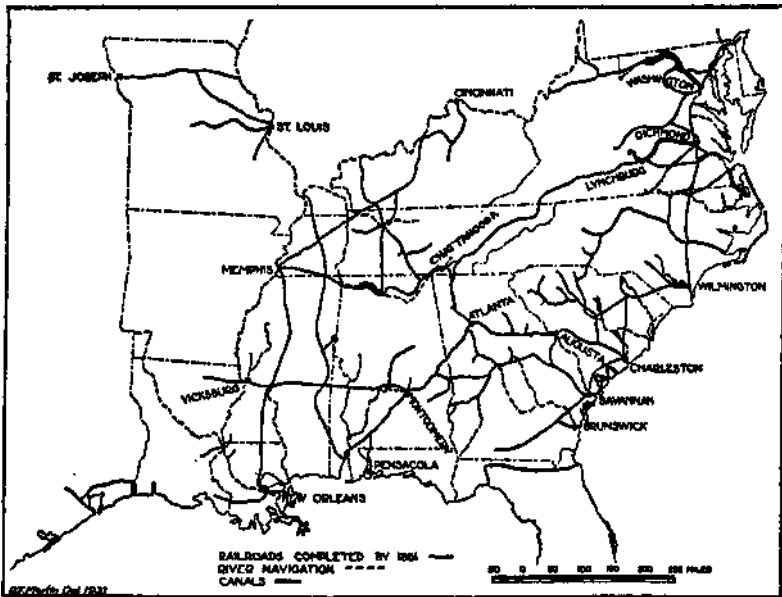
During this period of thirty years the principal developments in the railroad net of the United States were as follows:

Local Service.—In spite of the fact that the Baltimore and Ohio Railroad was conceived by its promoters as part of a through route, a large proportion of the early American railroads were organized to render local service. Indeed, most railroad transportation, even at the present time, is over short distances, and it was natural that American roads should accommodate local traffic long before they could handle through business over great distances.

The densest rail network in the country before the Civil War lay in New England, where by 1845 there were 710 miles of railroad with terminals in Boston, besides some outlying companies in Massachusetts, Maine, New Hampshire, Vermont, and Connecticut. Of the Boston roads, the most important were the Boston and Lowell to the north, the Boston and Providence to the south, the Boston and Worcester to the west, and the Eastern Railroad to the northeast. The railroads in central New York were also local in purpose, although they eventually combined into an effective through route between

Albany and Buffalo. Other local lines were built in eastern Pennsylvania, in New Jersey, and in the states south of the Potomac River, connecting large towns with each other and with the surrounding country. Such, for instance, in the South, were the railroads completed between Richmond and Fredericksburg (1837), between Columbia and Charlotte (1852), and between Atlanta and Montgomery (1853).

Southern States.—The beginning of construction in the South was contemporaneous with the building of the Baltimore and Ohio Railroad. Indeed, the Charleston and Hamburg was chartered in December, 1827, and the



TRANSPORTATION ROUTES IN THE ANTE-BELLUM SOUTH⁴

Baltimore and Ohio only in February of the same year. Construction on the latter railroad was begun in 1828; on the former, in 1831. The first 13 miles of the Baltimore and Ohio were opened in 1830, and the first 62 miles of the Charleston and Hamburg in 1832. At the time the Charleston and Hamburg reached Hamburg, 136 miles from Charleston, in 1833, it was the longest railway in the world.

The Charleston and Hamburg Railroad was designed to admit Charleston to the trade of the interior city of Augusta, in competition with Savannah, Georgia. The terminal, Hamburg, was therefore located on the Savannah River, opposite Augusta. Parallel with this railroad, but some distance from it

⁴ Ulrich B. Phillips, *A History of Transportation in the Eastern Cotton Belt to 1860*, Columbia University Press, New York, 1908.

to the southwest, lay the Central of Georgia Railroad from Savannah to Macon, which was begun in 1836 and completed in 1843, under the stimulus of Charleston competition. A branch of the Central of Georgia reached Augusta in 1854. These were the first two railroads which were undertaken south of the Potomac. In September, 1845, the Charleston and Hamburg was extended to Atlanta, Georgia, where it was joined a month later by the railroad from Savannah.

Southern railway construction may perhaps best be regarded as local in character, analogous to projects in the northeast. Yet the railroads from Charleston and Savannah to Atlanta were also the beginning of an east-and-west system which reached, like the trunk lines of the North, from the Atlantic seaboard into the Mississippi Valley. The necessary connection with the Ohio River was accomplished by the building of the Western and Atlantic, begun in 1838 and completed to Chattanooga in 1851. At a later date rails were laid from Chattanooga to Memphis (1856), from Atlanta via Montgomery and Meridian to Vicksburg, and from Chattanooga northeast through the mountains to Lynchburg and Richmond, Virginia (1858). These were the most noteworthy through railroads. The northeast-and-southwestern lines, later united into the Seaboard Air Line, the Atlantic Coast Line, and the Southern Railway, which are the outstanding features of our southeastern railways at the present time, were developed by the consolidation of local lines, most of which were built with very little appreciation of their importance to through movements. The advantages of a connection with the Mississippi Valley were, however, expressly recognized by the east-and-west construction which has been described.

Northeastern Railways.—In the territory north of the Ohio and Potomac rivers, construction prior to the Civil War followed the influences which have been dwelt upon in describing the reasons for the building of the Baltimore and Ohio. Characteristically, the great systems here ran east and west; and while these lines served important local purposes, their greatest significance lay in the access which they afforded centers of population on the Atlantic coast to the fertile valleys of the Mississippi and its tributaries.

Apart from local projects, the principal railroad routes before 1860 in the area bounded by the Atlantic seaboard, the St. Lawrence River, and the Great Lakes upon the east and north, and the Mississippi, Ohio, and Potomac rivers upon the west and south, with the dates of completion, were as follows:

1842. The Baltimore and Ohio Railroad was completed from Baltimore to Cumberland, and the Boston and Albany road from Boston to Albany in this year. The Boston and Albany, originally incorporated as the Western Railroad, was promoted with the conscious intent of securing for Boston a share of the western trade. It reached the western boundary of Massachusetts in 1841, and in 1842, after the completion of connecting lines out of Albany, it was able to render service from Boston to the Hudson River and, in connec-

tion with the Erie Canal and with local lines in New York, to Lake Erie. **The Western Railroad** was in part financed by the state of Massachusetts.⁵

1851. In **the** spring of 1851 the Erie Railroad was completed from New **York Harbor** to Dunkirk on Lake Erie. The opening of the Hudson River **Railroad** between New York and Albany in the fall of the same year gave **New York City** access to a rail route through central New York which **Boston** had been using for nine years.

1852. In this year the Pennsylvania Railroad entered Pittsburgh. The Pennsylvania was incorporated in 1846 to provide continuous rail connection with **the** West in lieu of the combined rail and water facilities of the Pennsylvania **State Works**. It made use at first of the rail portions of the State Works, including the inclined planes and Portage Railroad over the Alleghenies. The first **through** cars from Philadelphia to Pittsburgh were run on December 10, 1852.⁶

1853. The opening of a stretch of railroad between Cleveland and Toledo completed continuous rail connection between Buffalo and Chicago.⁷ This was the first New York-to-Chicago line. The same year saw the extension of **the** Baltimore and Ohio to Wheeling, West Virginia, on the Ohio River; and the incorporation of the New York Central, bringing the separate companies between Albany and Buffalo under a common control.⁸

1857. The Baltimore and Ohio reached St. Louis in 1857.⁹

1858. The western connection of the Pennsylvania Railroad, the Pittsburgh, **Fort Wayne**, and Chicago, secured entrance to the city of Chicago in 1858, thus opening the route between Philadelphia and Lake Michigan.¹⁰ The Pittsburgh, Fort Wayne, and Chicago was leased to the Pennsylvania in 1869.

During 1858, also, the Canadian Grand Trunk Railway reached Sarnia on **the** St. Clair River between Lakes Huron and Erie, opening, in connection **with** railroads across the Michigan peninsula, a new route from the Atlantic seaboard at Portland, Maine, to Chicago.

Most of the east-and-west lines which connected the Atlantic seaboard with

⁵ The names of the local lines in New York State, which together afforded through rail connection between Albany and Buffalo, and the dates on which they were opened, are as follows: Mohawk and Hudson (Albany to Schenectady), 1831; Utica and Schenectady, 1836; Tonawanda (Rochester to Batavia), 1837; Auburn and Syracuse, 1838; Syracuse and Utica, 1839; Auburn and Rochester, 1841; Tonawanda (Batavia to Attica), 1842; Attica to Buffalo (the last **lap** of the through line), 1842. The Hudson River Railroad from New York to East Albany was opened in 1851.

⁶ Sipes, *The Pennsylvania Railroad*, Philadelphia, 1875.

⁷ *Poor's Manual*, 1868-1869. The companies operating between Buffalo and Chicago were the following: Buffalo and State Line; Erie and Northeast; Michigan Central; Michigan Southern; Cleveland and Toledo; and Cleveland, Painesville, and Ashtabula.

⁸ *Ibid.* The companies which consolidated into the New York Central system in 1853 were **the** following: Albany and Schenectady; Schenectady and Troy; Utica and Schenectady; Syracuse and Utica; Syracuse and Utica Direct; Rochester and Syracuse; Buffalo and Lockport; Mohawk **Valley**; Rochester, Lockport, and Niagara Falls; and Buffalo and Rochester.

⁹ W. P. Smith, *The Book of the Great Railway Celebration of 1857*. Appleton, New York, 1858,

¹⁰ Pennsylvania Railroad Company, *Twelfth Annual Report*, February 7, 1859.

the Mississippi Valley prior to the outbreak of the Civil War lay in the northern states. Whether North or South, however, the construction of such lines made it possible for the distributing centers upon the ocean to sell their manufactured goods in all that range of states which bordered upon the Mississippi and its eastern tributaries, while at the same time the agricultural products of the West now found an outlet to the east as well as to the south, which was essential to their success. At the same time, though this was not the impelling motive for railroad construction, the closer linking of the East and West produced political and social effects of the first magnitude.

Mississippi Valley.—Railroad construction in the Mississippi Valley was naturally less extensive before the Civil War than railroad construction farther east. This was because population was less dense and industry not so far advanced. Apart from the western extensions of the trunk lines and a series of short railroads connecting the Ohio River with the Great Lakes, the most important work undertaken in the Mississippi Valley before 1860 was, first, the building of the Illinois Central, and, second, the beginning of lines which were eventually to reach out from Chicago and St. Louis to connections with the Missouri River and with the transcontinental railroads operating to the Pacific coast.

The Illinois Central was incorporated in 1851. Its purpose was to develop the interior communities of Illinois by providing them cheap transportation to the Mississippi River. To this end the railroad was planned with one terminus at Cairo at the junction of the Ohio and Mississippi rivers, and other termini at Galena on the northwest border of the state and at Chicago on Lake Michigan. In order to facilitate construction, Representatives and Senators from Illinois induced the national legislature to grant, in 1850, nearly three million acres of public land to the state of Illinois, land which the state turned over to the railroad company when the latter had received its charter. Similar grants of land were made to the states of Mississippi and Alabama in order to secure political support. The construction of the Illinois Central was begun in December, 1851, and the railroad was formally opened to Cairo in September, 1856.

Finally, westward construction included railroads from St. Louis toward Kansas City; and the beginning outside of Chicago of what later became the Chicago, Burlington, and Quincy; the Chicago, Rock Island, and Pacific; the Chicago and Northwestern; the Chicago, Milwaukee, and St. Paul; and the Chicago and Alton railway systems. The first railway in Illinois from Lake Michigan to the Mississippi was the Chicago and Rock Island, opened in February, 1854. The second, made up of the Galena and Chicago (later part of the Chicago and North Western) and the Illinois Central, was opened early in 1855. The so-called Granger railroads will be considered later in this chapter.

If the reader will consult the preceding pages with the aid of **a modern**

railroad map, he will be able to understand the general trend of railroad construction in the United States during the first thirty years following the successful inauguration of the Baltimore and Ohio. Before passing to the construction of the transcontinental lines to the Pacific coast which were the achievement of the next generation, we may pause to consider some of the similarities and contrasts between the early railroad development in the United States and that in the European countries, including England, which we have previously described.

Early American Railroad Practices the Result of Independent Initiative.—

To a much greater degree than on the continent of Europe, American practice in railroad construction and operation was the result of independent initiative. This was partly because of mere distance. It was not so easy to command the services of English engineers in Maryland as it was in Austria or France. Nor were English standards as applicable in the United States as they were in the more densely settled countries of Europe. Whereas European engineers inclined to a permanent type of construction, American railroads were often best built when most cheaply built, with light rails, sharp curves, and steep grades. Only such roads could expect to earn interest on their investment, in view of the scant population of the country and the pioneer character of many of the early enterprises. It is true that two American engineers were present at the tests of Rainhill, England, and that three English locomotives were immediately ordered after these tests for the Carbondale and Honesdale Railroad (Delaware and Hudson). But these locomotives proved too heavy for the American track and were presently abandoned. English locomotives were also operated upon the Camden and Amboy Railroad in New Jersey, the Newcastle and Frenchtown, and on some other lines; and when somewhat modified to meet local conditions, the English machines gave satisfactory service for many years.

In spite of English precedent and the partial use of English material, the early years of American railroading were marked by continuous experiments, for which lines like the Baltimore and Ohio provided laboratory facilities. It was said of this company in 1835 that its reports had gone forth as a textbook, and that its road and workshops had been a lecture room to thousands who were then practicing and improving upon its experience.

The Charleston and Hamburg and the Baltimore and Ohio both experimented with cars propelled by sails, and with treadmill locomotives operated by horse power. Upon the Baltimore and Susquehanna two cars were joined together by shafts of timber, and the horses, which were hitched between, were kept from falling by a broad belt of leather passed under their bodies and attached to the shafts. The first use of an American locomotive upon any American railroad was upon the Baltimore and Ohio on August 28, 1830. **On** January 4, 1831, this same company offered \$4000 for the most approved engine which should be delivered for trial on the road on or before **June 1**

of the same year. A new machine which met all specifications was built at York, Pennsylvania, and entered into regular use following the trial.

This, with the locomotive placed upon the Charleston and Hamburg in November, 1830, probably marks the definite adoption of steam as tractive power upon the American railroad system, and it was also an important step in establishing the independence of the United States with regard to its mechanical railroad equipment.

Mechanical Improvements.—The following five improvements associated with early American railroad development deserve mention:

1. The four-wheel bogie or swivel truck, first placed under the front end of the locomotive and later used in connection with freight and passenger cars.

2. The spark arrester, made imperative by the fact that the original American locomotives were nearly all wood burners.

3. The use of equalizing beams, distributing the weight of locomotives equally over the driving wheels in spite of inequalities in the track.

4. The use of steel springs, first under the locomotives and tenders, and then under freight cars.

5. The introduction of eight-wheel cars. Up to 1834, the cars in use upon railroads had only four wheels and were but little larger than a stage coach. By the ingenuity of Ross Winans of the Baltimore and Ohio, large eight-wheel cars were devised and constructed and put upon the road for transportation of passengers. It has been said that in perhaps no other improvement in the operation of railroads was the Baltimore and Ohio more conspicuous even at this early day, than in the entire organization and perfection of the eight-wheel car.

Permanent Way.—Extensive experiments were also carried out in the fourth and fifth decades of the nineteenth century with respect to the permanent way. Piling, granite blocks, granite sills, broken stone, and longitudinal timbers were all tried as a means of support for the rail; and strap rails, or flat iron bars resting upon timbers, were frequently used before the English edge rail finally demonstrated its superiority. The object sought was durability without so great rigidity as to produce excessive wear upon rolling stock.

Variation in Gauges.—There was even less uniformity with regard to gauge in the United States than there had been in England. As a matter of fact, it is extremely difficult to defend any particular spacing of railroad rails as ideally correct. The most important effect of any gauge is that produced upon the design of the locomotive, particularly with respect to the width of the locomotive fire box. But the desirable width of such a fire box itself depends upon the quantity and character of traffic to be hauled, the standard speed, the kind of fuel, the presence or absence of labor-saving devices for supplying fuel to the fire, and upon a number of **other** things as well. It is **not** surprising that different American railroad **engineers favored different**

gauges, ranging mostly between four feet eight and one-half inches and six feet. In the end, the advantage of uniformity was seen to outweigh the mechanical gain from the adoption of a non-standard gauge in any special case, and the principal lines adopted gauges which were at least sufficiently similar to permit of the indiscriminate circulation of cars.

Early Opposition to the Steam Railroad.—As in England, the introduction of railways in the United States provoked opposition from persons interested in other forms of transportation, and from those who disliked or disbelieved in the possibilities of railway travel. The list of those hostile to the railroad included, of course, innkeepers, the proprietors of turnpike roads, and stage-coach and wagon carriers. Still more important opposition came from the canal interests. It was argued that railroads were complicated machines compared with canals, and more likely to get out of order. This was also true, it was said, of the equipment used. Many a farmer was able to build a boat on his own land that would do for a canal, but few or none could make a locomotive carriage. A canal was accessible anywhere, a railroad nowhere except by special arrangement. On a canal every boatman could choose his own speed; by rail every traveler must move at the same speed. The cost of transportation on a canal was only a third of the cost of transport by rail, and the canal was also cheaper than a railroad to build and maintain.

Speaking against the construction of a railroad from Boston to the Hudson River, a member of the Massachusetts legislature exclaimed in 1827:

It [the railroad] was premature, it would cost an enormous sum of money, and would be worth little or nothing. He begged the House to pause, to have mercy on the people, to have some compassion. In the winter the snow would be in some places 10 feet deep, and so make the railroad useless.* . . . How would turkies, butter and eggs look after coming over a railroad thirty miles an hour? How would pigs and passengers travel over it together in the same car? There was nothing else to bring. He called upon the House to wait before they began the work, till they saw a reasonable chance of getting their money's worth. If they must have a magnificent project, he would go the whole length, and would try to bring Heaven down to Earth, or Earth to Heaven.¹¹

Arguments of this sort found ready listeners, and even legislators who thought that the railroad was a superior device were ready to handicap the rail carrier in order to protect the government's investment in canals. This was why railroads in New York State which ran parallel or nearly parallel to a canal owned by the state were required as late as 1848 to pay tolls on all property carried except the baggage of passengers.¹²

State and Local Aid.—On the whole the introduction of railways met with less opposition in the United States than in England, doubtless because the

¹¹ T. W. Van Metre, *Early Opposition to the Steam Railroad*, Columbia School of Business, New York, 1929, p. 23.

¹² This law was repealed in 1851.

canal and stage interests in this country were less powerful, and the large landowners less influential with the legislature. The new methods of transportation had, of course, to demonstrate their usefulness, as was quite proper, but in most instances there was no deliberate attempt to handicap them in the interest of some other means of travel.

Indeed, our early railroads secured a considerable amount of state and city, and later, federal, support. This aid took a variety of forms. It included contributions of cash, materials, equipment, labor, and securities by states, local governments, and individuals. State and local bodies also lent large sums, not all of which were repaid. Sometimes railroad bonds were guaranteed; sometimes tax exemptions or banking or lottery privileges were accorded, and in many instances communities made subscriptions to railroad stock. Among the companies benefiting from this sort of assistance were the Baltimore and Ohio, which received a subscription of \$3,500,000 from the state of Maryland and nearly as much (\$3,000,000) from the City of Baltimore; the Western Railroad of Massachusetts, which obtained a loan of \$4,000,000 from the State of Massachusetts; the Richmond and Danville, which was granted perpetual exemption from taxation by the state of Virginia; and the Georgia Railroad and Banking Corporation, which was given banking rights by the state of Georgia.

Still more important than the various subsidies which have just been mentioned were, probably, the grants of land to railroad companies. The best known of these land grants were those accorded to western railroads, including the Illinois Central, amounting to the formidable total of 183,187,040 acres up to the year 1933, all of which were given before 1871.¹³

But there were also extensive gifts of rights of way, terminal facilities, rights in city streets, and privileges on other public property which, together, were important. It is, of course, difficult to place a monetary value upon the heterogeneous grants which the railroads at one time or another received. A recent computation by the staff of the Federal Coordinator of Transportation attempts to do this, and arrives at the impressive total of \$1,282,000,000 as an expression of the value of railroad subsidies from the beginning up to 1933. This estimate, however, represents little more than an opinion in some cases, and it is dependent throughout upon what is referred to as "informed judgment" rather than upon precise statistical calculation. Among the points at issue is, for example, the question whether railroad land grants are to be valued at the price per acre at which the land could have been sold at the time when the grants were made, or at the higher price which was eventually obtained when an increase in settlement had occurred. There is no doubt but that the railroads secured an increment upon their lands as well as upon other property which they owned and held, but it is less certain that the Coordinator is right

¹³ United States, Office of the Federal Coordinator of Transportation, *Public Aids to Transportation*, 1938, Vol. 2, p. 51. This total includes grants for rights of way.

in including this increment as a part of the government gift. Again, the advantage of public loans to railroads during the early years is measured in the computation by comparing the terms upon which government loans were made with the compensation which private lenders would have demanded for the use of like sums for the same purposes at the same time. Such a comparison is, at best, highly speculative, and probably is theoretically unsound. For actually, similar loans could not have been secured at all in most cases for railroad construction at the time when the railroads were built while, on the other hand, private capital and credit could have been profitably employed in other enterprises in which the risk seemed less extreme. The real comparison, if conjectures of this sort are to be accepted at all, is between the gain accruing to the recipients of public aid for railroad construction and the gain which these persons might have obtained in the most favorable field in which their capital could have been used during the subsidy period. Finally, there are uncertainties in estimating the advantages which the railroads derived from tax exemptions, banking privileges, rights in city streets that became valuable only after the railroads had been built, and other items, which make attempts at precise estimate obviously insecure. Yet in spite of all these criticisms there is no doubt but that public aid to railroads in their early years of building was very large.

General Tests to Be Applied to Subsidies.—The general tests which may be applied to any system of state aid are four: (1) Is the assistance accurately measured to the need? (2) Is the aid made available at the moment when help is most necessary? (3) Does the state aid lead to railroad building which is economically unjustifiable? (4) Are the subsidies larger than the communities which offer them can afford?

American practice shows very little attempt to meet tests such as these. What happened was that promoters appealed to public bodies for as much assistance in railroad building as they thought the temper of the public would support, and that legislatures or city councils gave upon application whatever loose assets they had unpledged, or voted such privileges as they thought might prove of value. This procedure conveyed to the railroads many gifts which were of little immediate use because they could not be applied directly or sold for cash except at a heavy discount while the construction process was going on. Land grants, particularly, were of little service in financing railroad building, although they increased the reward for successful enterprise after the railroads had been built. Railroad subsidies were unnecessarily expensive to American governments for this reason, to say nothing of the fact that privileges were often granted, the ultimate value of which it was difficult to foresee. The need for railroads in the early days was so great, however, that very little mileage was built which did not find some good use.

Government Construction.—In some instances state or local governments actually undertook to build railroads. Instances of this sort, besides that of

the Pennsylvania State Works, were the Western and Atlantic, built by the state of Georgia from Atlanta, Georgia, to Chattanooga, Tennessee; the Michigan Central and Michigan Southern, begun and partially completed by the state of Michigan; and a railroad from Meridosia to Springfield, Illinois, constructed by the state of Illinois. The state of North Carolina bought the Raleigh and Gaston Railroad on a foreclosure sale in 1845, but subsequently released it to a private company in 1851. None of these undertakings was profitable, and none of them remained permanently in state control.

Railroad Mileage in the United States, 1861-1938.—The miles in operation in the United States from 1861 to 1938 are indicated in the accompanying table, at five-year intervals.

Year	Miles of Line in Operation ¹⁴
1861	31,286
1865	
1870	52,922
1875	75,096
1880	93,161
1885	128,320
1890	156,404
1895	177,746
1900	192,556
1905	216,974
1910	140,831
1915	257,569
1910	259, 941
1925	158,631
1930	160,440
1935	2-52,930
1938	149,816

A large part of railroad construction after the Civil War served to complete systems and main lines which had already been begun. It must be remembered, however, that the entire framework of the railway systems west of the Mississippi River had still to be laid down.

Granger Roads.—Among the first railways completed after the Civil War were the Granger roads, running from Chicago north and northwest into the grain-growing districts of Illinois, Iowa, and Wisconsin. These carriers at forded connection between the eastern trunk lines and the transcontinental railways terminating at Omaha and St. Paul. The most important companies in the Granger group were the Chicago and North Western; the Chicago, Burlington, and Quincy; the Chicago, Milwaukee, and St. Paul; the Chicago, Rock Island, and Pacific; and the Chicago and Alton. The Chicago and North Western reached Council Bluffs, Iowa, in 1867, and the Chicago and

¹⁴ *Poor's Manual* prior to 1890; Interstate Commerce Commission thereafter. Circular and unofficial mileage excluded.

Alton was opened to St. Louis in the same year. The second railroad to connect Chicago and Council Bluffs was the Rock Island, opened in June 1869. The third was the Chicago, Burlington, and Quincy, which reached Burlington, Iowa, in 1867, and Council Bluffs late in 1869. Still another line from Chicago to the Missouri River was that of the Chicago, Milwaukee, and St. Paul, which was organized under the name of the Milwaukee and St. Paul Railway in 1858. It completed the first line opened from Chicago to St. Paul in 1867, and reached Council Bluffs in the late seventies. The company's present name dates from February, 1874.

Transcontinental Railways.—Transcontinental railways represent the second great type of railroad construction which followed the Civil War. The agitation for a transcontinental railway dates back at least as far as 1845, but the movement obtained no support until after the discovery of gold in California, and the migration of a considerable population to the Pacific coast.

The dates at which the various through lines to the Pacific coast were opened are as follows:

1869. The Union Pacific Railroad and the Central Pacific Railroad of California met at Promontory Point, west of Ogden.

1881. The Atchison, Topeka, and Santa Fe, starting at Atchison, Kansas, reached a connection with the Southern Pacific running south from San Francisco and Goshen, California, at Deming, Arizona. This afforded a second through route from the East to San Francisco Bay.

1882. In this year the Southern Pacific made connection with the Texas and Pacific at a point 523 miles west from Fort Worth. The eastern end of the Texas and Pacific in 1882 was at Gouldsboro, opposite New Orleans.

1883. The Galveston, Harrisburg, and San Antonio was completed from Houston to the Rio Grande River near El Paso. The acquisition during the same twelve months of three smaller companies, the Texas and New Orleans, the Louisiana Western, and Morgan's Louisiana and Texas Railroad, connecting Houston and New Orleans, created, together with the Southern Pacific west from El Paso, a new through line from the Gulf to the Pacific coast under a single control.¹⁵

In the same year the Northern Pacific was opened from Northern Pacific Junction, Minnesota, 23 miles from Duluth, to Wallula Junction, Washington Territory, reaching also by connecting lines St. Paul and Duluth upon the east and Portland and Tacoma upon the west.

1884. The Oregon Railway and Navigation Company, operating a railroad from Portland up the south bank of the Columbia River, connected with the Oregon Short Line Railroad, a subsidiary of the Union Pacific, on November 25, 1884, completing a fifth transcontinental route between the Mississippi River and the Pacific Ocean.¹⁶

¹⁵ *Poor's Manual*, 1884, pp. 835-836.

¹⁶ *Ibid.*, p. 916.

1886. The line of the Canadian Pacific was opened from Montreal to Port Moody on Vancouver Sound on June 28, 1886, and a branch to Vancouver was opened on June 1, 1888.

1893. The Great Northern Railway is, as its name implies, the most northerly transcontinental railroad in the United States. It was completed from St. Paul to Puget Sound (Everett) on January 5, and was opened for traffic on June 18, 1893.

Since 1893 there have been three additional transcontinental lines placed in operation. The first of these was the San Pedro, Los Angeles, and Salt Lake, which began operation from Salt Lake City to Los Angeles on May 1, 1905; the second was the Chicago, Milwaukee, and St. Paul from the Missouri River to Tacoma and Seattle, opened for freight traffic on August 1, 1909; and the third was the Western Pacific, running from San Francisco to Salt Lake City, which began its through business as a freight carrier on December 1, 1909, and regular passenger service on August 22, 1910.

Structure of American Railway System Completed by 1893.—The completion of the principal transcontinental railway routes by 1893, and the prior connection of these lines with Chicago through the Granger companies, fitted in the last members of the framework of the American railway system as we know it today. It is a sufficiently accurate generalization to say that railroad building in the United States since 1893 has been concerned with the filling out of the outlines sketched before that time. This does not mean that later construction has been unimportant. On the contrary, regarded from the point of view of quantity of mileage built, the amount of construction since 1893 has exceeded the construction before that date. But by 1893 the railway net of the United States had assumed a character which it has since retained. Between 1895 and 1905 the increase of railway mileage in the United States was 39,228 miles, or 22 per cent; between 1905 and 1915 it was 40,595 miles, or 19 per cent; and between 1915 and 1938 there was a decrease of 7743 miles, or 3 per cent.

Future Outlook for New Construction.—During the next fifteen or twenty years we may again see an expansion of railway facilities. But if this expansion occurs it will probably take the form in the United States of more cars, more numerous and more powerful locomotives, better arranged and more ample terminals, and a larger supply of second, third, and fourth tracks and sidings upon existing routes that pay, rather than that of a substantial increase in main-track mileage. There are few cities in this country of any importance today, and few districts which promise to yield large quantities of freight, which are not now served by at least one railway line. Nor are there many railways—possibly none at all—which find in a lack of main-track mileage the limiting factor that prevents an increase in the tonnage they are prepared to haul. The reason why the existing railway system of the United States finds it difficult from time to time to handle the freight and the pas-

sengers which it is called upon to accommodate is, first, that congestion occurs at terminals, and, secondly, that motive power in many localities needs to be increased. To remedy such shortages will require the fresh investment of capital, but only occasionally the building of new lines.

Another reason why the next few years are unlikely to witness any considerable change in the framework of the American railroad system is to be found in the rapidly developing use of the automobile and the motor truck. The place of the automobile in our modern transportation system will be discussed in the following chapter. We shall content ourselves here by observing that it has already assumed an appreciable portion of the burden that has hitherto rested upon the railroad industry alone, and is probably destined to play a still greater part in the near future. This is likely to lessen the amount of railroad construction as well as to change somewhat the character of the work which railroads are called upon to do.

Current Railroad Problems.—During recent years the use of the motor vehicle and also the influence of depression and the effects of past and prospective war have forced upon railroad managers problems which they have not yet been able successfully to solve. Much of the later discussion in this book will be concerned with these problems. The difficulties the railroads have faced have not so far, on the whole, interfered with the smooth running of their systems, but economic and legal pressure has caused loss to investors and unemployment to workmen in the railroad industry, and this is rightly regarded as of major national concern. What the best organization of the railway plant may be, what its relations with other agencies of transportation, on what terms it should seek to attract capital, what its responsibilities are toward the men whom it hires, and how far users of railroad service should and can be compelled to pay for the facilities which they enjoy are uncertain. It is now too early in our discussion to generalize with respect to these railroad problems, but we shall return to the subjects that have just been mentioned as opportunity may appear.

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CHAPTER V

HIGHWAY TRANSPORTATION



Road transport is old transport. Road routes and movements over these routes are traceable to very early periods in the history of mankind. The road system of a modern state antedates its railroads, and perhaps even its inland waterways, for some form of smoothed way over the land is necessary in comparatively primitive stages of commercial and industrial development. Experiments with power, also, are not new, although during many centuries the horse supplied the major tractive effort required for highway travel.

Steam-driven Vehicles on the English Roads.—It is not generally known that between 1831 and 1838 there were not far short of a dozen companies in England formed to operate lines of steam coaches upon the public roads. Most of these services were in London, or ran between the capital and near-by cities; but successful coaching companies were also to be found in Glasgow, Gloucester, Southampton, and other English and Scotch towns. In 1831 a Select Committee came to the following conclusions with respect to steam road vehicles:

1. That carriages can be propelled by steam on common roads at an average rate of ten miles per hour.
2. That at this rate they have conveyed upwards of fourteen passengers.
3. That their weight, including engine, fuel, water, and attendants, may be under three tons.
4. That they can ascend and descend hills of considerable inclination with facility and safety.
5. That they are perfectly safe for passengers.
6. That they are not (or need not be if properly constructed) nuisances to the public.
7. That they will become a speedier and cheaper mode of conveyance than carriages drawn by horses.
8. That as they admit of greater breadth of tyre than other carriages and as the roads are not acted upon so injuriously as by the feet of horses in common draught, such carriages will cause less wear of roads than coaches drawn by horses.

9. That rates of toll have been imposed on steam **carriages which would** prohibit their being used on several lines of road were such **charges permitted** to remain unaltered.¹

Technical and Legal Obstacles to Early Automobile Development.—The favorable findings of the Select Committee of 1831 indicate **that English** road transport was then expected to develop, and it is a fact that automotive engineers before 1850 made valuable contributions to the art of steam **engine** construction.² But road carriages had to be made light in weight before **they** could be widely used, and the technique of steel manufacture was insufficiently advanced to produce light, strong vehicles. There were no rolling mills in 1831, tubes were formed from hammered sheet iron by welding or riveting, and engine parts were forged and turned by hand. Railroads and steamboats suffered less than road engines from this condition, because weight is less of a handicap to vehicles operated upon water or upon rails, but the steam car for common highways found it difficult to compete with other forms of transport until the methods of the iron and steel industry had been improved.

Early English steam automobiles were forced to contend with unfavorable legislation as well as with imperfect materials. In the first place, the steam coaches had to pay heavier taxes than the government demanded from the railroads. The railroads paid a mileage duty of 1/8 penny per passenger per mile, and were sometimes permitted to compound for this tax at a favorable rate. The coach paid turnpike tolls, stage-coach duties calculated upon the licensed capacity of the vehicle, mileage duties payable according to the number of miles which the coach ran, and other minor taxes. The aggregate was much more than the sum which the railroad was obliged to meet. Finally, the coach owner suffered from many annoying restrictions in the operation of his machine. Most of these regulations were local, but mention may be made of a parliamentary statute in 1865 which prescribed: (1) that the maximum speed of steam road vehicles should be reduced from ten **to** four miles per hour (two miles an hour in towns and villages); (2) that **the** number of persons required to operate the locomotive should be increased to three; (3) that a man should precede each machine with a red flag; and (4) that motor vehicles should be forbidden to blow off steam.³ Regulations of this sort were sufficient in themselves to drive steam coaches **from** English roads.

¹ H. O. Duncan, *The World on Wheels*, Paris, 1926, p. 158.

² This was particularly true of boiler construction. The boiler of the **Hancock steam carriage**, for instance, was superior to those of Stephenson's competitors at Rainhill, both because of **its greater** heating surface and because it was built to operate at pressures of 100 pounds **per** square inch. The boiler of the "Rocket" itself was intended to withstand pressures of **only** 50 pounds per square inch.

³ This legislation was repealed in 1896. It was **inspired by a complete misconception of the essential nature of automobile transport**

Remnants of Horse Transport.—There is still competition between railroad and highway vehicles in England, and there is even some lingering rivalry between mechanical vehicles and the horse, surprising as this may seem to persons acquainted only with present American practice. As a matter of fact, as late as the beginning of 1937 the four main-line railway companies in England were using 13,635 horses for cartage and switching work,⁴ and articles still appear in the British press explaining the superior efficiency of the horse as compared with motor vehicles in certain types of operation.⁵

In the United States, however, the horse is rarely seen upon the highway, and even in England the rapid decline in the number of horses owned by railway companies during recent years suggests that the arguments advanced to prove their superiority are not to be taken seriously.

Daimler and Levassor.—The significant beginnings of modern road transport are associated with the invention and development of the internal combustion gasoline engine rather than with the English experiments which have been described.

The internal combustion engine using gasoline or petroleum spirits was patented by a German named Gottfried Daimler in 1884. Daimler was a trained mechanic. He attended the Polytechnic School in Stuttgart from 1857 to 1859. In 1861 he went to England for two or three years; later he was shop superintendent of the Karlsruhe Machine Construction Company, and in 1872 he took over the direction of the Deutz Gas Motor factory near Koln. It was in Koln that he produced his first gas motor. Daimler fitted his engine to a bicycle, and afterward to boats, one of which ran on the River Seine during the Paris Exposition of 1887. In this engine a Frenchman named Levassor became interested. Levassor was a member of the firm of Panhard & Levassor, manufacturers of wood-working machinery. The firm secured the French rights to Daimler's invention in 1887. Levassor himself devised the ingenious system of clutch, gears, and differential for the application of power to driving-wheels which characterizes the automobile today, and the motor vehicle may be said to have been born*.

Later History of the Automobile.—The first workable automobile was constructed in 1887, after which followed a period of improvement, advertising, production, and distribution which has lasted to the present time. The somewhat extraordinary development of the automobile will not be described in

⁴ *The Railway Gazette*, Vol. 67, December 17, 1937, P- 1177-

⁵ The question at issue is the relative performance of horse and motor truck in delivery service when frequent stops are required. It has been argued that when not more than 30 per cent of a vehicle's time is occupied in running, a motor truck, even if it travels three times as fast as a horse, can gain only two hours during a working day of 8½ hours. The truck does only the work of 1 horse on these assumptions, while its costs are considerably in excess of this proportion (*ibid.*, Vol. 64, January 17, 1936, p. 117).

this book, except to comment in passing upon its rapidity, and upon the fact that the motor vehicle differed from the steam railroad or the electric street railway car in that it was intended from the beginning to be sold direct to private users, not to companies engaged in transportation as a business. Even at the present time, when motor bus lines and trucking companies are multiplying, most cars are still operated by their owners. This fact of individual use has had an important influence upon the types of motor vehicles placed upon the market, as well as upon the volume of sales and the character of use to which automobiles have been put.

Motor Vehicles in the United States.—The statistics of production or factory sales and of registration of motor vehicles in the United States go back to 1895. For stated intervals they are as follows:⁶

Year	Factory Sales	Registration
1895	4	4
1905	25,000	78,800
1915	969,930	1,445,666
1920	2,227,349	9,231, 941
1925	4,417,800	19,937,274
1930	3,509,358	16,545,181
1935	4,119,811	16,117,176
1938	1,655,171	19,485,680

Of this figure of 29,485,680, representing the total registration of automobiles in the United States in 1938, 25,261,649 were passenger cars, and 4,224,031 were trucks. There are no statistics of numbers of passengers handled or of tons of freight moved, and such estimates as are possible have been discussed in Chapter I. The value of the annual product of the automobile industry in 1938 is reported by the National Automobile Chamber of Commerce to have been \$2,779,299,414, and the total national investment in automobiles probably exceeds 10 billion dollars. The capitalization of the street railroads of the United States is about 6 billions, and that of the steam railroads about 18 billions. These last figures, however, cover costs of rights of way and roadbed, with which an automobile is not directly concerned.

Classification of Motor Vehicles.—Motor vehicles may be classified according to their physical characteristics or according to the character of their use. The former division distinguishes the passenger automobile, carrying from two to seven persons, the motor bus, and the motor truck. The latter separates the car used in the service of its owner and the vehicle operated in the service of third parties, either as a common or as a contract carrier. The temptation in discussing motor vehicle operation is to dwell chiefly upon those types of automobile and truck service which are comparable with the service which the railroad undertakes. This is justifiable for some purposes,

⁶ Automobile Manufacturers Association, *Automobile Facts and Figures*. (Annual.)

for the commercial car operator conducts a large and rapidly growing business, the main features of which it is important to understand. But it must not be forgotten that the motor passenger car and the truck still operate today primarily for their owners. This is a matter of common knowledge in so far as passenger cars are concerned. But it is also true of trucks, although it is not so easy to separate the commercial from the owner-operated road carrier by mere observation upon the road. In England, where all truck owners are required to take out licenses as a prerequisite to operation, the holders of "C" licenses, who carry only their own goods, represent 70 per cent of the total license holders. In the United States the proportion is even greater, as we shall see in later pages of this chapter. Indeed, the fact that an individual or a company may, with a comparatively small investment, control his transportation in complete detail instead of adjusting himself to the standard requirements necessarily imposed by a carrier which serves others than himself, is one of the major reasons for the appeal which the motor vehicle makes to the shipper of goods.

The Privately Owned and Operated Automobile.—Most of the information which we possess with respect to the use of automobiles comes from personal observation, from surveys, usually conducted by state or federal governments, and from testimony and exhibits in official investigations. In addition, we have official data as to the number of cars registered, the taxes paid, and, for commercial operators, some statistics gathered by state and federal regulatory commissions, or presented in litigation before these bodies. The available data relating to the load, length of haul, speed, and character of use of motor vehicles will be briefly presented in the following pages. The general procedure will be to consider the private passenger car, the bus, and the truck in turn, but we shall assemble data for all three together when this is more convenient, and add such comments as may seem useful.

Types of Vehicles.—Of the vehicles on the public roads today, the greater part, as has been said, are privately owned passenger cars. In Connecticut in 1934, 85.5 per cent of all motor vehicles counted were of this type, and in Rhode Island in the same year the proportion was 90.3 per cent.⁷ These percentages are not unusual.

Average Load and Average Hauls.—Speaking now only of passenger cars, the average number of passengers per car in California in 1922 was 2.02 in summer and 1.84 in winter. In Ohio the average was 2.3, and in Illinois it was 2.7, ranging from 2.3 persons per car where the proportion of business traffic was large, to 3.5 where business traffic was less considerable. In New Hampshire the average number of persons per car was 1.9 for business and 3.2 for pleasure use.

⁷ L. E. Peabody, "Digest of Report on Connecticut Traffic Survey," 16 *Public Roads* 225, 1936. See also "Some Characteristics of Highway Traffic in Rhode Island," *ibid.*, 238.

The average passenger trip by automobile is considerably below **the rail** average of 48.7 miles (1938). In Connecticut in 1922 the average automobile journey was 45.1 miles, and in Ohio in 1925 it was 38 miles. But more recent reports covering twelve states show average trips ranging from 11.7 to 18.7 miles. In rural areas in these states the average was less, in urban areas it was more, ranging from 17.5 to 34.7 miles.⁸ The average passenger car is obviously used for short trips to and from places of business, local markets, and places of gathering. These distances average much under 20 miles.

Average Speed.—Our most recent information on the subject of automobile speeds comes from the state of Rhode Island, where nearly 675,000 vehicles were timed by stop watches during the summer of 1934. The accompanying table gives the results of this survey.

AVERAGE VEHICLE SPEEDS IN THE STATE OF RHODE ISLAND,
JUNE 29 TO SEPTEMBER 26, 1934⁹

Classification	Week Days (Miles per Hour)	Sundays (Miles per Hour)	Total (Miles per Hour)
Passenger cars	34 4	33 5	34-2
Light trucks	31.2	31.1	31.1
Heavy trucks	18 4	29 4	18.4
Busses	30,5	30.1	30.4
Weighted average	33 9	33 4	33.6

It was noticed* in the Rhode Island survey that vehicle speeds were relatively high in the early morning business hours, and that they decreased sharply between 2 and 5 P.M. A marked increase in speed occurred between 5 and 7 P.M., but during the later evening hours the lowest speeds of the day were observed. The most striking decrease, of about 3 miles per hour, occurred at dusk. Speeds again rose to a peak in the small hours of the morning. There seemed to be no significant differences in the speeds of cars driven by men and those driven by women, but unaccompanied drivers drove faster than drivers with passengers by 1.3 miles per hour. Foreign cars traveled at speeds averaging 2.1 miles per hour faster than Rhode Island cars. The survey suggests that this was, perhaps, because the drivers of foreign cars were making longer trips or because out-of-state cars were newer or in better condition. These Rhode Island figures of average speeds are similar to those obtained by the Bureau of Public Roads in studies of highway movements in eastern Massachusetts during the summer of 1934; they are higher than those reported

⁸ United States, Office of the Federal Coordinator of Transportation, *Public Aids to Transportation*, Vol. IV, 1940, p. 15.

⁹Pabody, *op. cit.*, p. 239.

in California in 1922, but an increase in the speed of cars between 1922 and 1934 was to have been expected.

Daily Variation in Use.—From the point of view of the highway engineer, the fact that motor vehicle movements vary in volume in different months of the year and during different days of the month is important, because highways must be built to accommodate the maximum flow, and large variations result in imperfect utilization of road investment during off-peak periods. The variation in volume is also significant to the student of motor traffic because it helps him to understand the character of the need which motor vehicles satisfy.

The following figures are taken from the Connecticut survey of 1933-1934:

DAILY VARIATIONS IN MOTOR VEHICLE TRAFFIC DENSITY
EXPRESSED AS PERCENTAGES OF AVERAGE WEEK-DAY TRAFFIC¹⁰

Day	Passenger Cars	Trucks	Busses
Monday	96	98	103
Tuesday	93	100	96
Wednesday	99	96	98
Thursday	99	102	99
Friday		104	104
Saturday	133	85	102
Sunday	158	35	87

These statistics suggest strongly that a substantial portion, though not all, of the travel in passenger automobiles may be classified as pleasure use, for only on this theory can the increased intensity of movement on Fridays, Saturdays, and Sundays be explained. This conclusion has been drawn in a number of surveys. Thus the survey in Cook County, Illinois, reported that 68 per cent of passenger auto use of a non-business sort, and the earlier Connecticut survey of 1922 put the pleasure percentage at 65. Such estimates may be wide of the mark, but they may also be useful, especially when questions of charges for road carriage have to be discussed.

Motor Bus.—This is a vehicle accommodating four to forty-five passengers in addition to the driver, operating usually between fixed termini on a determined route. It functions, like the railroad and the interurban electric company, as a common carrier, but differs from these in that it travels universally upon the public highway and not at all upon its own right of way.

The annual census published by *Bus Transportation* reports the number of busses in use in the United States as follows:

¹⁰ *Ibid.*, January, 1936.

MOTOR BUSES IN USE AS OF DECEMBER 31, 1939"

Common Carrier Operation	
City carriers	10,141
City and suburban carriers	10,193
Intercity carriers	18,614
Total, common carrier operation	48,949
Non-common Carrier Operation	
Sight-seeing and charter hire	1,601
School	85,700
Other	1,000
Total non-common carrier operation	89,301
Total busses	138,150

The City Omnibus.—In city traffic the characteristic vehicle is the motor-driven omnibus, accommodating from twenty-one to forty-five persons, and frequently carrying passengers on top as well as within the vehicle. These busses approximate street cars in capacity, and do not greatly differ from them in point of speed.

Advantages of the City Bus.—The advantages of the bus over the street railway car with which it competes are chiefly in cheapness of installation and in flexibility of operation. The bus line constructs no permanent way, and so saves an important element in expense. The first cost of an electric installation is also likely to be greater than the cost of gasoline cars, unless the passenger movement is very heavy. It has been estimated that for these reasons a motor bus can be supported on a population of 250 per mile, while under present price conditions a street railway would require at least 1500 per mile for like conditions. Bus lines are, therefore, adapted to lightly settled areas and for pioneering work. It is true that, in a certain measure, bus-line construction is cheap because the taxpayer builds the road over which the bus operates; but this is not the whole story, and even if it were, the competitive advantage of the bus would still be real.

Besides being cheap to install, the bus is also flexible in operation; it is not tied to one street or even to one position in a street. Busses are able to avoid fires, parades, or other obstructions by detours. They can deliver passengers at the curb. A bus in movement can pass a bus that is loading or unloading passengers. While tastes differ, many people find the bus pleasanter to ride upon than the street railway. These advantages insure a place for city bus service, in spite of certain balancing disadvantages.

¹¹ *Bus Transportation*, January, 1940. About 6000 busses in school service are operated part time as common carriers, and consequently are included in the figures for that service.

Disadvantages of the Bus.—The chief disadvantage of the bus is a higher cost of operation with moderate volume of traffic, and also a higher cost of maintenance, if the expense of keeping up the road-bed is taken into account. More energy is required to move a passenger in a bus than in a street car, equipment depreciates more rapidly, and more skill is required of the driver. In addition to all this, the bus uses the street less effectively than the railway unless it is double-decked, and then the occupation of the upper deck is unpleasant in stormy weather.

Use of Busses by Electric Railways.—The merits of the bus in certain types of city service are so marked that in recent years a number of street railways have added gasoline or Diesel coaches to their equipment of electric rail cars. Thus by December 31, 1939, there were 168 electric railways in the United States engaged in bus operation, operating 16,859 busses over routes aggregating 16,168 miles.¹²

The use to which urban transport companies put these busses varies, of course, in different places. In a considerable number of cases, the bus has been substituted for rail operation, in whole or in part. According to *Bus Transportation*, there were 543 cities in the United States at the end of 1938, with population of 10,000 persons or over, which relied entirely upon busses for their local transportation, and there were 273 others in which busses were used to supplement trolley operations.¹³ In the last group of cases busses have been used as rail extensions, or to open new routes to the center of the city, or for cross-town work, or for interurban hauls where the traffic would not justify electric service. More than half of the cities which rely entirely upon busses have populations not exceeding 25,000. There are supplementary bus routes, however, in cities of the largest size.

In general, there seems to be little tendency for the city bus to take over the mass transportation of passengers in large cities, but in smaller communities, on special routes, and where traffic is light, the bus has demonstrated its utility. City bus service is by no means confined to the United States; on the contrary, the systems in operation in European cities such as London, Berlin, and Paris are highly developed.

Interurban Bus Lines.—In addition to the slow, capacious, city omnibus, large, fast motor busses are in operation upon many interurban routes. These busses compete with interurban electric railways and also with steam railroad lines. In December, 1939, there were 1488 common carrier interurban busses in New England; 7793 in the remaining states north of the Ohio and Potomac rivers and east of the Mississippi; 2542 in the Southeast; 3521 in the states west of the Mississippi up to the Pacific coast; and 1965 in California, Oregon, and

¹² These are the figures reported in the census undertaken by *Bus Transportation*. The actual number of busses operated by electric railways is somewhat higher, because of omissions in the count.

¹³ *Bus Transportation*, January, 1939, p. 55.

Washington. At this date intercity bus operations were being conducted over a total of 343,846 miles of highway.¹⁴

This interurban service is in a state of transition. Highway bus lines still operate with small fleets of ordinary passenger automobiles managed by individuals or partnerships, and financed by the capital of the proprietors. In contrast with such organizations, however, there exist today a considerable number of powerful corporations operating large fleets of specially built cars, and earning revenues which are counted in millions. The equipment of these corporations is being constantly improved. Some of the latest types of vehicles have smoking compartments, toilets, facilities for furnishing lunches, reclining chairs for night travel, and reading lights. Coaches are heated with hot water during the winter months and cooled with electric fans during the summer months, and there is space for carrying seventy-five to one hundred and fifty pounds of baggage per passenger.

There is some tendency for the larger concerns, which dominate the principal routes, to consolidate with each other, and it is not unreasonable to expect, in the long run, something of the concentration and stability among bus services which already exists among railroads. How consolidation begins is explained in the testimony, relating to California, given by the general manager of a large motor company in proceedings before the Interstate Commerce Commission.

. . . Take a typical illustration. . . . We will say "A," a line operating under the name of "A" between Los Angeles and San Diego. There might be 60 individual cars running on that line. They had arranged with the broker to put the name "A" on the cars, quote and sell their tickets for them, and as they came in they would draw up in front of the station and load in the passengers [that] might be there, and go on. Later on these 60 men or their successors would combine into an association, later incorporate a company and operate as one unit, as one corporation, with as many cars as might be required.

That has been the growth of the stage business—the lines became consolidated into one operating company and that one operating company in time has been more or less buying smaller or feeder lines, or competitive lines, grouping the service into one complete service to cover the territory offered.¹⁵

In recent years the tendency to concentrate is revealed by the reduction in the number of companies engaged in interurban motor vehicle bus service from 4875 on December 31, 1929, to 2598 on December 31, 1939, while the number of passengers carried by bus companies in intercity service increased from 422 million to 512 million. It is also illustrated by the formation of the Greyhound Corporation, a company which held interests, in most cases controlling

¹⁴ This figure, like that for the use of busses operated by electric railways, is **that reported** by the *Bus Transportation* census. The inclusion of miles of highway not covered by the census would raise the total, it is estimated, to 358,686 miles.

¹⁵ *Motor Bus and Truck Investigation*, I.C.C. Docket No. 18,300, Vol. VIII, **testimony Howell**, pp. 1797-1798.

interests, in a road system owning 2354 busses on December 31, 1938, and operating over more than 51,000 miles of route. It is reasonably clear that the future lies with the larger bus company. It alone can provide equipment calculated to attract traffic from the railroad, it can command superior managerial ability, and it is the more likely to adopt sound policies of accounting and finance.

Advantages and Disadvantages of Interurban Busses.—Like the city bus, the interurban motor service enjoys the advantage of the small investment which it requires for operation as compared with the expenditure necessary to install railroad or interurban service, the advantage of the ease with which routes can be altered and established, and that of the frequency of service made possible by the fact that the unit of bus operation is the single car, not the train. A bus can receive and discharge passengers at any point en route. Its city termini are sometimes, though not always, more conveniently located than those of the railroad company, and for hauls of moderate length, in fair weather, travel by bus is more agreeable than that by rail.

The disadvantage of the bus is that it operates upon the public highway and so is subject to interference from other traffic, which reduces speed and increases the likelihood of accident. Nor can the bus line maintain or police its route according to railroad standards. Again, the bus is lighter than the railroad car, affords less freedom of movement to passengers, and is generally unable to supply sleeping and dining facilities. It is therefore less able to handle long-distance traffic.

Interurban Bus Lines Supply Complementary Service.—It is still to be determined how far this new mechanism will supply a service that is complementary to the steam railroad and to the interurban railway, and how far it will be competitive with the older forms of transportation machinery. One fact to be considered is that a considerable portion of the bus routes in the United States do not lie parallel to existing railroad lines. This matter of location was considered at length by the economist of the United States Bureau of Public Roads in 1925; and his conclusion, based upon figures for seven states,¹⁶ was that only 41 per cent of the mileage of bus routes in these states then paralleled railroad lines. An additional 28 per cent of bus routes competed indirectly with railroads in that their terminals were also connected in some manner by railroad, though to travel between bus terminals by railroad necessitated change of trains at one or more junctions, and a roundabout journey. The remaining bus routes were wholly non-competitive.

This study added that in many cases the bus routes indirectly competing with railroad service provided cross lines which were very much shorter than the railroad routes, and it may be argued with some force from this fact that

¹⁶ H. R. Trumbower, "The Motor Bus as a Common Carrier," *Public Roads*, Vol. VI, December, 1925.

railroad service in such cases was uneconomical and could properly be disregarded. The question of competition between railroad and motor bus will be further considered in Chapter XXVI.

Motor Trucks.—The principal uses of the freight automobile, or motor truck, include the following:

- i. One familiar type of operation is found in the delivery service of retail stores, including butcher, bakery, dairy, and grocery, as well as department stores.

2. Another type of service is the haul of perishable commodities such as milk, eggs, vegetables, and fruit from producing territory into the larger cities. The proportion of this business done by truck varies, of course, in different sections. Thus the percentage of milk received by motor truck at Boston in 1930 was 6.8, while that received by truck at Philadelphia was 56 per cent, or more than eight times as much.

In California fruit moves by truck from field to packing house, from packing house to rail siding, or direct from field to market. The movement is seasonal and may start with the cantaloupe crop in the Imperial Valley where the peak season continues for a few weeks; then the equipment may be transferred to the Los Angeles district to take care of the transportation of citrus fruit or hay and grain, from there to the Bakersfield district for the cotton crop, thence to Fresno for the grain and raisin crop, and thence on to other districts successively to meet the peak production of other crops, until, within the course of a year, a large amount of transportation equipment has made practically a complete round of the state and is back again at the starting point.¹⁷

The success of the motor truck in capturing the fruit and vegetable traffic is shown by the fact that, in 1938, 33 per cent of the fruits and vegetables unloaded in 12 principal cities in the United States came in by truck as compared with 67 per cent by rail. The proportion was 12 per cent at Chicago, 21 per cent at Kansas City, 32 per cent at New Orleans, 44 per cent at Philadelphia, 73 per cent at Atlanta, and at Los Angeles 92 per cent of the fruits and vegetables reported by the Department of Agriculture reached the city by means of a truck haul.

3. In certain parts of the Middle West, there are truck operators who specialize in the transportation of livestock from farms to packing or rail-shipping centers. Hauls of 60 to 80 miles are common. The trucks which carry outbound hogs, cattle, and sheep are filled with return loads of merchandise, agricultural machinery, fertilizer, and other freight shipped from industrial centers to small towns along the motor routes. In 1939, 32 per cent of the sheep and lambs, 62 per cent of the cattle, 64 per cent of the calves, and 75 per cent of the hogs received at seventeen principal packing centers in the United States

¹⁷ *Motor Bus and Truck Investigation, op. cit., testimony Boston, p. 2044.*

were so-called "drive-ins," a term applied to livestock which are driven or trucked to market instead of being shipped by rail. Most "drive-ins" arrive by motor vehicle and not under their own power. This shift from rail to highway has occurred, for the most part, during the last ten or fifteen years. Since 1930, for instance, the percentage of "drive-ins" at Chicago has risen, in the case of cattle from 6 per cent (1930) to 48 per cent (1939); in the case of hogs from 6 to 46 per cent; and in that of sheep and lambs from 3 to 32 per cent. In 1939 67 per cent of the cattle reaching Cincinnati were "drive-ins," whereas in 1930 the proportion was 21. Of the hogs which reached Kansas City in 1939 95 per cent came by truck, while the percentage in 1930 was 39 and that in 1925 only 9. This trend could be further illustrated by reference to other towns.¹⁸

4. An equally specialized service is that of hauling household goods. Vans constructed for this purpose often move long distances. They offer the advantage of speedy transportation and reduction in breakage, because they eliminate all intermediate handling of the freight.

5. Still other important uses of the truck are in the haulage of cotton; automobiles; coal; construction materials, such as lumber, gravel and cement; oil-field supplies; and motion picture properties. Some interesting figures presented in the report of the examiner of the Interstate Commerce Commission in 1932¹⁹ show a particularly heavy movement of coal in certain areas. Thus, about 33 per cent of the coal received annually at Reading, Pa., 50 per cent of the total anthracite used at Lebanon, Pa., and 40 per cent used at Harrisburg, Pa., were moved to these points by motor truck. In southern Indiana in 1931, coal was being trucked from the mines to points within a radius of 50 miles, and the Chicago, Burlington and Quincy estimated that it had lost to the trucks an annual coal traffic of 250,000 tons. Likewise in the neighborhood of St. Louis much coal is moved by truck. The traffic in this case has repercussions upon the local system of distribution, because many truck haulers engage in the retail coal business in order to provide themselves with freight for their trucks.²⁰ All this is the more interesting because it has been assumed that trucks are not appropriate vehicles for low-revenue heavy traffic such as coal.

The accompanying table indicates the origin and destination of motor trucks observed in the California Highway Survey of 1934.

¹⁸ United States Department of Agriculture, Agricultural Marketing Service, *Drive-In Receipts of Livestock, 1939*, Washington, January, 1940.

¹⁹ *Report on Coordination of Motor Transportation*, Senate Doc. No. 43, 72d Congress, 1st Session, 1932, p. 49. See also H. G. Moulton, *The American Transportation Problem*, Brookings Institution, Washington, 1933; and S. L. Miller, *Inland Transportation*, McGraw-Hill, New York, 1933.

²⁰ C. V. Beck, "Trucks Making Heavy Inroads into Short Haul Coal Traffic," *Railway Age*, February 6, 1932, p. 254.

ORIGIN AND DESTINATION OF MOTOR TRUCKS, CALIFORNIA, 1934

Source of Loads	per Cent of Loads Destined to			
	Market	Store	Home	Miscellaneous
Farm	49.4	11.1	7.2.	32. 3
Factory	1.9	50.6	17.1	30.4
Warehouse	58	55.7	12..3	2.6.1
Total	20.2	38.4	11.9	19.5

The most important movements in California were from farm to market, from factory to store, and from warehouse to store. Shipments from factory to home and from warehouse to home consisted primarily of dairy products, building materials, and miscellaneous domestic supplies such as laundry, cleaned and dyed articles, and the like.²¹

Most of the heavy trucking in California dealt with commodities such as sand, rock, gravel, and petroleum, carried in vehicles which weighed 6000 pounds or more unladen. The typical motor truck transportation was not, however, of this type, but consisted of hauls by lighter vehicles loaded with vegetables, fruit, dairy products, livestock and poultry, furniture, and beverages. This experience in California is consistent with that in Connecticut, where 79 per cent of the registered trucks counted on the roads were of 2½ ton capacity or less, and the miscellaneous traffic much exceeded that carried in bulk, and with reports from Rhode Island, where 55.4 per cent of the trucks counted in a highway survey in 1934 had capacities of 1½ tons or less.²²

Characteristically, trucking is still conducted in small units. There are no statistics of motor truck capacity which cover the entire United States, but the National Automobile Chamber of Commerce does collect figures of truck production which show that 91 per cent of the trucks sold in 1936, 1937, and 1938 were rated at a capacity of less than 2 tons. Heavy trucks are in a small minority, although the vehicles which have a capacity of 2 tons or more should not be overlooked. These are the instruments which carry commodities such as coal and cotton, and also lumber, hay, gasoline, and steel. They move in units as large as 20 tons, including trucks and trailers, and they make inroads upon railroad carload, as well as upon less than carload, freight.²³

²¹ State of California, Department of Public Works, Division of Highways, *California Highway Transportation Survey*, 1934, p. 87.

²² This type of evidence could be accumulated. See D. P. Locklin, *Economics of Transportation*, chap. xxxiii, and *Motor Bus and Truck Investigation*, *op. cit.*, testimony McKay, p. 660.

²³ L. B. Young, "Truck Competition is Taking the Railway's Carload Traffic," *Railway Age*, Motor Transport Section, September 27, 1930, p. 648. See also, "Coal Hauling by Truck," *Traffic World*, December 10, 1932, p. 1147. In 1938, in New England, 41 per cent of all shipments handled by motor common carriers weighed 100 pounds or less; 50 per cent weighed

Short-haul Movements Predominate.—It can be reasonably inferred from what has just been said that local distribution constitutes the bulk of motor truck tonnage movements. As a matter of fact, surveys in different states show that in Connecticut 79.5 per cent, in California 60.7 per cent, in Maine 80.5 per cent, in Ohio, 71.6 per cent, and in Cook County, Illinois, 75.8 per cent, of the loaded trucks moved less than 30 miles at the time when the surveys were made. In Connecticut and Maine, 47 per cent moved less than 10 miles.²⁴ In California, in 1934, when the state was divided for truck survey purposes into eight zones, 82 to 94 per cent of the total truck traffic recorded within any zone originated within the boundaries of that zone. In each case, moreover, the traffic was concentrated in the vicinity of the principal town or towns which the zone possessed—another indication of its local character.²⁵ The daily trip mileage of all trucks examined in California, in 1934, was 78 miles.

Mr. McKay, of the United States Bureau of Public Roads, has even gone so far as to declare that long-distance truck transport is economically unsound. He testified in the Motor Bus and Truck Investigation of 1928 that an analysis of motor truck transportation in the several states showed this to be the case. The movement out of the cities, he said, is primarily a local process of distribution. The movement toward cities is largely of goods produced in the area, principally food products. The volume of goods moving between two shipping points is unbalanced in the short haul and progressively unequal with increase in distance, negating the development of long-haul motor truck transportation because of difficulty in obtaining return loads.²⁶

Witnesses for several eastern motor rate bureaus also testified before the Interstate Commerce Commission in 1938 that on hauls up to approximately 50 miles, motor carrier service was generally more attractive to shippers than that afforded by the rail carriers. They contended that the cost of motor carrier transportation under 50 miles was lower than the costs of the rail carriers, and that rail competition on the shorter hauls was a negligible factor. As distances increased beyond 50 miles, rail competition became more important, and for extremely long hauls, according to these witnesses, the costs of truck transportation prevented any possibility of the motor carrier competing with the rails. The distances within which motor carriers could compete with rail service was said, however, to vary with different types of commodities. On low-grade heavy-loading commodities, the competitive range was shorter from 101 to 1000 pounds, and only 9 per cent more than 1000 pounds (8 M.C.C. 287, 295, 1938).

²⁴ J. C. McKay, Chief, Division of Highway Economics, United States Bureau of Public Roads, Midwest Motor Conference, Chicago, May 27, 1925.

the average distance from the center to the boundary of the California zones ranged from 40 to 120 miles. More than half of the total traffic counted was, however, in the zones which included San Francisco and Los Angeles, and in these the distance from center to boundary was only 50 and 40 miles, respectively.

²⁶ *Motor Bus and Truck. Investigation, op. cit.*, testimony McKay, p. 670.

than on more valuable light-loading commodities.²⁷ This view that motor vehicles are superior to railroads only for short hauls, prevails also in Europe, although European opinion is less reliable in such a matter because it is based upon a narrower experience than American observers can command.²⁸

It is safe to say that most motor truck business is still handled over short distances, just as most of it is still carried in small sized trucks. There is more danger in predicting that trucks will eventually restrict themselves to short-haul transportation. After all, there is a good deal of long-distance truck transportation at the present time in spite of the predominance of the other type, and there is some evidence that long hauls are increasing. The examiner for the Interstate Commerce Commission interested himself in selecting instances of long hauls from the record in the *Coordination of Motor Transportation* case, and some of the illustrations which he reported deserve to be considered by students of motor transport. It appeared, for example, that in 1930 automobile tires were moving by truck from Detroit, Michigan, to Kansas City and to Atlanta, Georgia, distances of 650 to 800 miles. Fifty per cent of the production of grapes in Arkansas in 1930 was moved by truck for distances up to 500 and 600 miles. Trucks operated daily between San Francisco and Los Angeles, 485 miles, the run being made in 13 hours. From Omaha farm implements were transported by truck 200 to 500 miles, bakery goods from 175 to 200 miles, and butter 250 miles and over. The service in all cases was regular, not sporadic.²⁹ Press reports a few years ago referred to the organization of a trucking company to give regular service between New York and Chicago, a distance of over 1000 miles. The company proposed to run trains of tractors and steel trailers over the public roads, collecting and delivering freight at intermediate terminals in smaller vehicles. The trains were expected to maintain an average speed of 35 miles an hour with maximum loads.³⁰ A still longer service has been inaugurated between Los Angeles and Houston, a distance of 1698 miles. The run between these points requires three days of continuous travel.³¹ Such operations make it necessary to suspend judgment with respect to the possibilities of long-distance truck transportation until experience has accumulated and we know whether or not these motor services can be conducted over a period of years with reasonable success.

Advantages of Motor Truck Service,—An investigation conducted at Yale University analyzed the experience of fifteen firms shipping freight by truck between New York and Philadelphia. The conclusion was reached that in

²⁷ 8 M.C.C. 287, 302, 1938.

²⁸ International Railway Congress Association, *Monthly Bulletin*, June, 1931. Mr. Colson declared categorically, in 1931, that for distances of at least 60 to 90 miles the railway can **carry** at lower total rates than road motor transport. In saying this, Mr. Colson assumed that rail **and** road transport would be put on an equal footing with respect to taxation and regulation.

²⁹ *Report on Coordination of Motor Transportation*, *op. cit.*, p. 42. See also instances cited by Locklin, *op. cit.*, pp. 762-763.

³⁰ *Traffic World*, November 7, 1931.

³¹ *Ibid.*, June 18, 1932, p. 1305.

this area and for this group the principal advantage of the truck lay in its ability to furnish an overnight delivery. In discussing the reasons for the greater speed of truck service, the Yale inquiry made the following interesting observations:

Motor trucks are able to provide overnight delivery, while the rail carrier cannot, because of the greater operating flexibility of trucks in terminal areas. The practice of the larger trucking companies is to operate their trucks over the road during the night when other traffic is comparatively light. Truck-load shipments move direct from plant to consignee's store door. Less-than-truck-load shipments move to the freight transfer station which the larger trucking companies maintain, where each shipment is transshipped to a small or local delivery truck serving the particular territory to which that special shipment is bound. Less-than-carload shipments via rail require local motor truck delivery to the freight station at the originating end, and to the consignee from the railhead at the receiving end. This procedure is time-consuming. Another delaying factor is that most railroad freight stations have definite opening and closing hours, and the local cartage service must conform thereto. Carload shipments moving via rail, especially in New York, generally require involved switching moves, which often consume much time, to reach the consignee's plant. In addition, direct delivery requires that the consignee have a rail connection. Such basic characteristics as these explain the difference in the shipping time which these two means of transportation require for movement between the cities involved.

The more outstanding economic consequences that make the factor of overnight delivery so important are listed below:

- a. It allows jobbers and dealers (the consignees) to carry reduced inventories and stocks.
- b. It eliminates the necessity for large storage facilities or for warehousing, thus allowing the consignee to order in small lots instead of in carload lots as formerly.
- c. It allows production to be scheduled to fill orders rather than to maintain complete stocks, which makes for direct savings to the manufacturer, who is also generally the shipper.³²

The essential reason why the truck can give more rapid service than the

³² Russell W. Talbot, "Why Shippers Use Trucks," *Railway Age*, September 26, 1931, P-485. There is an excellent discussion of the relative speeds of truck and railway car in H. E. Stocker, *Motor Traffic Management*, Prentice-Hall, New York, 1938. On this subject the Federal Coordinator said, in 1935 (*Freight Traffic Report*, Vol. II, pp. 70-72):

"On the average, the truck delivers on the first morning within a radius of 149 miles, the train within a radius of 13 miles. By the second morning the truck's area has increased to 534 miles and the train's to 149 miles. The third morning finds the truck deliveries 920 miles away; and by the fifth morning the truck has delivered within 1,200 miles and the train within 900 miles. These are average speeds for the United States. Generally the speed of both truck and train is slower in the East and South. . . .

"The foregoing, however, should be viewed in the light that the service compared is from door to door, and that the averages which include rail terminal time tend to distort the short distance comparison. There are many cases where the individual train schedules are faster than those of the highway."

railroad is that it is able to collect traffic at its source and deliver it to its final destination with a minimum of rehandling. This increases speed of movement by eliminating some of the delays due to transfer. Moreover, the truck frequently, though not always, has a greater choice of routes than the rail car, and so can avoid the congestion characteristic of city terminals, or the detours which mark some railroad lines. Truck operators have less cause than railroads to delay freight in order to assemble shipments into long trains for movement between terminals. Their services are more frequent, delays in making connections are avoided, and through and local shipments are relatively independent, thus improving the facilities which each can provide. Once the freight has left the terminal and is traveling along the main highway or railroad route, the truck has no inherent advantage over the railroad with respect to speed. As the trucking business increases in volume and falls more and more into the hands of common carrier organizations, trucking companies are compelled to establish terminals of their own, while they have to face the operating problem of concentrating shipments in order to improve their load ratios. The conditions of truck transportation therefore come to resemble more closely the conditions of railroad transportation, and the relative advantages of the former decrease.

The second reason which most of the firms consulted gave to the Yale investigator for their use of motor trucks was that motor service included store-door collection and delivery. This is, at present, also supplied by the railroads in most localities.

A third advantage ascribed to the motor truck in the New York-Philadelphia service was that truck operators were willing to supply non-scheduled rush-hour service when needed by the shippers. When such a service was required, motor companies would operate a truck on a special trip direct to the consignee's door. If the rush shipment was of truckload size, the shipper was generally charged the regular rate. If it was a less-than-truckload shipment, then the shipper was required to pay on a truckload basis to enable the trucking company to make a reasonable profit on the special move.³³

³³ The following list of the advantages and disadvantages attending the use of trucks in the marketing of fruits and vegetables in New Jersey is given in Moulton's *The American Transportation Problem* (p. 612):

Advantages

1. Faster service.
2. Convenience and saving in labor.
3. Better condition of product on arrival.
4. Early delivery to market with maximum time for preparing shipments.
5. Greater opportunity for diversion of product.
6. Less loss for shortages and damaged packages.
7. Promptness in payment of claims.
8. Lower transportation costs in local territory.
9. Agreements to pay for loss of early market.
10. Return of empty crates.

Packing Requirements.—According to the Talbot report, speed, store-door delivery, and a willingness to render special service were the three characteristics of truck service which commended it most to the users who took time to analyze their experience in shipping between New York and Philadelphia. In another type of community the saving in packing requirements by truck service would quite certainly have been given weight. The great difference between rail and truck transportation in this regard was dwelt upon by farm witnesses before the Interstate Commerce Commission in 1926, and was, in particular, discussed by one truck operator as follows:

"The farmer," said this witness, "that wants to ship a five-ton load of cabbage from a distance of 30 miles from Boston, must either furnish containers to put that cabbage in to bring it to the railroad, or he must pay for the full car of freight to put it in. . . . In order to ship the five tons, 10,000 pounds, he must buy 100 barrels, which is our standard container for cabbage or squash, 35 cents a barrel, making \$35 for those 100 barrels. He must travel anywheres within 10 to 15 miles from his place to obtain those empty barrels, bring them to his farm, load them up, and take them with his small truck or pair of horses and make possibly anywheres from 5 to 10 trips to the nearest railroad station, which is 3 to 10 miles, and pay an extra charge for 2500 pounds for those empty barrels, because we must pay for our gross weight on the railroad, making an expense of approximately from \$40 to \$45 extra on those cabbages.

"We take this cabbage . . . loose, at his door, for freight plus cartage charges, deliver it to the commission man . . . or to the dealer to his door. He provides a space for us, and it is taken right off . . . saving the farmer the travel and the containers, and saving the public that enormous expense which is no earthly good to anyone."

Q. "Where is the weighing done?"

A. "At the farm. The farmer gives us his weight. Sometimes the commission man here puts [in] a scale and we weigh it again. We sometimes go on such a scale empty and weigh our truck and it is loaded up, and when it comes to Boston it is weighed on the city scales. We give the slip to the merchant or commission house, and he deducts our tare, and he gets the net weight."⁸⁴

11. Increased sales to retailers.

12. Intimate touch with market through truckman.

Disadvantages

1. Lack of advance market information.

2. Absence of proper regulation of responsibility of operator, regularity of schedule, and standardization of rates.

3. Necessity for immediate sale or storage.

4. Lack of opportunity for shipping-point inspection.

5. Terminal market congestion.

6. Rising transportation charge with increasing distance.

7. Interrupted service resulting from unfavorable weather.

8. Miscellaneous disadvantages, such as breakdowns, lack of insurance, delay in market, etc.

⁸⁴ *Motor Bus and Truck Investigation*, *op. cit.*, testimony Mailkin, pp. 3047-3049. The language in this quotation is slightly altered in places to make it intelligible.

When one considers the matter apart from the facts of present practice, it is not obvious why the packing requirements for truck movements should be less severe than those for shipment by rail, and still less why they should continue to be so after the trucking companies have developed terminals and transfer points analogous to those used by railroad men. One may hazard the opinion that there are two reasons which may cause such a difference to persist. One is that the pneumatic tires and the springs on which the truck body rests absorb shocks more easily than the steel wheels and the springs which support the freight car; the other is that the operation of long railroad trains produces more violent jars than the running of a tractor with its trailers. It would be possible for the railroads to rebuild their equipment with an eye to its riding habits, and to shorten their trains to conform to truck practice, but it is not likely that either will soon be done. Still another reason is that the truck is smaller than the freight car, and less transfer of freight is necessary in order to assemble a full load. The rail car of 30 to 50 tons or more represented a determined effort to reduce the cost of operation in a day when the shipper had no alternative to rail. It was easy to load such a car with gravel, coal, or wheat; it was less easy to put in full loads of fruit, vegetables, and the miscellaneous merchandise that moves by truck. As long as the standard freight car has a capacity more than fifteen times as great as the standard truck, there will be more rehandling of rail than of truck shipments, and packing requirements will be more severe in one case than in the other.³⁵

A merit of the truck which has been already mentioned is that it can supply a more frequent service than the railroad because its operating units are smaller; and yet another advantage may be that the minimum investment required for service is less than that necessary when rails are used. It may be that the motor carrier's investments reduced because trucks use the public roads, and without proper compensation. This is a matter that we must again discuss. It is probable, nevertheless, although there are no statistics to prove the truth of the statement, that even under a proper accounting system the expense of handling a small amount of freight is less by truck than by rail. Truck service is analogous to bus service in this respect.

Rates.—Rates of common carrier truck operators vary from simple flat charges based on weight to elaborate tariff schedules governed by state classifications or by railroad classifications taken over for the purpose. The rates of some of the large operators are related generally to railroad charges, but there is little agreement between truck owners as to what the relationship shall be. In 1931 the State Commission of South Carolina found that no two motor common carriers in South Carolina were or had been charging the same rates for the same kind of service. One carrier quoted rates in that state which were 12.5 per cent less than the corresponding rail rates; another

³⁵ See Chapter XXIII, however, for the use of special steel containers in rail shipments designed to reduce the necessity for terminal handling of rail parcel freight.

charged the rail rates plus four cents per 100 pounds; still another charged railway express rates, and others demanded from 10 to 37.5 per cent above rail rates on some classes and rail rates on various commodities. The Interstate Commerce Commission report on the Coordination of Motor Transportation referred to many rates which were higher than the current rail charges, to many which were the same, and also to many that were lower. Truck rates are often lower for larger than for smaller shipments, but when this is the case the dividing points are not fixed at the railroad carlot level but take account of smaller differences such as those between 2000, 4000, 10,000 and 18,000 pounds.³⁶

The greater speed and flexibility of much trucking service and the reduced liability to damage should make shippers willing to pay a somewhat higher charge to truck operators; but competition sometimes deprives the road carriers of this differential. In 1932 the California Railroad Commission ruled that a railroad-controlled truck might not charge lower rates between particular points than the parent company charged for transportation by rail between these same points;³⁷ but such a ruling obviously would not apply to a trucking company which was not a railroad under another name. Truck rates reflect competition, distance, condition of the roads, special services required, and value of the shipments, with perhaps less attention to differentials and to group arrangements affecting competitive producers than railroads are accustomed to display, and with greater simplicity in the manner of quotation. An increasing number of states are compelling truck common carriers to publish, file, and observe their rates, and such regulation, joined to the prescriptions of the Interstate Commerce Commission with reference to interstate traffic, may be expected to standardize motor rate practice to a considerable degree.

Common Carrier Truck Service.—The most important advantages of the motor truck as compared with the rail car are independent of the kind of ownership to which the truck is subject. It is well to remember, however, that the trucking business is conducted in at least three distinct ways. Some trucks are common carriers, serving all who apply; some are contract carriers, limiting themselves to a particular clientele; and some are owned by the shipper of the freight which they transport.

The available data do not enable us to state with any precision what part of the motor truck service is performed by regularly organized companies engaged in common carriage and what part by shippers who own both the trucks and the commodities which they transport. In Cook County, Illinois, 83 per cent of the loaded trucks recorded upon the county highways were found to be owned by the shippers or consignees of the commodities hauled,

³⁶ *The Motor Truck Red Book*, New York, Traffic Publishing Company. See also H. E. Stocker, *Motor Traffic Management*, Prentice-Hall, New York, 1938.

³⁷ 37 Cal. Railroad Commission 102, 1932.

and only 17 per cent were engaged in commercial transportation of freight.³⁸ The last-named group includes what is known as the "contract" carrier.

In Connecticut in 1934, 74.4 per cent of the trucks counted were carrying freight for their owners, 18 per cent were contract, and 8 per cent were common carriers. In Arkansas in 1935 the percentages were 85.2, 10.1, and 4.7; in California in 1934 they were 79.9, 18.2, and 1.9.³⁹ The proportion of business which common and contract carriers transport is higher than the figures of ownership would indicate, because the average load is higher and, possibly, the trucks are in more continuous use. Whether for these or for other reasons, the New Hampshire survey observed that the use of trunk-line highways in New Hampshire by trucks operated for hire totaled 12,700 truck miles per day, or 17.3 per cent of the total truck traffic. Of this, contract trucks produced 69 per cent and common carriers 31 per cent. The Interstate Commerce Com-

³⁸ It is not always easy to distinguish between contract and common carriers. A truck owner who undertakes to carry traffic supplied by a single manufacturing concern is classed as a "contract" carrier. He does not, by the single contract, hold himself open to the public generally—and a general offer to serve is the necessary characteristic of a common carrier. Such a truck owner may add a second and a third manufacturer to his list of clients, and still remain a "private" operator. But at some point in his expanding activities the truck owner will come to serve so large a portion of the entire public capable of employing his services that the courts will hold his offering to be general and the status of a common carrier to have been assumed. Courts will differ in locating the point of transition from private to public enterprise; and practice is hard to standardize because judicial decisions in such matters depend upon estimates of fact and not upon principles of law. (Cf. 2 M.C.C. 703, 708, 1937.)

The advantages of a contract over a common carrier have been summarized by the Michigan Public Utilities Commission as follows:

1. The common carrier has to operate between fixed termini and over a fixed route, while the contract carrier may go over any route and to any point.

2. The common carrier freight permit holder, in the majority of instances, must maintain terminals. The contract carrier does not usually do this, but generally operates from one loading dock to another.

3. The contract carrier usually takes full payloads of the freight that he knows is desirable to handle, while the common carrier operator is compelled to take all that is offered to him and that his tariff covers.

4. The common carrier is required by law to carry insurance or provide bonds for the protection of the shipper, the cost of which is a large factor in his operating expense. The contract carrier is not required to carry insurance on his load and is, therefore, spared this large expense.

5. The common carrier must pay a permit or privilege fee which is a considerable factor in his operating expenses, whereas the contract carrier is not required to pay this (*The Motor Trucks Red Book*, 1936, p. 191).

³⁹ State of California, Department of Public Works, Division of Highways, *California Highway Transportation Survey*, p. 83. Estimates before the Interstate Commerce Commission have set the number of trucks engaged in common carriage at 10 per cent of the whole. Other estimates by the Bureau of Public Roads concludes that the corresponding figure in Pennsylvania is 6, that in New Hampshire 13, and that for eleven western states 5.5 per cent. In some districts the proportion of business handled by commercial trucks much exceeds the percentages given in the text. A Southern Pacific official has guessed that 60 per cent of the highway traffic in California is carried by contract truckers, about 20 per cent by private trucks, and the remainder by common carriers, but this does not correspond with the results published by the California Highway Survey. The Atlantic Coast Line Railroad Company advised the Interstate Commerce Commission that of 1,335,522 tons of freight diverted from its lines in 1930, 11.9 per cent was carried by common carrier trucks, 59.08 per cent by contract trucks, and 28.96 per cent by private trucks (*Report on Coordination of Motor Transportation*, op. cit., pp. 57-59).

mission believes that the share of the commercial trucker for the country as a whole is still higher. Weighting to allow for differences in intensity of utilization, the Commission estimates that nearly 20 per cent of the truck traffic, in terms of ton-miles, is handled by common carrier operators, 30 per cent by bona fide contract operators, and 50 per cent by private operated trucks.⁴⁰ Exact information for the United States is not available in these various matters, but it seems likely that commercial trucking companies handle considerably less than one-half of the total trucking business, and that organized common carrier service by truck takes care of only a portion of this fraction, whatever it may be.

In later chapters we shall discuss the use of the truck in terminal service, the competition of motor vehicles generally with the railroad plant, and the manner in which state and federal regulation has been extended to the highway carriage of passengers and goods. Let us now leave the subject of road transport for the moment, however, to consider the development of facilities for air travel—the last of the major instrumentalities which we shall undertake to describe.

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⁴⁰182 I.C.C. 263, 407, 1932.

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CHAPTER VI

AIR TRANSPORTATION



Early History.—Air transport is new transport, for it is only recently that men have learned to fly. Yet flight is a phenomenon which men have long observed, and the notion that, in some way or other, human beings might propel themselves through the air has provoked experiment during many hundreds of years. Roger Bacon in the thirteenth century wrote that "there may be made some flying instrument, so that a man sitting in the middle of the instrument and turning some mechanism may put in motion some artificial wings which may beat the air like a bird flying." And Leonardo da Vinci, about 1500, drew designs for gliders and for planes or helicopters, as we should term them now, to be actuated by man power much as Bacon had imagined.

Balloons.—The simplest flying instrument to construct is not the airplane but the balloon; and it was in the building of lighter-than-air craft that success in flying was first attained. The first balloons were floated by a Frenchman named Montgolfier during the last years of the eighteenth century. They were inflated with hot air; but this unsatisfactory substance was soon replaced by gas, and a hydrogen-filled balloon actually crossed the English Channel in 1785. Vehicles of essentially the same character are still made today, and they are useful for certain purposes. But the fact that round balloons can be neither steered nor efficiently propelled makes them unsuitable for transport, and modern lighter-than-air machines differ greatly from those with which Montgolfier and his immediate successors were familiar.

Zeppelin Dirigibles.—The type of balloon best suited for commercial use is the so-called "dirigible" or "Zeppelin," which takes its name from a German nobleman, Count Zeppelin, who first launched such a ship in 1900, constructed after his own ideas. The peculiarity of a "Zeppelin" is its long, cylindrical hull, built of rigid horizontal girders braced by cross-bridges of metal work. The hull of a "Zeppelin" is covered by a skin, but lifting power is obtained from a number of smaller gas-inflated sacs or balloons introduced into compartments into which the hull is divided. Engines placed below the hull operate propellers that drive the apparatus forward, while fins and rudders direct its course. Vessels of this kind may be built to almost any

desired size. The last large rigid airship, the *Hindenburg*, used in aerial commercial navigation was 813 feet long, 135 feet 2 inches in maximum diameter, and had a normal gas capacity of 6,710,000 cubic feet. Its cruising range at speeds of 78 miles per hour was 8700 miles. The gas cells of the *Hindenburg* could support a weight of 471,800 pounds; most of this lifting power was necessarily utilized, however, to keep the vessel itself, with fuel and equipment, in the air, so that the net or pay load was only 42,000 pounds.¹

Advantages of Dirigible Airships.—Aircraft of the Zeppelin type have important advantages over the heavier-than-air flying boats with which they are usually compared. The first of these advantages is that their weight-carrying capacity is greater. This means that they have a much longer non-stop cruising radius than the airplane, as well as the ability to carry greater loads on short flights. It has been stated that the most efficient distances between ports of call for the commercial airship, allowing a 50-per-cent fuel reserve, are perhaps, from 2000 to 4000 miles. Stopping places for airplanes must usually be much closer together. Not only has the airship a greater weight-carrying capacity, but the ratio of useful load to gross weight improves, in the case of the airship, with size, an advantage which the plane does not possess. Still again, the airship can remain suspended in air even when stationary; and for this reason, as well as because it is driven by several engines instead of by one, its crew is able to effect current repairs in the air, instead of making a forced landing in case of trouble. The larger airplanes are also driven by several engines, but current repairs are still difficult for obvious reasons except in the case of a few, very recent models. Since an airship is larger than an airplane it can also offer greater comfort to passengers.

Disadvantages of Airships.—On the other hand, the speed of the airship is less than that of the plane and this, together with its lesser weight per unit of volume, renders it less manageable in high winds. In landing and taking off the Zeppelin is also subject to accident from wind pressure to a greater degree than is the airplane. Its relatively slow speed exposes the airship to keener competition from rail transport on overland routes, though on sea routes its advantage over the steamer is very great. It is also many times as expensive as the airplane, and the gas upon which it relies is either costly and difficult to retain when helium is used, or inflammable when hydrogen is resorted to. Finally, the stresses to which airships are subject seem still to be incompletely understood, so that dramatic accidents have resulted from failure of important parts.

Commercial Transport.—Neither the United States nor Great Britain has yet used the airship for the commercial carriage of passengers or freight, but Germany has experimented with commercial dirigibles and has been, on the whole, successful in providing fairly regular service between selected points over considerable periods of time. Thus the German Air Travel Company,

¹ *Aviation*, April, 1936, p. 15.

formed in 1910 and financed and managed by the Hamburg-Amerika Steamship Line, ran regular passenger excursions and town-to-town service during the years 1910 to 1914. During this period its airships made over 800 flights, carrying 17,000 passengers, without a single mishap of any kind involving personal injury. After the Armistice, the Germans built the *Bodensee*, an airship carrying thirty passengers, which operated a daily passenger service from Berlin to Friedrichshafen between June and October, 1919. Subsequently the German airships *Graf Zeppelin* and *Hindenburg* established regular communication between Germany, Brazil, and Argentina, and between Germany and the United States. By May, 1937, these dirigibles had made approximately 75 round trips on the 6200 mile South Atlantic run, and had accomplished approximately 30 crossings of the North Atlantic between Germany and America without incident and on schedule time.² They did not, it is true, earn a profit on these trans-Atlantic operations, although their management expected that the service would become self-supporting when the frequency of trips had been increased.

Airship Accidents.—There is no question but that airships are to be credited with some remarkable achievements, both in regular commercial service and in exploratory flights. Thus, in 1917, the German L57 flew to East Africa and back, covering 4200 miles in 96 hours. Two years later the British R34 flew to America in 108 hours, remained there four days, and then flew back to England in 75 hours. The total distance was 6400 miles, and the elapsed time 183 hours. In 1924 the *Los Angeles* traveled from Friedrichshafen to Lakehurst, United States, in 80¾ hours. In 1926 the *Norge* flew with Amundsen over the North Pole. In 1929 the *Graf Zeppelin* circumnavigated the globe in 21 days.

The safety record of the airship has been unsatisfactory, however, in spite of *prima facie* reasons for believing it to be a reliable machine. The R34, in 1921, was torn to pieces by high winds while attached to a mooring mast in England. The English airship NS11 in 1919 and the French ship *Dixmude*, in 1922, were struck by lightning. The Italian-built ship *Roma* crashed in 1922 because of the breaking of her rudder cable. Both the United States dirigible *Shenandoah* and the British ZR2 broke in two in the year 1925. In 1930 the English R101 struck the ground and burst into flames, causing the death of nearly fifty persons, including Lord Thomson, Secretary of State for Air, and Sir Sefton Brancker, Director of Civil Aviation. In 1933 the United States airship *Aron* was forced into the ocean off the Atlantic coast by heavy weather, and only three of its personnel survived. In 1935 the *Macon* fell into the Pacific because of structural defects, and in 1937 the *Hindenburg*

² The *Hindenburg* made a round trip to the United States and back every ten days during the summer of 1936 and had weekly crossings scheduled for 1937 (United States Congress, Senate, *Hearing before the Committee on Naval Affairs on H.R. 9218*, 75th Congress, 3d Session, April, 1938. p. 472).

was destroyed by fire while attempting a landing at Lakehurst, New Jersey, with the loss of many lives.³ Such accidents, together with the costliness of airships and the falling off in government revenues since 1929, have checked the development of this type of flying machine. Great Britain has scrapped the *R100*, a sister ship to the *R101*. In the United States military and professional opinion favors the continuance of experimentation, but actually, the construction of rigid dirigibles has ceased. Germany has continued work in building the *LZ120*, a ship of the same type as the *Hindenburg*, but the Germans are not now willing to operate airships in transoceanic service unless they can inflate these ships with helium, a non-inflammable gas, instead of with hydrogen; and the United States, with a practical monopoly of the helium supply, refused to sell to Germany lest the helium be used for military purposes, even before the second World War had been begun.⁴

Gliders.—Far more important than the airship is the modern airplane. The history of the airplane began with experiments in gliding. With properly designed apparatus it is possible to soar, as a bird soars, with outstretched wings, supported by wind currents; or one may rely upon air resistance to convert an abrupt descent into a lengthened glide which permits the flyer to land safely at some distance from an elevated starting point. No power save that of the wind and of gravitation is necessary for these feats. A glider is a plane without an engine, used to soar or to glide.⁵ Recent achievements with light supporting surfaces have been extraordinary. Thus Russian and German fliers have remained aloft 36 consecutive hours and 35 minutes in a single place gliding machine; they have reached the altitude of 21,939 feet above the starting point, and they have traveled to a landing place 405 miles from the place of departure.⁶ Such results cannot be counted upon, but they are possible under favorable conditions, with a carefully learned technique. Gliders are still used in sport and in competition; they have today, however, no commercial and only slight scientific value.

History of Airplanes.—The power-driven airplane developed from the glider. The airplane is only a glider with an engine attached; yet the addition of power transformed the device from a model or toy into an instrument of carriage. This transformation could not occur until gliders had been constructed which were reasonably stable, and until engines were available which

³ Report of airship *Hindenburg* accident, *Air Commerce Bulletin*, Vol. 9, August 15, 1937, pp. 21-36.

⁴ See *Reports of Special Committee on Airships*, prepared by a committee appointed by the Science Advisory Board at the request of the Secretary of the Navy, especially Report No. 1, January 16, 1936, p. 25.

⁵ Perhaps the best known of the older gliding experiments were those of Otto Lilienthal who, between 1891 and 1896, accomplished glides as long as 800 feet from a starting point 100 feet above the ground. The record of these attempts later attracted the attention of the Wright brothers, and stimulated them in their efforts to produce a power-driven plane. Lilienthal was by no means the first, however, to use a glider.

⁶ *Aircraft Year Book*, 1939, P. 485.

produced a large amount of power for each pound of weight. Both of these conditions were first satisfied toward the end of the nineteenth century, so that it was at this time that the real history of heavier-than-air flying began.

It is not certain who first designed a power plane, nor even who first operated one successfully. This is partly because national patriotism leads many different nations to claim priority for their inventors, and partly because first flights are brief and it is not always demonstrable that the planes which are referred to really left the ground.⁷ In the United States, however, it is clear that two bicycle manufacturers, Wilbur and Orville Wright, were the first who designed and flew heavier-than-air machines with passengers considerable distances across country. The Wrights conducted a long series of experiments which culminated in short, successful flights in December, 1903. In 1908 they were able to produce a plane which could carry two men, aggregating 350 pounds in weight, for one hour continuously, maintaining an average speed of 40 miles an hour in a cross-country flight, to and fro, covering a distance of 10 miles. Wilbur Wright exhibited a similar machine in Europe in the same year. He found that other planes were then being built and flown in Europe, but that his own model was, in many respects, superior. He gave exhibitions while abroad, instructed pupils in the art of flying, and sold several planes before his return to the United States.

Airplane history subsequent to 1908 may be divided into three periods. Between 1908 and 1914 there was development of the gasoline engine, but only slow progress in the airplane itself. These were the years when Curtiss, Bleriot, Santos Dumont, Farman, and the Wrights attracted public attention by their flights. The World War, 1914-1918, caused effort to be concentrated upon high-speed military aircraft but prevented the extension of the commercial use of aviation. It was after 1918, and to a great extent after 1925, that the air transport industry was organized and the technical improvement of the airplane for purposes other than war occurred. It is this last period which we shall now discuss.

Statistics of Air Transport in the United States.—We may measure the extent of the airplane transport industry in the United States by recording the number of operators, the number of planes used, the miles flown, and the

⁷ Early candidates for the honor of originating the airplane include W. S. Henson and J. Stringfellow. These were Englishmen who seem to have demonstrated, between 1847^a and 1849, that a properly designed, power-propelled model could be made to fly (A. E. Berriman, *Aviation*, Doubleday, Doran, New York, 1913). They do not appear to have flown themselves. In France, in 1890, Clement Ader is reported to have flown 150 feet in a birdlike monoplane which he designed (A. F. Zahm, *Aerial Navigation*, Appleton-Century, New York, 1911). In the United States, in 1896, S. P. Langley constructed a model airplane with a wing spread of 13 feet and a 5-pound boiler and launched it over the Potomac River, where it flew with entire success. A full-sized plane that Langley built in 1903 was injured in an attempt to launch it into the air. Some believe and some deny that the Langley plane would have flown properly if the launching difficulties could have been overcome. (See *New York Times*, September 30, 1928, for a statement by Dr. Abbott, Secretary of the Smithsonian Institution, in this controversy.)

volume of traffic carried. These figures, for the years since 1926, are given in the accompanying table.

SUMMARY OF AIR TRANSPORT OPERATIONS⁸

**Air Lines of the United States
(Including Territorial Operations)**

year	Oper- ators	Planes in Service	Miles Flown (Millions)	Passengers (Thousands)	Express (million Tons)	Mail (million .. v
1926	13	...	4.3	5.8	1.8	
1927	19	128	5.9	8.7	22.9	
1928	36	315	10.7	49.7	108.3	
1919	39	525	25.1	173.4	128.7	
1930	43	600	36.9	417.5	234.3	
1931	41	590	47.6	531.7	600.1	3140.1
1931	34	564	51.1	547.6	836.4	2701.1
1933	19	504	54.9	576.6	1244.9	1567.9
1934	15	518	49.0	571.3	1741.2	1461.4
1935	17	459	63.9	874.1	1781.6	4132.7
1936	33	380	73.6	1166.0	4107.1	5741.4
1937	10	386	77.4	1289.7	4492.0	6698.1
1938	13	345	81.1	1536.1	4716.3	7411.9

Examination of the figures in the table suggests several reflections. The first of these is that, in magnitude, air transport does not compare with any of the other branches of the carrier industry with which we have to deal. Twenty-three operating companies, 345 planes, 1,536,000 passengers, and 4700 tons of freight hardly entitle the air transport industry to rank with the railroad, the motor vehicle, or the inland waterway. Nor has the increase in business during recent years, although important, been so great as to indicate that airplane carriage will soon equal, in accomplishment, the other forms of transport. Yet the air industry is already significant because it supplies a service which differs in quality from that afforded by any other means of transport. Our interest in it is, moreover, heightened by the belief that the limits of this special service are far from being reached.

⁸ *Aircraft Year Book*, 1939. The United States air transport industry is much the largest in the world. Comparative statistics for 1938 are as follows:

Country	Miles Flown (Millions)	Passenger-mile! (Millions)
Germany-	12.0	63.0
Great Britain	7.9	37.1
France	6.7	41.2
United States	69.7	557.7

These comparative figures do not include operations in and to territories of the United States and for this reason they differ from the totals given in the text above. (See *Receuil de Statistique de l'Institut International de Commerce*, 20 April, 1940.)

Improvements in Airplane Equipment and Performance.—It is probably a fact that our confidence in the future of the airplane is not entirely a conclusion based on logic. It is wonderful that men can fly but it does not follow, because this long-desired skill has been acquired, that we are free from the prosaic influences of space and gravitation. But the advance in design, construction, and practice in air transport during recent years has provided some solid basis for optimism. Mr. E. P. Warner, member of the National Advisory Committee for Aeronautics and one of the most intelligent observers of airplane progress, has enumerated five major steps in the technical development of air transport during the past fifteen years. The first of these has been an increase in the load per unit of wing area in the airplane, making it possible to attain higher speeds or to carry greater pay loads per unit of engine power. The second has been the use of multi-engined planes. The third Mr. Warner finds in the improvement of cowlings around the airplane engine, to reduce air resistance. Other changes which he mentions are the use of better quality fuel, and the reliance, for rigidity, upon the strength of the metal skin of aircraft instead of upon spars which run within the skin.⁹

These various improvements, together with others of secondary importance such as propellers with variable pitch, retractable landing gear, and flaps in airplane wings, have decreased the costs per ton per mile of airplane operation to something like one-eighth of their former figure. That is to say, a plane of early type, flying side by side with a plane of recent model and performing the same service, would cost approximately eight times as much to operate. In practice, of course, the results of progress are expressed not entirely in lower costs but also in improved performance. Modern planes fly faster than those of a few years ago. The record for an airplane flying with a useful load of 1000 kilograms was 104.7 miles per hour in 1926, but it was 325.7 miles per hour in 1938. The United Air Lines carried passengers from coast to coast, in 1927, in single-engine mail and passenger planes that required 33 hours to make the trip, stopping 14 times. In 1937 the same company sent 12-ton, twin-engine Douglas planes across the continent, and these arrived in 15 1/3 hours, with 3 stops.¹⁰

These are examples chosen more or less at random. Progress has also been made in size of aircraft. In 1928 the Boeing Company was using single-motor biplanes between San Francisco and Chicago, capable of carrying 16,000

⁹ E. P. Warner, *Technical Development and its Effect on Air Transportation*, James Jackson Cabot Professorship Lecture, Norwich University, Northfield, Vermont, 1938.

¹⁰ *Aircraft Year Book*, 1938, p. 190. In 1930 Captain Hawks broke the record for a non-stop flight from Los Angeles to New York by a trip in 18 hours, 21 minutes, and 59 seconds; in 1937 Howard Hughes accomplished approximately the same trip in 7 hours, 28 minutes, and 25 seconds (*ibid.*, 1930, p. 138; 1937, p. 152). In 1938 Hughes, with four companions, flew around the globe from New York via Paris, Moscow, Omsk, Siberia, Fairbanks, Alaska, and Minneapolis in 91 hours (*ibid.*, 1939, p. 159).



Photograph from Wide World Photos, Inc.

AIRSHIP "HINDENBURG"



Courtesy of Pan American Airways

BOEING 314

pounds pay load and equipped to accommodate two passengers. In 1938 Transcontinental Western Air arranged to buy, in part for this same service, planes which could carry 32 passengers and, also, 3750 pounds of cargo. **The** Pan American clipper ships now used on the transoceanic runs are even larger than these, for they undertake to transport 40 passengers over a distance of 4000 miles. Up to the present time these are the biggest ships ever built in the United States, although still larger ones are in contemplation.

Modern planes can fly higher, they can remain longer in the air, and they are less subject to engine failure than their predecessors. More efficient as well as more powerful engines, better protection of plane surfaces and of carburetors from icing, improved radio communication, robot pilots, better instruments to determine altitude, sound-proofing and ventilation, well-designed and well-lighted airports and airways, and equipment for blind flying and landing have attracted public attention and have inspired confidence in the future of air carriage.

Air Mail Transport.—In describing the extent of traffic which aircraft have been able to command, it is desirable to separate mail traffic from other forms of business.

Air mail transport has been undertaken in most important American and European countries, and has improved maximum dispatch for long-distance communications of unusual importance. Service began in the United States on May 15, 1918, when the Post Office Department established a line between New York and Washington, 218 miles. The distance was too short to permit of any substantial saving in time, and the service was discontinued. In 1919, this beginning was followed by the inauguration of service on sections of the transcontinental route, and on September 8, 1920, through service was attempted between New York and San Francisco. At first flights were made only during the day, the mail being turned over to the railway mail service at night, but on July 1, 1924, a through day-and-night service was begun. After the beginning of air mail in 1918 the system expanded from 218 miles originally installed between New York and Washington to a total of 32,376 miles in 1938. Every state in the Union now has mail service with the exception of one which is served by stops at near-by points. In addition, there is domestic service in the Hawaiian Islands and star routes, using plane service, in Alaska. Foreign routes serve Canada, Mexico, Central and South America, the West Indies, the Orient and, more recently, the Bermudas and Europe.¹¹

The amount of time which is saved by the use of air mail transport depends upon the length of the route, the character of alternative means of transport, and the schedule by which business operations are controlled. Thus air carriage may be unimportant on short hauls, or even on longer routes where rail service transports consignments during the hours between the close of

¹¹ Harold F. Ambrose, "Post-Office Department Observes Air Mail Growth," *Air Commerce Bulletin*, Vol. 9, May 15, 1938, p. 267.

one business day and the beginning of another; it will be more important on long hauls, such as those across the continent of the United States, and still more so in transportation across the ocean or in regions where modern rail movements are not possible. Actually, present schedules between San Francisco and New York offer a saving of approximately three days over the rail times, while airplanes reach the Philippines from San Francisco in five days as compared with the ten days required by water. On the other hand, air service between New York and Boston offers hardly any advantage over rail service, and the original line between New York and Washington was, as we have seen, discontinued.

Air Mail Rates.—In the United States the postage rate for air mail service has varied. The original price was 24 cents an ounce, including special delivery. This was soon reduced to 16 cents and in 1919, when business still failed to respond, it was announced that letters would be carried by air without any additional charge, but that letters carrying the normal postage should be specially marked for air mail service if it was desired that they should receive it. During the next five years the volume of mail transported by air varied according to the government's convenience and the capacity of airplanes.¹² In 1924 special airplane postage rates were again introduced, this time upon a zone basis at 8, or later, 5 cents per ounce per zone. On February 1, 1927, the rate was made 10 cents per half-ounce or fraction thereof, irrespective of distance. Effective August 1, 1928, the rate became 5 cents for the first ounce and 10 cents for each additional ounce; and on July 6, 1932, these figures were raised to 8 and 13 cents respectively.¹³ In 1934 the rate was reduced to a flat charge of 6 cents per ounce. Trans-Pacific mail, however, between the United States and Hawaii, Guam, and the Philippines, is charged 25, 50, and 75 cents for each half-ounce or fraction thereof.

Volume and Character of Air Mail.—Under these various rates the weight of air mail dispatched increased from 2818 tons in 1928 to 3238 tons in 1934 and to 9777 tons in 1937. Compared with the volume of mail carried by the railroads this tonnage is very small, although its importance is greater than the figures indicate. Railroad mails have not been weighed in this country since the adoption of the space system of railway mail payment, but in 1917 the tonnage was about 10,000 tons per day, and the comparison of this figure with the 9777 tons carried by air in the course of the year 1937 supplies a sufficiently violent contrast to make exact comparisons unnecessary.

¹² E. P. Warner, *The Early History of Air Transportation*, James Jackson Cabot Professorship Lecture, Norwich University, Northfield, Vermont, 1937.

¹³ The rate system introduced in 1928 charged more, it will be observed, for a larger than for a smaller shipment. The reason for the distinction is probably to be found in the fact that most pieces of mail which weigh less than an ounce are letters. The average weight of a letter is less than an ounce, so that the schedule of 1928 may have caused letter writers to pay as much per ounce in actual fact as the senders of other packages, although they were quoted lower rates. This possibility was insufficient, however, to justify the system.

As for the type of correspondence which is forwarded by air, the United States Post Office reports that its first air consignments were highly miscellaneous. They included thousands of souvenir post cards, candy, samples, flowers, live chicks, a suit of clothes that cost possibly fifteen dollars and carried eighteen dollars postage—in short, curiosity and publicity material. This traffic, however, rapidly declined, and in its place a more permanent business developed. Banking mail now predominates. After the bankers in the line of patronage come the transportation and shipping people. The great steamship companies have much correspondence passing between the Atlantic and the Pacific coasts, of which a portion goes by air. Import and export houses, manufacturing concerns doing nation-wide business, publishers, and advertising agencies are among the other users.

It is, of course, possible that further reductions in rates would considerably increase the use of the air mail, though it is not certain that this would be the case. For example, it has been suggested that the Post Office Department might, as a matter of policy, ship all first-class mail by air, or at least all non-local first-class mail without any extra charge at all,¹⁴ and attention is called to the fact that some European countries carry air mail without surcharge.¹⁵ A more moderate proposal is that air mail postage rates be reduced from time to time until they become only one cent higher than the normal first-class letter rate. It would be more easy to do this if air mail were paying its way. As a matter of fact, it is not. In 1938 the Post Office reported that expenditures on domestic air mail had exceeded receipts by the sum of \$6,489,048 during the preceding year. Any reduction in postage would probably increase this deficit, and no great change is, accordingly, likely to be approved.

Air Express,—If the amount of air mail is still small, the table shows that the same can be said of freight. In fact, all the express carried by all the scheduled air transport lines in the United States in 1938 could have been loaded into a single railroad train. This does not mean, of course, that both mail and express may not grow to large proportions in the course of time. Valuable papers, advertising and printed matter, photos, and films are the commodities shipped in greatest quantities by air, but small machinery and machine parts, dies, builders' hardware, fruits, vegetables, cut flowers, clothing and dry goods, millinery, artwork, samples, furs, jewelry, liquor, canceled checks, and plans and specifications for building projects form part of present-day cargoes. The president of the Railway Express Agency has expressed the opinion that when planes are put in regular service with the ability to carry a pay load of at least five tons, the profit from miscellaneous and emergency air traffic will shrink into insignificance in comparison with that to be ob-

¹⁴ *Airports and Airlines*, February, 1932.

¹⁵ **Parker Van Zandt**, "3 Cents Air Mail?" *Aviation*, December, 1938, p. 22.

tained from the regular and constantly increasing flow of routine merchandise.¹⁶

Air express service was inaugurated by the American Railway Express Company when the Post Office Department completed its withdrawal from the operating field by relinquishing the New York-Chicago route to private operators.¹⁷ Since that time the Express Company has expanded its services until it now has arrangements with twenty out of the twenty-three domestic air lines and, for foreign business, with the Pan American air lines also. The Railway Express is a corporation owned by the railroads jointly. It picks up and deliver? parcels, solicits air express through special air express representatives and, also, through regular rail express agents. It does the bookkeeping, part of the advertising, and sets the rates for its air express service. It utilizes the facilities of the Western Union Telegraph Company for picking up and delivering certain of the lighter domestic parcels. International service was established August 1, 1934, under the joint auspices of the Railway Express and the Pan American air lines system. From the revenue received from air express the agency subtracts its out-of-pocket expenses, plus 12½ per cent of the remainder from which it pays its overhead costs, and turns over the rest to the air lines which carry the goods as compensation for their work. There is, obviously, through this procedure, a high degree of coordination in air freight service.¹⁸

Air Passenger Traffic.—Although the volume of air mail is still moderate, and merchandise movements by air are insignificant in amount, examination of the figures reveals at least an impressive increase in the number of passengers carried in the United States. Statistics already given on page 107 show a growth in the number of air travelers carried by American lines from 50,000 in 1928 to 548,000 in 1932, and from 572,000 in 1934 to 1,536,000 in 1938. Changes in the first of these periods can be explained by the large additions to airway route mileage which occurred between 1928 and 1932 and to a decline in average charge per mile from 11 cents in 1928 to 5.9 cents four years later. Since 1934, however, the number of passengers handled has almost tripled while route mileage has grown by less than one half and average receipts per mile have declined to 5.7 cents in 1938, or by about 3 per cent. Increase in air travel during these later years is not, apparently, the result of longer routes and cheaper fares; it is probably due to improvements in the quality of air service, to the cumulative effect of vigorous advertising, and to a general recognition by the community that air flight is a usable, though somewhat expensive, method of traveling from one location to another.¹⁹

¹⁶ *Air Commerce Bulletin*, January 2, 1930, p. 7.

¹⁷ *Railway Age*, April 1, 1933, p. 477.

¹⁸ Wayne L. McMillen, "Air Express Service in the United States," *Journal of Land and Public Utility Economics*, August, 1935, November, 1935, and February, 1936. See also I.C.C. Air Mail Docket No. 1.

¹⁹ Real appraisal of recent air history requires the analysis of data which are not yet in

Intercontinental Flights.—Among the more spectacular recent developments in passenger service may be counted the opening of routes between the United States, Central, and South America, the beginning of service across the Pacific Ocean, and the organization of travel across the Atlantic.

Central and South America.—Passengers were carried by air between Key West and Havana at least as early as 1920. Regular service between these points was undertaken by Pan American Airways in 1927, and by the end of 1932 this company had extended its operations to Mexico City, to the Canal Zone, down the west coast of South America to Chilean ports, across the Andes to the Argentine, and back along the east coast of Brazil to the Caribbean.²⁰ The achievement was extraordinary because of the distances covered, the number of governments from which franchises and contracts had to be obtained, and the investment in airports, lighting, weather service and other requirements for successful flying which the company had itself to provide.

Trans-Pacific.—Trans-Pacific commercial aviation began in 1936 when the Pan American Airways undertook to carry passengers regularly between Alameda, California, and Canton, China, a distance of 8678 miles. The opening of this route was the result of nearly six years of preparation, including experimental flights during the last nineteen months. The first crossing from San Francisco to Honolulu was made by a Pan American clipper April 16-17, 1935; and between this time and October 21, 1936, when the passenger service started, there were no less than fifty-one crossings on the San Francisco-Honolulu route and twenty-three round trips between California and the Philippines. Mail transport began in November, 1935; express in February; and passengers were accepted in October, 1936. The Pacific voyage calls for six successive flights: San Francisco to Honolulu, 2088 miles; to Midway Island, 1134 miles; to the Wake Island group, 1029 miles; to Guam, 1310 miles; to Manila, 1380 miles; and to Hong Kong, 624 miles. The first ships used were 4-motored clippers designed to carry a useful load of 22,000 pounds, including 18 passengers, a crew of 7, and mail and baggage. The Boeing 314 planes now in service are considerably larger than were those initially employed. These ships have a gross weight of 82,500 pounds. They are capable of carrying 40 passengers in overnight service, with a crew of 8, at speeds of 190 miles per hour, and they have a range, in still air, with this load, of over 4000 miles. Flying boats leave San Francisco at 3 P.M. on Wednesdays, and arrive at Honolulu at 8:30 A.M. on the following day. From Honolulu to

published form. It would be interesting to know, for instance, what proportion of air travelers are "first-flight" and how many are "repeat" customers. One may hazard a guess that the increased utilization of American airways is more the result of frequent travel by old clients than of the addition of new users, but this is only a guess.

²⁰ "Pan American Airways," *Fortune*, April, 1936. The P.A. system routes at the end of 1932 took in about 36 countries and colonies.

points farther west flights are accomplished entirely during daylight hours, and passengers spend the nights at intermediate stations. Manila is reached on the fifth day and Hong Kong on the sixth.²¹ Pan American is also projecting a service to New Zealand which will cover the 6900 miles from the United States in four days.²²

Trans-Atlantic Aviation.—Trans-Atlantic air connections by heavier-than-air craft are more recent than those across the Pacific, but they have passed through the stages of adventurous pioneer flights, careful exploration of the possibilities of commercial service, and actual commencement of operations. Trans-Atlantic flying appeals to a larger market than trans-Pacific, but it has serious climatic obstacles to overcome. This is principally because the cold water and air masses from the Labrador Stream meet and merge with the warm waters and air masses of the Gulf Stream southeast of the Newfoundland bank, and give rise in these latitudes to storms of unusual frequency and intensity.²³

Extreme Northern Route.—There are, it is true, several ways of avoiding the weather handicaps associated with the route which follows the present steamship lanes. One method is to fly far to the north. Such a northern line might pass by way of Halifax, Nova Scotia, St. John's, Newfoundland, and Valencia, Ireland, or it might lie still farther north and pass through Greenland, Iceland, the Faroe and Orkney Islands. This last route was explored by Colonel Lindbergh for the Pan American Airways in 1933.²⁴ The mileages by these northern routes are less than by the southern and the distances between landing points are comparatively short. There is also less fog, and there is some reason to believe that storm hazards may be reduced. On the other hand temperatures in the far North are low and failure of equipment would lead to irreparable disaster.

Stratosphere Flying.—It may also be possible to avoid the climatic difficulties of the North Atlantic area by going high into the air. This, at least, is the assumption of those who are interested in what is known as "stratosphere" flying. By the term "stratosphere" is meant that portion of the earth's surround-

²¹ The fastest steamships on the Pacific require 18-days for the voyage from San Francisco to Hong Kong.

²² The Pan American service beyond Honolulu to New Zealand will be accomplished in three flights: Honolulu to Canton Island, 1665 miles; to New Caledonia, 1732 miles; to Auckland, 1092 miles. (See W. B. Miller, "Flying, the Pacific," *National Geographic Magazine*, December, 1936.) In discussing trans-Pacific navigation mention should be made of recent flights by Russian airplanes from eastern Asia to the United States by way of the Arctic. This was also the route followed by the Lindberghs. From New York the Arctic route to Asia is notably shorter than that by way of the west coast of the United States, but it touches at no intermediate centers of population.

²³ Col. J. Monroe Johnson, "Transoceanic Flying," *Air Commerce Bulletin*, April 15, 1938, pp. 235-239.

²⁴ *Aviation*, February, 1934, p. 33; April, 1934, p. 102; *National Geographic Magazine*, September, 1934, p. 259.

ing atmosphere which lies at altitudes above 35,000 feet. The characteristics of this area have been to some extent explored by specially prepared balloons. It is known to be intensely cold,²⁵ and the air at high altitudes is too rarefied to support life. Passenger planes which fly at great heights, even though they may not reach the stratosphere itself, require specially built cabins to maintain constant temperature and air pressure, and they have to overcome technical difficulties in navigation not encountered at lower elevations; but they can travel at higher speeds and they may, perhaps, meet with less wind interference. It still is uncertain what air conditions prevail at the high levels of the air, and extremely high velocities may exist. Captain Stevens, who took part in the stratosphere flights in 1934 and 1936 sponsored by the *National Geographic Magazine* and the United States Army Air Corps thinks that winds may be encountered at great altitudes.²⁶ Other observations, however, indicate that storms which aviators fear may fade out in the upper levels. Experimental flying at heights above 20,000 feet has shown storms with tops as high as 30,000 or 35,000 feet, but most disturbances of any size are reported to be at considerably lower levels. While severe weather conditions involving a good deal of turbulence and heavy icing may be found all the way up to the base of the stratosphere, the probabilities are that a plane crossing the ocean at 25,000 feet could avoid most of them by inconsiderable detours.²⁷ Planes are actually being constructed at the Boeing factory designed to carry 33 passengers by day at elevations up to 20,000 feet and at speeds of 240 miles per hour,²⁸ but so far no commercial operations under or approaching stratosphere conditions have taken place.

Southern Route.—The most practical route which escapes the fogs and storm that characterize the North Atlantic shipping lanes is that from New York to North Europe by way of the Bermudas, the Azores, and Lisbon. The total distance by this track is long, and there is one gap between Hamilton, Bermuda, and the Azores that requires a continuous flight of 1931 miles, but there is little fog, and the winter storms are less dangerous along this highway than in the north. To facilitate service, it has been suggested that refueling ships be stationed east of Bermuda, or, better yet, that "seadromes" be anchored at selected points several hundred miles apart. Such "seadromes" would be floating structures, perhaps 1200 feet long and 200-400 feet wide, with flat upper surfaces upon which planes might land, and with facilities for servicing and repairs. No such seadromes have ever been put in place, and modern

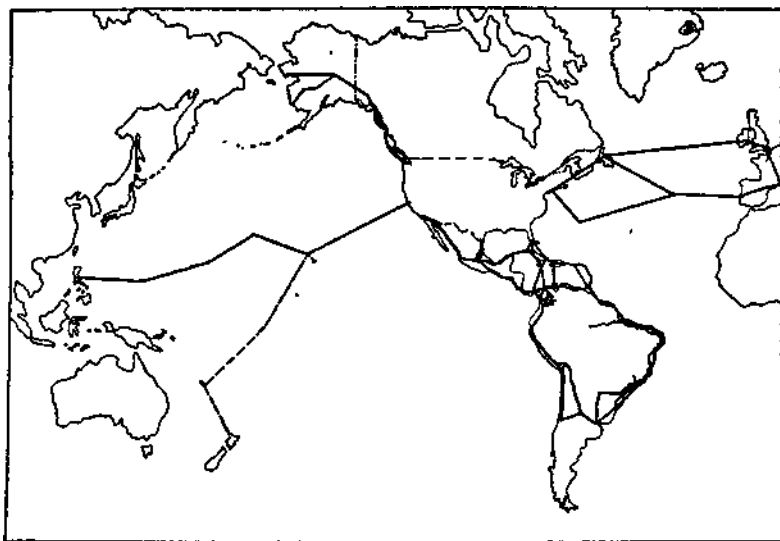
²⁵ Instruments used in the Stevens flight in 1934 registered almost 80 below zero.

²⁶ *National Geographic Magazine*, October, 1934, P- 397; October, 1935, p. 535; **May, 1936**, p. 693; January, 1936, p. 59. Captain Stevens sensibly observes that most sounding balloon observations are apt to give moderate wind velocities in the stratosphere because **sounding** balloons can be observed by telescope at levels of 40,000 to 80,000 feet only **on days that** are fairly clear. These are also days when there are high-pressure conditions **and little wind**.

²⁷ D. W. Tomlinson, "On Top," *Aviation*, December, 1936, p. 21.

²⁸ *Aviation*, April, 1938, p. 38.

planes have so great a capacity for sustained flight that they appear to be unnecessary.



PAN AMERICAN ROUTES, 1939

Trans-Atlantic **Air** Service.—German planes, in 1938, were making regular though still experimental trips between the Azores and Port Washington, Long Island, U. S. A.²⁹ Meanwhile the Pan American Airways was conducting trial flights between the United States and Europe by way of the Azores, Lisbon, Marseilles, and Southampton, and English aircraft were developing the possibilities of the direct route between New York and Ireland by way of Montreal. Regular passenger service across the North Atlantic was inaugurated by the Pan American in June, 1939. The initial schedule provided for a service of twenty-two hours elapsed time to Lisbon. In April, 1940, Pan American planes were leaving New York twice a week, at noon, and were arriving at Lisbon in the afternoon of the following day after a stop at the Azores. The route followed is indicated upon the accompanying map. At present the northern route, by way of Newfoundland to Ireland, is reserved for summer service, although an all-year direct passenger service will eventually be furnished between these points.³⁰ Obviously the success of such an enterprise is dependent upon the use of more powerful aircraft than those employed for domestic air transport; Boeing 314 airplanes (clipper ships) are

²⁹ *Aviation*, September, 1938, p. 54. The time consumed was a little more than 17 hours. French and German airplanes had for some time operated regular services from northern Europe by way of Dakar or Bathurst (Western Algeria) to Brazil.

³⁰ The present fare is \$395, or slightly more than the minimum first-class rate on steamers such as the *Queen Mary* and the *Normandie*.

relied upon, therefore, for trans-Atlantic as well as for trans-Pacific service. These craft are capable of non-stop flights from the United States to Europe over any of the routes which have been proposed. Still larger airplanes are not, moreover, impossible. It has been reported that the Consolidated Aircraft Corporation has completed a study of a plane with a gross weight of 400,000 pounds, a range of 5000 miles at a speed of 300 miles per hour, and ability to transport 300 passengers and a crew of 30.³¹ •

Trans-Atlantic flying necessitates the conclusion of agreements between nations for the use of landing fields and for cooperation in meteorological service. At present French and German planes are barred from landing in Ireland and in Newfoundland. Operating rights in Bermuda are held by the British Imperial Airways, and similar advantages in the Azores are held by the Portuguese government. An agreement signed by Great Britain, Canada, and the United States, and the Irish Free State, however, provides for reciprocal operation of aircraft over their respective territories, as well as for the reciprocal use of terminals.³² Imperial Airways will permit Pan American planes to use their facilities at Bermuda, Newfoundland, the Azores, and the Irish Free State, on condition that Pan American will provide similar facilities in the United States. Extension of friendly arrangements of this type will be essential if the full possibilities of international flying are to be realized.

Comparative Rates by Air and Mail.—The following table compares the cost of rail and airplane transportation upon a few selected routes in the United States.

COMPARATIVE FARES BY AIR AND RAIL^o

Point of Origin	Point of Destination	Rail				Air	Air Mileage
		First Class	Pull- man	Extra Fare	Total Rail		
Cleveland	Nashville	\$16.82	\$ 4.75		\$ 21.57	\$ 30.50	469
Columbus	St. Louis	12.85	3.15		16.00	23.40	397
Washington	Cincinnati	16.95	3.95	..	20.90	25 .90	423
St. Louis	Cincinnati	10.35	1.65		13.00	16.50	310
Chicago	New Orleans	28.15	7.10	\$ 5.00	40 .25	44-60	891
Chicago	Miami	43 55		10.25	53-80	76.15	12 67
San Francisco	Los Angeles	14.05	3.15	..	17.20	18.95	348
San Francisco	Seattle	17.94	7.10		35.04	43.98	699
New York	Chicago	17.15	6.30	7.50	41.05	44.95	719
New York	San Francisco	91.85	22.55	2.150	137.90	149.95	2654

^o The rates quoted are as of May 5, 1939.

³¹ *Aviation*, June, 1938, p. 41.

³² B. M. McConnell, "The Race for Aerial Trade Routes," *Yale Review*, Winter, 1938.

The fares for air travel listed in the foregoing table range from 5.0 to 6.9 cents per mile. They are in all cases higher than the rail fares between the same points of origin and destination, although the difference is sometimes slight if we compare the cost of air travel with that of the highest-class service which the railroads offer. Thus the expense of the rail journey from New York to Chicago is \$27.25 for the rail haul alone, which is \$17.70 less than the cost by air. But if we add to the rail rate \$6.30 for a Pullman berth and \$7.50 for accommodation in an extra-fare train, the difference between rail and air charges on this trip becomes reduced to \$3.90. It is also to be remembered that air fares sometimes include meals and that taxi service to the airport is sometimes provided. On the other hand the absorption of taxi fares by the company is not a real saving when passengers are forced to use taxis because of the remote location of the airport. Moreover, while Pullman accommodation is expensive, passengers must sleep somewhere, and hotel rooms will be paid for unless a round trip is completed in a single day. Airplanes, finally, usually limit the baggage carried free to 40 pounds per passenger, while rail carriers generally haul 150 pounds without extra charge. These irregularities make it difficult to generalize with respect to the comparative costs of rail and airplane journeys. Until recently it could be said that air travel was still a luxury which could be afforded only by the wealthy, by those who had desperate need of speed, and by persons who were attracted by the novelty of the service and who paid for it as they would for any other occasional entertainment. It is probably still true that the cost of airplane travel is so great as to restrict it to persons of more than comfortable circumstances, or to cases where the money value of the time saved can be calculated with some precision. Opinions differ among air operators as to how far this condition can be changed. If companies can obtain sufficient traffic from a wealthy or a business public, the present fares may prove profitable; but it is likely that still more must be done in the future than has been done in the past to lower the costs of air transport if air service for passengers is to become a major facility in the United States.

Advantages, of Air Service: *Speed*.—It is perhaps now desirable to summarize the advantages and disadvantages of the airplane for commercial use as compared with older forms of transportation.

The first, and by far the greatest, advantage of aircraft is speed. Commercial airplanes readily attain speeds of 150 miles per hour, whereas railroad trains rarely exceed 60 miles per hour, and steamships 25 miles per hour. As against this, it is to be recalled that aircraft termini cannot be located in the centers of cities, so that a considerable delay must be allowed for at each end of a trip for transporting freight or passengers between landing stations and city destinations. The English Civil Aerial Transport Committee of 1918 was of the opinion that this delay was so serious that the advantages of the airplane with respect to speed would not reveal themselves in the case of overland flights less than 300 miles in length, although shorter flights oversea

might show a saving. Terminal delays may be reduced by organization, but they are always serious.

Other Advantages.—In addition to its speed, the airplane shares with the auto bus the advantage of being able to render frequent service. Comparing the train with the airplane, the train as a traffic unit is large. There must, therefore, be wider intervals of delay for the accumulation of loads between successive shipments than in the case of the airplane. The airplane is a small unit, and therefore a flow of urgent traffic can be accommodated by a constant succession of departures from the airdrome, with consequent time economy.

Finally, the airplane enjoys a great financial advantage in being spared the expense of a track. The expenses standing in lieu thereof are less, viz., the cost of landing grounds, wireless installations, weather-reporting services, and marking, lighting, and signaling of routes, especially at night or in fogs.

Disadvantages of Air Service.—The fundamental disadvantage of the airplane is that it is a poor weight-carrier. To secure high speed, the commercial load must be kept within narrow limits, probably not to exceed 25 per cent of the total loaded weight of the plane. Since the operating personnel cannot be reduced indefinitely, the airplane uses a large number of employees relative to passenger and freight capacity. The wages paid air crews are also higher, on the average, than those paid to railway engine and train crews. Another effect of the small airplane load is that the investment in equipment per ton- or passenger-mile is relatively great. Again, airplanes are expensive because they require great strength and power combined with extreme lightness. Their useful life is short because of wear and obsolescence, insurance rates are high, and the fuel cost is greater than the fuel cost per railway passenger car mile, due presumably to the greater power employed. From the point of view of the passenger, noise, restricted space, and the possibility of air sickness reduce the comfort of air service. Disadvantages of these various sorts will be partly or entirely overcome in the course of time, but they constitute present obstacles to the extension of air transport.

Reliability.—More serious than temporary discomfort to the passenger are the questions of reliability and safety. Up to the present time, air service is still inferior to rail in both these respects. The United States Department of Commerce announces that the percentage of trips started in domestic service which were actually completed was 95.36 during the calendar year 1938 and 95.41 during the calendar year 1937. There has been no great variation in this percentage during the past eight or nine years. This degree of reliability would not be considered satisfactory in railroad service, although it represents a considerable achievement by air. And if we compare the number of air trips completed with those scheduled, instead of with those commenced, the percentage of completion during the year 1938 falls to 90.48. In the early days of air service government officials, at least, believed that planes should fly in good weather and in bad with the same regularity which had long characterized

railroad trains. In the winter of 1917-1918, says Warner, the Postmaster-General took his assistant, Mr. Praeger, by the arm, led him to the window of his office in Washington, and looked out into a whirling snowstorm. "If it can be shown," he said, "that a dependable service can be maintained all the year around, I will authorize an air mail service. . . . And remember, it must function dependably even on a day like this."³³

It may be possible to approximate the performance that Postmaster-General Burleson expected at some future time, but it clearly is not possible to meet such a requirement today. Nor can too great stress be laid upon rapid improvement in the regularity of air transport because the lives of pilots in all cases and of passengers in many are involved. A railroad train cannot deviate from its prescribed route, and it can stop without disaster except in the rare cases in which the roadbed is washed away; but a plane can be blown off its course, and sudden cessation of forward movement will cause it to be destroyed. Air operators must consider weather conditions with respect, and for a long time to come transportation through the air will be less reliable than transportation over the ground.

Safety.—In order to be popular, air service must be safe. "You have an engine which makes lots of noise," says the potential customer. "You go up in the air, and you may be killed." Air carriers, on the other hand, deny that, with proper precautions, air transportation involves unusual risk; and they point to the small number of serious accidents in air travel during recent years as evidence of the truth of their assertion.

There were nine passengers killed in airplane accidents in scheduled air transportation in the United States, including foreign and territorial operations, in the fiscal year ending June 30, 1935. In 1937-1938 the number was fifty-one, after a considerable increase in the volume of business, and in 1938-1939 it was nineteen. Thirteen of these nineteen deaths were in domestic and six were in foreign and territorial service. During the twelve months ending on March 26, 1940, no passenger lives were lost in domestic operations. These figures do not include accidents in pleasure flying, crop dusting, photographing, instructing, and in other types of aeronautical work, in which casualties were more numerous, but only loss of life on regularly operated common carrier routes. It is proper for our present purpose to exclude the various forms of private flying because we are concerned in this book with means of inland transportation which undertake the carriage of passengers and freight for the public generally over established routes, and only the scheduled air services provide transport of this sort. Moreover, scheduled air services have a better accident record than planes engaged in miscellaneous and private flying, so that experience in the former field shows air transport at its best.

³³ E. P. Warner, *The Early History of Air Transportation*, James Jackson Cabot Professorship Lecture, Norwich University, Northfield, Vermont, 1937

Now 19 deaths in the carriage of 1,581,601 passengers⁸⁴ is a very much better record than we had a few years ago, and the perfect accomplishment of the domestic air lines during the 12 months ending March 26, 1940, is deserving of the highest praise. Though it is too much to expect that this last standard can be maintained, even the results for the fiscal year 1938-1939 are impressive. They mean that in 1938-1939 a passenger might expect to travel 36,894,839 miles by airplane on scheduled routes before he was killed. At a steady speed of 200 miles per hour he could accomplish the trip in 7686 days, or a little more than 21 years, but this is more time than most persons expect to spend in airplane travel in the course of their lives.

How the record of accidents in air transport compares with the experience of motor vehicle common carriers or with that of street railway and steam railroad carriers is difficult to say because available data are not in all respects comparable. The Committee on Aviation of the Actuarial Society of America published in its report for 1936, however, a comparison of the risks of airway travel with those of other forms of transportation at that time which throws some light upon the subject. The Committee's estimates are reproduced in the accompanying table.

COMPARISON OF ACCIDENTS IN AIRWAY TRAVEL WITH ACCIDENTS IN LAND TRAVEL³⁵

Passenger Fatalities

Agency of Transportation

Unit of Transport	Steam Railroads 1934-1935		Public Carrier Busses		Scheduled Air Lines (Including Foreign Extensions) 1934-1935
		Motor Vehicles Other than Revenue Busses (Mostly Private Automobiles) 1934-1935	All Revenue Busses 1934-1935	Intercity Busses Only 1934-1935	
100,000,000 passenger-miles	.24	5.3	.64	.65	5.8
100,000,000 passenger-hours	9.43	158.0	19.2	22.7	787.6
100,000,000 passengers carried	9.56		5 5	19.4	2391.0

⁸⁴ The figure of 1,581,601 is the total of domestic, foreign, and territorial passengers carried during the fiscal year ended June 30, 1939.

³⁵ Actuarial Society of America, *Report of Committee on Aviation*. Transactions, 1936. p. 236.

The figures compiled by the Actuarial Society of America show that the accident record of scheduled airplane carriers in 1936 was highly unfavorable as compared with that of railroads, bus lines, or even with that of private automobiles. Travel by scheduled air lines was then about 12 times as hazardous as by bus upon a mileage basis and about 50 times as hazardous upon an hourly basis. When compared with railroads the multipliers became 112 and 333. Passenger fatalities per 100,000,000 passengers carried by air lines were also relatively numerous. In 1939 the air fatalities per 100,000,000 passengers were approximately the same in number as in 1935, although this was not, of course, the case during the twelve months ending in March, 1940, nor, indeed, during the period between 1935 and 1939. Until the most recent experience is shown to be typical we must still conclude that the risk of fatal accident per hour of travel or per passenger carried is many times as great in airplane as in other forms of common carrier transport; the airplane is more dangerous also than the railroad train or the motor bus upon a mileage basis, although it may be safer than the private car. While we may reach these conclusions it is proper, however, to add certain comments. For one thing, our statistics relate to fatal accidents only, not to all accidents. Travelers by rail or by motor vehicle have less advantage over travelers by air with respect to non-fatal than with reference to fatal injuries. An aircraft mishap is generally serious, whereas the passenger on a railroad or on a bus is likely to escape alive when an accident occurs. It is quite likely that automobilists fare worse than air passengers when minor injuries are taken into account, though here averages are misleading and the risk to the responsible driver is far less than average figures suggest. We may, finally, reflect with satisfaction that the likelihood of a fatal ending to a trip by any of the ordinary means of transport is extremely slight.

Causes of Accidents.—Some information is available as to the causes of airplane accidents. Thus, the United States Department of Commerce reports that during the last six months of 1938, 19 per cent of all accidents in scheduled air transport were due to weather conditions, 10 per cent to airport and terrain, 33 per cent were caused by failure or defects in the vehicle, and 24 per cent by mistakes on the part of the personnel. The Department further subdivides these percentage groups, and attributes the accidents in each to some more precisely indicated cause. This process of classification and examination is an essential step in improving the safety of airplane operation. Many of the causes which have produced past accidents can be and are being slowly eliminated. Attention to design and to quality of material, together with better knowledge of the stresses to which planes are subject, will lessen the number of airplane failures. Better weather-reporting systems, better lighting of airways, and the increased use of instruments which permit operators to fly "blind," will reduce the number of casualties due to weather. The problem of controlling failures due to personnel is more difficult, although insurance

companies have made some interesting studies of this subject, and have published conclusions that may be helpful. Age of pilots, according to the Committee on Aviation of the Actuarial Society of America, does not seem to be a significant factor in accident experience. Physical defects may, of course, be important; but the Department of Commerce grants licenses to pilots with slight defects, and the mortality among pilots with defects which the Department waives in order to grant a license is no greater than that among pilots with defects not requiring a waiver. Practice in flying helps to prevent accidents, at least until an experience of 400 or 500 hours in the air has been obtained. Further experience does not seem to decrease mortality rates much—indeed, the mortality rate among pilots with an experience of 2000 hours or more is relatively high, perhaps because they undertake more than usually difficult assignments. Pilots who have had one accident are more likely to have another than are pilots with a clear record to have their first mishap. One might expect that a slight mishap would teach the necessity of care, so that a pilot who had escaped would be less likely to suffer accident than one who had not just missed serious injury or death. The fact seems to be that the first accident is apt to be caused by faults of inattention or of judgment which persist. While individual pilots may maintain a perfect record after a single crash, any large group composed of pilots who have at some time come to grief will possess accident-producing characteristics that are not present in the same degree in a group of the same size composed of pilots who have never had an accident.³⁶ These matters are mentioned principally to show that the problem of accident prevention in air transport is receiving the serious attention that it deserves. The encouraging fact is that progress toward safety is being made, although the need for further improvement is too clear to be overlooked.

Mail Contracts.—We have already pointed out that carriage of the mail is one of the principal functions of air transport lines in the United States. This chapter will now conclude by enlarging somewhat upon the relations between private air carriers and the federal government that have grown out of this business of air mail transportation.

The arrangements between the government and contractors for air mail carriage have been different at different times. The law enacted in '1920 authorized the Postmaster-General to send mail by aircraft, provided that he did not pay more than the cost of sending mail by railroad. In 1925, after special air mail rates to the public had been put into effect, the Post Office was authorized to pay contractors not more than four-fifths of the revenues derived from these charges.³⁷ Little or no mail was carried on these terms, although Congress appropriated \$500,000 to meet the expected expense. The following year

³⁶ Actuarial Society of America, *Report of the Committee on Aviation, Transactions, 1936*, p. 228.

³⁷ 43 Stat. 805, 1925.

a bill provided that the Postmaster-General might enter into contracts for the transportation of air mail at fixed rates per pound, to be not greater than \$3 per pound for the first 1000 miles and 30 cents per pound additional for each additional 100 miles.³⁸

In 1928 the law was amended by adding the so-called "certificate" provision to protect the equities of pioneers. Under this plan the Postmaster-General might issue a certificate in place of the existing contract to any air mail contractor who had been carrying the mails by air for a period of two years or more. No competitive bidding was required. The certificate was to be for a period not exceeding ten years from the date of the original contract. The rate of compensation under the certificate was to be determined by periodical negotiation between the certificate holder and the Postmaster-General, but the amount allotted was never to exceed the rate of compensation provided in the contract which the certificate holder had surrendered.³⁹ This act of 1928 did not necessarily change the rates which the United States was paying for the transportation of air mails. In 1930, however, the system of payments was radically altered by the "Watres" Act. By this statute space was substituted for weight as the basis for air mail compensation. That is, the Postmaster-General was authorized to award contracts between named points to the lowest responsible bidder at fixed rates per mile for reserved space on air mail planes, each cubic foot of space being computed as the equivalent of nine pounds of mail. The space rates were not to exceed \$1.25 per mile.⁴⁰

Reasons for the Adoption of a Space Basis.—There were several objections to the poundage system of remuneration to contractors employed before the passage of the Watres bill. The first was that the rate bore no relation to the service rendered. The law of 1926 set a maximum of \$3 per pound of mail without distinction according to the length of route over which the contractor conducted operations. Thus the statutory maximum was the same for the transportation of air mail from New York to Chicago, 718 miles, as from New York to Boston, 192 miles. Inasmuch as contracts were to be awarded on competitive bids and the law provided a maximum limit only, there seems no sufficient reason why irregularities should have occurred that could not have been justified on the ground of differences in conditions. Differences, however, did exist, and the weight system was held responsible. Not only this, but payment according to weight transported sometimes tempted the contractor to increase the volume of mail carried by improper means. It might be to the interest of the contractor to ship air mail himself in order to obtain payment from the government. Postmaster-General Brown spoke of a case in which

³⁸ 44 Stat. 692, 1926. The Postmaster-General was also authorized by this law to contract for the carriage by aircraft of first-class mail other than air mail for rates not to exceed 60 cents per pound for the first 1000 miles and not to exceed 6 cents per pound additional for each additional 100 miles.

³⁹ 45 Stat. 594, 1928.

⁴⁰ 46 Stat. 259, 1930.

two tons of lithographs were sent from Niagara Falls to California by air mail. The air postage was about \$8000, whereas the government paid the contractors \$25,000 for carrying it. "Any air-mail contractor would make money," Mr. Brown said in 1930, "by sending a cook stove to himself at the other end of the route every day and sending it back the next day until he wore it out, and we would have no redress, provided he paid the air-mail postage on it."⁴¹

Another reason for adopting, in 1930, a system of payments based upon space occupied was found in the greater precision with which, by this method, subsidies could be allotted among contracting firms. Under the weight system, payments to contractors varied with the amount of mail offered for transportation. With a space system the gross revenue which contractors derived from the carriage of air mail depended upon the amount of space which the government reserved. This might be a fixed amount, although the government would doubtless consider the probable offering in determining its reservation. At any rate, the risk of variations in the volume of business would be assumed by the government. The expenses incurred by the contractor would still rise and fall, though not proportionately, with changes in the volume of mail, so that the contractor's net income would vary somewhat with the amount of mail traffic; but it was thought that this could be endured if the gross revenue remained the same. In this connection, the Postmaster-General told Congress, while the Watres bill was pending, that a space basis for mail payments would enable him to assist in the development of passenger service. Asked how much space in passenger planes he intended to take, he replied that the amount would probably not exceed 50 to 100 pounds capacity. This would yield a compensation of from 15 to 30 cents a mile, which would be sufficient to keep the operators going until the passenger traffic could support itself. The space taken on this plan, the Postmaster-General said, would be larger than that required for the mail which was to be transported, but he thought that the Post Office Department might load other material than air mail, such as stamps, money order blanks, and other departmental material. W. I. Glover, Second Assistant Postmaster-General, told the House Committee on Post Offices and Post Roads in 1932 that air mail could be carried for considerably less than the current appropriation. The issue, he said, was whether Congress wanted merely to provide for the transportation of air mail at minimum cost, or whether it wished to utilize the carrying of mail as an instrument for developing a sound commercial air transport system. He added that the policy of the department was to avoid the award of an air mail contract to "shoestring operators" and to concentrate the air mail business as far as possible in the hands of the larger air lines. As passenger business increased, the pay for carrying mails was reduced.

Attack on the System of Air Mail Contracts.—Up to 1932 air mail, like ocean mail, contracts were quite frankly used to subsidize companies to which

⁴¹ *Airway Age*, February, 1930, p. 213.

these contracts were awarded. With the change in the political complexion of the federal administration which occurred in 1932 both types of arrangement were made the subject of violent attack. The chief objection to practices which had been followed by the Post Office before that time was that they had not permitted competitive bidding; and it seems to have been a fact that the Post Office had awarded contracts to lines which might not have received them if competition in bidding had been entirely free. This had been done by discarding offers on the ground that bidders were not responsible, by inserting terms in proposed contracts which not all operators could meet,⁴² by granting extensions to existing routes instead of asking for public bids, and by encouraging conference between operators before bids were submitted. There was also complaint that the prices which the government agreed to pay for carriage of mails were exorbitantly high. On the other hand, critics were unable to show that conditions which had been inserted in contracts were improper. The extension of existing routes had been authorized by the law of 1930, and the conferences which occurred between operators, at least in so far as they were suggested by the Postmaster-General, appear to have been for legitimate purposes consonant with the public interest.⁴³ And while, finally, the sums specified in the contested contracts for the carriage of the mails had admittedly exceeded the cost of the service rendered, mail contracts had always been regarded as subsidies, and some excess of price over cost was therefore to be expected.⁴⁴

Looking at the situation after the heat of controversy has died down, we may fairly say that the Post Office Department honestly sought, between 1926 and 1932, to use its administrative power to promote a domestic air service that would be organized in ways to suit the public interest, but that in doing this it complied more in form than in spirit with the procedure which Congress had laid down. It offended in the process, moreover, a considerable num-

⁴² United States Congress, Senate, *Hearings Before a Special Committee on Investigation of Air Mail and Ocean Mail Contracts*, 73d Congress, 2d Session, 1934, testimony Wadsworth, p. 2341.

⁴³ *Ibid.*, testimony Brown, pp. 2349 ff. It is to be remembered that competition in bidding for contracts does not necessarily lead to subsequent competition in operation. The Postmaster-General desired, in awarding contracts prior to 1932, (1) that competing routes should not be acquired by a single air corporation, and (2) that persons who had invested time and money in airplane development should have their equities respected, either by giving them contracts or by helping them to dispose of their interests to companies which did secure contracts. These policies were not unreasonable. The point raised with reference to the extension of routes was that an extension for an unreasonable distance might amount, in fact, to the grant of a new contract, and should have been advertised for bids. This was obviously true. The later act of 1934 continued to vest in the Postmaster-General the power to grant extensions, but stipulated that extensions should not exceed 100 miles in length, that only one extension should be granted to any one individual or corporation, and that the rates of pay for the carriage of mail on extensions should not be in excess of the contract rates upon the route which was extended (48 Stat. 933, 1934).

⁴⁴ "United States Aviation and the Air Mail," *Fortune*, May, 1934, pp. 85 ff.

ber of the small air transport companies whose requests for contracts were denied.

Cancellation and Renewal of Contracts.—On February 6, 1934, the new Postmaster-General canceled all air mail contracts and turned over to army planes the task of carrying the mails. Bad weather conditions, inappropriate equipment, and the inexperience of army fliers combined to produce a series of casualties which attracted public attention, and new contracts were advertised and awarded after a brief lapse of time.⁴⁵

Act of 1934.—Recent relations between air transport companies and the Post Office Department have been regulated by two additional laws. **The** first of these was the act of June 12, 1934. This act continued the system of contracts for the carriage of the mails to be awarded by the Postmaster-General to the lowest responsible bidders. Briefly summarized, it prescribed the following rules:

1. Contract payments for the carriage of the mails should not exceed maxima fixed in the act.⁴⁶

2. The Interstate Commerce Commission should fix fair and reasonable rates of compensation for the transportation of mail by airplane, not to exceed the statutory maxima, and should determine the basis for rates which should be used.

3. No person should hold an air contract who had previously entered into a combination to prevent the making of any bid for the carriage of the mails or who paid any employee more than \$17,500 per year.

4. Mail contractors were subjected to various prescriptions and regulations designed to promote safe operation, adequate service, and conformity with national labor policies. Some of these regulations attempted to prevent combination of air transport companies which handled mail.

This act of 1934 was amended in 1935,⁴⁷ but without changing essentially the rules which governed the award of air mail contracts.

Administration by the Interstate Commerce Commission.—During the years

⁴⁵ Temporary contracts were advertised on March 30, April 6, May 5, and May 7, 1934. Permanent contracts were advertised and awarded later under the provisions of the Act of 1934. To be eligible for bidding, companies whose contracts had been canceled were required to change their corporate set-up and to dismiss all responsible executives who had been present at a conference with Postmaster-General Brown in May, 1930, at which, it was alleged, the air companies had conspired to divide air mail contracts among themselves. These requirements resulted in some reorganization of existing lines, but no significant changes in corporate structures or affiliations occurred (*Aviation*, Vol. 33, 1934, pp. 117, 153, 187, 220, 339).

⁴⁶ A proviso to Section 3a reads as follows: "Provided . . . That the base rate of pay which may be bid and accepted in awarding such contracts shall in no case exceed 33 1/3 cents per airplane-mile for transporting a mail load not exceeding three hundred pounds. Payment for transportation shall be at the base rate fixed in the contract for the first three hundred pounds of mail or fraction thereof plus one-tenth of such base rate for each additional one hundred pounds of mail or fraction thereof, computed at the end of each calendar month on the basis of the average mail load carried per mile over the route during such month, except that in no case shall payment exceed 40 cents per airplane-mile." (48 Stat. 933, 1934).

⁴⁷ 49 Stat. 614, 1935.

between 1934 and 1938 the rates for air mail transport were, to a limited extent, subject to regulation by the Interstate Commerce Commission. The leading case in which the Commission considered the question of compensation to contractors for air mail carriage was decided in 1935,⁴⁸ and the rates fixed in this decision followed those set in the statute, using the maximum of 33 1/3 cents where conditions were least favorable and cutting the maximum to as little as 24 cents when conditions permitted. The Commission found that the Post Office, up to 1934, was still paying for air mail space regardless of whether this space or less was used; but there was some question as to the legality of the practice under the act of 1934 and the Commission's own prescribed schedules were organized upon a weight basis only. The Commission felt burdened by the responsibilities placed upon it by the act of 1934, and probably welcomed the relief which occurred in 1938.⁴⁹

Act of 1938.—The act of June 23, 1938, created a Civil Aeronautics Authority to regulate air transport in all its public aspects. The temporary jurisdiction conferred upon the Interstate Commerce Commission with respect to air mail rates was now transferred to the new Authority although the act of 1938 was not primarily an air mail statute. In making this transfer, moreover, the whole system of contracts was abandoned. Henceforth air carriers were to notify the Postmaster-General by what schedules and between what points they proposed to operate. The Postmaster-General might change these schedules, subject to appeal to the Civil Aeronautics Authority, but otherwise they became effective. Once the schedules were established, the Post Office might then tender mail for transportation upon any scheduled planes. The rates to be paid for the service were to be fixed by the Aeronautics Authority, either upon its own initiative or upon petition by the Postmaster-General. These rates were to be sufficient, together with all other revenues, to enable air carriers "under honest, economical, and efficient management to maintain and continue the development of air transportation to the extent and of the character and quality required for the commerce of the United States, the Postal Service, and of the national defense." Since air carriers were subjected to general regulation by the act of 1938 it was no longer necessary for the law to associate provisions for safe operation, compliance with labor policies, and independence in management with the handling of air mail. This new legislation applied to air mail the principles and methods of public control which had been used for many

⁴⁸ 206 I.C.C. 675, 1935.

⁴⁹ The duties of the Interstate Commerce Commission under the acts of 1934 and 1935 included that of making an annual review of rates on all 33 domestic air-mail routes. This required complete audits of the carriers' accounts and records as well as investigations and analysis of the services performed and expenditures incurred. The law also required that rates be fixed so that the aggregate cost of the transportation of air mail would, in and after July 1, 1938, be kept within the limits of the anticipated revenues from air mail. This compelled the Commission to attempt an estimate of future postal revenues, though it could not see that these revenues had any logical relation to the sums which the government should pay for carriage of the mails (*Annual Report of the Interstate Commerce Commission*, 1937, pp. 34).

years in regulating other forms of transport; and in doing this it discarded the practice of special bargaining which had been the occasion of much criticism and some abuse.

What Is a Subsidy?—During the fiscal year 1938 the United States Post Office Department received \$15,301,210 in domestic air mail revenue, and paid out \$21,790,259, leaving a net deficit of \$6,489,049. In addition, it received \$3,757,499 in revenue on foreign air mail and paid out \$9,063,346, leaving a deficit of \$5,305,847. Most, though not all, of the government expenditures consisted of payments to contractors, the difference being accounted for by the cost of transporting mail to and from air mail fields and the cost of distributing in air mail transfer offices. The difference between government receipts and government expenditures on air mail business has usually been accepted as a measure of the federal subsidy to air transport in the United States. It is obvious, however, that such a measure is unsatisfactory because it yields results which depend upon the source of money paid for mail carriage and not upon the amount of money paid. This defect has been recognized, and the most recent estimate—that published by the Federal Coordinator in 1940—defines subsidies as the difference between government payments for carriage of the mails and expenses incurred by air carriers in performing this operation, without reference to any air postal revenues which the government may receive. In carrier expense this estimate includes a fair return upon investment.⁵⁰ During the year 1938 air carriers earned, according to the Federal Coordinator, \$14,214,092 from the carriage of the mails. The cost of rendering the service, including a return upon investment, was \$5,254,001, leaving a net surplus of \$8,960,091 to which the term "subsidy" could be attached. The chief difficulty with the new method is that results depend upon more or less arbitrary allocation of costs between mail carriage and other types of air service. Since about two-thirds of the direct operating expenses and all of the overhead have to be apportioned, the difficulty in reaching a defensible conclusion with respect to the amount of air mail subsidies is very great.

Nature of Government Assistance to Air Transportation: Routes and Landing Places.—The indirect assistance which the government is rendering to air transport companies at the present time is of two sorts. In the first place, the Civil Aeronautics Act of 1938⁵¹ provides for an administrator who is charged with large powers and responsibilities in the designation of civil airways, the supervision of development work, and the location of landing areas. He is to make recommendations to the Secretary of Agriculture for the provision of meteorological service, and to the Aeronautics Authority for federal participation in the construction or maintenance of a national system of airports. The administrator operates as part of the Department of Commerce,

⁵⁰ United States Federal Coordinator of Transportation, *Public Aids to Transportation*, 1940, Vol. 1.

⁵¹ See chapter XXXIV.

a department which has rendered distinguished service in the perfection of flying routes and in the encouragement of technical improvement in the air transport industry. Such service the administrator will doubtless continue and expand. Between 1926 and 1938 the Bureau of Air Commerce has increased the miles of lighted airways in this country from 2041 to 22,671, the number of radio broadcast stations from 612 to 1950, and the number of intermediate landing fields from 92 to 275. Terminal airports have been provided, in the main, by local authorities.⁵² Improvements of this sort assist all flying, not merely air mail transport, and are not to be reckoned among those expenditures for which the government receives a direct return.

Relation of Air Mail Payments to Air Transport Development.—In addition to its activity in improving and extending the facilities for air navigation in the manner which has been described, it seems probable that the government helps, air traffic in general by a willingness to accept a larger allocation of general costs in the calculation of the expenses of carrying the mail than the relation of pound mileage of air mail business to total pound mileage would justify. It can do this because the postal business is a government monopoly. That it contemplates doing it is evident from the clauses in the present law which direct the Authority to fix rates which "together with all other revenues of the air carrier" will enable such carrier to maintain and to continue the development of air transportation. The Authority, that is to say, is to cause the government to supplement the commercial revenues of the air Knes, to any necessary amount, until total revenues may be sufficient for the successful operation of the service. Somewhat similar provisions in railroad legislation have been ineffective, but the monopolistic character of postal transport makes it possible to realize their purpose in air carriage.

Objections to Government Assistance.—From the point of view of the air carrier, government aid and in particular favorable rates for carrying the mail are desirable, although air companies would be glad to carry postal traffic at moderate rates if this were necessary, because the mails bring in revenue before regular commercial traffic is ready to carry the load, and because government business is, on the whole, more stable than that derived from private sources. On the other hand, it is urged by opponents of government assistance that a policy of support is indefensible, and these critics argue both from a military and from a business standpoint. On the military side they assert that the United States would have airplanes even if subsidies were abolished. There are non-subsidized air lines in this country, and there is miscellaneous civil flying. These services, with whatever might remain of the present government-supported fleet, would give us a large air force, and possibly one which would be larger than that possessed by any other country. The United States is, moreover, so distant from other first-class powers that its need for air protection is

⁵² *Air Commerce Bulletin*, July 15, 1938.

reduced; and both our naval and our military establishments have air services which render them relatively independent of civil support.⁵³

These arguments have some plausibility. Before reaching a conclusion on the military side we need a much more thorough analysis of the military and naval value of a civilian air fleet than is yet publicly available. This analysis should include consideration of the importance of maintaining a high capacity for airplane manufacture in the United States, as well as a discussion of the utility of civil airplanes themselves; for the life of airplanes in war is so short that a country's stock of planes at any time may be less significant than its power to manufacture according to an indicated design.

The argument against government support to air transport is based, on the business side, upon the belief that federal subsidies encourage deficits, and that if subsidies were withdrawn the deficits reported by air companies might disappear. This is not because operators are now wasting government money by recklessness or deceit. It is rather because subsidies cause services to be maintained where traffic is too light to permit a profit. The question here is whether there is public advantage in the operation of air lines which cost more money to maintain than their revenues will supply. In discussing the question, it is to be remembered that communities located on air line routes in the United States do not depend upon airplanes for communication with each other or with the outside world. They rely upon planes only for special, accelerated service, which they have only recently enjoyed at all. It may also be observed that while the infant-industry argument for protection may legitimately be applied to air navigation, this argument will not provide a reason for permanent government support.

Reduction in Rates for Carriage of the Mail.—It does not seem likely that criticism of government policies designed to accelerate the growth of air traffic by indirect support will much affect those who believe in the need for rapid perfection of this means of carriage. It is reassuring to both friends and opponents of current practice, however, to observe that the rates which the government is paying for the carriage of its mail by airplane are declining. The average contract payment per airplane-mile in 1932, for instance, was 62 cents.⁵⁴ In 1938 the lowest contract rate was 24 cents (except for two nominal rates) and the highest was 33 1/3 cents. The average payment at this time was 31 cents. This decline, it may be added, was not to be attributed so much to the terms of the statutes which we have discussed in earlier pages of this chapter as to the continuing improvement in airplane performance which has occurred in recent years, for the average costs of air mail service had fallen between 1929 and 1933 by a greater percentage than they were lowered between 1933 and 1938. These declines in cost, together with the contempora-

⁵³ H. G. Moulton and Associates, *The American Transportation Problem*, Brookings Institution, Washington, 1933.

⁵⁴ *Report of the Postmaster General*, 1932, p. 118.

neous increase in revenues from passengers and express have reduced the dependence of the air routes upon the mail business, and suggest that at some time in the not too distant future the air carriers may stand alone.

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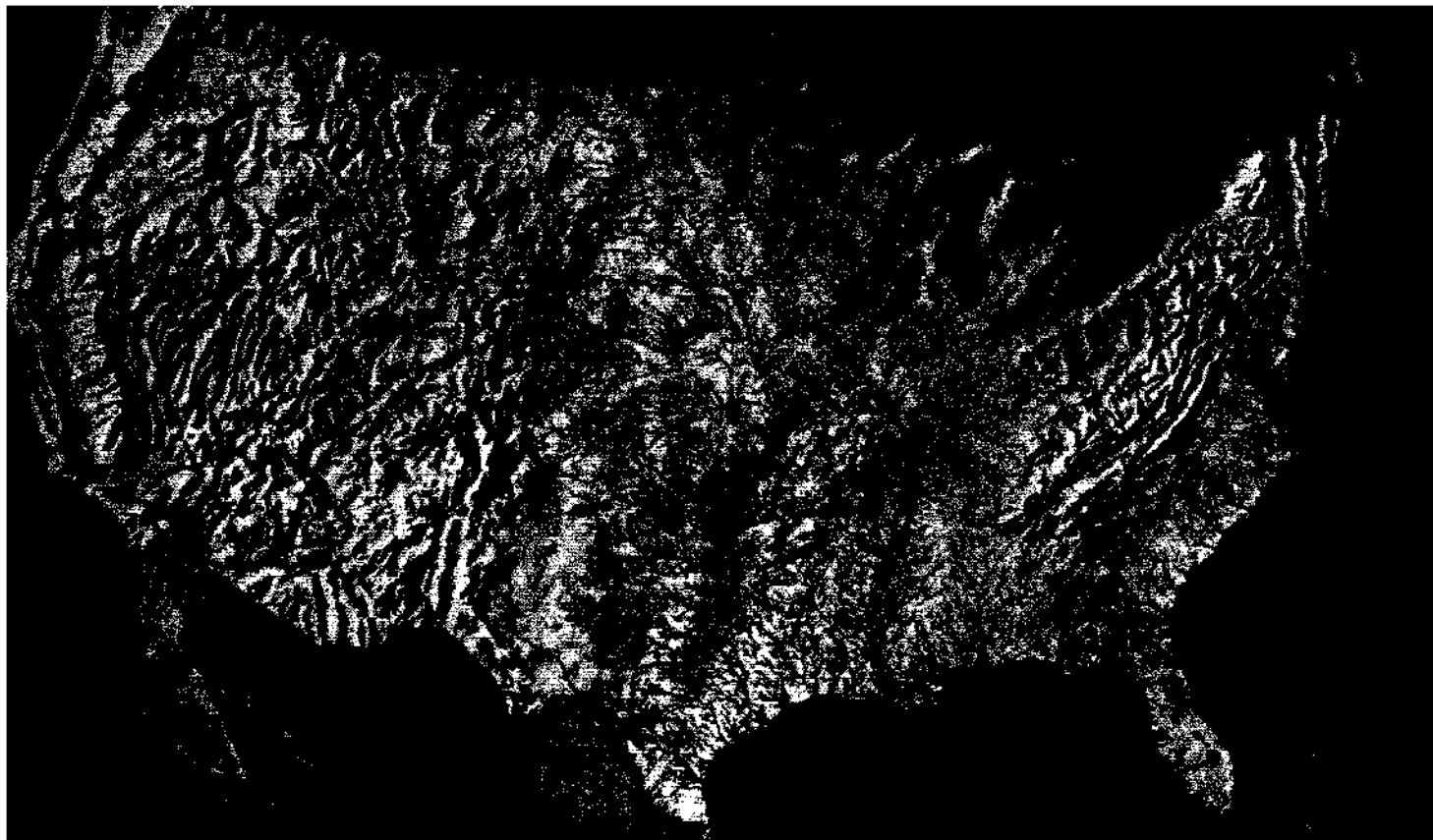
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PART III

TRANSPORTATION GEOGRAPHY





RELIEF MAP OF THE UNITED STATES

CHAPTER VII

THE GREAT LAKES



The magnitude of the transportation machinery provided for a nation like the United States seems calculated to accommodate a population and a volume of raw materials and finished goods in almost daily motion. Speaking of passengers alone, we have estimated the number of annual trips by railroad at 455 million, those by automobile at 56 billion, and those by street and inter-urban railway at 8 billion, or a total of approximately 65 billion—something like 500 trips per inhabitant per year. And while the weight of the annual goods production of the country is not known, an annual movement of over 1700 million tons certainly indicates a high degree of mobility. It is desirable, therefore, to examine this flow of traffic, and to assemble, at least with respect to freight, some of the facts which are known about it.

Difficulties of Exact Description.—There is much difficulty in analyzing inland transportation movements in any country, for the reason that neither passengers nor goods are stopped and counted in the course of transit within a nation as they would be if they crossed national boundaries and became subject to customs regulations.

There is difficulty also in segregating the local or gathering and distributing movements of commodities from, the currents of traffic which flow, often for long distances, between sources of supply and consuming markets. These difficulties make an exact statement of the flow of inland traffic impossible, but they do not prevent a reasonable approximation that will indicate in a general way the nature of the transportation which takes place.

Recapitulation of the Volume of Freight Traffic of the United States.—We have already estimated the annual freight movements in the United States as follows:

	Tons (Millions)
Waterways	
Great Lakes	98
Mississippi River	65
Other rivers, canals, etc.	
Pipe lines	132
Intercity trucks	
Railroads	820
Total	1720

Commodities Handled.—The commodities carried by the various means of transportation mentioned in the table may be listed as follows:

1. Great Lakes. The chief commodities handled on the Great Lakes are iron ore, coal and grain, with lesser amounts of stone and sand, wood products, petroleum, and package freight.

2. Mississippi River. Fuel oil, coal, logs, iron and steel, sugar, sulphur, and cotton move in quantities upon the Mississippi. Much sand, gravel, and rock is also carried, but for short distances.

3. Other waterways include (a) the Warrior River in Alabama; (b) the Columbia, Willamette, Sacramento, and San Joaquin rivers on the Pacific coast; (c) the Hudson River; (d) the New York State Barge Canal; and (e) a number of canals and rivers of minor importance, mostly emptying into or lying in the vicinity of the Atlantic Ocean or the Gulf of Mexico.

The most important of these miscellaneous waterways are the New York Barge Canal and the Hudson River. Both handle much the same range of commodities, including grain, petroleum and petroleum products, chemicals, sugar, sulphur, fertilizers, iron and steel, sand, stone, and gravel. The traffic on other rivers and canals varies, but fuel oil, grain, logs and lumber, coal, sand and gravel constitute the bulk of the tonnage.

4. Pipe lines. This facility transports crude petroleum, gasoline, and natural gas. Other petroleum products move by rail.

5. Motor trucks. The statistics of motor truck traffic are extremely incomplete, but the business includes building materials, perishable goods, such as milk, eggs, vegetables, and fruit, and the miscellaneous freight supplied by retail and wholesale distributing establishments. This traffic has been described in Chapter V. Other commodities of importance are gasoline, livestock, and household goods.

6. Railroads. Common observation suggests that the variety of products carried by the railroad system of the United States is so great as to defy summarization. This is not, however, the fact, as statistics published by the Interstate Commerce Commission show that most railroad tonnage consists of comparatively few articles. The commodities carried by Class I railroads in the United States¹ during the year ended December 31, 1938, are listed below.

More than 70 per cent of the entire tonnage originating on railroads of the United States in 1938 consisted of coal, iron, grain, petroleum, clay and gravel, and lumber. If we add cement, fertilizers, copper, lead, and zinc ore, paper, livestock, fruit, sugar, and cotton, the proportion becomes almost eight-tenths. Miscellaneous parcel freight, which represents the greatest variety in shipments, amounts to less than 2 per cent of the whole.

¹The Interstate Commerce Commission divides the railroads which report to it into classes according to volume of earnings. Class I includes all railroads with gross earnings of \$1,000,000 a year or more.

REVENUE FREIGHT ORIGINATED ON CLASS I RAILROADS OF THE
UNITED STATES DURING THE YEAR ENDING DECEMBER 31, 1938²

Article	Tonnage
Coal, bituminous, anthracite, and coke	287,505,069
Iron, iron ore, and steel	57,833,511
Grain, flour, and meal	54,245,224
Petroleum and products	51,690,040
Clay, gravel, and stone	46,315,991
Lumber, logs, ties, pulpwood, etc.	41,554,458
Cement	15,705,339
Fertilizers	12,680,973
Ore, not including iron ore	9,131,719
Paper	7,957,992
Cattle, hogs, sheep, and goats	6,903,681
Fruits, including citrus	6,764,618
Sugar, sirup, and molasses	6,182,600
Cotton and cotton linters, seed, cake, and oil	6,053,674
Brick and artificial stone	4,806,312
Automobiles and parts	4,781,730
Chemicals and explosives	1,745,055
All other, carload	134,499,715
Total carload	757,469,713
Less than carload shipments	14,392,307
Grand total	771,862,020

7. Air routes. Aircraft tonnage consists of mail and some little high-grade express matter. The volume of the traffic is slight.

The reader is referred to commercial atlases, to the publications of the United States government, and to other standard sources of information for the location of places within the United States where the articles mentioned in preceding pages are produced. The evident localization which he will observe is partly determined by climatic and soil conditions. Thus grain is mostly grown in the fertile, open Mississippi Valley; citrus fruit in protected areas in California and in Florida; and cotton in the southern states in which the summer temperature reaches an average of 77 degrees. Another cause for localization is the chance occurrence of geological deposits. This is why most of our iron ore is mined near Superior, why most coal comes from the Appalachian and the eastern regions, and why the greater part of our petroleum originates in what are known as the Mid-Continent and California fields. Still other causes for concentration are conditions of labor supply or the availability of other factors which will be more fully discussed in Chapter XXL For whatever cause, production is not evenly spread over the United States, but is con-

centrated in definite areas; and the articles extracted or grown or prepared in these favored spots then flow out in great streams to the communities where the products are consumed.

Inland Waterway Routes: Rivers and Canals.—We have already considered the location of the principal river and canal routes in the United States, and the reader is referred back to Chapter III to refresh his memory in this field. The position of rivers is determined by nature, and while it is possible, within limits, to transform a stream which is not navigable into one which ships can navigate, it is not possible to create a major facility for water transport without prerequisites which only nature *can* provide. This is why the Mississippi River and its tributaries are and have been, since population settled in the West, the main reliance of those persons who desired to avail themselves of the advantages of river transport. Natural advantages also account for the success of the Erie Canal, artificial as a work of this sort may seem to be. For if the Appalachian range had not been broken in prehistoric times, and if glacial action had not carved the beds of the lakes now found in the Mohawk Valley, it would have been no more possible to build a canal through New York State than it now is to build one through Pennsylvania. The peculiarities of the Mississippi and of the Erie routes we have already explained.

Great Lakes Route.—The significance of the Great Lakes, however, deserves further elaboration.

The Great Lakes route runs for most purposes from the head of Lake Superior at Fort William or Duluth to Buffalo on Lake Erie. Lake Michigan ports lie upon a branch of this route. Little traffic passes beyond Buffalo to Lake Ontario, and the St. Lawrence River cannot yet be classed as a major highway from the seacoast to the interior, although its importance is probably destined to increase.

The importance of the Great Lakes route is due in large part to the particular location of iron-, coal-, and grain-producing areas in the United States. The greatest iron deposits of the country lie at the head of Lake Superior. The greatest iron-using and the greatest coal-producing parts of the United States lie south and east of Lake Erie. The three lakes of Erie, Huron, and Superior provide an east-and-west connection which makes movements of coal and iron cheap between these points of origin and destination. Not only this, but since the grain fields in Canada and in the northern Mississippi Valley are the most important on the American continent, the lakes supply a convenient road for grain to American and Canadian markets, while they also bring this product toward the seaboard and facilitate its export. The principal return shipments over the Great Lakes route consist of the anthracite and bituminous coal of Pennsylvania.

Canals at St. Marys Falls.—Representative statistics concerning Great Lakes freight movements are collected at St. Marys Falls, at the entrance to Lake

Superior on the east. At this point are two lock canals, one American and one Canadian. These canals accommodate boats of eighteen- and twenty-foot draught with a maximum capacity of perhaps sixteen thousand tons, and they are operated free of tolls. All water-borne traffic passing between Lakes Superior and Huron must pass through one or the other of the two canals; and since the greater part of the Lakes traffic has origin or destination in Lake Superior, the canal statistics provide an unusually satisfactory picture of the business of the Lakes as a whole.

The accompanying table presents the figures for the American and Canadian canals combined.

ST. MARYS FALLS CANALS, 1938⁸
(Freight Traffic)

Article	Tons
Eastbound	
Iron ore	19,625,345
Wheat and flour	5,258,454
Barley, corn, oats, and rye	1,223,085
Structural steel	90,481
Wood products: Lumber, shingles, and pulpwood	60,611
Other	354 ,679
Total	16,611,656
Westbound	
Coal	7,765,966
Petroleum products	731,704
Stone, gravel, and sand	316,852
Automobiles	17,781
Other	659,140
Total	9,501,444

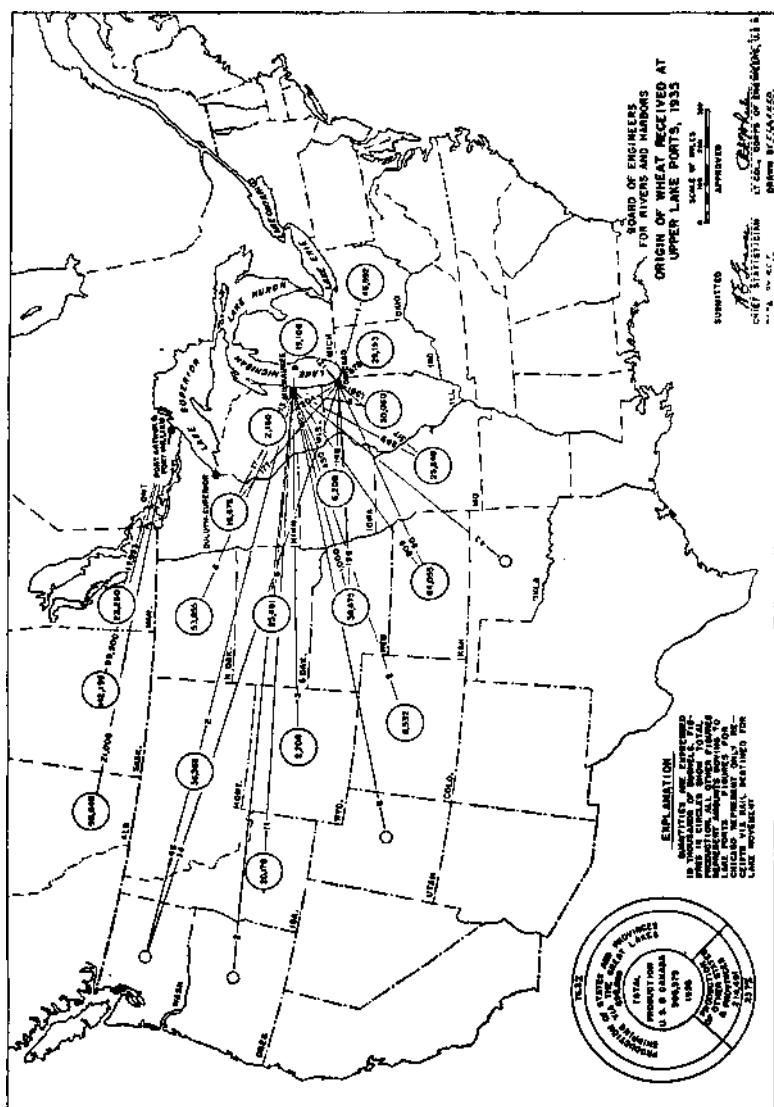
In addition to freight tonnage, 41,552 passengers passed through the canals in 1938. The traffic through the American canal was 94 per cent of the total freight, 89 per cent of the net registered tonnage, and 37 per cent of the number of passengers carried.

American* Grain Shipments.—The most important Lake shipping points for American grain are Duluth-Superior on Lake Superior, and Chicago and Milwaukee on Lake Michigan.

Grain, and particularly wheat, moves from the Dakotas, Montana, and

⁸ United States, *Annual Report of the Chief of Engineers, Commercial Statistics*, 1939. The figures in the text include domestic through traffic and through traffic between foreign ports. They exclude foreign exports and imports, amounting to a total of 3,928,639 tons.

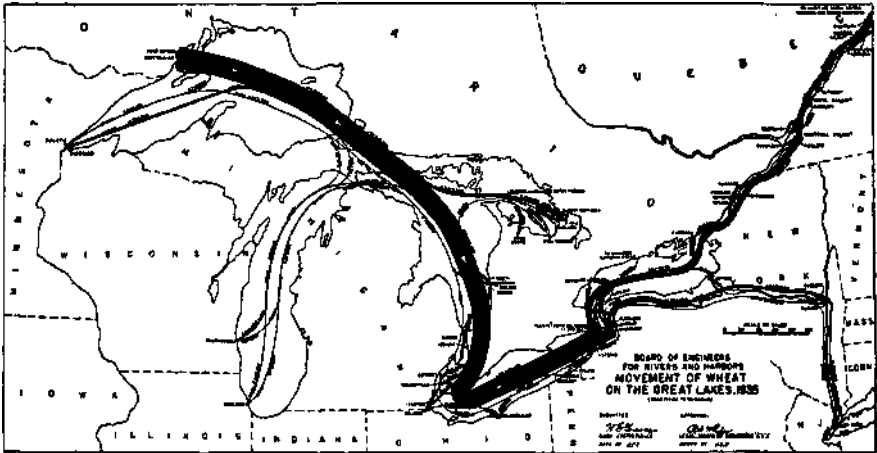
Minnesota to Duluth-Superior; and from Illinois, Indiana, Iowa, and portions of Missouri, Kansas, South Dakota, Minnesota, and Wisconsin it moves to



Chicago and Milwaukee. From these points, and especially from Duluth-Superior, grain moving to North Atlantic ports of the United States goes chiefly to Buffalo for transshipment, although some is transshipped at Erie,

⁴ United States Corps of Engineers, United States Army, *Transportation on the Great Lakes*, 1937-

Fairport, and other Lake Erie ports of the United States; and in addition a considerable amount goes to Georgian Bay ports. Of the latter, some eventually reaches the North Atlantic ports of the United States, while some goes by rail lines to Montreal, Quebec, St. John, and Halifax, and the remainder is distributed to interior points in both the United States and Canada. Large lake carriers cannot yet proceed directly to Montreal because of navigation difficulties on the upper St. Lawrence. Moreover, the shipping capacity of the ele-



MOVEMENT OF WHEAT ON THE GREAT LAKES, 1935

vators at the head of the Lakes so far exceeds the receiving capacity at Montreal and Quebec that storage at intermediate points is necessary. This largely accounts for the preeminence of Buffalo as a point of transshipment, although since the completion of the Welland Ship Canal and the construction of transfer elevators at Toronto, Kingston, and Prescott, Ontario, much grain en route to Montreal is carried from the upper Lake ports direct to destinations on Lake Ontario. A recent Canadian shipping and coasting act encourages this last-named practice by prohibiting the shipping of Canadian grain of any kind through the port of Buffalo when the grain is destined to Montreal unless the upper Lake carrier that transports it from Fort William-Port Arthur to Buffalo is of Canadian registry.⁶

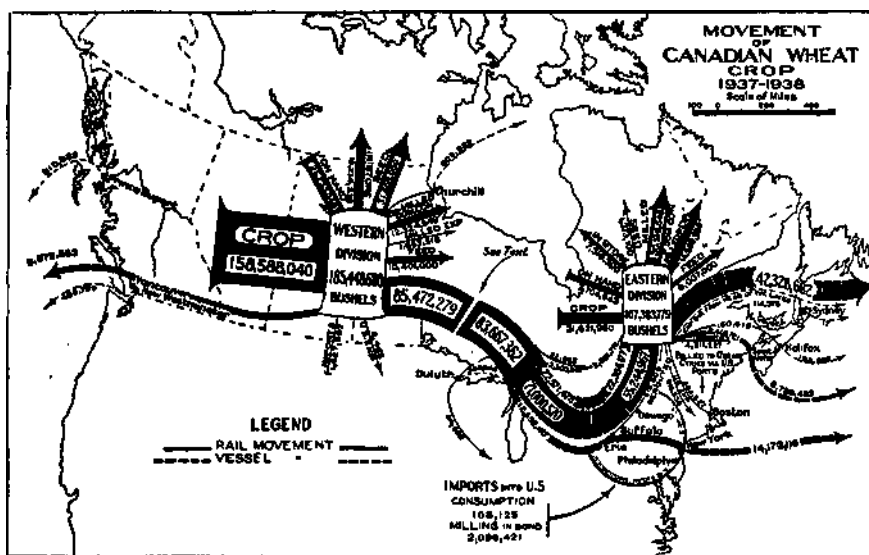
The movement of American grain out from the Mississippi Valley by rail to Atlantic and Gulf seaboard cities will be considered in Chapter X. In discussing the Great Lakes traffic it should be made clear, however, that the greatest grain tonnage is from Canadian, not American, points of origin. Indeed, in 1935 only 48,020,429 bushels were shipped by water from Duluth-

⁵ *ibid.*

• *Ibid.*

Superior, Chicago, and Milwaukee combined as against 187,338,865 bushels from the Canadian Lake ports of Fort William and Port Arthur. This disparity is explained by the competition of Gulf routes for the American production in Kansas, Nebraska, Oklahoma, and Texas, by the indirect character of the water routes from points in Illinois and Indiana, and by the excellent rail facilities which Chicago and Milwaukee command. In recent years the influence of the Mississippi-Warrior Barge Line has diverted some American traffic from the Lakes, though it has not affected the routing of grain grown in the Northwest.

Movement of Canadian Crop.--The major portion of the Canadian crop moves east by way of the Great Lakes through Fort William and Port Arthur.



MOVEMENT OF CANADIAN WHEAT, 1937-1938

Canadian wheat originates for the most part in the prairie provinces of Saskatchewan, Alberta, and Manitoba, all west of Lake Superior.⁷ The accompanying map traces the movement of this wheat.⁸

During the season 1937-1938 a wheat crop of 158.6 million bushels in the Western Division, added to a carry-over of 25.2 million bushels from the previous crop year, together with some minor items, brought the stock of the Western Division to 185.4 million bushels. Not all of this grain was commercially disposed of. Of the 97.6 million bushels marketed, by far the larger por-

⁷ During the year 1935, 67.6 per cent of the wheat received at Fort William and Port Arthur originated in Saskatchewan, 16.3 per cent in Manitoba, and 16.1 per cent in Alberta.

⁸ Canada, Dominion Bureau of Statistics, Agricultural Branch, *Report on the Grain Trade of Canada, for the Crop Year Ended July 31, 1938*, Ottawa, 1939.

tion, namely, 93.7 million bushels, was either shipped to eastern Canadian markets (73.5 million bushels) or exported to Great Britain (20.2 million bushels). Of the wheat moving east, it is possible to trace 2.5 million bushels shipped directly by rail from the Western Division and from Fort William and Port Arthur. Shipment by vessel amounted to 82.6 million bushels. Of the east-bound wheat, 22.9 million bushels were received at Lake Huron and Georgian Bay ports whence, in most cases, they continued east by rail; 12.5 million bushels were shipped to United States Lake ports, of which the most important was Buffalo, and the rest was forwarded to Canadian lower Lake ports and to ports upon the St. Lawrence River.

Normally, one would expect that Canadian grain intended for export would move through Canadian ports, and American grain through American ports; and it is true that most of the Canadian grain received at Canadian lower Lake and St. Lawrence ports moves subsequently to Port Colborne, Montreal, Quebec, and Sorel. But the same is not true of Canadian grain shipped to the United States Lake ports. Indeed, 15 per cent of Canadian overseas wheat exports, mostly of this type, moved through New York, Baltimore, Boston and Portland during the season of 1937-1938, while a substantial proportion of the American wheat exports which make use of the Great Lakes leaves the United States by way of Montreal. The explanation is to be found in geographical and climatic conditions. Western grain can reach Montreal more cheaply than it can New York, and Canadian facilities for handling grain are superior. At New York the grain must be loaded into lighters, towed to the vessel's side, and then elevated into the vessel by a floating elevator. At Montreal the grain can be discharged into transfer houses and spouted from there directly into the holds of vessels.

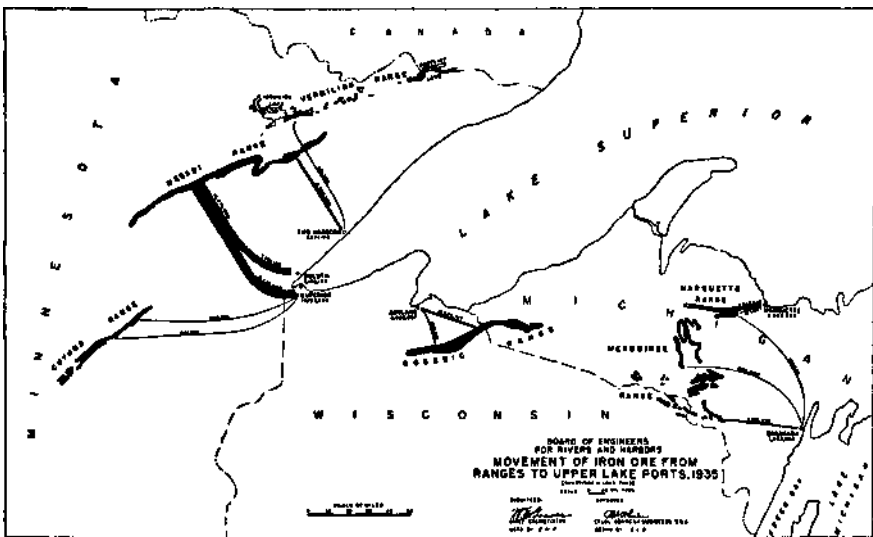
These advantages attract heavy American shipments from Lake terminals to Montreal. Canadian grain, however, matures several weeks later than the American; indeed, navigation on the St. Lawrence ceases while the Canadian crop is still moving. For approximately two weeks after the closing of the St. Lawrence—usually during the last week in October—Canadian grain continues to flow to Buffalo and Georgian Bay or lower Lake ports. The grain shipped to Georgian Bay ports and to Port Colborne then and earlier, and some of that sent to Montreal, is used for the supply of flour mills and grist mills in eastern Canada and for seed grain for the farmers of Ontario and Quebec; but the grain which reaches Buffalo and other United States Lake ports sooner or later proceeds to the Atlantic seaboard by rail. During the time of year when this part of the crop is moving, the advantages of Canadian ports are minimized and New York is the export point most relied upon.⁹

Congestion of Grain Traffic.—Grain movements raise technical problems of considerable difficulty. The distances involved are, of course, long, and they

⁹ Canada, *Report of the Royal Grain Inquiry Commission*, 1925,

have become increasingly so with the westward extension of the spring wheat belt in the United States and the development of Canadian production. The shipping period, moreover, is short, especially for Canadian grain. Winter wheat-growing in Canada is prevented by late spring frosts. Spring sowing means a late harvesting period, while the winter closing of the Lakes by ice sets a limit to the date on which water shipments can be made. Shipping insurance premiums rise by daily increments after the first of December, and owners of grain which has not been shipped out soon after must bear either the higher cost of all-rail movement or the expense of all-winter storage until the reopening of Lake navigation. The result is a rush to move grain between September and December that imposes a strain both on railroads leading to Lake ports and on shipping companies which undertake to provide water service.¹⁰

Iron Ore Shipments.—The ore shipments by way of the Great Lakes reach water after a rail haul which varies from 12 to 120 miles. The Marquette field



MOVEMENT OF IRON ORE TO UPPER LAKE PORTS

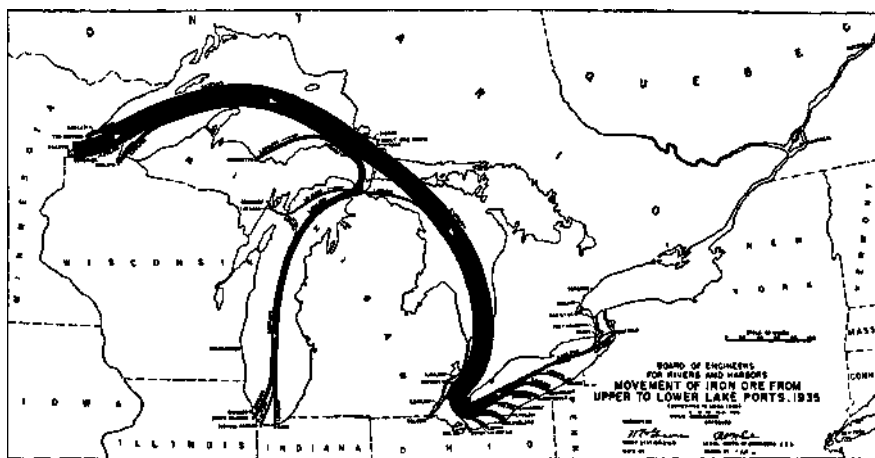
in Michigan, which finds its outlet at Marquette on Lake Superior, is the nearest to deep water, and the Mesabi range is the most distant. All the ranges empty upon Lake Superior except the Menominee, for which Escanaba on Lake Michigan is most convenient. Including Escanaba, the shipments of iron ore from American ports on Lakes Superior and Michigan in 1938 were as follows:

¹⁰ H. S. Patton, *Grain Growers' Cooperation in Western Canada*. Harvard University Press. Cambridge, 1928.

IRON ORE SHIPMENTS FROM THE PRINCIPAL AMERICAN LAKE PORTS, 1938¹¹

Port	Tonnage
Duluth-Superior	11,642,507
Agate Bay	4,246,791
Ashland	2,333,655
Escanaba	1,111,424
Marquette Harbor	187,830
Total	19,522,207

Direction of Iron Ore Movements.—Passing out upon the Lakes, the iron ore cargoes proceed east, in specially designed freighters, through Lake



MOVEMENT OF IRON ORE ON THE GREAT LAKES

Huron and the St. Clair and Detroit rivers to American harbors on the south shore of Lake Erie; or in smaller volume they turn south through Lake Michigan to Calumet and Indiana Harbor at the extreme end of the Lake.

Ore Receipts at Principal Lake Ports.—In 1938 the most important ore-receiving harbors and the incoming tonnage at each were those listed in the table on page 148.

Final Destination of Lake Ore Shipments.—Ore arriving at Calumet, Gary, and Indiana Harbor, as well as some of that reaching Lake ports such as Lorain, Cleveland, Ashtabula, and Conneaut, is smelted locally; but much of the tonnage reaching ports on Lake Erie continues by rail to more distant

¹¹ United States, *Annual Report of the Chief of Engineers, Commercial Statistics, 1939*. The figures in the text refer to domestic shipments of ore, lakewise. The export ore movement is unimportant

Harbor

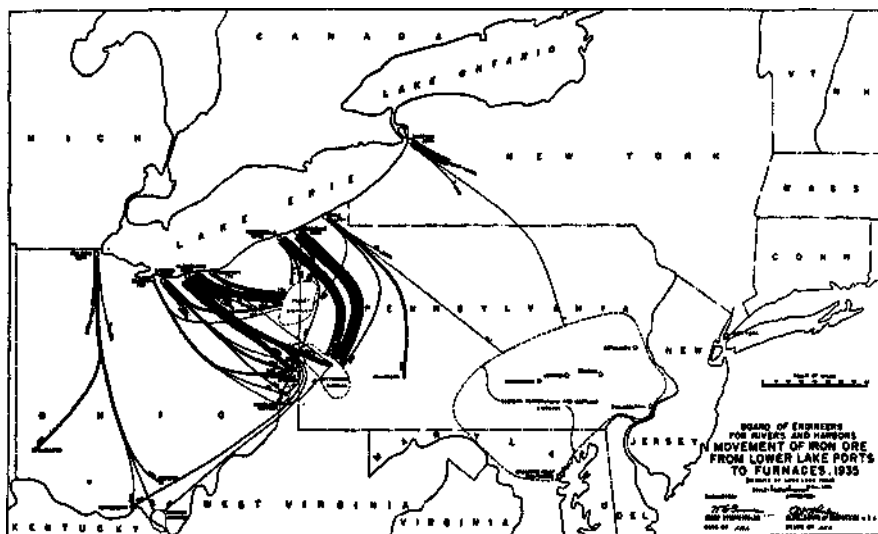
Tonnage

Total

20,618,991

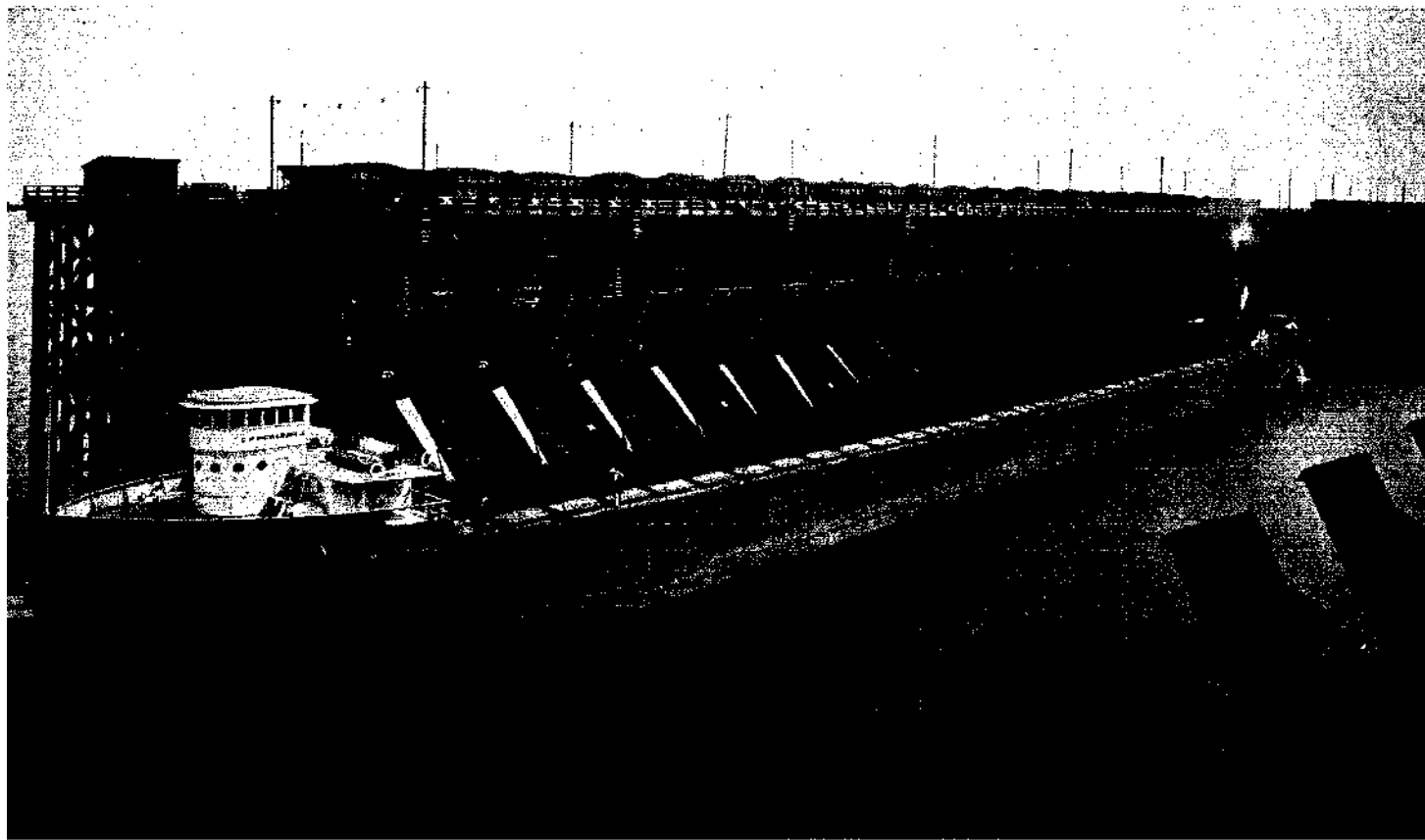
furnaces at Pittsburgh, Youngstown, and elsewhere. The map below indicates the market area for lake ores.

During 1935, the largest flow of iron ore between any two points was that between Conneaut and Pittsburgh. The rail shipments from Cleveland were



MOVEMENT OF IRON ORE FROM LOWER LAKE PORTS

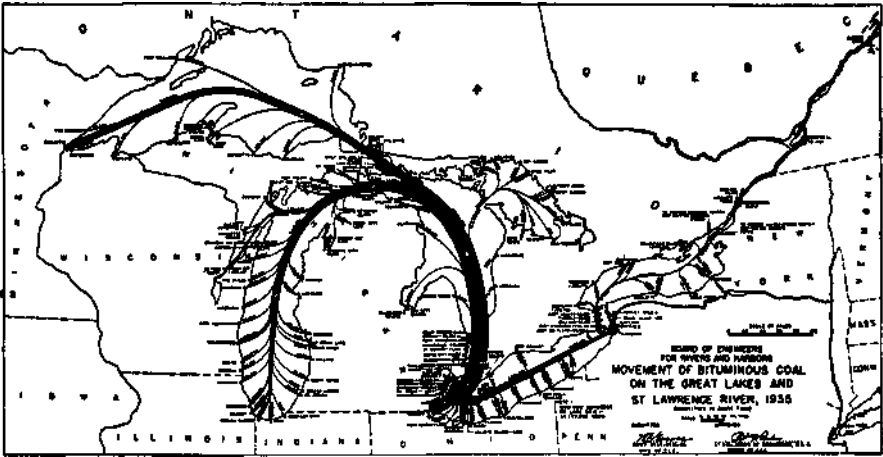
greater than those from any other port, but they were more widely distributed than those from Conneaut. In 1938, 193 blast furnaces, or 82 per cent of all the furnaces in the United States, were located in Michigan, Illinois, Indiana,



BULK FREIGHTER LOADING IRON ORE AT DULUTH, MINNESOTA. (Courtesy, Duluth Chamber of Commerce.)

New York, Pennsylvania, and Ohio;¹² and these relied, in most cases; upon the Great Lakes for their supply of ore.

Coal.—Westbound coal furnishes the chief return cargo for the ore barges operating to the lower Lakes. Coal reaches Lake Erie at Toledo, Sandusky, Ashtabula, Erie, Conneaut, Cleveland, Lorain, Buffalo, and other ports on the American side; it proceeds through the Detroit River and Lake Huron, with some deliveries at local points, to destinations on Lake Michigan, Lake Superior, and at intermediate points. In 1935, out of 34,777,299 short tons of



MOVEMENT OF COAL ON THE GREAT LAKES

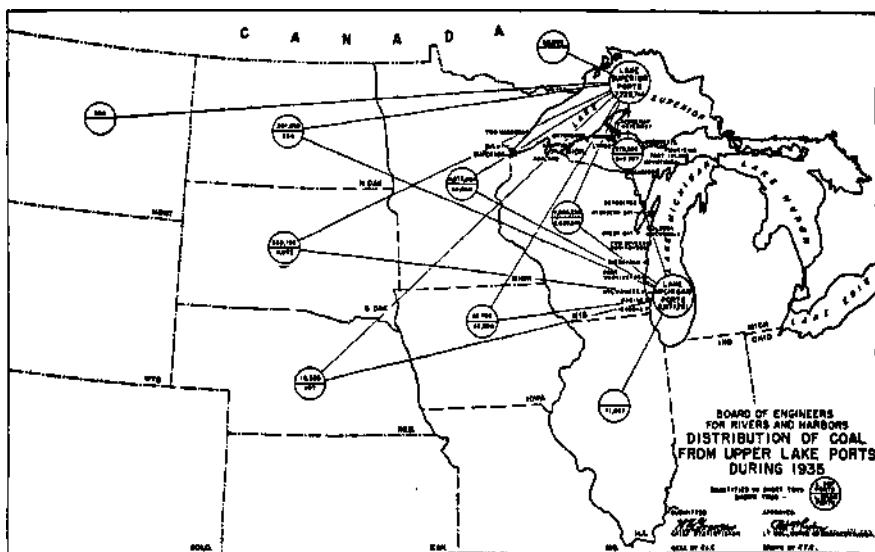
bituminous coal shipped from Lake Erie ports, 6,734,512 tons were taken by Duluth-Superior, 4,574,235 tons by the harbors of Chicago, Calumet, Indiana Harbor, and Gary, 4,448,388 tons by Detroit, 2,987,401 tons by Milwaukee, and 1,848,668 tons by Buffalo.¹³ In addition, 555,036 tons of anthracite were shipped from Lake Erie ports, mostly to Milwaukee and Superior, Wisconsin.

The northwestern market for Lake coal includes Wisconsin, Minnesota, Iowa, Michigan, the Dakotas, Montana, and some points even farther west, as well as a large strip of Canadian territory along the adjacent border. This territory requires coal for railroads, homes, iron and copper mines, and growing manufacturing industries. After severe storms, which often delay and sometimes entirely interrupt rail traffic for days at a time, the docks are called upon to meet a sudden and extraordinary demand for coal from all quarters. If the coal supply for the Northwest were to come by rail from the points of production as required, very great difficulty would be experienced in supplying, from current production, the concentrated demands that occur here during the periods when rail transportation, due to climatic conditions, is at its worst.

¹² American Iron and Steel Institute, *Annual Statistical Report*, 1938.

¹³ United States Corps of Engineers, United States Army, *Transportation on the Great Lakes*, 1937.

A railway storage depot, such as the docks afford, has the flexibility necessary to meet emergencies. As the business has increased, the docks have been called upon more and more to stock coal for consumers. This is particularly true in normal times in the case of railroad companies, whose coal occupies a considerable portion of the dock storage space. They stock their coal early, but take it from the docks only as they require it.



DISTRIBUTION OF COAL FROM UPPER LAKE PORTS

New York Barge Canal and St. Lawrence River.—The New York Barge Canal and the Hudson River serve to some extent as an eastern extension of the Great Lakes route; and the St. Lawrence-Gulf Deep Waterway referred to in Chapter XXV will be, when completed, a still more effective portion of this highway. The experts for the International Joint Commission of 1921 expected that grain, some flour, iron ore for Atlantic seaboard furnaces, some lumber, sulphur, and automobiles, together, of course, with other products in smaller quantities, would move eastward from Lake to river when the St. Lawrence River and the Welland Canal were dredged to a depth of twenty-five or thirty feet. Sugar, manganese, fruit, vegetable oils, rubber, and clay were mentioned as possible westbound quantity movements. This is, however, only a prospect, as the actual movement by the St. Lawrence is small and consists mainly of grain and soft coal. The Barge Canal is also a carrier of grain, together with petroleum, chemicals, sugar, and sulphur. For most purposes, as has been said, the Great Lakes water route terminates at the eastern end of Lake Erie, where it connects with the trunk-line railroads across Pennsylvania and New York.

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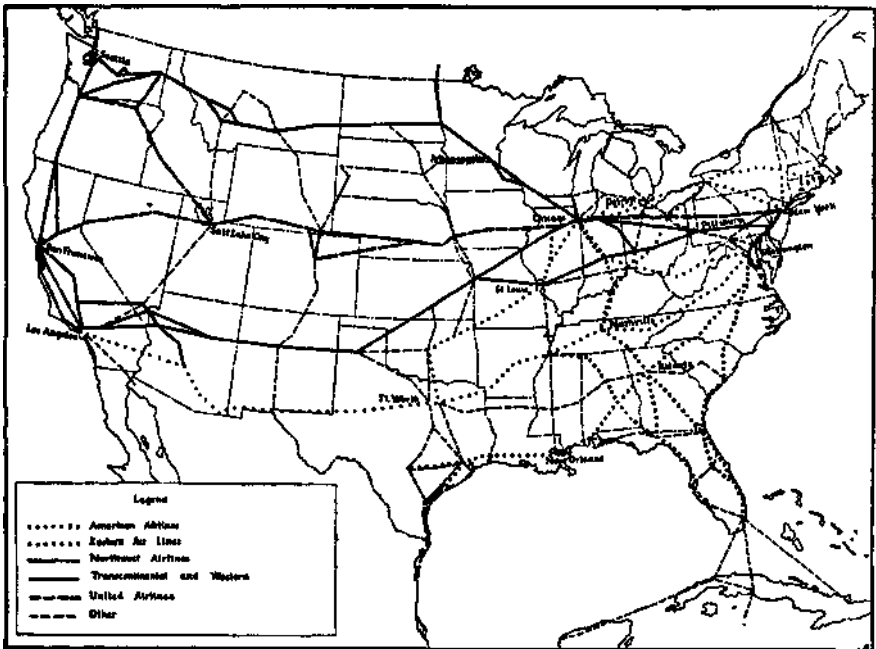
CHAPTER VIII

AIR, PIPE LINE, AND MOTOR VEHICLE ROUTES



We may now proceed to consider the major land routes of the United States—that is to say, the railroad, motor vehicle, and pipe line routes. Air routes will be added to the list although the airplane, like the ship, prefers only an occasional contact with the land. We shall discuss airplanes and pipe lines first, because their routes are simple, and railroads last because railroad routing is more difficult to explain.

Air Routes.—The accompanying map depicts the air routes in the United States. It presents information, first with respect to location and second with



AIR LINE ROUTES, NOVEMBER, 1938

respect to the ownership of air lines. From the former standpoint air routes may be divided into two groups: those which run from east to west, connect-

ing the Atlantic with the Pacific coast or either coast with the interior, and those which extend from north to south and join such termini as Chicago and Galveston, Chicago and New Orleans, Great Falls, Montana, and San Diego, and Minneapolis and Tulsa, Oklahoma. Historically, the first air service was that between New York and Washington, opened in 1918. The New York-Chicago route was opened in 1919 and that between Chicago and San Francisco in 1920. All this was done while the United States Post Office was still carrying the mail in government planes. The addition of routes from Los Angeles via Kansas City to New York, from Los Angeles via Dallas to New York, from New Orleans to New York, and from Chicago to Miami, and the development of branches of the central transcontinental route from Salt Lake to Los Angeles and to Portland occurred during the following decade. Since 1930 the coast route from Boston to Jacksonville has been completed, as has the connection between Chicago and the Pacific coast by way of the Northwest and the establishment of a number of cross-country lines.

Distribution of Traffic.—Air traffic is more concentrated than the map of air line route mileage suggests. The intensity is greatest on the routes between Chicago and New York, from Washington through New York along the Atlantic coast as far north as Boston, and between Chicago and St. Louis, Chicago and St. Paul, and Chicago and Omaha. Even a cursory glance at the schedules of airplane operation shows how greatly the frequency of service offered by lines in the area exceeds that offered by companies in the South and West,¹ and a more careful examination of traffic figures only confirms the impressions which the study of schedules has produced. We have, actually, no satisfactory detailed study of airplane passenger movements, but a series of articles published in 1935 assembles some interesting information with respect to air express.²

Among the conclusions reached in these articles are the following: (1) The territory east of the Mississippi and north of the southern boundary of Kentucky originates about 70 per cent and receives about 60 per cent of the entire air traffic. The Pacific Coast districts originate about a quarter and receive slightly more of the total. (2) Fifty-one per cent of the traffic of the New York district is shipped to Chicago and 45 per cent of the traffic of the Chicago district is shipped to New York. Thirty-five per cent of the tonnage originating in the San Francisco district is shipped to Seattle and 28 per cent to Los Angeles. Exchanges principally occur, that is to say, between large centers of population not too remote from each other. Only 9 per cent of the New York

¹The American Airlines operate eight and the United States Air Lines operate ten round trips daily between New York and Chicago, whereas a total of two or three round trips daily is good service for most of the western and southern lines.

²W. L. McMillen, "Air Express Service in the United States," *Journal of Land and Public Utility Economics*, August, 1935, November, 1935, and February, 1936. See also United States Civil Aeronautics Authority, Bureau of Economic Regulation, Accounts and Analyses Division, *Station to Station Airline Traffic Survey, August, 1939*, Washington, D. C., 1940.

business moved to San Francisco, and only 10 per cent of the San Francisco business to New York, although the relations between New York and Los Angeles are somewhat closer.

Commodity Movements.—Air traffic is also limited with respect to the variety of commodities with which it deals. Chapter VI, which considered aviation, has already indicated the types of goods which are shipped by air; but it appears that in 1933, more specifically, seven items supplied 73 per cent of the weight and brought in 80 per cent of the revenue earned by scheduled air carriers in that year. These items were valuable papers, advertising and printed matter, news photos, films and negatives, machinery and parts, newspapers, and clothing and textiles. The direction of movement depends upon the character of the relations between the communicating termini. Thus more valuable papers are sent to Chicago and to New York than are exported from these centers. Over three times as great a weight in films is sent from San Francisco to New York as from New York to San Francisco. On the other hand, advertising and printed matter, clothing and news photos move rather from New York to San Francisco than from San Francisco to New York. This lack of balance in particular items is a phenomenon which air service has not created and which facilities for air transport will not change.

Tendency Toward Concentration in Management.—Between 1927 and 1930 the number of air transport companies increased from 16 to 38. Since 1930 the number has steadily declined until, in 1939, only 17 operators were engaged in scheduled service although during the years after 1930 the number of passengers increased from 375 to 1876 millions and the tons of freight from 179 to 4757 tons. Nor does this statement entirely reveal the extent of the concentration which exists, because it neglects the fact that a few of the 25 companies in operation do most of the air transport business.

The accompanying table shows the miles flown and freight and passenger business transacted in domestic operations by the five principal air companies in the United States.

It appears from the figures given that five American companies were responsible in 1938 for 79 per cent of the miles flown, 87 per cent of the passenger-miles, and 90 per cent of the freight and mail ton-miles in the United States. This tendency toward concentration in air transport is partly a reflection of government policy and partly the result of the ambitions of powerful and aggressive groupings in the industry. It is also the outgrowth of technical conditions. During the first few years of civil aviation in the United States the movement was not in the direction of concentration but rather toward a multiplication of operating units. It soon became apparent, however, that technical progress depended upon the investment of large sums of money and the organization of highly competent and specialized staffs and that these objectives **could** be more easily reached if the number of enterprises could be kept down.

COMMERCIAL OPERATIONS OF THE FIVE LARGEST AIR TRANSPORT COMPANIES
IN THE UNITED STATES, 1939

Operator	Miles Flown (Thousands)	Passenger- miles (Thousands)	Express Ton-miles (Thousands)	Mail Ton-mile\$ (Thousands)
United Air Lines	17,724	148,955	895	2,690
American Air Lines	19,136	207,360	757	1,971
Transcontinental and Western Air	12,038	99,649	378	1,427
Eastern Air Lines	10,981	102,904	316	1,052
Northwest Air Lines	5,148	34,749	101	579
Total, five companies	65,027	593,617	2,457	7,719
Total, all domestic routes	81,571	677,673	1,705	8,585
Percentage, five com- panies to total	79	87	90	90

(Source: United States Department of Commerce, *Civil Aeronautics Journal*, September, 1940.)

This has also been the experience in Germany, France, and England, where one company in each country is now responsible for all regular commercial flying.

Reference to the map of air line routes shows that in the United States three companies, the American Air Lines, the United Air Lines, and the Transcontinental and Western Air Company operate from coast to coast. The Northwest Air Lines out of Chicago operate roughly parallel with the United Air Lines, though farther north, and the Eastern Air Lines and the Delta Air Lines in the Southwest compete to some extent with the transcontinental lines and with each other. Between all of these corporations competition is at times severe.³

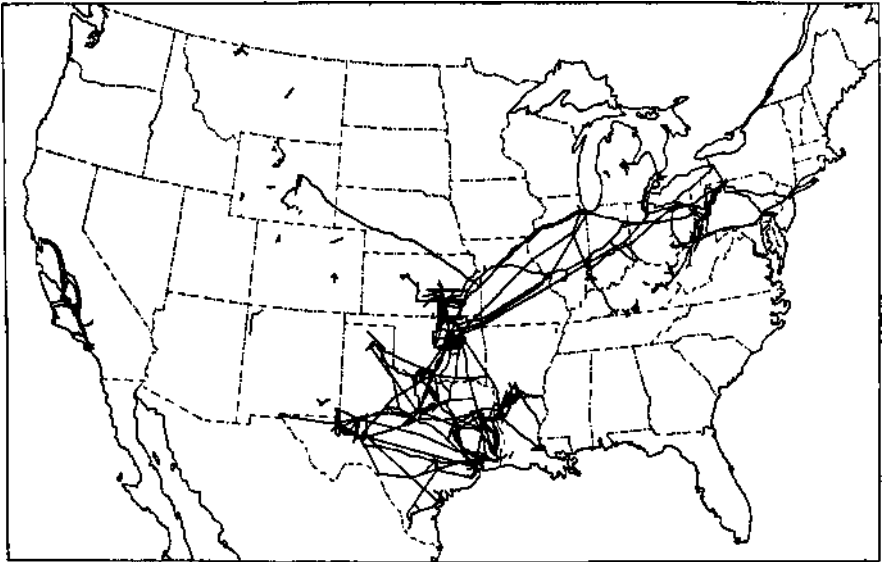
There is, however, little duplication of service on shorter hauls such as that which characterizes railroad service in many sections of the country, and the shorter, independent routes, for the most part, operate from north to south and complement rather than compete with the major undertakings. Companies of this secondary type are not distinguished from each other upon the map, but they include the Braniff Airways from Chicago to Galveston, the Hanford Airlines from Minneapolis to Tulsa, Oklahoma, the Chicago and Southern Air Lines from Chicago to New Orleans, and the Western Air Express from Great Falls, Montana, to San Diego, California. The north-and-south route on the Pacific coast which normally would be controlled by a separate corporation is owned and operated by the United Air Lines.⁴

³ *Aviation*, January, 1938, p. 58.

⁴ This last exception was specially authorized by a section in the Air Mail Act of 1935 (49 Stat. 614, 1935).

Pipe Lines.—The total mileage of oil pipe lines in the United States in 1938 was 95,919 miles, of which 57,046 were trunk and the rest gathering lines. Most of the system is devoted to the carriage of crude petroleum, but in recent years pipes for the carriage of refined petroleum—principally gasoline—have been laid down.

In conveying oil, operators make use of steel pipes, laid on or near the surface of the ground, through which crude or refined oil is forced by pumps driven by steam or internal combustion engines. The main trunk lines for crude oil average eight inches in diameter; the average gathering line is six



CRUDE OIL PIPE LINES, 1939

inches.⁵ Pumps may be located thirty or thirty-five miles apart, depending upon the terrain and the viscosity of the oil. During recent years pipe lines and their equipment have considerably improved. Better pipes are now being made, with motor- or Diesel-driven pumps, using a closed type of cooling system. Better telephone equipment for communication along the line, improved methods of maintenance and operation, including the development of light, mobile equipment and the electric welding process, together with other advances in the art, make it possible to render better service at lower costs. Modern pipe lines employ a telephonic dispatching system, and they organize their maintenance work as carefully as railroads do.

Pipe Line Operation.—Speaking of the operation of the Great Lakes Pipe Line Company, the general superintendent of this company says:

⁵ W. M. Splawn, "Transportation by Pipe Lines," *The Oil and Gas Journal*, September 22, 1938, p. 53-

All gasoline movements through the system are controlled by a chief dispatcher located in Kansas City. The dispatching is done over telephone by three shift dispatchers under the chief dispatcher. . . .

The actual movements through the line of different specification gasolines are in the care of the chief dispatcher who may have as many as three products spotted at intervals throughout the system, with deliveries of certain quantities to be made at different terminals along the line. The dispatcher knows within a few hundred feet or less where each product is located, and by means of charts and maps showing capacity and mileage, can at all times trace its movements. The dispatcher has control of all pumping speeds, and designates tankage and movements through the system. Check samples are reported to him from all intermediate points, and in the final calculations on a delivery, he will know its arrival within minutes.⁶

From the same source we take the following description of the handling of a particular shipment in a gasoline pipe line:

A typical movement through the system is as follows: Assuming a receipt of 50,000 barrels of "X" gasoline at Muskogee for delivery to Chicago. The Muskogee station will deliver to Okmulgee through a 4-inch line at the rate of 4200 barrels per day, and the front end of this product will arrive in Okmulgee in 14.3 hours.

Due to the difference in pumping capacities between Okmulgee and Muskogee stations, namely, 4200 and 13,000 per day, it will be necessary to store some of the gasoline, which in this case is 162.3 hours of pumping. After this has been done, the product is started north to Barnsdall at the rate of 13,000 barrels per day, and the front end of the stream arrives in Barnsdall in 24 hours.

Here it is again stored and accumulated to overcome the capacity ratio of 13,000 barrels to 25,000 barrels per day, or a wait of 30.6 hours is necessary. Pumping is then started north at the rate of 25,000 barrels per day through the 8-inch line and the progress of the batch is noted every hour.

It passes Kansas City in 67 hours after leaving Barnsdall and reaches Des Moines in 128 hours.

At Des Moines reverse capacity of 25,000 to 13,000 barrels per day is encountered, and while it is possible to start the movement east immediately, for the purpose of checking pumpings and determining an over and short on this movement, the first 15,000 barrels are stored in tankage, after which the stream is switched and pumping is started to the east from the first tank at the rate of 13,000 barrels per day and reaches Chicago in 109.4 hours, or in all, a time interval of 473.6 hours from Muskogee.

All during this time interval, dispatchers have full control of movement. Just ahead of this movement and after this movement, other products from different receiving points are handled in the system by means of storage accumulation at the different stations, . . . waiting their turn in the line.⁷

Gasoline Pipe Lines.—It will be observed that the description of pipe line

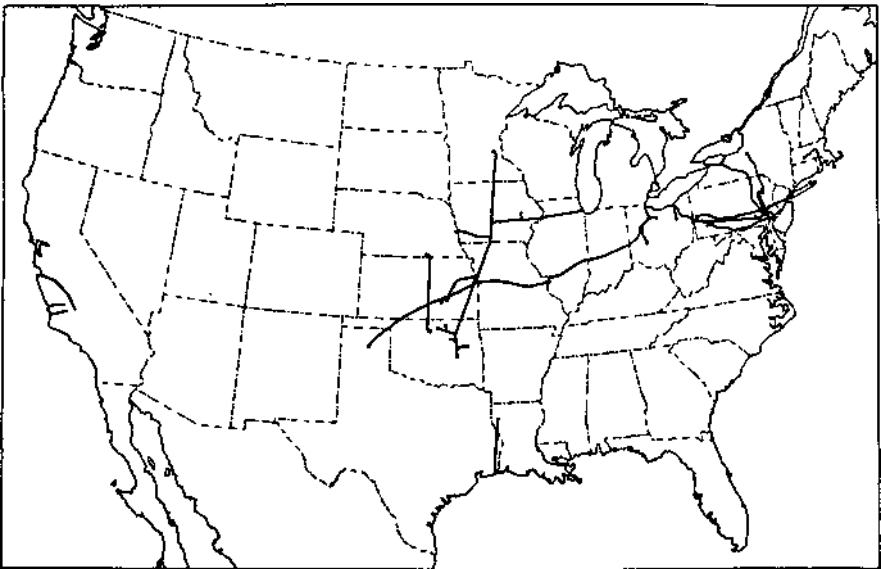
⁶F. E. Richardson, "Efficient and Economical Operation of System Depends on Simplicity of Organization," *The Oil and Gas Journal*, September 29, 1932, p. 112.

⁷*Ibid.*

operation in the preceding section relates to a gasoline pipe line. The majority of pipe lines are built to carry crude oil only, and most of our experience relates to crude oil pumping. However, the success which has been obtained with this commodity, and the desire to secure all possible economies to offset declines in the price of refinery products, have led to the building of important pipe lines for the carriage of gasoline, in addition to the existing and proposed facilities for the transportation of crude oil.

The principal gasoline lines are:

i. That of the Great Lakes Pipe Line Company from Ponca, Muskogee, and Tulsa, Oklahoma, by way of Kansas City and Des Moines to Minneapolis and Chicago. A branch south of Des Moines connects the main system with



GASOLINE PIPE LINES, 1939

Omaha, Nebraska. This pipe line is 1541 miles in length, and is said to be the longest pipe line in the world.

2. The lines of the Atlantic Refining Company and its subsidiaries from a point near Philadelphia to Pittsburgh, with branches north to Kingston, Pennsylvania, and to Buffalo and Rochester, New York. Total mileage, approximately 751 miles.

3. Lines of the Phillips Pipe Line Company from Borger, Texas, to Kansas City and East St. Louis, 736 miles.

4. Sun Oil Company system from Marcus Hook, Pennsylvania, northeast to Newark, New Jersey, north to Syracuse, New York, and west to Cleveland, Ohio, 788 miles.

5. Lines of the Tuscarora Oil Company, a subsidiary of the Standard Oil

Company of New Jersey, from Baywater, New Jersey, to Midland, Pennsylvania, near Pittsburgh, 371 miles.

6. California lines, owned by various companies, connecting Ventura and Wilmington, Kettleman Hills and Avila, Kettleman Hills and Morro, San Joaquin fields and Monterey, 420 miles.

7. Socony-Vacuum Company lines from East Providence, Rhode Island, to Worcester and Springfield, Massachusetts, and from Augusta,* Kansas, to Kansas City, 276 miles.

These systems account for about 4900 miles out of a total of perhaps 6000 miles of gasoline pipe lines in the United States.⁸ They serve a territory constituting about one-third of the area of the United States and containing about one-half of the country's population; this area takes half of the total volume of motor fuel consumed in the entire country.

History of Pipe Lines.—Crude-oil pipe lines have an extensive history, beginning with the construction of a pipe line in western Pennsylvania in 1865. Not only have they contributed to the expansion of the oil industry, but they have also accelerated the growth of corporations such as the Standard Oil which have known how to make effective use of the facilities they provide. Gasoline pipe lines, at least those for the transportation of motor oil, began to be significant about 1930, when the Standard Oil Company of New Jersey began to transport motor gasoline inland through its Tuscarora pipe line from its Baywater refinery on New York Harbor to various points in New Jersey and Pennsylvania, a total distance of 371 miles. All of the gasoline lines drawn upon the accompanying map have been built since this date.⁹

Routes.—The location of pipe lines is determined, on the one hand by the occurrence of productive oil wells, and on the other by the position of refineries or of storage points to which oil is brought from the fields. The situation of refineries, in turn, is controlled by various technical and business considerations.

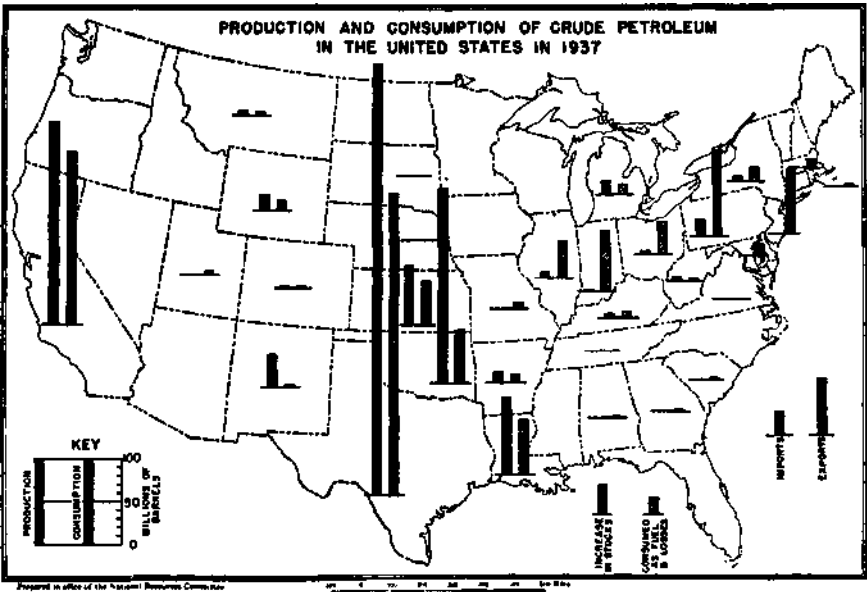
The principal petroleum-producing regions of the United States are (1) the Mid-continent district, including portions of the states of Texas, Oklahoma, Kansas, Louisiana, Arkansas, New Mexico, and Missouri; (2) the California district, including producing wells in the state of California; (3) the Gulf coast district, including portions of Texas and Louisiana adjacent to the Gulf of Mexico; (4) the Appalachian district, including the western portion of the states of New York, Pennsylvania, West Virginia, eastern portions of Ohio, northern Kentucky, and Tennessee; (5) the Rocky Mountain district, including Wyoming, Montana, Colorado, Utah, northern New Mexico, and Alaska; (6) the Lima-Indiana district, including western Ohio, Indiana, and

⁸ *Oil and Gas Journal*, September 22, 1938, p. 94.

⁹ C. P. Bowie, *Transportation of Gasoline by Pipe Line*, United States Department of Commerce, Bureau of Mines, Technical Paper No. 517, 1932.

Michigan; and (7) the Illinois-Indiana district, including parts of southwestern Indiana and southeastern Illinois.¹⁰

Crude petroleum moves by pipe line from producing areas to the important Texas and Oklahoma inland refining centers such as West Tulsa, Oklahoma City, etc.; to refineries or loading facilities located at Texas Gulf ports; northeastwardly to refining centers at Arkansas City, Coffeyville, Kansas City, Chicago, Cincinnati, Cleveland, Toledo, etc.; or to other refineries scattered throughout the East and Middle West. The crude oil moved by pipe line to the Texas ports is either refined at these points or reshipped in tank vessels



(Source: National Resources Committee, *Report on Energy Resources and National Policy*, Washington, 1939.)

to the great Eastern refinery centers at or near New York, Boston, Philadelphia and Baltimore. Some of it is transshipped at Atlantic coast points and forwarded, still as crude oil, by pipe line to interior refineries. Crude petroleum produced in the California field moves in large quantities by pipe line to the refining centers or transshipment ports at or near San Francisco, Los Angeles, and Port San Luis; a considerable amount of California crude is also refined at the interior refineries at Bakersfield and Lebec, California.

Crude petroleum produced in the Rocky Mountain region is refined for the most part at the refineries located in the Caspar, Graybull, and Rawlins-Pasco districts in Wyoming, or at smaller refining centers in Wyoming, Montana, Utah, and Colorado. The crude produced at the wells in the Gulf

¹⁰ United States Federal Coordinator. *Freight Traffic Report*, Vol. II, p. 55.

coast district is either refined at the refineries located within the area or moved to the Texas and Louisiana Gulf ports where it is either refined or transshipped as crude to the eastern seaboard refineries. The crude petroleum produced in the Lima-Indiana, in the Illinois-Indiana, and in the Appalachian districts is usually refined at near-by refineries in these respective fields.¹¹

Refined petroleum products are usually distributed in the sections of the United States in which the refineries are located or within a reasonable distance from such refineries, with the notable exception of the products refined in the Tulsa, Oklahoma, and Borger, Texas, area which are transported long distances by gasoline pipe lines. The average rail haul of refined petroleum products is approximately the same in all traffic areas despite the restricted areas of production because of the fact that the products are consumed in all regions and the location of refining centers is so scattered as to make long interterritorial movements of the refined products usually unnecessary.

Diversion of Oil Traffic from the Railroads.—Practically all crude petroleum moves today by pipe line or by water. Between 1921 and 1938 shipments of petroleum originating upon railway lines decreased from 6,435,000 tons to 4,045,664 tons, while that originating upon trunk pipe lines increased from 39,457,000 tons to 122,948,315 tons. A recent investigation by the Bureau of Statistics of the Interstate Commerce Commission further illustrates the tendency of oil shipments to leave the rail. Taking the three-year period of 1923-1925 as a base, the Bureau found that in this period the railroads hauled annually on the average 9,353,000 tons of crude oil. In 1936 the corresponding total was only 3,471,000 tons. At the same time the production of crude petroleum had increased 49.1 per cent, A similar computation for refined petroleum and its products showed that although the 1936 tonnage produced in the United States was 63.1 per cent greater than in the 1923-1925 period, the railroad tonnage of this class of commodities increased only 28 per cent. If the railroads in 1936 had transported an undiminished proportion of the expanded business in crude and refined petroleum and its products they would have originated, according to the Bureau, an additional 25,003,000 tons. Nor is even this the full story, for not only do pipe lines divert traffic directly from the railroads, but, by increasing the use of oil in place of coal as fuel, they reduce the coal tonnage upon which the railroads so largely rely. Finally, the rates that railroads can charge upon the oil and the coal they still carry are kept down by the competition of pipe lines carrying crude oil and gasoline, and, to some extent, by the competition of those which handle natural gas.¹²

The railway share in the shipment of petroleum products is greater than in

¹¹ *Ibid.*, pp. 64-65.

¹² Speaking of the effect of natural gas, the Federal Coordinator of Transportation in 1934 estimated that natural gas had displaced in the one year 1932 a total of 35.2 million tons of bituminous coal. Most of this coal would have been transported by railroad (United States, Office of the Federal Coordinator, *Regulation of Transportation Agencies*, Sen. Doc. No. 152, 1934. P. 56).

the case of crude oil, amounting to 48,644,376 tons in 1938 as compared with 9,025,191 tons shipped through pipe lines. The difference may be partly due to the recent and incomplete development of the gasoline pipe line net. It does not seem likely that pipe lines will ever take over the entire task of distributing petroleum products, because the markets for gasoline are much more numerous and scattered than the markets for crude oil and because sales are in smaller quantities. Pipe line distribution is less well fitted than railroad distribution to accommodate such a demand. Up to the present time, however, most gasoline pumped through pipe lines is transported for proprietary refining companies, and a large proportion of the tonnage is distributed from pipe line termini direct to local dealers in motor tank trucks; this method is proving so efficient that the net result may be an increasing and permanent diversion of the traffic from the rail carrier although the pipe line, by itself, may not be able to assume the load.¹³

Pipe Line and Railroad Rates.—It would seem that the pipe line, as compared with the railroad, is definitely a superior facility for the transportation of oil under conditions adapted to its peculiarly inflexible manner of operation. The staff of the Federal Coordinator gave some attention to this matter, and reported that pipe line rates were only 31 per cent of rail rates on crude petroleum between points in eastern territory in 1934. Between some termini the ratio went as low as 16 per cent. Between Kansas and Oklahoma fields and the central East the proportion of pipe line to rail rates ran from 40 to 50 per cent, and between Texas and east central or western trunk line territories the ratios were still higher. The pipe line rates for all territories in 1934 were approximately half of the rates by rail.¹⁴

How successful any particular pipe line will be in earning a profit at rates like these will depend upon whether it is worked at something like full capacity. The cost of operating a pipe line is largely independent of the amount of traffic handled. If the investment is fully utilized, costs to the shipper may be made low and profits will, nevertheless, be earned. If the plant is partly idle even high rates will not produce an adequate return. As a matter of fact the income of existing pipe lines has been generally satisfactory. In 1938, after charging off \$29,871,583 for depreciation, the 58 pipe line companies reported a net income of \$80,345,710 upon an investment of \$808,000,000, or approximately 10 per cent; and this rate is lower than it was in 1937 and perhaps than it will be again.

Ownership of Pipe Lines.—According to statistics compiled by the Federal Coordinator of Transportation as of 1931, pipe lines in the United States are

¹³ United States, Office of the Federal Coordinator, *Freight Traffic Report*, Vol. II, p. 104. Oil pipe line tonnage is annually reported to the Interstate Commerce Commission in terms of barrels. The tonnage statistics in this text use a conversion factor of 310 pounds per barrel for crude and 277.2 pounds per barrel for refined petroleum.

¹⁴ *Ibid.*, Vol. III, p. 163.

principally owned by the same interests that supply them with freight. The figures supporting this statement are set forth in the accompanying table.

PIPE LINE PATRONAGE (TRUNK LINES ONLY), 1931¹

Classification	Number of Companies	Tonnage Handled for Proprietors (Thousands)	Tonnage Handled for Others (Thousands)
Proprietary patronage only	12	9,274	
Mixed patronage	20	63,	982.
No traffic handled for proprietors	9	..	17,976
All companies	41	73,256	36,205

The fact that 67 per cent of the tonnage of pipe lines was supplied by the owners in 1931 suggests the possibility that large oil companies may use their control over pipe line facilities to strengthen their own position in the trade. They may do this by keeping pipe line rates at an unreasonable level, by requiring unfairly large minimum shipments,¹⁶ or by other unfair practices.

Commodities Clause.—In order to prevent the abuses referred to in the preceding section, it has been suggested that a certain clause in the Interstate Commerce Act, known as the "Commodities Clause," be applied to pipe lines. This clause forbids a carrier to transport, in interstate commerce, commodities which it owns. The object of the law is to disassociate the business of manu-

¹⁵*bid.*, Vol. III, p. 168.

³⁰The actual minimum tender requirements in 1932 were as follows, according to the Federal Coordinator:

MINIMUM TENDER REQUIREMENTS OF PIPE LINES, 1931

Minimum in Tons	Number of Companies
Crude Petroleum	
15,500	20
11,625	9
7,750	4
3,875	11
1,550	3
775	8
155	3
46	1
None	3
Weighted average	
8,813	
Gasoline	
7.75°	3

facturing or of mining from that of transportation. Since many pipe lines are owned by oil refining companies, application of the commodities clause might embarrass the operation of these properties, and bring back some oil traffic to the rails. It is not clear, however, to whom present pipe line owners could sell their holdings; nor would it be in the public interest to force pipe lines to shut down, even if railroad earnings were thereby improved. The proposed extension of the commodities clause of the Interstate Commerce Act seems, therefore, to be unwise, and it is unlikely that the approval of Congress will be obtained.¹⁷

Motor Vehicle Routes.—The total road mileage of the United States in 1937 was over three million miles. The length of highways in the state systems, as distinguished from county and local roads, was much less than this, or 454,841 miles, and the length of surfaced mileage was still less, or 359,639 miles. It is necessary to make these distinctions because most motor vehicle traffic is limited to improved routes; it should be observed, however, that even the surfaced mileage of our roads is more extensive than the sum of pipe lines and air routes combined or than the length of the single-track railroad mileage in the United States.

History of Road Financing.—Improved highways are, of course, essential to any large-scale development of automobile transportation. Like all modern countries the United States has long possessed an extensive system of roads adapted reasonably well to the necessities of the people at various times. These roads were built primarily to serve the needs of local traffic because the railroads, before the beginning of the twentieth century, could handle long-distance movements more economically than could the highway carriers then employed. They were also financed by local government units, before 1891. They were not at that date, nor until some years later, at all sufficient for the needs of the gasoline-driven engine which was presently to appear.

State Participation in Road Building.—In 1891, the state of New Jersey passed a law providing for a certain measure of state participation in road building. A state highway department was established. Local authorities were permitted to invite the aid of the state, and if they did so the state undertook to develop plans and specifications, to inspect and supervise road construction,

¹⁷ S. 1398, introduced by Senator Borah in 1937 was a sample of such proposed legislation. This bill would have amended the Interstate Commerce Act by adding the following section:

"See 8(a). From and after June 1, 1937, it shall be unlawful for any common carriers engaged in the transportation of oil or other commodity, except water and except natural or artificial gas, by pipe line, or partly by pipe line and partly by railroad or by water, to transport from any state, territory, or the District of Columbia, to any other state, territory, or the District of Columbia, or to any foreign country, any article or commodity, manufactured, mined, or produced by it, or under its authority, or which it may own in whole or in part, or in which it may have any interest, direct or indirect, through stock ownership, or use, interlocking directors or officers, or other lawful means." (0/7 and Gas Journal, February 18, 1937, P- 37.)

and to pay one-third of the cost. This policy, initiated by New Jersey, was followed by other states in one form or another, until by 1917 all of the forty-eight states had enacted state-aid highway laws. Since then the expenditures by states have been largely expanded, encouraged both by a quickened appreciation of the importance of better roads and by the productiveness of new taxes collected from motor vehicle users. Nearly all of the monies now raised by state governments for highway purposes come either (1) from motor vehicle fees and gasoline taxes, (2) from bond and note issues, or (3) from federal aid allotments. We shall refer presently to federal aid. Bond and note issues may for the moment be neglected because they represent borrowing which sooner or later must be amortized out of income. This leaves motor vehicle and gasoline taxes as the principal supports of the state highway systems of the United States. Now of these two forms of taxation the gasoline tax yields the larger revenue; and this tax has proved not only productive but relatively popular. It is paid in small amounts and at convenient times; and the motorist expects a direct benefit to himself because the proceeds are usually spent upon the public roads. Automobile owners regard the gasoline tax as attached to a particular purpose, and there is strong resistance to diversion based on allegations of equity or contract. The result has been that a number of commonwealths have found themselves in possession of large sums of money which they have felt bound to spend for roads, even when these states have been well supplied with highways and other needs have been pressing.¹⁸

Federal-aid Road Act, 1916.—The reentry of the federal government into the highway field dates from the so-called Federal-aid Road Act of 1916, supplemented by the Federal Highway Act of 1921, the Hayden-Cartwright Act of 1934, and miscellaneous relief and emergency legislation.

The act of 1916 authorized the Secretary of Agriculture to participate in the improvement of rural post roads up to 50 per cent of the cost of improvement. A rural post road was defined as "any public road over which the United States mails are or may hereafter be transported excluding every street and road in a place having a population . . . of two thousand five hundred or

¹⁸ None of the objections to the diversion of gasoline tax receipts meet the problem faced by states which administer gasoline taxes at rates that are difficult to change, and which obtain considerable revenues to devote to road construction at times when their highway net is approaching completion, while other state needs cannot be met. If a fuel tax is to be retained permanently and its proceeds are to be spent exclusively upon the public roads a state must prepare an annual highway budget, limit all projects for road improvement to highways which the administration thinks desirable in the light of all existing circumstances, and fix a rate for the fuel tax which will yield the funds for the approved budget with no more surplus than reasonable caution may require. This was the recommendation of the "Joint Committee of Railroads and Highway Users" of 1933 and it is a conclusion which sound policy must approve. The position that highways are so essential that something of a blanket and preferential approval can be given in advance to all roads which a given tax at a fixed rate can provide will lead to indefensible waste when income is abundant and highway construction proceeds steadily from more to less useful projects.

more, except that portion of any such street or road along which the houses average more than two hundred feet apart."¹⁹ Federal aid was to be limited by the appropriations provided, and in no case was to exceed \$10,000 per mile, exclusive of the cost of bridges more than twenty feet long.²⁰ States desiring to receive federal aid were each required to create a state highway department adequate in authority and equipment to cooperate with the federal government and to assume responsibility for the immediate supervision of construction. Roads built in accordance with provisions of the act were to be maintained by the states or civil subdivisions of the states.

Federal Highway Act, 1921.—The second law, that of 1921, authorized the Secretary of Agriculture, in cooperation with state highway departments, to designate a system of main interstate and intercounty highways, limited in each state to 7 per cent of the interstate and intercounty mileage existing at the time of its passage. The mileage so designated is indicated upon the highway map reproduced on page 167. Federal aid was henceforth to be extended only to mileage in the designated system. Federal contributions were still limited to 50 per cent of the cost of new construction, although a somewhat greater proportion was permitted in states in which there was a large amount of unappropriated public land. Roads once built must be maintained either by the states or by local governments. Failure to maintain caused suspension of aid to new work and the diversion of that aid to maintenance under federal control. Only after reimbursement of the funds so diverted could the state come back into good standing and again receive aid.

Hayden-Cartwright Act of 1934.—This act contained the following important provisions governing the use of federal-aid funds:

1. The limitation of federal contributions to the sum of \$20,000 (formerly \$10,000) was removed.

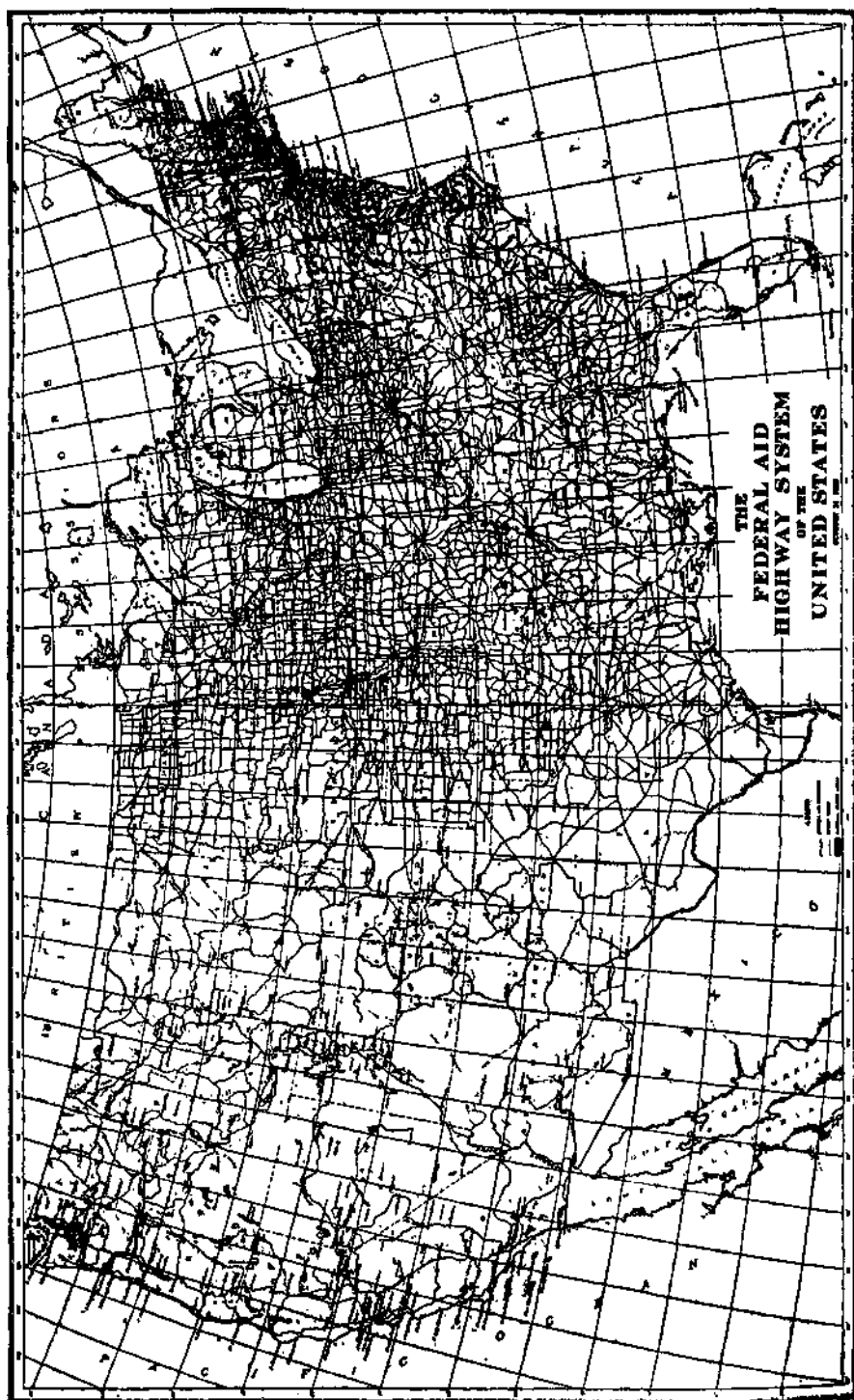
2. The Secretary of Agriculture was no longer restricted to the improvement of extra-urban roads, but might spend federal-aid money within municipalities.

3. Congress sought in this new law to discourage the expenditure of state revenues derived from gasoline and motor registration taxes for purposes other than highway maintenance, new construction, and improvement. It did this by reducing the amount of federal aid available to states which indulged in such practices.²¹

¹⁹ 39 Stat. 355, 356, 1916. In 1919 this definition was slightly revised (40 Stat. 1189, 1200-1, 1919).

²⁰ This limit of \$10,000 was raised to \$20,000 in 1919 and was entirely removed in 1934.

²¹ Section 12 of the act of 1934 read as follows: "Since it is unfair and unjust to tax motor-vehicle transportation unless the proceeds of such taxation are applied to the construction, improvement, or maintenance of highways, after June 30, 1935, Federal aid for highway construction shall be extended only to those States that use at least the amount now provided by law for such purposes in each State from State motor-vehicle registration fees, licenses, gasoline taxes, and other special taxes on motor-vehicle owners and operators of all kinds for the construction, improvement, and maintenance of highways and administrative expenses



Emergency and Relief Legislation.—Congress has also provided money for road construction and improvement in a variety of relief and emergency measures during recent years. The federal act of 1934, indeed, was partly a relief measure in that it appropriated considerable sums of money for emergency construction intended to provide jobs for the unemployed, and the National Industrial Recovery Act, the Works Progress Administration Act, and the Public Works Administration Act, to mention only the most important laws, have provided funds which have been used in part for roads. Between 1930 and 1938 more than \$1,200,000,000 of federal money was granted to states for emergency highway use. Evidently there was no good reason for restricting the expenditure of such sums to the improvement of main-line systems when the real purpose was to provide work. On the contrary, a policy of diffusion was more logical under the circumstances, and this, perhaps, explains why the construction clauses of the act of 1934, following a policy already indicated in the National Industrial Recovery Act, prescribed that at least 25 per cent of the sums apportioned to any state for emergency highway building were to be used for secondary or for feeder roads, including farm to market roads, rural free delivery mail roads, and public bus routes.

County and Local Outlays. Summary of Expenditures for Roads.—In addition to federal appropriations and to the allocation of the proceeds of motor vehicle taxation, large sums have been set aside during the past twenty or twenty-five years from revenues derived from county, city, and, to some extent, general state taxation. The totals from these sources have to be estimated. The reader's attention is, therefore, directed to the following statement, based in part upon information taken from the reports of the United States Bureau of Public Roads and in part upon data collected by a committee of competent engineers and submitted to the Association of American Railroads.

in connection therewith, including the retirement of bonds for the payment of which such revenues have been pledged, and for no other purpose, under such regulations as the Secretary of Agriculture shall promulgate from time to time; *Provided*, That in no case shall the provisions of this section operate to deprive any State of more than one-third of the amount to which that State would be entitled under any apportionment hereafter made, for the fiscal year for which the apportionment is made." (48 Stat. 993, 995, 1934.)

The act of June 16, 1936, carried further the idea that highway improvement should be financed from the proceeds of motor vehicle taxation by providing that if, in 1936 and 1937, a state should apply all revenue derived from registration fees, licenses, gasoline taxes, and other taxes on motor vehicles to the construction and improvement and maintenance of highways, then the state might receive the full amount of the federal-aid money allotted to its use, even though the balance in the state fund after roads had been maintained should be insufficient to match federal appropriations (49 Stat. 1519, 1936). Finally, the act of June 8, 1938, contained a similar provision with respect to the fiscal years 1938 and 1939, except that only 90 per cent of the proceeds of motor vehicle taxes were required to be applied to road purposes in order to secure the full amount of federal aid (Public No. 581, June 8, 1939).

EXPENDITURES FOR NEW CONSTRUCTION, IMPROVEMENT, AND MAINTENANCE ON ROADS OF THE UNITED STATES, 1921 TO 1937, AND SOURCES FROM WHICH THESE FUNDS HAVE BEEN DERIVED

Expenditures

Expenditures for new construction and improvement, 1921-1937	\$19,480,194,000
Expenditures for road maintenance, 1911-1937	11,640,010,000
Total expenditures, 1911-1937	\$31,120,214,000

Sources of Funds

Federal-aid funds, 1911-1937	\$ 1,352,149,861
Federal emergency and, relief funds, 1930-1937	1,154,793 ,624
State motor vehicle taxation (gasoline taxes, registration fees, etc.)	10,881,481,000
General taxation, city, county, and state	17,731,789,515
Total revenues	\$31,120,214,000

Out of the \$31,120,214,000 spent upon the road system of the United States between 1921 and 1937, \$11,640,020,000 was for the maintenance of state, county, city, and local roads. An additional amount of \$5,642,408,000 in the grand total was used for the construction and improvement of city streets. This leaves \$13,837,786,000 to represent the expenditures for new construction and improvement of roads outside of cities during a period of seventeen years.²²

This represents an extraordinary effort to adapt highways to the requirements of mechanical transportation; and it has produced a system which reaches nearly every city of 5000 or greater in the country with a federal-aided road. These roads are, indeed, so located that if zones ten miles wide were marked off on each side of them the zones would include 90 per cent of the population of the United States.

Key System of Highways.—A report by the United States Bureau of Public Roads in 1939 contemplated further and still more intensive development of lines indicated upon the map on page 170.

The routes selected by the United States Bureau of Public Roads would aggregate about 27,000 miles in length; they would take, perhaps, 125 per cent of all highway traffic on less than 1 per cent of the road?-mileage, and they would be expected to serve the needs of national defense-. This segregation has an interest to students because it indicates the road skeleton which

²² *Highway Costs. A Study of Highway Costs and Motor Vehicle Payments in the United States* by C. B. Breed, Clifford Older, and W. S. Downs. January 30, 1939. The figures quoted in the text do not include the value of surplus war material given by the federal government to the states after the World War. The United States Bureau of Public Roads estimates this at \$224,600,000 up to June 30, 1927. See also United States, Office of Federal Coordinator of Transportation, *Public Aids to Transportation*, Vol. IV, 1940, pp. 7-12.

has national significance in the eyes of a federal bureau. The lines selected, as a matter of fact, follow closely the routes adopted by the country's airways, and the map might also serve as a simplified picture of the railroad system of the United States, although the correspondence in neither case would be exact. Topographical conditions and the distribution of population control the demand for all types of transport and produce much uniformity when the routes of different agencies are considered from a national point of view.

Motor Vehicles Hauls Are Typically Short Hauls.—It would be a mistake to spend much time in tracing the currents of long-distance motor vehicle



LOCATION OF EXISTING ROUTES TENTATIVELY SELECTED AS APPROXIMATING THE LINES OF A PROPOSED INTERREGIONAL HIGHWAY SYSTEM²³

transport. There is, undoubtedly, a good deal of long-distance passenger traffic of a non-commercial sort, and there are bus companies which accommodate the needs of long-distance and even of transcontinental traffic, but most passenger traffic, and especially most freight traffic, is still localized. The road system assists in the work of local distribution; it is not yet, to a significant extent, a means of long-distance transport, although it has many facilities for long hauls and may some time undertake the task. In its attention to short-haul business motor vehicle traffic differs from air line and from trunk pipe line business. The motor vehicle "differs also in degree from the railroad in this respect, although the proportion of long-distance transport to total railroad business may easily be exaggerated.

²⁸ Automobile Manufacturers Association, *Automobile Facts*, May, 1939.

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CHAPTER IX

RAILROAD ROUTES



Railroad Routes.—The map which follows divides the United States into a number of territories, reference to which will help the reader to understand the discussion in the present chapter, in so far, at least, as it relates to railroad traffic.



FREIGHT TERRITORIES IN THE UNITED STATES¹

Concentration of Population and Its Effect upon Traffic.—If we divide the United States into three major areas, eastern, southern, and western, it will at once become apparent that most of the population of the country lies within the former of these divisions and that most of the products of industry, agriculture, and mining must be here consumed.² To the extent that these

¹ United States Federal Coordinator of Transportation, *Freight Traffic Report*, Vol. III, 1935.

² In 1930 62,499 million out of 122,775 million people, or 50.90 per cent, lived within the eastern district of the United States. An additional 20,357 million, or 16.58 per cent of the nation's population lived within the southern district, and the balance were scattered over the great areas west of the Mississippi River. By "eastern" we refer to the territories on the printed map which are labeled "Central Freight," "Trunk Line," "New England," and "Pocahontas."

same goods are also produced in the areas where they are consumed, the task of the railroad is to make local, relatively short-haul movements possible which will assemble materials at convenient points, facilitate processing, and distribute the finished product to consumers. Questions of choice of route and of the location of producing and processing points will arise, and hauls of considerable length will sometimes be required, but on the whole the task will be one of local adjustment.

Most of the rail transportation in the United States is, as a matter of fact, of this semi-local character; but there are, in addition, long-haul movements, conducted over extensive routes, which bring goods from outside the territories of dense population into these districts for processing or for direct consumption and which draw off for consumption in other places those articles which local use does not require. The two types of transport, through and local, added together, form the sum of rail carriage in the country at any time.

Importance of Intraterritorial Rail Traffic.—We have, fortunately, as a result of studies undertaken by the Federal Coordinator of Transportation, some idea of the relative volume of the two kinds of traffic mentioned in the preceding paragraphs. The next table, accordingly, sets forth the number of rail carloads originating in the territories identified by the map on page 173 and the number and percentage of these carloads which are destined to points in the same territory as that in which they originate. The figures are taken as of a single day, December 13, 1933, because the labor of compilation for an extended period would have been excessive.

MOVEMENT OF FREIGHT CARLOADS, DECEMBER 13, 1933³

Territory of Origin	Cars Originated	Cars Destined to Points in Territory of Origin	Percentage
			of B to A
New England	1861	1393	75
Trunk Line	9972-	7703	77
Central	9984	6679	67
Pocahontas	3584	1255	35
Southern	6173	4181	68
Western Trunk Line	7776	4941	64
Southwestern	4498	1804	61
Pacific Northwest	2305	1419	62
Pacific Southwest	2852	1875	66

The volume of intraterritorial movements reported in the table is swollen by repeated point-to-point shipments within each territory which are asso-

³ United States Office of the Federal Coordinator of Transportation, *Freight Traffic Report*, Vol. III, p. 89.

RAILROAD ROUTES

dated with the manufacture of materials and with their preparation for consumption, while the number of shipments from one territory to another is not subject to this inflation. The table does not therefore establish the fact that the population in the various territories is self-sufficient to the extent of the percentage which locally consigned equipment bears to the total of originating cars. The figures quoted do, however, indicate the importance of the intraterritorial work which railroads of the country are called upon to perform. Except in the Pocahontas district, which is a great coal-producing area and can utilize only a relatively small proportion of the fuel which it mines, it seems evident that more than 62, and in some sections as much as 77 percent of the carload movements of commodities by rail remain within the boundaries of the district from which they start, assuming that the date chosen, December 13, 1933, fairly represents the normal situation throughout the year.

Interterritorial Shipments.—Let us now analyze further the movement of cars which, on December 13, 1933, found their destination in a territory which was not their territory of origin. For this purpose we may separate interterritorial from total car movements by simple deduction, and by cross-reference denote the territories in which these interterritorial cars came to rest.⁴

Territory of Origin	Cars Destined to Points Outside of the Territory of Origin	New England	Trunk Line	Central	Pocahontas	Southern	Western Trunk Line	Southwestern	Pacific Northwest	Pacific Southwest
New England	468		188	109	31	17	16	3	3	1
Trunk Line	22.69	693	..	1127	178	112.	66	43	7	43
Central	3305	141	1146	..	216	354	1080	129	37	101
Pocahontas	132.9	50	717	12.33	..	2.56	65	7	1	
Southern	1992	65	319	1051	203	..	101	143	4	5
Western Trunk Line	1835	155	508	1388	51	241	..	308	45	138
Southwestern	1694	13	74	385	17	428	712.	..	6	59
Pacific Northwest	886	2	59	162	1	36	367	74	..	185
Pacific Southwest	977	35	195	224	11	51	229	117	115	

The information which the table presents with reference to interterritorial shipments is, on the whole, consistent with that derived from the statistics which emphasized the importance of intraterritorial movements. Not only do

⁴*ibid.*

most cars find their destination in the same territory in which they are loaded but, when this is not true, they generally move to an adjacent district and not to a more distant location. Thus most cars loaded in New England move, when not locally consigned, to Trunk Line territory; most cars loaded in Trunk Line territory to the Central district; most cars loaded in Central territory to Trunk Line or to Western Trunk Line territories on either side. The relations between the Pacific Southwest and the Trunk Line and Central territories form, perhaps, an exception to this generalization.

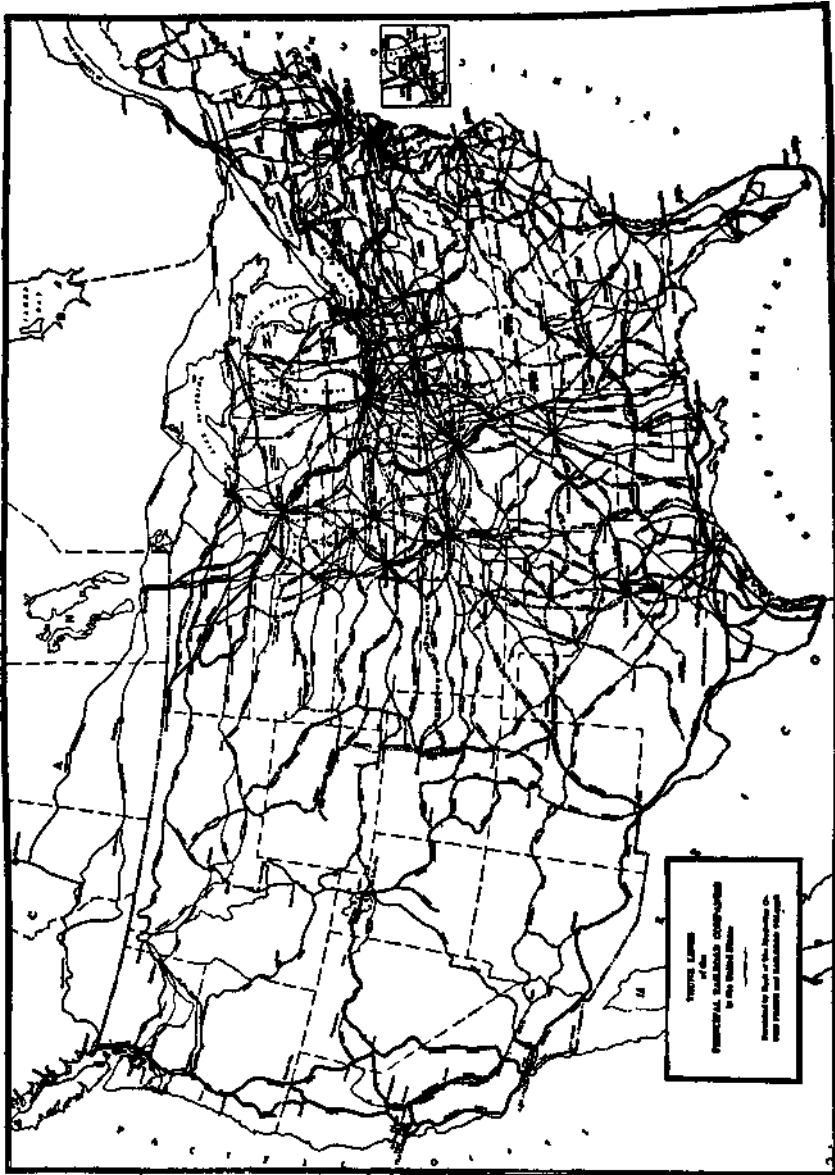
Significance of Long-haul Movements.—Most railway traffic seeks a destination which is as close as business conditions will permit; and this is natural, for transportation costs money, and whatever may be true of passengers, tons of freight have little "wanderlust" and take no pleasure in watching scenery go by. Our interest in the striking achievements of the railway plant in facilitating long-distance transportation should not lead us to forget this fact, nor the circumstance that the average haul of all traffic carried by rail in the year ended December 31, 1938, was 356 miles. At the same time we must not, either, forget that important types of railway traffic travel long distances, even though not, on the average, as far as traffic upon the Great Lakes. This must be so because the areas of primary production in this country are so widely separated from the manufacturing centers, and because factories are often far removed from the large markets which they serve.⁵ We know that it is so because of facts of common knowledge relating to the commodities, which we daily use, and because of the recorded average length of haul which, for some articles, largely exceeds the averages for the United States. Thus, in 1932, the average haul of bituminous coal was 361 miles; of sugar, 566 miles; of flour and wheat, 568 miles; of lumber, shingles, and lath, 746 miles; and of oranges, 2125 miles.⁶ Why these particular hauls are so long will be evident when we come to consider the sources of supply of these goods and the markets in which they are sold.

Distribution of Railroad Mileage.—The map printed in the text indicates the distribution of the railroad mileage of the United States. It is evident, even from a small-scale map, that the present railway system is sufficiently complete to serve most of the population of the country without requiring shippers or prospective passengers, at least in the South and East, to undertake a lengthy trip in order to reach a railroad station. The system has been built up during a period of more than a hundred years, and is adequate to handle both the short-haul and the long-haul needs for railway service in the territory in which it lies. While so much is easily understood, it may be desirable for purposes of discussion to divide the network into

⁵ E. R. Johnson, "Characteristics of American Railway Traffic," *Bulletin of the American Geographical Society*, Vol. 41, 1909, p. 537.

⁶ Federal Coordinator, *Freight Traffic Report*, Vol. III, p. 89.

routes and to consider "somewhat the character of these routes and the business they do.

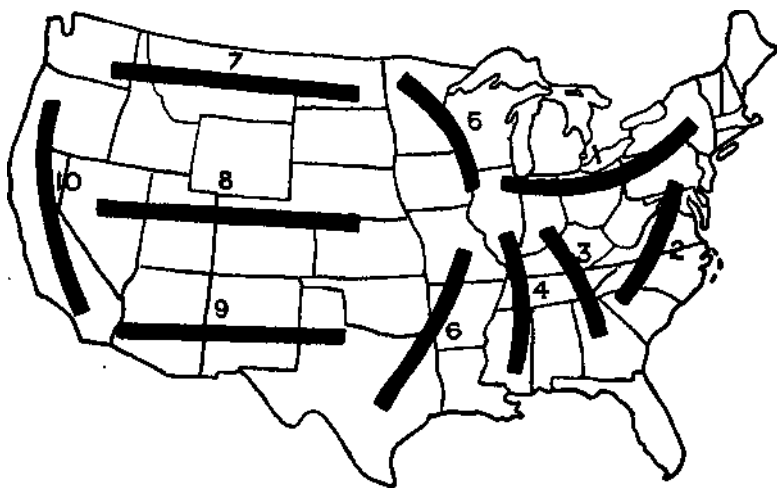


RAILROADS OF THE UNITED STATES, 1939
(Source: *Poor's Manual*, 1939, Poor's Publishing Co., N. Y.)

Major Railroad Routes in the United States.—The principal railroad routes in the United States may be listed as follows:⁷

⁷ Van Cleef lists the major North American trade routes as follows: (1) the North Atlantic coast to the Great Lakes and the Mississippi River, (2) the North Atlantic coast to the Gulf

1. Trunk Line route.
2. New York-Atlanta route.
3. Chicago-Atlanta route.
4. Mississippi Valley route.
5. Western Grain route.
6. Southwestern Gulf route.
7. Northern Transcontinental route.
8. Central Transcontinental route.
9. Southern Transcontinental route.
10. Pacific Coast route.



1 Trunk Line Route	5 Western Grain Route
2 New York- Atlanta Route	6 Southwestern Gulf Route
3 Chicago-Atlanta Route	7,8,9 Transcontinental Route
4 Mississippi Valley Route	10 Pacific Coast Route

MAJOR RAILROAD ROUTES IN THE UNITED STATES

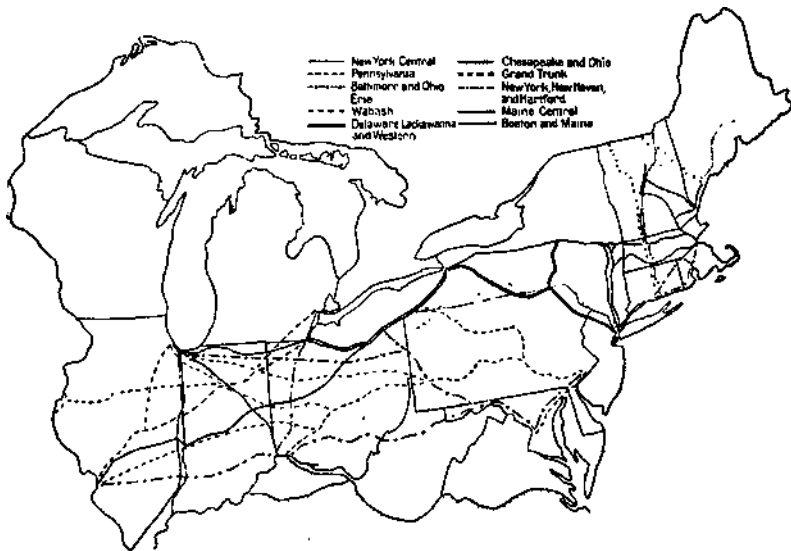
These routes, with only one or two exceptions, connect areas of unlike economic interest. Thus routes 2 and 3 join together the cotton-, lumber-, and tobacco-producing South with the manufacturing states of the Northeast. Route 1, with its extension, route 5, connects the northeastern states with the grain fields of the Northwest. Routes 6, 7, and 8 terminate on the east in the grain belt and, together with route 9, they tap on their western end the

of Mexico, (3) the Great Lakes to the Gulf, (4) the Great Lakes or Mississippi River to the Pacific Southwest, (5) to the Pacific Middle West, (6) to the Pacific Northwest, (7) the Canadian Transcontinental, (8) the Gulf of Mexico to the Pacific Southwest, (9) the Rio Grande to Central Mexico (*Trade Centers and Trade Routes*, Appleton-Century, New York, 1937).

petroleum and livestock districts of the Southwest, and the mineral, livestock, lumber, and fruit regions of the Rocky Mountains and the Pacific coast. Only in the extreme West is there no sharp contrast between the character of producing areas at the termini of a major route; and route 10 is, accordingly, the least important of all those which are shown upon the map.

Generally speaking, the nature of traffic over any route can be inferred from the industry of the territory which it serves. It is desirable, however, not to rely upon inference alone; therefore the characteristics of the different routes will be discussed in this chapter in detail.

Route 1. Trunk Line.—The most important railroad route in the United States is that between the North Atlantic seaboard and the state of Illinois.



TRUNK LINE ROUTES

This route passes from Chicago and St. Louis along the southern shore of the Great Lakes, benefiting by the easy grades and open character of the Great Lakes basin, crosses the Appalachians in Pennsylvania, Maryland, or New York, and reaches the Atlantic seaboard on a line which touches the port of Norfolk on the south and the cities of New York and Boston on the north. For some purposes the whole of New England may be considered as part of the eastern terminus of the Trunk Line route. The southern boundary of this route is the Chesapeake and Ohio Railroad, and its western boundary is the Mississippi.

The larger railroads on the Trunk Line route, outside of New England, are the New York Central, the Pennsylvania, the Erie, the Baltimore and Ohio, the Wabash, and the Delaware, Lackawanna, and Western railroads. New

England territory is occupied for the most part by the New York, New Haven, and Hartford, the Boston and Maine, the Maine Central, the Grand Trunk, and the Boston and Albany. All of the first-named group of carriers, except the Wabash and the Delaware, Lackawanna, and Western, have termini both at Chicago and at New York. Only the Pennsylvania and the Baltimore and Ohio, however, reach the Missouri River.

The Trunk Line route originally owed its importance to the facilities for communication offered by the Great Lakes, the Ohio River, and later by the Erie Canal. We have already alluded in Chapter IV to the conditions under which railroads entered this territory. The purpose of the railroad companies which built along the Trunk Line route in the fifties was, in a large way, to share in the outbound grain trade of the northern Mississippi Valley, and at the same time to promote the movement of manufactured goods from the industrial centers of the North Atlantic coast to the farming communities of the West. Their success, the intensive use of the Lake waterways, the rich stores of coal and iron which have been exploited in Pennsylvania, and the extraordinary development of manufactures along the northeastern seaboard of the United States have made the Trunk Line route the busiest avenue of traffic in the United States, as well as one of the most important in the world. Indeed, the railroad carriers in the district transport more than half of the passengers and more than half of the tons of freight handled by the American railroad system as a whole.

The principal commodities which move westbound over the Trunk Lines are manufactured goods and coal. Eastbound the most important articles are raw materials and food.

Relation of New England to Trunk Line Route.—New England is located on the northeastern rim of Trunk Line territory. This busy manufacturing region imports large quantities of raw materials, coal, cotton, iron, and steel; it brings in and consumes foodstuffs, and it exports a great variety of manufactured products, many of them of a highly specialized sort. While some of the New England traffic, such as cotton and fruit, comes from the southern states, and while a considerable volume of New England manufactures finds a market in the South, most of the trade of the New England states goes to swell the east and westbound traffic of the Trunk Line systems. Naturally this results in a large influx of cars owned by railroads outside of New England, with important consequences for the New England lines. In the month of September, 1938, to illustrate, the three principal New England railroads—Boston and Maine, Boston and Albany, and New York, New Haven, and Hartford—counted 31,336 so-called "foreign cars" on their tracks out of a total of 49,176 which were in use. Such an accumulation of outside equipment may be an advantage to the New England carriers in times of active business, but when traffic is slack it is a disadvantage because the rentals which the New

England roads will have to pay for these outside cars will then exceed the earnings derived from their possession. This matter will be further discussed in Chapter XXII. The disproportion between eastbound and westbound business makes it necessary to haul many empty cars westbound, but there seems to be no way to prevent this empty-car movement short of changing the entire character of New England industry.

On the west the Trunk Line route receives the grain traffic of Kansas, Illinois, Missouri, Nebraska, and the Dakotas; the wool and meat and livestock of the Rocky Mountain states, the copper of Lake Superior, the fruit and sugar of California, and the lumber of the Pacific Northwest. The greater part of the export trade of the United States is conducted over the Trunk Line railroads. As will appear later, western routes tend to focus in the territory occupied by the states of Illinois, Missouri, and Iowa; and the Trunk Lines are in an advantageous position to receive and carry forward such of the western products as are not locally consumed in the northern Mississippi Valley states. In recent years, however, the competition of the railroads running south from Chicago and St. Louis to the Gulf of Mexico has been increasing, particularly as regards import and export traffic.

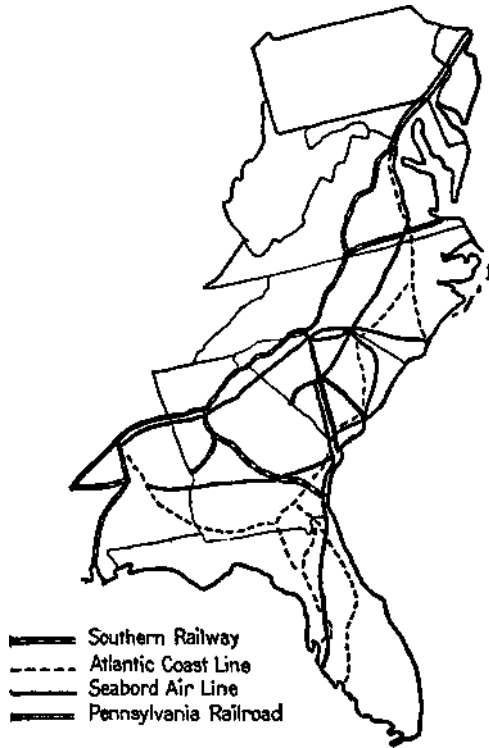
Route 2. New York, Atlanta, New Orleans.—Meeting the Trunk Line route on the northeast but diverging promptly from it in a southwesterly direction is what may be called the New York, Atlanta, and New Orleans route. This route runs roughly parallel with the Appalachian Mountains, between the mountain barrier and the sea, through New Jersey, Pennsylvania, Maryland, Virginia, North and South Carolina, and Georgia.

Railroad Companies.—The largest railroads in this section are the Southern Railway, the Seaboard Air Line, and the Atlantic Coast Line.

Cities on the New York-Atlanta Route.—The cities along the New York-Atlanta route may be classified into three groups: First, seaports such as Norfolk, Wilmington, Charleston, Savannah, Brunswick, and Jacksonville; and second, a series of towns at the head of navigation of rivers that empty into the Atlantic Ocean or the Gulf. Cities of this type include Richmond, Welden, Columbia, Augusta, and Macon. A third group includes cities along the upper edge of the Piedmont, such as Charlottesville, Lynchburg, Greensboro, Charlotte, Spartanburg and Atlanta. Study of the map will show that the southern railways connect towns in these groups with one another and with the coast, while their location enables them to accommodate the current of traffic which flows northeast and southwest between the southern and the northeastern states. The northern terminus of southern railways is Washington, D.C., where connection is made with the Pennsylvania and the Baltimore and Ohio railroads, both characteristically northern lines. While all three of the routes as described end on the south in the state of Georgia, a natural

extension takes them southwest across the states of Florida, Alabama, and Louisiana to the Gulf ports about the mouth of the Mississippi River.

The topography of the New York-Atlanta route is favorable to railroad traffic in that there is no mountain range to cross. The railroads swing along a series of benches with no great rises or descents. The principal natural ob-



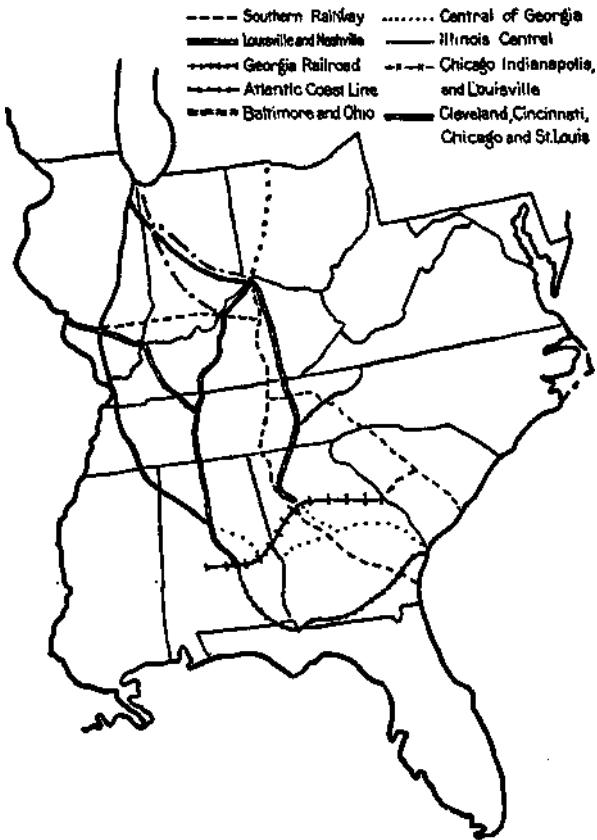
NEW YORK-ATLANTA ROUTE

stacle is found in the necessity of traversing a multitude of east-and-west flowing streams, some of them of considerable magnitude.⁸

Like the Trunk Line route, the Southeastern route benefits by a sharp differentiation between the interests and resources of the populations at either end. The southern states, as has been pointed out, form a region of specialized agriculture. On the other hand, the industrial activity of the southern region is slight as compared with that of the states in the Northeast, so that manufactures of all sorts and coal move southbound over the New York-Atlanta route, while northbound the principal traffic consists of cotton, lumber, citrus fruits, and fresh vegetables. In both value and bulk the northbound traffic predominates.

⁸ National Geographic Society, *The Physiography of the United States*, American Book Company, New York, 1896.

Route 3. Chicago-Atlanta.—This route begins in the territory north of the Ohio River and stretches southeast, cutting the New York-Atlanta route at Atlanta, and continuing southeast to the Gulf and to the South Atlantic coast. Over this route pour the grain and flour of the northern Mississippi Valley and the manufactures of Chicago, St. Louis, and the cities of Ohio,



CHICAGO-ATLANTA ROUTE

Indiana, and Illinois. Northbound the principal commodities are similar to those which leave the southern states for the Atlantic seaboard. That is to say, they include cotton, fruit, lumber, and fresh vegetables. The preponderance of traffic is southbound.

At one time railroads operating over the Chicago-Atlanta route engaged in vigorous competition with railroads on the New York-Atlanta route. This competition was especially active subsequent to the close of the Civil War and closely followed the establishment of transportation lines and through rates into the South. Corn from Chicago was actually carried at this time via

Boston to Atlanta and Chattanooga, while eastern manufactures were not infrequently brought west via Cincinnati and Louisville, or via Chicago and Cairo, for delivery to southern destinations.⁹

Agreement between carriers put an end to this form of circuitous competition. There still remained a species of market competition between the routes east and west of the Allegheny Mountains, the one seeking to supply the southern states with eastern manufactures, and the other striving to promote the sale of manufactured products of the Middle West. Even today cities like Atlanta enjoy advantages by access to two competing sources of supply, although some of the rate discriminations which Atlanta, and other cities similarly situated, once enjoyed have been suppressed.

Formerly the southern railroads west of the Appalachian Mountains were sharply separated from those in the east. The development of great systems south of the Appalachians has tended to make the states of Alabama, Georgia, and Florida a common market and a common source of supply for both New York and Illinois, and to lead the eastern and the western railroad systems to interlace at their southern extremities. However, the northeast-southwest route remains distinct from the northwest-southeast route.

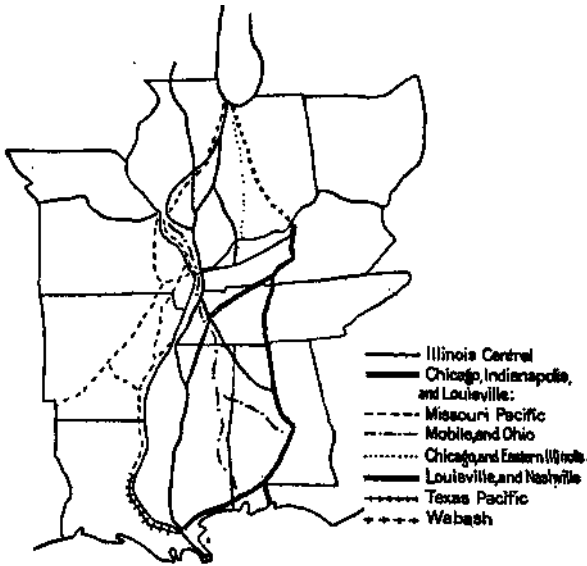
Railroads in the Southeast.—There are no railroad companies which handle traffic over their own rails all the way from Chicago to Atlanta and the Southeast. The nearest approach to this is the Illinois Central Line from Chicago to Birmingham. The Southern Railway, however, has a direct route from Cincinnati to southern and southeastern points; and the Louisville and Nashville not only operates between Cincinnati and Atlanta and between Louisville, St. Louis, and Birmingham, but, by virtue of its control of the Atlantic Coast Line, has a reliable connection with most points on the South Atlantic seaboard. In most instances freight is carried between Chicago and the Ohio River by railroad companies which also serve the Trunk Line route. No attempt is made to indicate all the possible lines in this northern territory, although a few of the important companies are shown upon the map.

Route 4. Mississippi Valley.—The products of the northern Mississippi Valley not only press into the old South for local consumption, but they follow the river to Mobile and to New Orleans and pass through these cities on their way to foreign markets. Tropical fruits such as bananas, as well as coffee, potash, guava, sugar, nitrates, and a great variety of other products from South and Central America, enter the United States at ports in Texas, Louisiana, and Alabama and travel northward to points beyond the Ohio and Missouri rivers. There is good railroad service on perishable fruit northbound. The Illinois Central runs high-class freight trains from New Orleans to Chicago, a distance of more than 900 miles, in less than 50 hours. Vegetable and fruit trains from the Mississippi territory to Chicago are operated over a distance of 771 miles in less than 52 hours. The competition between the

⁹ *Freight Bureau v. C.N.O. & T.P.R. Co., et al*, 6 I.C.C., 195, 216 (1894).

Mississippi Valley route and the Trunk Line route is very keen, since many products destined for Illinois or neighboring states can enter or leave the country equally well by way of the North Atlantic seaboard or the Gulf.

Rail Carriers in the Mississippi Valley.—The Mississippi River itself is a large carrier of freight, as we have seen in Chapters I and II. The chief rail carriers south of St. Louis and the Ohio River are the Missouri Pacific on the western side of the river and the Illinois Central,' Mobile and Ohio, and



MISSISSIPPI VALLEY ROUTE

Louisville and Nashville on the east. The territory between St. Louis, the Ohio River crossings, and Chicago is served by a number of railroads, including the Illinois Central, the Wabash, the Chicago and Eastern Illinois, the Chicago, Indianapolis, and Louisville, and others.

Route 5. Western Grain.—West of the Mississippi River the general direction of traffic is east and west, and the principal lines of communication reach out toward the Pacific coast. Common parlance does "not, however, speak of these lines of traffic as "transcontinental" until they have crossed the Missouri River; and, as a matter of fact, railroads even some distance west of the Missouri have important movements of freight and passengers to accommodate which are not usually associated with transcontinental business. Such, for instance, is the grain traffic of the North Central states and the livestock of the Southwest. It is true, at least of the northern trans-Mississippi railroads, that they represent at their eastern ends rather a western extension of the trunk lines than an eastern extension of the transcontinental properties. **The** railroad lines serving the grain states of North Dakota, Kansas, **Minnesota,**

Nebraska, South Dakota, Iowa, and Missouri were referred to in Chapter IV as the "Granger railroads." The function of the Granger railroads is to collect grain at country elevators and to transport it to primary markets, where it is cleaned, mixed, inspected, graded, and weighed. Subsequently, that portion of the crop that is not needed for local consumption passes out of the grain districts over connecting routes to more distant markets.

The most important Granger lines are the Chicago and North Western; the Chicago, Milwaukee, and St. Paul; the Chicago, Burlington, and Quincy; the Chicago, Rock Island, and Pacific; and the Minneapolis, St. Paul, and Sault Ste. Marie.

The largest portion of the northwestern grain crop handled by these companies empties into the Trunk Line route or takes advantage of the facilities for water transportation offered by the Great Lakes, the St. Lawrence River, and the Erie Canal. Some of it, however, passes south along the Mississippi Valley route for southern consumption or for export at Galveston or New Orleans. This grain movement will be considered in Chapter X.

Route 6. Southwestern Gulf.—Another route which transports a large amount of freight is the Southwestern Gulf route. This route reaches from Missouri, Iowa, and Illinois southwest and south across Missouri, Oklahoma, Arkansas, and Texas to the Gulf of Mexico. The country traversed is flat except for the Ozark Mountain range and its foothills extending from southern Missouri across Arkansas to the Red River Valley on the southern boundary of Oklahoma. The railroads pass on either side of the Ozarks with an occasional bridge line across them. The important lines have their base in Kansas City and St. Louis, depending for their prosperity upon the markets which they enjoy in these cities and the connections made there with the larger traffic routes beyond.

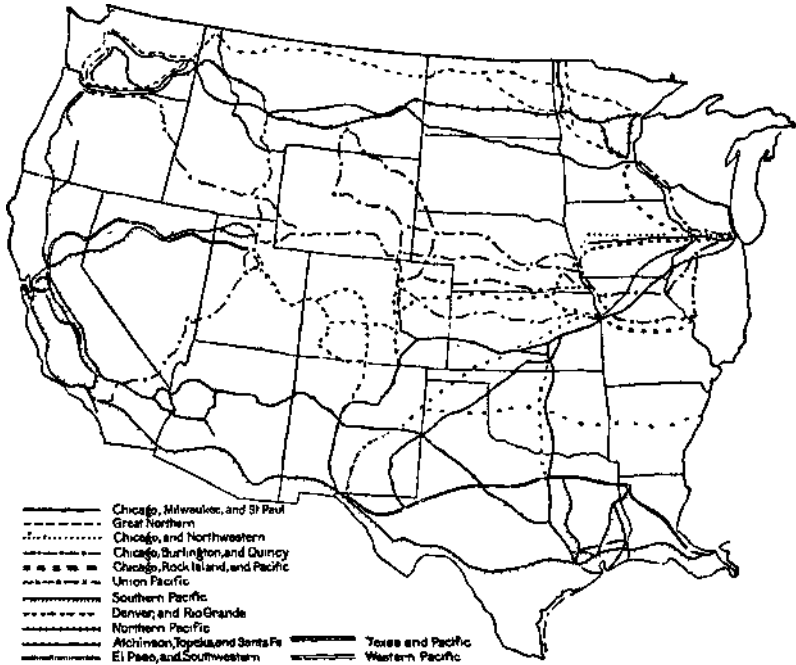
The largest railroad systems in the Southwest are the Missouri Pacific, the St. Louis and San Francisco, the Atchison, Topeka, and Santa Fe, and the Chicago, Rock Island, and Pacific. There are, however, a number of smaller companies in this district which in the aggregate are of considerable importance. Only two companies, the Santa Fe and the Rock Island, enter Chicago on their own rails. Traffic of other lines destined for points east of Kansas City and St. Louis is served by Trunk Line carriers or by the Granger railroads.

Routes 7, 8, 9. Transcontinental—The Trunk Line, Mississippi Valley, and the Chicago-Atlanta routes converge in the state of Illinois and in eastern Missouri. Here they meet the far-ranging transcontinental routes stretching in narrowing lines from the Mississippi River to the Pacific coast.

The principal transcontinental routes which center in Illinois are three. One, made up mainly of the Chicago, Burlington, and Quincy, the Chicago, Milwaukee, and St. Paul, the Great Northern, and the Northern Pacific railroads, runs northwest from Chicago to St. Paul, thence west between the

fortieth and forty-eighth parallels of latitude to Portland and Seattle on the North Pacific coast. This may be called the northern route.

The Central Transcontinental route goes nearly due west from Chicago to Omaha. From there it proceeds via Denver and Salt Lake City to Sacramento and San Francisco Bay, with branches in western Colorado and Utah which reach diagonally northwest to Portland and southwest to Los Angeles. The principal railroads involved are the Chicago and North Western, the Chicago, Rock Island, and Pacific, and the Chicago, Burlington, and Quincy on **the**



TRANSCONTINENTAL ROUTES

eastern end; and the Union Pacific, the Denver and Rio Grande, the Central Pacific, and the Western Pacific in the center and west.

A third transcontinental route opening out in Illinois is that of the Atchison, Topeka, and Santa Fe Railway Company. This railroad is, with the exception of the Chicago, Milwaukee, and St. Paul, the only carrier which connects Chicago with the Pacific coast over its own rails. Its lines run from Chicago to Kansas City, thence west to Colorado, and thence southwest into New Mexico. Since 1909 the Santa Fe has also operated a more direct route from Kansas City southwest through Wichita and the Panhandle of Texas to a point upon its main line near Albuquerque, New Mexico. From Albuquerque the Santa Fe proceeds westerly through New Mexico and Arizona to

California, where its tracks turn to the north and reach a terminus on San Francisco Bay.

In addition to the three transcontinental routes just mentioned, a fourth, the southern route, extends from the southern part of California through New Mexico, Arizona, and Texas, to a junction with the southern end of the Mississippi Valley and the New York, Atlanta, and New Orleans routes, affording an indirect connection with Chicago, and a more direct one with the cities of the Atlantic seaboard.

The principal carrier on this route is the Southern Pacific Company, which operates a railroad from California points to New Orleans, and a line of steamships from New Orleans to New York. The combined water and rail line is commonly known as the Sunset Route.

Traffic of the Transcontinental Routes.—The transcontinental routes are very long, and they cross regions which differ widely from one another in climate, natural resources, and density of population. On their eastern end the transcontinental railroads do a considerable local business, multiplying their feeding lines and serving intensively a wealthy agricultural population. Farther west, these railroads enter the range country, more arid in character and used chiefly for the pasturage of cattle and sheep. Finally, upon the Pacific coast, the transcontinental railroads again find an agricultural community, which produces little grain but a vast amount of lumber and a great variety of fruits.

The commodities which move in largest volume westbound over the transcontinental routes are steel products, automobiles, and manufactured products of many sorts. Eastbound the principal shipments are of fresh fruits, vegetables, lumber, canned goods, sugar, wines and brandies, and dried fruits.

Most citrus fruit from California goes by way of Arizona because the southern route from the major producing areas to points of destination is shorter than a route through central or northern states. Deciduous fruit, on the other hand, is shipped through Utah because the orchards lie farther north. Fresh vegetables grown in northern California move through Ogden, those grown in the south through Arizona. A large proportion of canned goods uses the central route, somewhat because of climatic conditions, but mainly because of the northern location of the canneries. More of the beans go out by way of Arizona, first, because of heavier production in the south and, secondly because southern and southwestern states are large consumers of beans. Dried fruit, centering around Fresno, moves in about equal proportions through Utah and Arizona. Roughly 60 per cent of the sugar traffic goes through Utah. Eighteen years ago this percentage was higher, but an increased production of beet sugar in Colorado, Utah, and particularly in Montana and the Dakotas has caused increasing amounts of California beet sugar to move south into Oklahoma and Texas, while direct shipments of cane sugar from Hawaii through the Panama Canal have removed some other traffic upon which the

central route relied. Most of the infusorial earth produced in the state of California comes from Lompoc in the southern part of the state, and is consumed by sugar refiners in Texas, Louisiana, Cuba, and along the Atlantic seaboard. The natural route is through the South.

Westbound traffic originating north of the Ohio River and the southern boundary of Missouri and Kansas moves by way of Utah when destined to points north of the Tehachapi but otherwise by way of Arizona. Products originating south of this described line and east of the Mississippi are about evenly divided between the Utah and the Arizona routes; when originating west of the Mississippi they prefer the Arizona route, even to destinations in central California.

Of the total transcontinental traffic, probably 65 per cent is eastbound and 35 per cent westbound. This lack of balance is largely due to heavy shipments of perishable goods such as fruit and vegetables eastbound; it is, however, a condition that is normal in exchanges between agricultural and manufacturing communities. As between Utah and Arizona, roughly 55 per cent of the eastbound and 52 per cent of the westbound business uses the Utah route.

Route 10. Pacific Coast.—There is continuous rail connection north and south along the Pacific coast from Puget Sound in the north to San Diego in the south. The nearness of the ocean causes competition between rail and water carriers to be very keen upon this route. Indeed, the rail rate from San Francisco to Los Angeles is less than that to many intermediate points in the San Joaquin Valley, because of the depressing effect of water services upon the rates for through service between points connected by water lines. Some freight, nevertheless, moves all-rail between northern and southern California cities, and between central and southern California, taken as a whole, and the states of Washington and Oregon.

This list of railroad routes is not, of course, a complete enumeration of the paths followed by the traffic of the United States, omitting as it does the many minor routes contained within the larger ones, although these minor routes are frequently clearly marked and carry a considerable burden of traffic. It will serve, however, to indicate the major flows of traffic, and will show the railroad groups over which these flows take place.

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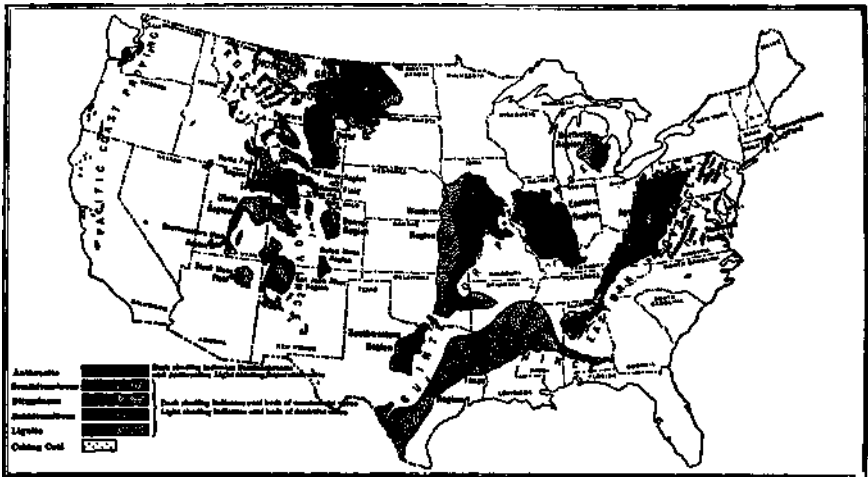
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CHAPTER X

COMMODITY MOVEMENTS: COAL, STEEL, GRAIN, LIVESTOCK

The routes described in the three preceding chapters provide the principal highways over which goods move from their localized sources of production in the United States to widely distributed and often distant markets. The general view which the description of these routes presents may now be supplemented by examination of the movement of a few selected commodities. The articles chosen will be coal, iron and steel, lumber, grain, livestock, sugar, and fruit. These commodities all rank among the seventeen principal groups that furnish tonnage with which railroads are concerned, and some of them move in quantities over inland waterway routes or highways also. Their transportation is important from the point of view of volume, and it is convenient, also, to discuss these commodity flows because they will serve as text or illustration for later explanations of rates and competition.

Coal.—The accompanying map indicates the location of the coal fields of the United States. Most of the bituminous coal in the United States is produced



COAL FIELDS OF THE UNITED STATES¹

¹J. G. Glover and W. B. Cornell, *The Development of American Industries*, Prentice-Hall, New York, 1932, p. 335. Adapted from map by Marius R. Campbell of the United States Geological Survey.

in what is known as the Appalachian region, extending from Pennsylvania in the north to Alabama in the south, and including the states of Pennsylvania, Ohio, West Virginia, Virginia, eastern Kentucky, Tennessee, Alabama, and Maryland. The so-called eastern region comes next in importance, covering the states of Illinois, Indiana, and western Kentucky, and the western region is third, with the states of Iowa, Kansas, Missouri, Oklahoma, and Arkansas. Out of a total production of 344,630 thousand tons in 1938, the Appalachian produced 247,799, the eastern region 62,100, and the western region 11,683. Other important though minor sources of coal supply are to be found near the Gulf of Mexico, in Texas, and in the Rocky Mountains. Because of the size and dominant position in the industry it is convenient to divide the Appalachian region into three secondary groups: (1) the deposits of Pennsylvania and Ohio; (2) those of West Virginia, Virginia, and eastern Kentucky; and (3) the Alabama fields. Of these the second is the most important, although the output of the West Virginia, Virginia, and Kentucky mines does not much exceed those of Pennsylvania and Ohio, and their rise to leadership has occurred in quite recent years.²

Direction of Movement.—Much coal is locally consumed, principally to produce electric power, to drive railroad engines, and for general manufacturing and domestic use; but the demand for these purposes in the various coal mining districts is, naturally, not enough to absorb the supply in all areas,

² The bituminous coal production in the states mentioned in the text may be given for purposes of reference, as of 1938 (*Minerals Yearbook*, 1939, Preliminary figures).

State	Production (Thousand Tons)	
Pennsylvania	77,040	
Ohio	17,920	
Maryland	1,306	96,166
West Virginia	92,922	
Virginia.	12,192	
Eastern Kentucky	31,096	
Tennessee	4,373	140,583
Alabama	10,950	10,950
Illinois	40,650	
Indiana	14,050	
Western Kentucky	7,400	62,100
Iowa	3,250	
Kansas and Missouri	5,972	9,222
Oklahoma and Arkansas	2,461	2,461

so that a large tonnage passes from sections with surplus production to sections where coal is insufficiently or not at all produced.

One considerable flow originates in the Appalachian area and terminates in the states bordering upon the Atlantic Ocean. In the northeast, New England and eastern New York obtain most of their coal from the Appalachians, either by rail across the Hudson, from Pennsylvania mines, or by water from southern Atlantic harbors such as Baltimore, Hampton Roads, and Charleston, South Carolina. In the latter case the coal comes largely from West Virginia and Virginia mines. The reliance of the northeastern states upon Appalachian coal is of long standing; the increase in the use of fuel oil, natural gas, and water power, however, and more effective use of coal have tended to reduce the volume of shipments in recent years, and there has been some tendency for more southerly mines in the Appalachian territory to improve their position in competition with northern mines for coastal business.³

Farther south on the Atlantic Coast, in the Carolinas, most coal sold comes from southwest Virginia and West Virginia, with some contributions from eastern Tennessee. Pennsylvania mines do not largely participate in this traffic, nor do the mines in Alabama, although the latter would seem to be well situated geographically to compete. Eastern Tennessee and southeastern Kentucky also supply most of the Georgia market; but to this Alabama contributes to a substantial degree.⁴ Western coal is barred from all this coastal area by distance and by the obstacles which the mountains offer to direct and inexpensive transportation. In Alabama, the local mines are the chief, though not the exclusive, source of coal.

Another large flow is from the coal mines of the Appalachian and eastern regions north and west. This includes (1) a movement to manufacturing establishments in Ohio, Indiana, and northern Illinois, and (2) a movement into the northwestern states of Michigan, Wisconsin, Minnesota, and Iowa where coal is used for manufacturing but also and chiefly for domestic purposes. In this traffic there is active competition between Appalachian coal and coal from Indiana and Illinois as well as between different districts in the Appalachian territory itself. Coal from the ranges may move north to Lake Erie and thence by boat to destinations on Lake Superior or Lake Michigan where it will be reshipped to its ultimate destination.⁵ These are the notorious "lake cargo" shipments, which accounted for the handling of 35,131,000 tons of bituminous coal in 1938. Or coal may travel directly west by rail without making use of lake facilities. Illinois, Indiana, and western Kentucky coal all is carried this way because the extreme round-aboutness of any route which uses the lake would offset the advantages of water transport. But a little more

³ 196 I.C.C. 203, 1933.

⁴ 200 I.C.C. 571, 1934.

⁵ 201 I.C.C. 271, 1934.

BITUMINOUS COAL MOVEMENT INTO THE MISSISSIPPI VALLEY,
BY SOURCES OF ORIGIN, 1938⁶

Type of Movement	From		
	Pennsylvania and Ohio (Thousand Tons)	West Virginia, Virginia, East Kentucky, and Tennessee (Thousand Tons)	Illinois, Indiana, and Western Kentucky (Thousand Tons)
Lake Erie loading	1 0, 409	24, 722	
Westbound rail	17,662.	43,738	30,881

than a third of the Appalachian coal, mostly from Pennsylvania, West Virginia, and Virginia goes by lake.⁷

Coal also moves from the Illinois-Indiana mines and from districts in the north Appalachian area into the range of states west of the Mississippi, including Missouri, Iowa, Kansas, Nebraska, and the Dakotas. Here the eastern mines compete with each other, with local supplies, and with coal from the Southwest and the Rocky Mountains. In Nebraska, which may serve as an illustrative destination, coal is sold from all adjoining states except possibly South Dakota, and also from Illinois, Indiana, Kentucky, West Virginia, Arkansas, and Oklahoma, and a small quantity from Utah. A considerable amount was moved in former years from Colorado and Wyoming to points as far eastward as the Missouri River, but the volume of this tonnage is now small because of competition from other producing fields, particularly those in Oklahoma, Arkansas, and Illinois. Coal consumption in Kansas and Nebraska has been somewhat reduced, however, by the increasing availability of natural gas.⁸

⁶ *Minerals Yearbook*, 1939, p. 774.

⁷ The lake cargo controversy is discussed in Harvey C. Mansfield, *The Lake Cargo Coal Rate Controversy*, Columbia University Press, New York, 1932.

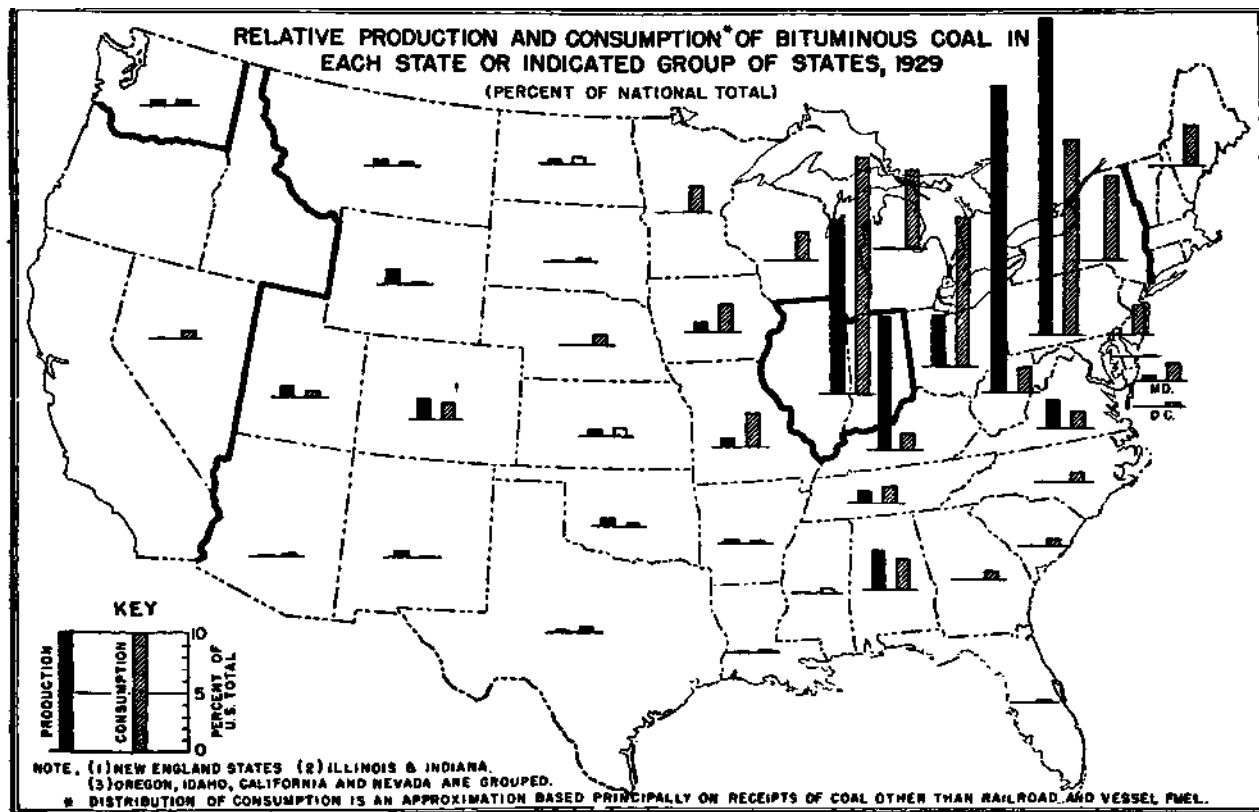
⁸ 218 .C.I.C. 693, 697, 1936. An interesting analysis of market regions in the coal industry, arranged in a somewhat different manner from that presented in the text, is given in a volume published by the National Industrial Conference Board in 1931. This analysis is as follows:

"The primary market regions [for coal] are:

"1. The market region of the northern Appalachian group of coal fields, which comprises the northeastern United States as far south as Tennessee and North Carolina and westward over Ohio and Michigan and the states that make up the Lake Dock territory—Wisconsin, Minnesota, the Dakotas, and a small portion of Iowa, and, in addition, adjacent provinces of Canada.

"2. The eastern interior market region, supplied by coal from Illinois, Indiana, and western Kentucky, which is confined to the states of production, to a considerable movement into the states west of the Mississippi River, and to a smaller outlet in the Lake Dock territory and southward into Tennessee and Mississippi.

"3. The southeastern market region, dominated by the Alabama coal field. The coal from



RELATIVE PRODUCTION AND CONSUMPTION OF BITUMINOUS COAL, 1929⁹

⁹ National Resources Committee, *Report on Energy Resources and National Policy*, Washington, 1939-

Coal movements are complicated, spreading out from the two great sources of supply in the Appalachian and in the Illinois-Indiana fields, and are interrupted by the presence of local supplies with which the principal coal-producing areas find it necessary to compete. Differences in the quality of coals in different districts, the physical limitations of some areas, and a freight rate system which facilitates long-distance competitive transportation makes it possible for the principal regions to ship around and beyond their rivals in minor fields, although competition with these producers as well as with other forms of fuel limits the prices which they can charge.

Geographers point out the importance of the fact that coal in the United States is found in the interior of the continent, instead of near the seaboard as in the case of other continents. Had there been coal along the coasts but not in the interior, says Bengston and Van Royen, the cost of hauling agricultural products to seaboard markets would have been prohibitive and agricultural prosperity could not have been achieved. Without agricultural prosperity, industrial growth in the interior would have been impossible. Without the great markets of the Middle West and the Rockies, the industrial progress of the East would have been seriously curtailed.¹⁰

Steel.—The manufacture of steel requires two raw materials, iron ore and coal. The supply of each material is localized. We have just seen that coal is abundant in certain sections of Pennsylvania and Illinois, and the coal of this region happens to have the characteristics most serviceable in the production of steel. As for ore, 85 per cent of the iron ore of the country is mined near the shores of Lake Superior, and the Great Lakes supply a route which brings this ore at minimum expense to eastern points. Ore and coal must meet, preferably at some intermediate place where the transportation costs are not too great, and this fact, along with the pull of the market, explains the industry's position.

Distribution of Producing Points.—Most steel, because of the conditions mentioned, is produced in the four states of Pennsylvania, Ohio, Indiana, this region meets competition in the east from northern rail and coastwise coal shipments and in the west from western Kentucky and Illinois coals.

"4. The large market region west of the Mississippi River, which consists of a number of local markets, small in comparison with the great eastern markets, and competing with fuel oil, natural gas, and water power.

"Between these more or less well-defined market territories are certain areas that are common grounds for competition between widely separated coal production provinces. Most important of these is the Lake Dock Territory, the market of which is sought by both the Illinois-Indiana producers and those in the Appalachian states. . . .

"Of less importance are the competitive zones between the Appalachian field and Alabama in the southeastern Atlantic Coast states, in Iowa and Missouri, where Illinois coal competes with local coals, and in the intermediate western states, which receive supplies from both the Illinois fields and the Rocky Mountain states." (National Industrial Conference Board. *The Competitive Position of Coal in the United States*, New York, 1931, pp. 142-143.)

¹⁰Nels A. Bengston and Willem Van Royen, *Fundamentals of Economic Geography*, Prentice-Hall, New York, 1938.

Illinois, with lesser amounts in New York, Maryland, West Virginia, and other states. Still more definitely, the two great centers of the industry are in the Pittsburgh district, which may be extended for our present purpose to include the Lake Erie cities from Buffalo to Detroit and the plants of eastern Ohio, and the Gary-South Chicago mills at the foot of Lake Michigan. Both can obtain ore from Lake Superior at moderate cost, and both have easy access to the coal of Pennsylvania and Illinois.¹¹



GEOGRAPHIC CAPACITY OF STEELMAKING CAPACITY, 1934¹²

The tendency has been, in recent years, for the relative importance of the Chicago area to increase. This movement of the steel industry westward has **leened**, in part, responsive to changes in the distribution of population and to consequent enlargement of the consuming power of the central West, and in

¹¹ Steel, of course, is produced at other points than in the four states mentioned, notably along the North Atlantic coast and in Alabama. The eastern seaboard district is the oldest of all the steel areas in the United States, but has yielded first and second place to the mills of the West. The Alabama mills supply a considerable local demand and, in addition, sell in the territory south of the Ohio and Potomac and east of the Mississippi. Some Alabama steel reaches Texas (206 I.C.C. 249, 1935) and even the Pacific coast; the district does not, however, satisfy the entire needs even of its own natural area; this is shown by the fact that, between 1928 and 1932, 43 per cent of the iron and steel articles transported by southern railways originated outside of the southern states (201 I.C.C. 92, 1934).

¹² C. R. Daugherty, M. G. de Chazeau and S. S. Stratton, *The Economics of the Iron and Steel Industry*, Vol. I, McGraw-Hill, New York, 1937, p. 30.

part it has been the outgrowth of changes in mining and manufacturing techniques. In particular, technical improvements have reduced the attractiveness of sites near the coal fields. Among these improvements may be classed the better utilization of gases thrown off in the process of reducing coal to coke and the reduction in the amount of heat required for steel manufacture by the maintenance of continuous high temperature in the ingot between the furnace and the rolls. If these advances in the art continue, and if, also, ores are mined with a smaller percentage of metallic content, so that more ore will necessarily be moved in order to secure a given quantity of iron, the position of the western districts will become increasingly secure.

Distribution of Consumption.—These facts relating to the iron and steel industry are so well known that we may pass on without discussion. What is not quite so well understood is that the consumption of steel, as well as its production, is localized. In one sense iron and steel products are among the most widely distributed of all articles. Food, clothing, and hardware are the three staples which are found both in city and in village stores. But heavier steel products such as wire rods, plates, shapes, bars, etc., which generally require further processing are by no means so dispersed. They are delivered to industries that produce finished goods, and since these industries are geographically concentrated, movements of steel are, for this reason, circumscribed.

The principal consumers of iron and steel are the following: railroads, building and construction, automotive, oil, gas, water and mining, food container, machinery, and agricultural industries. These, in 1926, accounted for something like 79 per cent of the total steel output of that year.¹³ The concentration among these and other consumers of steel products was considered by de Chazeau on the basis of figures of the value added by manufacture in 1927. His conclusions were that 90 per cent of the motor vehicles, 82.8 per cent of the agricultural implements, 72.1 per cent of the engines, turbines, and wheels, 68.5 per cent of the electrical goods, 59.7 per cent of the machine tools, and 61.1 per cent of the railroad cars of the United States were produced in the five states of Illinois, Ohio, Pennsylvania, New York, and Michigan,¹⁴ all lying in a territory bounded on the west by the Mississippi River, on the south by the Ohio River and the southern boundary of Pennsylvania, and on the east by New Jersey and the line of the Hudson River. Almost half of the value added by manufacture in the agricultural implement industry was contributed by Illinois; about the same percentage in the railroad car industry by Illinois and Pennsylvania; 65 per cent in the motor vehicle industry by Michigan, and 27 per cent in the machine tools industry by Ohio. It is obvious that iron and steel products must move to the places where the customers of the industry

¹³155 I.C.C. 517, 1929.

¹⁴Carroll R. Daugherty, M. G. de Chazeau and Samuel S. Stratton, *The Economics of the Iron and Steel Industry*, McGraw-Hill, New York, 1937, p. 56. Published for the Bureau of Business Research, University of Pittsburgh.

are to be found and that, since the location of these customers is predominantly in five states, shipments must go to these states in greatest quantity.¹⁵

Producing and Consuming Areas Coincide.—To a greater extent than in the coal industry, and to a much greater degree than prevails in other industries which we shall consider, the areas of production and those of consumption of semi-finished and finished rolled steel are the same. This is true when we consider the entire territory north of the Ohio and east of the Mississippi; and it is partly true even when we regard subdivisions of the territory, because there appear to be limitations of movement within the narrower groups into which areas of production may be divided. This statement is based upon the results of certain inquiries conducted by the Interstate Commerce Commission. In 1929 the Commission had occasion to review the characteristics of the interstate structure applying to iron and steel articles. In doing this it divided steel-producing territory into three parts: western, including Chicago mills and those of western Ohio, Indiana, Michigan, Kentucky, and Wisconsin; middle, including eastern Ohio, West Virginia, western Pennsylvania and the Buffalo district in New York; and eastern, including New England, eastern New York, New Jersey, Maryland-Delaware, and eastern Pennsylvania. It concluded that each of these districts had surplus capacity, but that except in the middle district, not much cross-shipping occurred. Producers in the western district, according to the Commission, did not reach east of Pittsburgh to any great extent, nor did New England or eastern mills ship to points west of that city. The middle district mills, however, competed actively in eastern territory as far as New England, and in western territory in the direction of Chicago.¹⁶

Characteristics of Transportation.—Steel hauls, as may be expected, are of moderate length.¹⁷ On the whole the traffic is desirable from the railroad point of view because the movement is heavy, concentrated, and steady, and rates, though low, can be made substantially higher than the cost of the service

¹⁵ According to data compiled by the Federal Trade Commission for the period 1919-1921, based upon returns from 65 steel companies, 90.8 per cent of all semi-finished steel and 60.4 per cent of all finished rolled steel (skelp, wire rods, rails and accessories, plates, shapes, bars, sheets, and miscellaneous) were shipped to the five states listed in the text (de Chazeau, *p. cit.*, p. 66).

¹⁶ 155 I.C.C. 517, 544, 1929.

¹⁷ A test made in 1925 gave the total movement of steel articles for twelve days, in each month, during 1925. Extracts from the results are as follows:

Rate Territory	Tons	Average Haul
Within Central territory	314,969	199
Within Trunk Line territory	188,398	174
Within New England territory	5,748	
From Central territory to Trunk Line territory	76,411	391
From Trunk Line territory to Central territory	73,550	311
From Trunk Line territory to New England territory	23,873	424
From Central territory to New England territory	12,319	687

The longest haul recorded in these tests was 1110 miles (155 I.C.C. 517, 524, 1929).

rendered. Large quantities of steel are transported in open cars. **The** average loading exceeds that in the major railroad commodity classes except in that of products of mines, and loss and damage claims are relatively small. These same characteristics make steel business attractive to water carriers. There is competition upon the Great Lakes where the destination points permit,¹⁸ and there is competition upon the Mississippi River, although the major steel movements cannot easily resort to river hauls.¹⁹

To some extent even trucks are used to carry iron and steel. The Interstate Commerce Commission has remarked that trucks desire steel traffic because of its greater weight, space considered, than that of other business,²⁰ but highway facilities are hardly adequate to carry steel long distances except in the case of shipments of comparatively small units.

Handling of Steel Products.—The remarks in the preceding paragraphs have been directed to the movement of steel, semi-finished or finished, but in most cases to steel which requires some further processing before it can be delivered to the ultimate consumer. The forms which this steel takes when it has been processed or assembled into a consumers' good has been indicated to some extent by the list of industries which use rolled steel. These forms may be automobiles or engines, machines, tools, pipes, hardware, electrical equipment, or any of thousands of articles used in the railroad, petroleum, agricultural, or other industries, or they may be goods used by the domestic consumer in and about the home. In the case of many types of consumable products the final distribution follows the spread of population. To the extent that steel is used, not as a material for the finished article but as part of the machinery or tool by which the good is made, the distribution will follow that of manufacturing activity. In either case the territory north of the Ohio and Potomac rivers and east of the Mississippi occupies an important place in the steel industry pattern, because it is the home of a large portion of the population of the United States and the seat of a still larger proportion of the country's manufacturing activity of all kinds.

Wheat.—Most American wheat is grown in the North Central states. The accompanying tables gives, for 1938, the acreage harvested and the number of bushels produced in the eight principal wheat states in this region and in Oklahoma and Texas.

Concentration of Grain at Country Elevators.—The first step in the transportation of grain is its carriage from the farm to the country elevator close to railroad tracks. This haul is accomplished by horse and wagon or by auto truck. **The** country elevator stores the grain which it receives for subsequent rail shipments, and frequently cleans, mixes, and dries it in **order** to improve its grade.

¹⁸ 210 I.C.C. 197, 1935.

¹⁹ 206 I.C.C. 281, 1935.

²⁰ 213 I.C.C. 797, 799, 1936.

ACREAGE AND PRODUCTION OF WHEAT, 1938²¹

State	Harvested (000 Acres)	(ooo Bushels)
Kansas	14,497	152,184
North Dakota	8,955	79,839
Oklahoma	5,302	58,322
Nebraska	4,691	55,714
Ohio	2,381	46,410
Illinois	1,300	42,550
Minnesota	1,616	38,948
Texas	3,894	35,046
Missouri	1,431	31,600
Indiana	1,890	30,140

Shipments of Grain from Country Elevator to Primary Market.—About 70 per cent of the grain reported by country elevators and warehouses is shipped to large terminal markets. A smaller proportion (7 per cent) is forwarded to smaller centers, and the balance is sold to mills, feeders, interior brokers, retailers, etc. The primary terminal markets for wheat, which is the most important grain from the point of view of transportation, are Kansas City, Minneapolis, Chicago, Duluth, St. Louis, Omaha, Milwaukee, Indianapolis, and Peoria, Illinois.

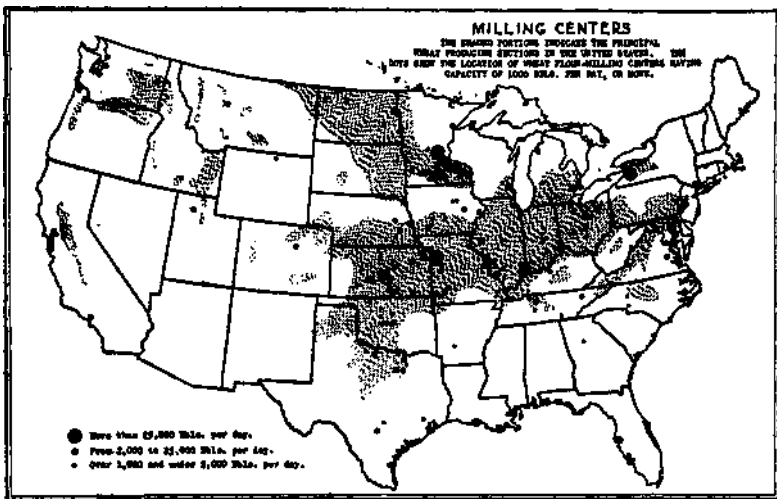
Generally speaking, the current of grain movement is from west to east, with a certain amount of southern and southeastern flow, but with comparatively little western, northern, or southwestern movement.

Source of Grain Received at Primary Markets.—The most complete statistics regarding the sources of grain received at primary markets are those compiled by the Federal Trade Commission for the five crop years 1912-1913 to 1916-1917. According to this statement, Chicago obtains the bulk of its grain from Illinois (52 per cent) and Iowa 31½ per cent). It also obtains a little from Minnesota, and South Dakota to the northwest, but practically none from Ohio, Michigan, or Indiana to the east, or from Missouri to the south. Minneapolis receipts are chiefly from Minnesota (36 per cent) and the Dakotas (57 per cent), and a smaller proportion from Montana, all to the westward of this market. Practically all Duluth receipts are from the same area. Neither market receives much of anything from Wisconsin, Illinois, Iowa, or Nebraska. Kansas City obtains more than half its grain from Kansas to the west and more than one-fourth from Nebraska to the northwest. Less than 4 per cent is derived from Missouri and practically nothing from Illinois, on the east. Kansas City also obtains a substantial proportion (6½ per cent) from Iowa to

²¹ United States Department of Agriculture, *Agricultural Statistics*, 1939, Preliminary Statistics, p. 12.

the north, but much less from Oklahoma on the south. St. Louis obtains above 40 per cent of its grain from Illinois points lying north and east. To what extent this movement is from the east rather than the north is difficult to determine. In so far as the movement is westward, it is exceptional. St. Louis also receives about 20 per cent from Missouri, 26 per cent from Iowa, and a substantial amount from Nebraska ($6\frac{1}{2}$ per cent).

Milwaukee obtains practically nothing from the south or east (Illinois, Indiana, or Michigan), securing the great bulk of its receipts from Wisconsin and the states west—i.e., Minnesota, Iowa, and South Dakota. Omaha, like St. Louis, is exceptional in obtaining heavy receipts from Iowa ($22\frac{1}{2}$ Per cent)



MILLING CENTERS

(Source: Bureau of Railway Economics, *Commodity Prices in Their Relation to Transportation Costs*. Bulletin No. 7, February, 1925.)

directly to the east. It procures practically nothing, however, from either Missouri to the southeast or Kansas to the south, the balance of its grain being obtained chiefly from Nebraska (63 per cent). About 13 per cent, however, is derived from South Dakota to the northwest. Peoria supplies are obtained almost exclusively from Illinois and Iowa, and those of Indianapolis from Indiana and Illinois. Cincinnati draws some grain from its own state, but obtains much more from Indiana and Illinois.²²

It will be noted that the largest six primary wheat markets and milling centers, with the exception of Buffalo, are located within or immediately adjacent to the areas of largest wheat production. These markets are also important terminals of grain-carrying trunk line railroads. Chicago, Duluth,

²² United States Federal Trade Commission, *Report on the Grain Trade*, 1920, vol. I, p. 133.

and Milwaukee occupy water shipping positions on the Great Lakes, and Kansas City and St. Louis have potential facilities for shipping by river.

Functions of Primary Markets. Reshipment to Secondary Markets.—At primary markets grain is inspected, graded, cleaned, mixed and conditioned, and stored in terminal elevators. From these elevators much grain is withdrawn for local consumption, including milling.

There is little movement from one primary market to another, but grain proceeds from concentrating points in the grain-producing districts toward centers of consumption in the South and East. During recent years most of the wheat produced in the United States has been consumed within its borders; only a small amount has been exported. Prior to 1931, however, the export trade in wheat was much more considerable, and in 1938 there was again a balance available for export. In general, the surplus of the Mississippi Valley distributes itself in the states south and east of Indiana, Illinois, and Ohio. This movement is facilitated by the development of secondary markets which provide facilities for local distribution or spring up where a break in transportation occurs, as at Buffalo or at points on the Ohio River.

Competition.—Carriers compete vigorously for participation in the carriage of wheat, and difficult rate problems arise because of the rivalry of different lines and of the communities which these lines serve. The competitive movements begin with the transportation of the wheat from farm or country elevator to the primary market and end with its delivery at Liverpool or at the domestic destination where it is finally consumed. Out of the price obtained at the terminal all prior costs are met, including farm, transportation, and commission expense. It follows that the higher the rate into any market and, also, the higher the charge from primary market to ultimate destination the lower the price which millers can pay for grain upon the farm and the smaller the volume of business which dealers in any city can transact, especially if the transportation rate upon any alternative route through any alternative transshipping place amounts to less than it does by way of the city with which we suppose ourselves to be concerned. Very small differences in cost will cause the diversion of wheat from one route to another, and rates are intricately balanced to accommodate, in so far as possible, the divergent interests of all competing groups.

Once collected in the primary markets, wheat may be milled and reshipped as flour, or it may be forwarded, after having been inspected and graded, to the more important centers of consumption farther east. Grain differs from coal and iron in that it is not a material to be used in further production, except as milling may be regarded as a manufacturing process, but a commodity which is to be consumed. It is not, therefore, attracted to any particular area because of the presence of factories at such a spot, nor does it need to be combined with any other commodity before it becomes a good fit for

human use. Grain differs also from a product such as coal or steel in that the location of the industry is mostly upon the outskirts of instead of in the center of the densely settled sections of the United States. This location is partly the result of soil and climatic conditions; to a considerable degree it is, besides, a consequence of the fact that wheat farming uses land less intensively than does manufacturing or even some other forms of agriculture and cannot earn a profit on high-priced acreage such as other forms of use are able to control. Whatever the cause, grain-producing districts are not, by and large, great grain-consuming districts. Grain is consumed where there are people to eat it; grain is grown where natural and price conditions are favorable to agriculture; and these two conditions are not, at the same places, generally fulfilled.

Wheat Routes.—From the point of view of traffic geography the problem is to trace the flow of wheat from the numerous milling centers 'mostly west of the Mississippi River, where it is collected from the farms, to its principal destinations in the East. This flow takes place over several routes.

One such route is by way of the Great Lakes. We have already described the character and extent of Lake movements of grain in Chapter VII. Lake channels run from west to east, they begin near an important wheat-growing section of the country and they terminate in an area of dense population. They offer an obvious and an advantageous facility for the carriage of grain.

A second important pathway is built up by a combination of the Western Grain route and the Trunk Line route described in Chapter IX. The service on this line is railroad service; neither motor vehicle nor pipe lines, indeed, play an important part in moving grain. Wheat lends itself to efficient railroad transport. It is comparatively uniform in character, it moves in large volume, it can be unloaded and loaded by mechanical devices, and it is not easily damaged. For these reasons grain traffic has long been a chief reliance of a number of western railroads, and it still is a large contributor to the business of the Trunk Line route. We may perhaps add that in former years the trunk lines carried most of the grain business. The chief commodity about which the railroad wars of the seventies and eighties were waged was grain, and the question of the relative rates on grain from western points to the cities of Boston, New York, Philadelphia, and Baltimore has not been decided yet to the complete satisfaction of all the parties concerned. This controversy will be again referred to in Chapter XVIII.

A third route for the carriage of wheat is the Mississippi Valley route. This is primarily a railroad route, but some grain moves by river instead of by rail to destinations in the South. It will be obvious, upon reflection, that the Mississippi Valley route is less well placed for the transportation of wheat from western fields to eastern cities than are either the Great Lakes or the Trunk Line routes. This is because its southern terminus is in a comparatively sparsely settled region. The southern states offer an inferior, though large,

market to the grain growers. Wheat may be transshipped at Galveston or New Orleans to boats and carried by water to New York, but this route is roundabout. On export business, however, the southern route can compete, for the reason that most export grain is grown in Kansas and Oklahoma. Railroad rates from this district to Galveston are much lower than to New York, and the shippers' connections from Gulf ports to European cities are reasonably satisfactory.

We shall consider the complicated structure of wheat rates in later pages of the present work.

Livestock.—Livestock resembles grain in that the largest production is that in the northern and north central Mississippi Valley, and also in that there is a double or triple transportation movement involved.

Sale to Local Butchers.—In New England, in the South, and in the northwestern states of Oregon, Washington, and Nevada, a relatively large proportion of the product is sold to local butchers for the retail market trade. Livestock so disposed of does not enter into transportation either as animal or as product.

In the corn belt and range states, on the contrary, the proportion sold to local butchers is very small. These communities produce a surplus, and are exporters rather than importers and consumers. Instead of selling to local butchers, farmers and stockmen consign their animals to commission men or dealers at the livestock markets, or to cooperative associations; or they may sell at local shipping points to agents of the packers, who themselves undertake shipment to the primary markets.

Feeder Cattle and Sheep.—Cattle and sheep from Arizona, New Mexico, and in lesser degree from Utah, Colorado, and some other western and southern states, are known as feeders and stockers. Feeders are matured animals which will be held and fed during a period of two to four months before they are slaughtered, in order to increase their weight. Stockers are usually immature cattle. They will be kept longer, perhaps six to nine months, before they are killed. Such animals are reshipped upon arrival at a livestock market into the corn states for feeding. From some districts of origin the proportion of feeders and stockers to total livestock shipments is very high. Thus from Arizona, to take the most notable example, it may run as high as 56 per cent. The movement from other states is less important because the local food supplies available for stock are greater, but in the aggregate it is very large. The traffic is recognized by the Interstate Commerce Commission, which has ruled that railroad rates for the carriage of feeder or stocker livestock should not exceed 85 per cent of the rates upon the same kind of livestock when fit for slaughter in view of their lesser value.²³

It follows that livestock transportation in the United States involves, first, a

²³176 I.c.c. I, 103, 1931.

local gathering movement; then a concentration movement to packing centers, comparable with the shipment of grain from country to primary market; then, for a certain percentage of the product, an in-and-out movement from market to fattening fields and return; and finally, after slaughtering, the transportation of meat products to final destination.

Livestock Markets.—The principal livestock markets are Chicago, Kansas City, Omaha, East St. Louis, St. Paul, Fort Worth, Sioux City, Denver, and St. Joseph, Missouri. The rank of the different markets varies with the kind of livestock dealt in.

RANK OF LIVESTOCK MARKETS ON BASIS OF RECEIPTS IN 1937

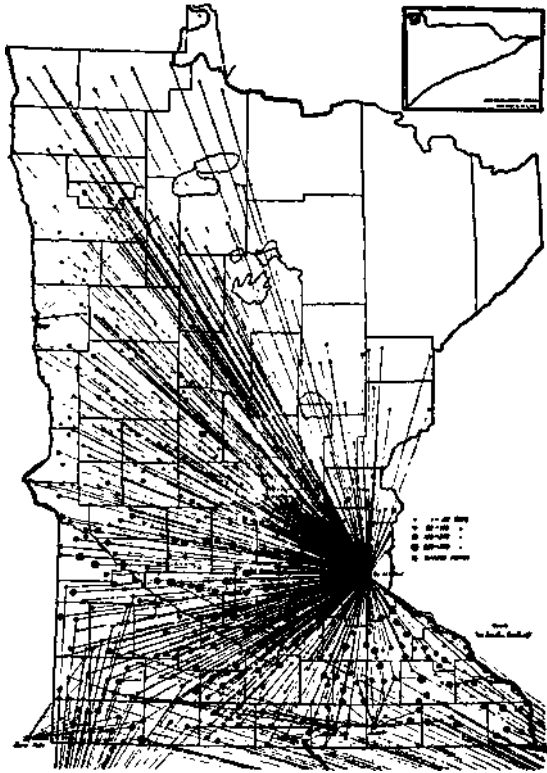
Cattle and Calves	Hogs	Sheep
Chicago	Chicago	Denver
Kansas City	East St. Louis	Chicago
Omaha	St. Paul	Omaha
St. Paul	Sioux City	Kansas City
East St. Louis	Omaha	Fort Worth
Fort Worth	St. Joseph	St. Paul
Sioux City	Kansas City	St. Joseph
Denver	Denver	East St. Louis
St. Joseph	Fort Worth	Sioux City

These markets have stockyards where livestock can be conveniently unloaded, inspected, and exposed for sale; they have large slaughtering and packing houses; and they have access to good transportation facilities for forwarding in every direction the products into which the incoming cattle, hogs, and sheep are transformed. The advantages of markets of this type are so great that 83 per cent of all the cattle, 71 per cent of all the hogs, and 92 per cent of all the sheep are now slaughtered in wholesale packing and slaughtering establishments, and only the balance are killed in retail establishments on the farms or ranges.²⁴

Shipments into St. Paul.—A graphic representation of the concentration of livestock shipments at a particular market is reproduced on page 207 from the records of local livestock-shipping associations in the state of Minnesota, as of the year 1919.

²⁴ United States Department of Agriculture, *Agricultural Statistics*, 1939.

On livestock moving into the Union Stockyards at Chicago a charge of \$2.70 per car is assessed against the shipper in addition to the line-haul rate. Stockyard terminal charges vary at different markets, but outside of Chicago they are entirely or for the most part absorbed by the railroads. This refers, of course, to charges connected with transportation. The stockyard is a common carrier, and its rates are subject to the control of the Interstate Commerce Commission, in so far as they are concerned with transportation, although other services rendered are regulated by the Secretary of Agriculture. There is sometimes a question as to when the service of transportation ends, but the presumption is that transport ceases when the animals reach the unloading pens. Mr. Eastman believes that the railroad rate should cover delivery at public stockyards into suitable pens in all cases, including Chicago (176 I.C.C. 1, 122, 158-159, 1931).

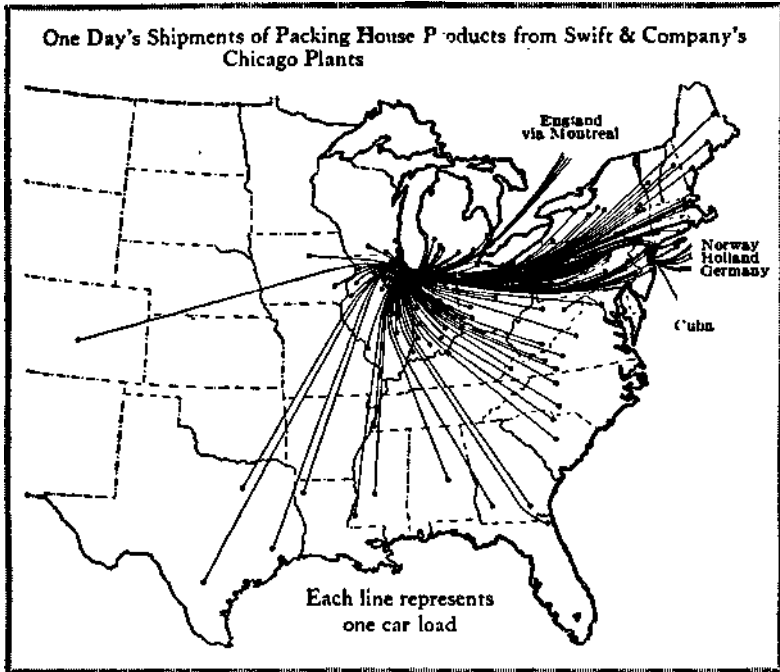
LIVESTOCK SHIPMENTS BY MINNESOTA SHIPPING ASSOCIATIONS²⁵

Livestock Receipts at Terminals Maintained by the National Livestock Producers' Association, 1925.—More comprehensive figures showing livestock receipts at principal terminal markets were published in the annual report of the National Livestock Producers' Association for 1925. This association operates so-called "producers' terminals" at large market centers to handle shipments of members. In 1925 the markets where terminals of this sort were maintained handled 50 per cent of the number of head of livestock received in central markets of the United States. The terminals themselves handled the very considerable number of 67,575 cars, received from twenty-nine states and Canada, or about 9 per cent of all cars of livestock sold. The first map on page 208 shows the producers' locations, with lines radiating to the states from which shipments originated. The lines show the source from which each producers' terminal obtained its supplies, and the figures indicate the number of cars shipped to each designated terminal from the state from which the line is drawn.

²⁵ University of Minnesota, Agricultural Experiment Station, *Organization and Management of Livestock Shipping Associations in Minnesota*, Bulletin No. 201, December, 1922.

Direction of Movement of Meat Products.—Inasmuch as the consumption of meat is largely a question of population, the general tendency of livestock is to move from west to east, along established rail routes. This same tendency continues in the case of meat products.

Most export trade in meat consists of hams and bacon, and the greater part of this traffic flows from the packing houses of the Middle West along the Trunk Line route to New York City. Speed, regularity of shipment,



PACKING-HOUSE PRODUCTS SHIPPED FROM SWIFT & COMPANY'S CHICAGO PLANTS

and adequate refrigeration are easier to obtain by this route than by any other, and the frequency of sailings from New York is also a distinct advantage.

Domestic shipments of meat are considerably more varied. The accompanying diagram represents the shipments of packing-house products from the Chicago plant of Swift & Company on September 14, 1921. On this day, Swift & Company shipped 182 carloads of packing-house products destined to twenty-nine states and five foreign countries. Most of the cars contained meat, but some had oleo oil, hides, wool, soap, grease, tankage, and fertilizer. The car that went to Colorado carried soap, as did also one of the cars to Texas. The two cars to Iowa carried fertilizer.²⁶

²⁶ Perishable products of packing houses are distributed to points of consumption in two

Conclusion.—This chapter has considered the location and traffic movements of coal, steel, grain, and livestock. These are all commodities which originate in the Mississippi Valley or in the ranges of mountains which border the Valley on the East, and which move outward from the places where they are produced to the manufacturing and population centers of the United States in various directions. In some cases it will be necessary to return to the subject of these traffic movements in order to explain further the transportation rates which are applied and the balancing of advantage between the routes which compete in carrying the goods; but the preliminary picture is, perhaps, supplied. We shall supplement this discussion, in the following chapter, by examining the location and distribution of lumber, fruit, and sugar—commodities which originate upon the outskirts of the country and which reach common markets by converging flows from the outside.

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general ways, (1) by direct movement to point of consumption in less-than-carload lots, generally in what are called "peddler cars," and (2) by carload movement to branch houses and distribution thence either by truck or in less-than-carload rail service.

Branch houses are located at points where the density of population requires a constantly available supply of products. A peddler car is a refrigerator car loaded by the packer at his packing house with less-than-carload shipments, usually consigned to a number of stations. Consignments are placed in the car in station order, that is, in the order in which the destinations for which they are intended will be reached, so that they may be unloaded by the crews with the least trouble and delay. The shipper has exclusive use of the car. While only a minor part of the enormous tonnage of packing-house products is distributed in peddler cars, the practice is important in some areas, as in the South, and the cars move long distances. Thus the 54 peddler cars operated by Armour and Company in 1933 reached distances as remote as 1065 miles from points of origin, and those operated by the Dold Packing Company from South Omaha traveled as far as 1229 miles. The service has attractive features both for the shipper and for the railroad. The shipper likes it because his goods reach destination more quickly and with less handling. The railroad finds it advantageous because peddler cars are loaded by the shipper, shipments are confined to a certain day each week, thus concentrating the offering of less-than-carload lots and adding to the efficiency of operation, and the movement is reasonably steady (191 I.C.C. 257, 321/322, 1933).

The chart on page 210 is from Swift & Company, *Yearbook*, 1922.

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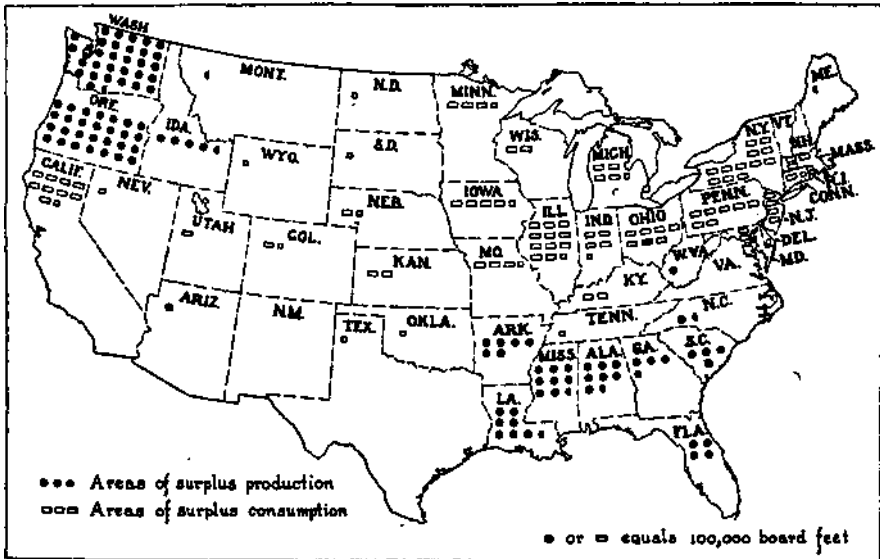
CHAPTER XI

COMMODITY MOVEMENTS: LUMBER, FRUIT, SUGAR



This chapter is concerned with the location and distribution in the United States of lumber, fruit, and sugar.

Lumber.—The character and direction of lumber shipments have greatly changed in the course of the last century. Short hauls from Maine to Boston (225 miles), from the upper Hudson to New York City (200 miles), and the Pennsylvania river traffic to Philadelphia illustrate the nature of lumber movements up to the time of the Civil War.

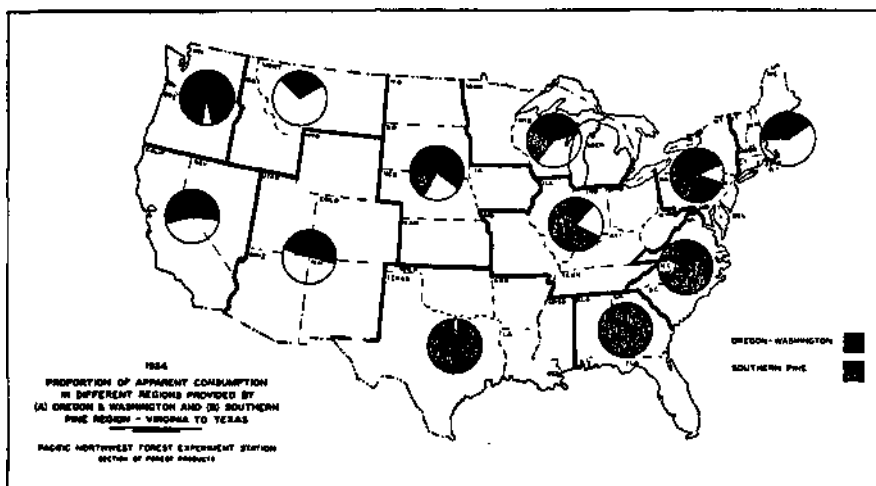


AREAS OF SURPLUS LUMBER PRODUCTION AND CONSUMPTION, BY STATES

When the pine of the Lake states came to be drawn upon, the average length of haul increased. The Department of Agriculture points out that prior to 1860 a lumber haul of 500 miles was exceptional, and even half this distance much above the average; but a large part of the Lake states cut,

even to middle western markets, moved more than 500 miles, and New York is 1000 miles by water from Saginaw, one of the nearest points of manufacture in the Lake states territory.

Beginning of Southern and Western Shipments.—Southern pine shipments began on the Atlantic coast after the Civil War, but rail shipments to the interior were in small volume until after 1890. Water distances ranged from a minimum of 300 miles from Norfolk to Philadelphia, to 2000 or more from Gulf ports to Boston. Aside from purely local markets, the distances by rail were ordinarily in excess of 750 miles, and frequently exceeded 1000 miles, as



DISTRIBUTION OF OREGON-WASHINGTON AND SOUTHERN PINE

illustrated by the distance from Hattiesburg, Mississippi, to Boston, more than 1000 miles, or to Pittsburgh, 1100 miles.

Finally, the lumber cut from the Pacific coast moved the greatest distances of all. By water Puget Sound is nearly 7000 miles from New York. By rail Omaha is nearly 2000 miles from Portland, Oregon; Chicago is 2300 miles, and New York is 3200 miles.

Consuming and Producing States.—The map which appears on page 213 distinguishes, for the year 1920, the states producing more lumber than they consumed, from the states consuming more lumber than they produced.

From this map it is clear that the direction of lumber movement is eastward from the Pacific coast, and northward from the southern states to the treeless plains of the central and northern Mississippi Valley and the industrial districts of the North and Northeast.

Proportion of Consumption in Different States.—To supplement the diagram, it is necessary to show the proportion of consumption in different states supplied by 'southern, eastern, and western lumber, respectively. The map

on page 214 supplies this information in very general form. The black areas in the circles on this map indicate the percentage of lumber consumed in each district which was, in 1934, supplied from the forests of Oregon and Washington. The shaded areas show the percentage supplied from southern forests, and the white segments of the circles indicate the importance of all other sources of supply. The map shows that in the South and Southeast, as one would expect, most lumber consumption is of southern pine. This predominance of southern lumber extends into the central states (Missouri, Illinois, Indiana, Kentucky, and Tennessee) although the proportion of southern pine used in this district has somewhat decreased in recent years. In the prairie, Rocky Mountain, and Pacific coast regions consumers either use local supplies or import from Oregon and Washington. Southern and western lumber compete actively in the Lake states, the North Atlantic states, and in New England. In these areas the importance of western lumber has been growing.¹

Importance of Transportation Costs,—Lumber is cheap and it is bulky. It is, therefore, a commodity which one might expect to see produced in the vicinity of the place where it is consumed. Indeed, von Thunen assigned forest culture to the second of the zones which encircled his "Isolated City"—a location nearer to the market than he thought suitable for the growing of grain or the raising of cattle. We may be surprised, therefore, to find the principal sources of American lumber supplies in remote corners of the United States. The reasons for the apparently anomaly are two. In the first place, it is a geographical fact that forests exist in the South and, above all, in the Northwest. Man did not select these locations; he utilizes today a condition for which he is not responsible. In the second place lumber, though cheap and heavy, can be readily transported. It is easy to handle, it is hard to damage, and it moves in large quantities. Such characteristics make lumber desirable freight from the point of view of railroad, shipping, and even trucking companies. Competition for the carriage of lumber is keen, and rates are low. It is therefore enabled to move long distances to market. Yet still, because of the high proportion which the cost of carriage bears to the total of its production costs,² lumber is sensitive to conditions of transportation, and the transportation charge, to an unusual degree, determines both the type of vehicle that will be used to carry lumber from mill to market and

¹ On the question of lumber distribution see United States Senate, *A National Plan for American Forestry*, Report of the Forest Service of the Agricultural Department on the Forest Problem of the United States, 73d Congress, 1st Session, Sen. Doc. 12, 1933. The subject is discussed also in 210 I.C.C. 317, 1935.

² According to the United States Tariff Commission, the cost of Douglas fir (produced mainly in the Northwest) at the mill was, in 1929, \$22.96 per thousand board feet, while the transportation cost of delivering a thousand board feet at Chicago was \$17.28 or nearly as much again. The percentage of transportation cost to the total cost of southern pine was less because mill costs were higher in the South and the rail costs to Chicago less, but even here the proportion of transportation expense was estimated at around 25 per cent (United States Tariff Commission, *Lumber, Report to the President on the Differences in Costs of Production of Lumber*, etc., Report No. 32, 2d Series, 1932).

the boundaries of the territory in which the product of any district can be sold.

Water Route to Middlewestern Markets—There are three routes by which lumber can be brought from the outside into the lumber markets of the Mississippi Valley.

I. The first of these routes is the water route from the Pacific coast by way of the Panama Canal to ports upon the Atlantic or Gulf seabords of the United States. From Atlantic ports water-borne lumber moves west by rail, by truck, over the New York Barge Canal, or by way of the Great Lakes. From the Gulf, lumber is shipped by barge up the Mississippi River as far as Chicago, St. Louis, and Cincinnati. The cargo rate of the intercoastal lines from Pacific points of origin to Atlantic or Gulf destinations was, in 1935, \$12 per 1000 board feet—reduced from \$20 in 1921—and the volume of movement was very large. In 1933, 72 per cent of the total lumber movement from the Pacific coast to points east of the Indiana-Illinois state line used the water service.³

All-rail Route from the Pacific Coast.—2. The second route is that by rail from the Pacific coast to eastern destinations. The rail lines have to meet the competition of the water lines, so that rail rates on lumber are kept low, especially on transcontinental hauls. The practice of grouping is also largely resorted to.

On the western end, railroads classify lumber-producing points in five groups, of which the most important are the North Pacific Coast group, the Inland Empire group,⁴ and the California Coast group. In 1932 rates from the North Pacific Coast and the California Coast groups were the same to destinations east of a line drawn from Pembina, North Dakota, to Port Arthur, Texas. Rates from the Inland Empire group were 3.5 cents per 100 pounds less than those from the Coast.⁵

On the east, points of destination were, as early as 1923, also divided into groups, each point in a group taking the same rate as every other point; and the groups succeeded each other in regular progression from west to east. Between Chicago and Pittsburgh, for instance, there were six groups. Shippers paid 72 cents per 100 pounds to send lumber from the Pacific coast to the first of these (Chicago group) and 88.5 cents per 100 pounds to ship to destinations in the last (Buffalo-Pittsburgh group). The rail rate to New York was 90 cents.

It was the all-rail route across the continent which felt the first impact of the stimulated water movement by way of the Panama Canal that occurred at the close of the World War. The reductions in the intercoastal rates have already been referred to. In 1935, to check an increasing loss of traffic to the

³ \$12.00 per 1000 board feet is approximately equal to 34 cents per 100 pounds.

⁴ The Inland Empire group lies in eastern Washington, Idaho, and Montana. It includes the cities of Spokane, Washington, Boise, Idaho, and Missoula, Montana.

⁵ 183 I.C.C. 191, 200-201, 1932.

water lines, rail carriers extended the 72-cent rate, formerly applied to Chicago, to destinations extending through Central, Trunk Line, and New England territories to the Atlantic Coast.⁶ This cut still left the rail charges above the rates by water in the states east of Michigan and Indiana, but the rail carriers hoped to enjoy some, even, of this business because of the superior speed and convenience of the service that they supplied.

All-rail Route from the South.—3. The third route is that from southern producing points north and northwest into the upper Mississippi Valley. Southern points of origin may be divided into three sections, which can be identified roughly by reference to the map of lumber shortages and surpluses by states reproduced on page 213. One section, known as southeastern territory, lies east of the line of the Mobile and Ohio Railroad extending through the eastern portion of the state of Mississippi to Mobile, Alabama. It includes, therefore, most of Alabama, Georgia, and Florida, with some part of Mississippi. Much of the lumber from the Southeast moves to Trunk Line and New England territories, at rates established to meet water competition along the Atlantic seaboard.⁷ The low level of these rates gives southern lumber producers an advantage over their western competitors that enables them, with eastern producers, to dominate the northeastern market.

West of southeastern territory, but east of the Mississippi River, is what is known as Mississippi Valley territory. West of this again is the so-called southwestern blanket. This blanket includes all lumber-producing points south of the Arkansas River in Arkansas, all of Louisiana west of the Mississippi River, a few points in the southeastern part of Oklahoma, and eastern Texas. The rate from each point in the southwestern blanket territory is the same as that from any other point in the territory to any given destination; and joint through rates are quoted to the Northeast which are the equivalent of the combination of rates from the "blanket" to Thebes, Cairo, or Cincinnati, Ohio, and the rate from one of these points to final destination. Mississippi Valley lumber producers compete actively with those in the blanket territory in the sale of lumber in the northern Mississippi Valley,⁸ and both dispute the market with producers in the Far West.

It is sufficient for our present purposes to point out that the competition of southern and western lumber shippers has been for many years a factor in controlling the rates on lumber from the South to the Northeast and to points in the northern Mississippi Valley. In May, 1918, the rates from Goldsboro, North Carolina, to New York were 26 2/3 per cent of the rates from north Pacific coast points to New York. When, by 1923, this percentage relationship

⁶ The 72-cent rate was quoted from the Inland Empire as well as from the Pacific coast, thus removing an advantage which the former had enjoyed.

⁷ 85 I.C.C. 270, 272, 1923; 157 I.C.C. 280, 1929.

⁸ 34 I.C.C. 652, 682, 1915; 36 I.C.C. 137, 1915; 42 I.C.C. 548, 1917. Mississippi Valley points of origin are divided into groups, **but there is no** single group comparable with that west of the Mississippi River.

rose to 34.4 per cent, southern shippers earnestly complained.⁹ When, also, the rail carriers in 1935 proposed to reduce rates from the Pacific coast to the Atlantic seaboard southern shippers protested. It was true enough that rail rates from the South were still lower to eastern destinations than were all-rail rates from the West. But they believed that the difference that had existed before 1935 should not be reduced. Although there had never been a fixed relationship between the rates from the South and those from the west coast, carriers from each producing section had endeavored to maintain rates so adjusted as to permit free movement of lumber from each, and this condition reductions from the West would destroy.¹⁰ Rates, it was said, should be lower from the South, partly because average distances to market were less, partly because southern mill costs were higher than in the West, and partly because southern lumber weighed more than western lumber per 1000 board feet.¹¹

Finally, the South felt itself especially threatened by the blanket rate of 72 cents which all-rail carriers were introducing and making applicable to New England and New York. She was especially vulnerable to such a change because her own rates to northern points were not grouped in so comprehensive a way. Southern rates were quoted, that is to say, from areas in the South which have already been described to groups of destinations north of the Ohio River, but there were many groups, and charges increased as shipments moved from west to east. Southern lumber rates were not proportionate to distance, but the schedule of charges used reflected the influence of distance more than did the rates on western lumber, and so placed southern shippers at a comparative and increasing disadvantage as lengths of hauls increased.¹²

Unfortunately for the South, the Interstate Commerce Commission in 1935 was disinclined either to prevent the lowering of western lumber rates or to require a corresponding reduction in the rates from southern points. This was doubtless because it regarded water competition by way of the Panama Canal as the determining factor in the situation, and felt that carriers in each region must decide whether the competition should be met. Immediately following the western cuts, it is true, southern and southwestern railroads reduced their lumber rates on shipments to official territory approximately 12.5 per cent, but these tariffs were published to expire June 30, 1936. In this last year carriers took the additional action of placing the lumber rates in official territory upon a class rate basis—that is to say, upon a mileage scale.¹³

For further discussion of tariffs, mileage scales and class rates, see Chapter

⁹ 85 I.C.C. 270, 281, 1923.

¹⁰ 210 I.C.C. 317, 1935.

¹¹ This was because a smaller proportion of southern lumber was shipped kiln dried.

¹² 198 I.C.C. 753, 1934.

¹³ 214 I.C.C. 493, 1936. The carriers proposed rates equal to 27.5 per cent of first class, and the Interstate Commerce Commission authorized rates equal to 25 per cent of first class.

XVII. Rates are printed in publications known as "tariffs." To put rates upon a mileage scale is to adopt a system of charging in which rates vary, approximately, with the distance over which freight is carried. Such action was hardly to the advantage of the South, for while it was not unlikely to restrict the back haul of intercoastal traffic from the Atlantic seaboard to middle western destinations, it increased the cost of shipping lumber from southern points to markets north of the Ohio River. Southern problems will hardly be solved so long as water competition by way of the Panama Canal remains intense.

Oranges, Lemons, and Grapefruit.—The principal citrus fruits are oranges, lemons, and grapefruit. Most domestic lemons are grown in California, and most grapefruit in Florida and Texas. Of the oranges, in 1938 California produced about 54 per cent of the national crop, Florida about 41 per cent, and the balance was grown in smaller amounts in Texas, Louisiana, Arizona, Alabama, and Mississippi. California, Florida and Texas are the principal orange-growing states, and the influences of other sources of production may, in the case of this product, be neglected.

From the point of view of the student of transportation citrus fruit movements in the United States possess a number of interesting characteristics. If we examine the case of oranges as an illustration, the following facts are obviously true:

1. The production of oranges is highly concentrated in the South and West. Consumption, on the other hand, follows the distribution of population, and is most important in the densely settled areas of central and eastern United States.

2. The average haul of oranges is long, and transportation costs are relatively great. In 1938 the average freight rate on a box of California oranges was \$1,107. The cost of growing such a box was approximately 80 cents, and the cost of picking, hauling, selling, and advertising was 70 cents, so that transportation costs accounted for 42 per cent of the total outlay. The cost of transport from Florida producing points to market was 65 cents instead of \$1,107, costs of growing were 42 cents, and the costs of picking, hauling, etc. were 93 cents. In spite of shorter hauls the proportion of transportation to total costs even from Florida exceeded 30 per cent.¹⁴

3. As in the case of lumber, market competition is more important to carriers of oranges than is the competition of parallel transport lines. To this there is an exception along the Atlantic seaboard, where coastwise carriers have taken over the greater part of the movement of citrus fruit from Florida points to Baltimore, Boston, New York, and Philadelphia.¹⁵ Apart from this

¹⁴ *The Sunkist Courier*, May, 1938.

¹⁵ Coastwise carriers began to operate refrigerated service from Florida points to New York in 1929. So successful were the boat lines in attracting traffic that by the end of 1935, 93.5 per cent of the citrus fruit carried from Florida to Baltimore, Boston, New York, and Philadelphia traveled by boat and only 6.5 per cent by rail (218 I.C.C. 637, 643, 1936). The rail

exception the characteristic rivalry in the orange industry is between the producing areas in California, Florida, and Texas, which are served by lines that start at remote points and converge in a common competitive area. The significant competition between transportation agencies in this case is between carriers which do not, even approximately, run side by side.

Relative Sales of California, Florida, and Texas Oranges in Competitive Markets.—The following table shows the proportions in which the producing areas of California, Florida, and Texas supply selected markets in different sections of the United States.

RAILROAD CARLOADS OF ORANGES UNLOADED IN SELECTED MARKETS DURING 1938¹⁶
(Percentages)

Market	State of Origin		
	California	Florida	Texas
North Atlantic			
New York	39	61	0
Boston	45	55	0
Philadelphia	37	63	0
Pittsburgh	64	35	0
Buffalo	57	43	0
Syracuse	54	45	0
Albany	45	55	0
Portland, Me.	79	21	0
South Atlantic			
Baltimore	38	61	0
Atlanta	34	66	0
Richmond	45	55	0
Norfolk	78	22	0
Jacksonville	19		0
North Central		71	
Chicago	61	34	
Detroit	67	31	
Cleveland	57	41	
St. Louis	70	21	
Milwaukee	82	17	
Minneapolis	94	3	
Kansas City, Mo.	87	7	
Indianapolis	71	27	1

carriers cut their rates in an attempt to regain the diverted traffic, and the Interstate Commerce Commission cooperated by granting the carriers relief from prohibitions in the Interstate Commerce Act which would have hampered them in competition (211 I.C.C. 535, 1935; 218 I.C.C. 637, 1936). The new rates averaged about 63 per cent of normal rates. They brought back enough traffic to raise the proportion of citrus fruit carried by rail from 6.5 to 31.7 per cent but even on the new basis the diversion to the water route remained considerable.

¹⁶ United States Department of Agriculture, Bureau of Agricultural Economics, *Car-load Unloads of Certain Fruits and Vegetables in 66 Cities and Imports in 4 Cities for Canada, Calendar Year, 1938.*

RAILROAD CARLOADS OF ORANGES UNLOADED IN SELECTED MARKETS DURING 1938 (CONT.)

(Percentages)

Market	State of Origin		
	California	Florida;	Texas
Columbus	52	47	1
Omaha	92	5	3
Peoria	94	6	0
Duluth	94	4	1
Sioux City	96	1	1
Evansville	39	61	0
South Central			
New Orleans	10	78	0
Memphis	33	58	9
Louisville	31	69	0
Dallas	78	8	13
Houston	78	7	15
Nashville	19	81	0
El Paso	97	0	0
Oklahoma City	95	3	1
Birmingham	11	78	0
San Antonio	98	0	
Shreveport	99	1	0
Western			
Los Angeles	100	0	0
San Francisco	100	0	0
Seattle	100	0	0
Portland, Ore.	100	0	0
Denver	98	1	1
Salt Lake City	100	0	0
Spokane	100	0	0

Division of the Market.—Few Florida oranges are sold west of the Mississippi River. On the other hand, Florida oranges dominate the markets east of the Mississippi and south of the Ohio rivers. Competition between the two sources of supply is keenest in the north central and northeastern regions of the United States. Along the Atlantic seaboard Florida has a distinct advantage in towns such as New York, Boston, Philadelphia, Baltimore, and Norfolk, because of the relatively inexpensive coastwise steamboat service that has developed during recent years. This advantage is extended inland by motor trucks which deliver oranges to steamship piers in the South and carry them from coastal harbors to interior towns in the northern states.

The special advantages that Florida producers enjoy decrease or disappear in the case of shipments to north central states. In southern Ohio and Indiana California and Florida divide the market on fairly equal terms; but in 1938 California supplied 62 per cent of the rail shipments of oranges unloaded at

Chicago, 82 per cent of those unloaded at Milwaukee, and 94 per cent of those unloaded at Minneapolis. It is obvious that Florida producers must find it increasingly difficult to sell as they seek more and more distant markets because the railroad rates which they pay increase with distance. It should be said, however, that the annual proportion of their shipments to the total available supply does not accurately express the success of southern producers in competing with growers in the West. This is because almost no Florida oranges are unloaded during the months of July, August, and September, and relatively few in June and October. During these months, therefore, California oranges occupy the field. From November to May, on the other hand, competition is keen. Between 1931 and 1936 California oranges represented 93 per cent of all "unloads" in the United States between June and October, but only 53 per cent between November and May.¹⁷ Such variations greatly affect the annual distribution of carload deliveries at particular points.

Railroad Rates on California Oranges.—Because of the great differences in distances between different producing areas and the common markets, rates which increase in the same ratio as the distance hauled are inappropriate to the orange industry. Such rates, it is believed, would unduly restrict the sale of western fruit. Carriers use, therefore, a system of blanket charges under which the same rates are charged on California oranges for hauls of varying lengths. Thus in 1918 the rate on oranges from California was the same—\$1.15—to all points east of the Rocky Mountains and north of the Ohio River. In 1920 a rate of \$1.44 per 100 pounds was charged to the same destinations.¹⁸ By 1928 the rate had risen to \$1.55 but the blanket system was retained except that a rate of \$1.58 was applied on shipments to New York and to points in New England.¹⁹

This system of uniform charges is important, not only because it tends to equalize the advantages of different points of origin, but because it facilitates the handling of consignments from the Pacific coast. Only a small proportion of orange shipments is sold before the freight starts to move. Most cars are "blind billed" to some middle western point, and are subsequently redirected before delivery to the destination at which the shipper finally decides to sell his fruit.²⁰ This close control, based upon up-to-date knowledge, increases the aggregate price at which the annual crop of California oranges can be sold. It is also much simpler to administer, from the carriers' point of view, because the rate to the various destinations from which the shipper can select is likely to be the same.

¹⁷ J. M. Thompson, *The Orange Industry: An Economic Study*, University of California, College of Agriculture, Agricultural Experiment Station, Bulletin No. 622, June, 1938.

¹⁸ 58 I.C.C. 373, 376, 1920.

¹⁹ 144 I.C.C. 603, 622, 1928.

²⁰ Sometimes a car is reconsigned more than once. Instructions are, of course, forwarded by wire.

Comparative Rates from California and from Florida.—In 1939 the rates on oranges from Lake Wales, Florida, and from Los Angeles to destinations in the North and West were as follows:

RAILROAD RATES ON ORANGES, DECEMBER, 1939²¹

	From			
	Lake Wales, Fla. ^a		Los Angeles, Cal.	
	Distance	Rate	Distance	Rate
Charleston, S.C.	400	\$.34	1587	\$ 1.41
Washington, D.C.	961	.80	1921	1.42
New York, N.Y.	1188	.665	3127	1.42
Boston, Mass.	1417	.80	3356	1.42
Portland, Me.	1528	1.07	3497	1.42
Cincinnati, O.	1012.	.76	1369	1.42
Chicago, Ill.	1269	.97	2231	1.42
Kansas City, Mo.	1387	1.09	1774	1.25
Denver, Colo.	1054	1.76	1416	1.00

^aLake Wales, Fla., is approximately 205 miles south of Jacksonville. The distance from Lake Wales represents the average haul of perishables from points south of Jacksonville.

Railroad Rates on Florida Oranges.—Generally speaking, the rates on oranges from southern to northern destinations are based upon class scales, and vary in some relation to distance.²² While destination points are to some extent grouped, this practice is by no means as extensive as in the California traffic.²³ Absolutely, the Florida rates are lower than those from California to destinations east of Denver. In 1928 the line of equality extended from a point just west of Duluth, Minnesota, through South Dakota and Nebraska, Salina, Kansas, and the western portion of Texas. Since 1928 Florida's advantage has been somewhat increased.²⁴ The existing rate adjustment gives the Florida producer a steady advantage in competition with his California rivals which is increased by lower costs of production but partially offset by greater expenditures for packing and selling and by some consumer preference for California fruit. The net result has been that Florida production has increased more rapidly than that in California and that the proportion of Florida shipments to those from California has been considerably

²¹ Rates in the table are quoted in cents per 100 pounds. They differ, therefore, from the rates per box mentioned on p. 219. A box of California oranges weighs somewhere between 76 and 77 pounds.

²² The rates fixed by the Interstate Commerce Commission in 1928 were on the basis of 40 per cent of first class (144 I.C.C. 603, 1928). See Chapter XVII for further discussion of "class scales."

²³ Shippers in 1928 suggested that a single rate of 95 cents be applied from all points in Florida to the whole of official territory, following the California practice. The Commission replied that it would never have been justified in establishing the California rate blanket and that it did not propose to extend it (144 I.C.C. 603, 619, 1928; see also 195 I.C.C. 265, 1933).

²⁴ 178 I.C.C. 373, 1931; 194 I.C.C. 445, 1933; 194 I.C.C. 593, 1933.

enlarged in recent years. The present position of California would, however, be still less favorable if rates were changed so as to reflect more accurately the differences in distance from the two sources of supply to their common destination.

Peaches.—Thirty-nine per cent of all the peaches in the United States in 1938 were grown in California. The chief consumers were the residents of great cities, mostly in the Northwest and in the Middle West. More exactly, 26 consumption centers accounted for 13,179 out of a total of 14,612 rail carlot unloads of peaches in 1938. Of these unloads 17 per cent were from the Carolinas, 47 per cent from Georgia, and 13 per cent from the states of Colorado, California and Arkansas. The reason for the small participation of California in the supply of peaches, in spite of its leading rank in production, is to be found in the importance of the canning industry in that state. Peaches are perishable, and it is to the advantage of the California producer to market his goods in staple canned varieties rather than to risk a transcontinental movement.²⁵

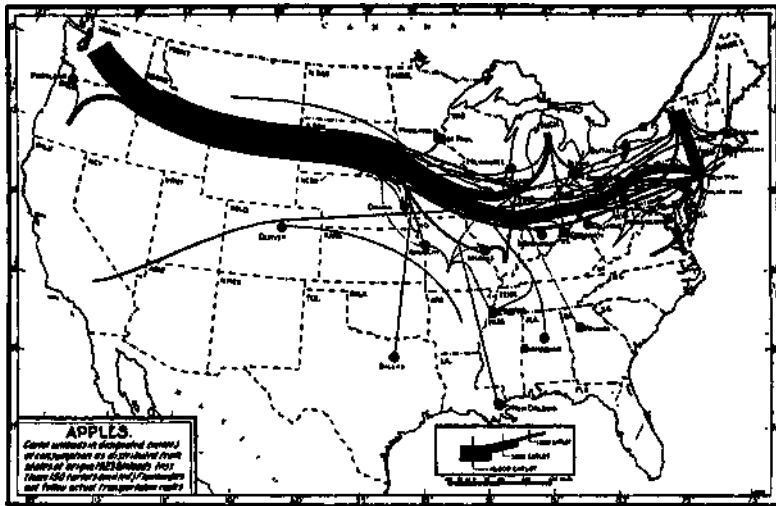
Of the principal cities, Boston and Philadelphia draw chiefly from Georgia, Virginia, and the Carolinas; Chicago and St. Louis from Georgia, Arkansas, and Illinois; Omaha and Minneapolis from California and Colorado. More than 70 per cent of the Georgia shipments in 1938 were consigned to the five cities of New York, Chicago, Boston, Detroit, and Philadelphia; and 72 per cent of the Colorado shipments went to Minneapolis, Denver, Milwaukee, Chicago, and Omaha. Although there is active competition in the sale of peaches, the average haul is shorter than in the case of citrus fruit, and the disadvantages of remote sources of production are more pronounced.

Apples.—Apples grow best in northern states. The principal producers are Washington, New York, Virginia, Pennsylvania, California, and Michigan, but Washington is the only state which enjoys a national market. Out of 29,953 carlots unloaded during 1938 at 66 principal markets in the country, 13,951, or 47 per cent, were from the state of Washington. These shipments paid a blanket rate of \$1.50 to all transcontinental points east of the Mississippi River as well as to destinations in transcontinental Group E west of this stream.²⁶ The blanket rate on apples, together with the ability of the fruit to stand transport for long distances with relatively slight deterioration, enables Washington growers to enter eastern markets. In fact, more than half of the unloads at the city of New York in 1938 were from Washington. The transportation situation resembles in these respects that which controls the disposition of oranges. On the other hand, Washington apples compete with a great variety of local supplies rather than with the output of a single alternative producing area. Nearly every state grows some apples, and most

²⁵ Cities such as New York, Philadelphia, Chicago, and Los Angeles receive a large volume of peaches by truck, but the points of origin of truck shipments are not reported.

²⁶ Group E includes parts of Louisiana, Arkansas, Missouri, Iowa, and Minnesota, and all of the Dakotas (185 I.C.C. 299, 1932).

states ship apples at least to near-by cities. The circumstances which determine the occupation of any particular market are, therefore, usually complex.



APPLE SHIPMENTS

(Source: United States Department of Commerce, Bureau of Foreign and Domestic Commerce, "Transportation of Pacific Coast Perishables," by A. L. Cricher, 1924.)

Need for Refrigeration.—Generally speaking, the development of long-distance transportation of fruit and vegetables is due to the perfection of refrigerating railroad equipment and to the expedited service which railroads have been able to provide for this class of traffic. Fruit and dressed meat resemble each other in their liability to deterioration and in the special attention they require. In neither case would the concentration in production and the character of the movements indicated in preceding pages have been possible without the elaboration of an allied technique of very great importance.

It would be a fascinating exercise in economic history to trace the growth of the packing industry in the Middle West, and to observe the use which Chicago packers made of methods of refrigeration in transit, in their struggle with competitors in Cincinnati and other eastern points. The history of the fruit industry, also, shows that in the period preceding the Civil War the lack of proper methods for conserving fruit caused the loss of enormous quantities of excellent food supplies, in addition to limiting the area in which fruit could successfully be grown. W. A. Taylor, writing in the *Yearbook* of the United States Department of Agriculture for 1900, says of the decades from 1850 to 1870:

The stimulus to planting afforded by the improved facilities for transportation . . . soon resulted in disastrous overproduction in some sections. Large orchards, vineyards, and small-fruit plantations were planted farther from their prospective markets than their products could be transported. This was notably true in the Southern United States, where the added incentive of high prices for early fruits in markets farther north caused large planting of the more perishable fruits, such as strawberries, blackberries, raspberries, peaches, and plums. The planters demonstrated that they could produce these fruits in large quantity and of high quality at a relatively low cost, but the product could not, with the then existing facilities, be delivered to the distant consumer, for whom it was intended, in sound and wholesome condition. Thus, the truckers near Norfolk, Va., demonstrated as early as 1860 that the strawberry could be grown in large quantities and ripened long in advance of the northern crop. But as repeated shipments spoiled in transit, its culture was abandoned until the development of more durable varieties and improved transportation brought the New York market within reach of the growers. The early peach industry of South Carolina and Georgia suffered a similar experience about 1850-1870, and practically ceased to exist for a period of fifteen to twenty years; then suddenly, with the origination of a variety (Elberta) better adapted to long shipment, and the development of a car service adequate for fruit transportation, that region sprang into a leading place among the peach-producing sections of the country.

The losses of Northern growers from overproduction were also excessive. In favorable seasons the local markets often failed to take at a fair price more than a small portion of the crop, and as it was short lived at best, the prospective profits of the grower vanished through low prices during the period of ten days or two weeks in which his crop was handled. Earlier and later in the season the supply was short and the price remunerative, but neither the grower nor the dealer had fruit to sell. It was a condition of "feast or famine," with but little opportunity for profit to the average producer in either case. Though more marked in the case of the summer fruits, the same condition was true at times with the apple, which has ever been, and promises to continue to be, the most largely grown and most popular of fruits in the temperate zones. In summer and autumn the fruit lay rotting upon the ground for lack of demand at prices that would even reimburse the owner for the expense of harvesting. By midwinter the dwellers in cities and towns were unable to secure fruit at prices within the reach of average incomes. The abundance returned to the earth from whence it came, leaving the consumer hungry and the producer poorer than before.²⁷

Introduction of the Refrigerator Car.—Shipments of fresh meat eastward from Chicago under refrigeration were made early in the sixties, over the Michigan Central Railroad. Ordinary box cars were used, with bins for ice built in both ends. These cars could be iced only from inside, and there was no provision for circulation of air; the results, therefore, were hardly satisfactory. In 1867 a man named Sutherland, of Detroit, took out the first patent for a refrigerator car; and in the late sixties and seventies some fruit was

²⁷ United States Department of Agriculture, *Yearbook*, 1900, pp. 562-563.

shipped in cars of various designs from Illinois points to Chicago, and from Michigan to New York and Boston. The considerable development of the refrigerator car occurred, however, in the eighties, when certain Chicago packers and dealers in fresh meats became sufficiently interested in the icing problem to build refrigerator cars at their own expense. According to the Federal Trade Commission, the pioneer in this enterprise was Gustavus Swift, and the object was to place fresh meat in eastern markets.²⁸ Swift obtained technical advice about 1880, and built cars upon principles which have since proved generally successful. His example was followed by Armour, Nelson Morris, Schwarzschild and Sulzberger, and other Chicago packers. These meat cars were also used for the shipment of fruit; and later, after the shipment of meat under refrigeration had proved definitely successful, Armour built several thousand cars especially for the fruit trade and organized a private car line for their operation. Railroad companies at this time were still reluctant to invest the necessary money in what they regarded as an experiment; so that for many years shippers who desired refrigeration equipment continued to build their own rolling stock or to rely upon private car lines such as those of the Swift and Armour companies, controlled by meat packers with headquarters at Chicago. At a later date railroads entered the field and now dominate it.

Refrigerator Car Ownership.—On December 31, 1938, the total number of refrigerator cars in use in the United States was reported at 147,160. Of these, 23,232 were owned by the railroads and the greater part of the rest by eight or ten companies, the stock of which was cooperatively held by groups of railroads.²⁹ It is better for the railroads to operate their own refrigerator car lines, for discrimination is easy when carriers deal with private car owners who are also shippers, as was the case with the Chicago packers. The Federal Trade Commission report of 1919 presented instances in which large packers appeared to have received some advantage over smaller establishments through or by virtue of their ownership of private cars;³⁰ but whether discrimination

²⁸ Federal Trade Commission, *Report on Private Car Lines*, Government Printing Office, Washington, 1920. See also J. O. Armour, *The Packers, the Private Car Lines and the People*, Henry Altemus Co., Philadelphia, 1906.

²⁹ In 1920 the Illinois Central Railroad recognized six types of refrigerator cars. The first was called the "bunker refrigerator car." This was insulated, it had ordinary bunkers designed for chunk ice, and means of ventilation. The next type was the "brine tank refrigerator car," with insulation, tanks for crushed ice and salt, but usually without means of ventilation. The other types which did not have bunkers included the "beer or ice refrigerator car" with insulation but no means of ventilation; the "fruit-vegetable insulated car" or "produce car," insulated, with hinged swinging doors, with or without means of ventilation, but without ice; and the "fruit-vegetable ventilated car," partially insulated, with either end or side ventilation, but without double sliding doors. Finally, here was the "fruit-vegetable ventilated box car," similar to an ordinary box car with end or side ventilation or both, with or without double sliding doors. See E. F. McPike, "Current Practice of Transit Refrigeration," *Refrigerating Engineering*, July, 1929.

³⁰ Federal Trade Commission, *Report on Private Car Lines*, *op. cit.*; L. D. H. Weld, *Private Freight Cars and American Railways*, Longmans, New York, 1908.

then occurred or not, the ownership of refrigerator cars by shippers gives rise to public suspicion and hostility which carriers cannot afford to incur. In view of the seasonal character of the fruit traffic, it must be recognized that a separate company which can serve different sections of the country in succession has advantages over the less flexible organization of a railway, unless the latter makes systematic provision for the use of its refrigerator equipment on foreign lines at times when the demand for refrigeration in its own territory declines. Present arrangements mark progress in this direction, but the carriers might go still farther without sacrificing the advantages of railroad ownership if they should all transfer the title to their refrigerator equipment to a single operating company, receiving in return stock in this company in reasonable proportions. Present arrangements with the Railway Express Agency might supply the model for the relationship which would ensue. In the case of the Railway Express Agency, the Express Company bought the property of existing express organizations with funds derived from the sale of bonds, and distributed its own no-par value stock among the various railroads of the country for purposes of control. The number of shares allotted to each railroad in this distribution was determined by the ratio which the express business handled on any company's line, measured by receipts, bore to the gross business handled by all the participating railroads, using as a basis for the computation average receipts for the period 1923 to 1926. Following the organization of the Railway Express Agency, uniform agreements were then executed between the agency and the various railroads, under which the latter appointed the former their exclusive agent for conducting all express transportation business on their lines. The agreement set forth the terms and conditions to govern the conduct of the express business, the equipment and facilities to be furnished, the rentals payable by either party for use of the property of the other, and other necessary elements to an operating contract.⁸¹ Doubtless such a contract as that concluded with the Express Agency would not fit the refrigerator car business without some change; but it is likely that, with modifications, it would represent a considerable improvement over the organization which now exists.³²

Refrigerator Car Construction.—In its simplest form, a refrigerator car is a box car with ice in it. Some cars used by the Pennsylvania Railroad in the early days contained a box filled with ice, which was placed upon the floor of the car. Later equipment employed by the same company made use of two chests filled with ice, one at each end of the car, hung by wire bands from the

³¹ *Railway Age*, February 23, 1929, p. 465.

⁸² Rail carriers recognize the advantages of pooling refrigerator equipment and have taken some steps in this direction. Thus the General American Transportation Company operates the refrigerator equipment of the Chicago, Milwaukee and St. Paul, Rock Island, Erie, Chicago Great Western, Soo Line, Minneapolis and St. Louis, the Missouri, Kansas and Texas, and several other roads (*The Journal of Commerce*, July 14, 1933). The suggestion in the text, if adopted, would create a pool on a national scale.

roof. The first Michigan Central cars provided fixed bins at each end of the car in which the ice was stored. The development that has taken place since the construction of these initial and primitive types has been in four principal directions. There has been, first, intelligent study of the circulation of air in refrigerator cars. The theory of construction of such equipment is that air, striking an ice chamber, will lose heat. It will then drop to the bottom of the car, circulate through the lading, gradually rising as it absorbs heat from the cargo, and finally come again in contact with the refrigerant, when it will again start upon its round. To facilitate this regular movement, ice boxes should be placed high rather than low in the car, in order to obtain full benefit from the melting ice; and the partition which separates the ice compartment and the lading should be insulated, in order to prevent the escape of cold air into the lading space except through the bottom opening. Proper stowage of freight, as well as proper location and construction of the ice chambers, is necessary in order to obtain satisfactory results. Thus, best results are had when the air channels between boxes and crates in the lading are unobstructed from the floor to the top of the load, so that cooled air may pass around each and every commodity container.

Another improvement has been in insulation. Early cars employed double walls filled with sawdust. Modern practice uses a considerable variety of materials. Almost any degree of insulation can be obtained; but the limiting factors are weight, expense, and the fact that refrigerator cars are frequently used for the shipment of miscellaneous freight in return movements. Construction that is easily damaged should not be employed.³³

Precooling.—It is interesting to observe that under modern practice less heat will be gained by leakage through the walls, ends, roof, and floor of a standard refrigerator car—assuming a difference of 30° F. between the inside and outside temperature—than will be generated in a carload of peaches by the process of ripening.³⁴ It is this large amount of heat generated by fruit cargoes themselves that has suggested the possibility of "precooling." In the "precooling" process, fruit is packed, placed in cold-storage rooms and cooled to between 30⁰ and 34⁰ F. It is then loaded directly into iced refrigerator cars.⁸⁵ Lower car temperatures attained by thorough precooling make it possible to load more fruit into a car. This is because the air in the upper layers of a car that is not precooled is apt to become warm in spite of ordinary refrigeration.

³³ E. A. Sweeley, "Practice in Refrigerator Car Design," *Refrigerating Engineering*, September, 1929.

³⁴ Lon A. Hawkins, "Governing Factors in Transportation of Perishable Commodities," *Refrigerating Engineering*, November, 1929.

⁸⁵ Freight may also be precooled by hauling loaded refrigerator cars to a central plant built along the track at a point en route, and causing cold air to be blown through each car. See E. L. Overholser and E. D. Moses, "Precooling of Fresh Fruits and Temperatures of Refrigerator Cars and Warehouse Rooms," *Bulletin No. 496*, University of California, College of Agriculture, Agricultural Experiment Station, 1930; also C. P. Goree, Jr. and L. R. Graves, "Recent Application of Refrigeration for Precooling," *Refrigerating Engineering*, August, 1929.

When freight is precooled and the car well insulated standard refrigeration can often be dispensed with; and in any case the amount of icing is notably reduced.

Other Improvements in Refrigeration Technique.—A fourth subject which has engaged the attention of refrigerating engineers is the use of some substance or technique in refrigerator car operations which will be cheaper or more efficient than ice. For instance, recent experiments have been made with what is known as "dry ice," or solid carbon dioxide at a temperature of -109° F., or much below the temperature of water ice.³⁶ Refrigeration on a different principle has been accomplished by the use of a material known as "silica gel," which has the property of absorbing relatively large quantities of vapor. Used in connection with a refrigerant, silica gel lowers the temperature of the latter by evaporation, and so produces a reduced temperature in the refrigerator car.³⁷ The ingenious process by which the absorbent power of the silica gel is maintained by recurrent heating need not be here described. Still again, there are possibilities in mechanical refrigeration. Cars have been constructed containing machines driven by power derived from the axles of the railway car. It has been suggested, also, that a master car, equipped as a portable refrigerating plant, might be attached to each train of 50 refrigerator cars, supplying cold brine to individual cars behind and before.³⁸

No one of these methods is yet in general use, probably because of the expense involved. It is to be remembered that a railroad refrigerator car is used only during a limited number of days per year, and that it receives severe treatment while in use. The second fact increases the cost of maintenance, while the first limits the revenue which the car can earn. Hence costly and perishable improvements are slow to be introduced.

Payment for the Use of Cars.—A shipper who uses a refrigerator car usually pays a stated charge for protective service in addition to the freight rate, or, in some instances, he may pay on the basis of the cost of ice furnished. The railroad retains these payments if it is the owner of the car; if the car is owned by a shipper the railroad collects the freight rate and refrigerator charge, and pays the owner an agreed sum per mile for the use of the equipment both on loaded and on empty trips. If the car is owned by a private car line, the railroad receives the freight rate and payment by the car line for the ice which it furnishes; the car line takes the refrigeration charge from the shipper and the agreed sum per mile from the railroad for the use of its cars. Special contracts between the railroad and the car line or owner may expand or qualify these basic arrangements, as well as specify the respective liability of

³⁶ *Railway Age*, February 14, 1931.

³⁷ *Ibid.*, February 18, 1928; April 10, 1930.

³⁸ R. W. Watcrfill, "Research Studies on Refrigerated Trains," *Refrigerating Engineering*, September, 1929.

the parties for repairs, establish the right of the carrier to inspection, or require the owner to provide storage facilities when his cars are not in use.³⁹

Transportation in refrigerator cars has been considered by the Interstate Commerce Commission on several occasions, and the use of private car lines in the packing industry was the occasion of a severely critical report by the Federal Trade Commission in 1919. The general position of the Interstate Commerce Commission is that the charge for refrigeration should be based on cost, and that the cost to be ascertained is the expense incurred because cars are iced, which would not be incurred if no icing took place. This excess cost is due, in part, to the cost of the ice, its weight, to the increase in the number of trains which the weight of the ice requires to be hauled, and to the terminal investment and terminal services called for in connection with the icing process. The computation upon which the refrigeration rate is based should not, according to the Commission, take into account the increased speed at which refrigerated trains are hauled, because this is already provided for in the freight rate; nor should it include any portion of constant costs, except those occasioned by the icing service,⁴⁰ because the rates on perishable traffic moving without refrigeration already cover this expense. The theoretical basis for this last position is not, perhaps, beyond attack, but the subject need not be argued.

Refrigeration charges may sometimes be too high, and the use of privately owned cars may lead, on occasion, to undesirable results. There is no doubt, however, but that the development of efficient refrigeration has alone made possible a large part of the fruit and meat transportation with which this chapter is concerned.

Sugar.—From two-thirds to three-quarters of the sugar used in the United States is consumed in the household, the balance being taken by manufacturers of confectionery, soft drinks, bakery goods, ice cream, condensed milk, canned and preserved goods, and miscellaneous minor products.⁴¹ About 40 per cent of the total domestic consumption is in the Atlantic coast states, supplied mainly by Cuban and Puerto Rican sugar. Ten per cent more is accounted for by the Pacific coast and Rocky Mountain states, which use, predominantly, Hawaiian cane and domestic beet sugar. The balance, or approximately half of the country's sugar consumption is distributed in the region between the Rocky Mountains and the Allegheny Mountains; and it

³⁹ G. G. Huebner and E. R. Johnson, *The Railroad Freight Service*, Appleton-Century, 1926, pp. 132-133; In the Matter of Private Cars, 50 I.C.C. 652, 696, 1918; E. C. Wood, "Developments in Refrigerated Transport," *Refrigerating Engineering*, July, 1933, p. 9.

⁴⁰ Federal Trade Commission, *Report on Private Car Lines*, June 27, 1919; 222 I.C.C. 245, 1937; 215 I.C.C. 684, 1936; 172 I.C.C. 3, 1931; 151 I.C.C. 649, 1929. See also 56 I.C.C. 449, 1920; 50 I.C.C. 652, 1928; 29 I.C.C. 653, 1914, and cases cited.

⁴¹ United States Congress, House of Representatives, *Hearings before the Committee on Ways and Means, Tariff Readjustment*, 70th Congress, 2d Session, Vol. 5, 1929, pp. 3140, 3169

is in this **area** that the competition of the various sources of supply is most intense.⁴²

Inasmuch as almost all of the cane sugar consumed in the United States is either imported or grown in the state of Louisiana, the principal points of origin for domestic cane sugar movements are to be found in the refineries on the Atlantic, Gulf, and Pacific seaboard. Of these, the most important are the refineries at or near the cities of New York, Philadelphia, Baltimore, Boston, Savannah, New Orleans, Houston (Sugarland), and San Francisco.

In addition to the cane sugar producers, there are manufacturers of beet sugar located in the western and middle western states. In 1938 there were 17 factories for the manufacture of beet sugar in Colorado, 14 in Michigan, 11 in Utah, 10 in California, 8 in Idaho, 7 in Nebraska, 5 each in Wyoming and Montana, 4 in Ohio, 2 each in Iowa, Minnesota, Wisconsin, and Washington, and one each in Oregon, Indiana, Kansas, and South Dakota.⁴³

The distribution of the beet sugar factories is determined by the agricultural area devoted to the growing of sugar beets, because of the prohibitive cost of shipping this raw material. The manufactured product, however, can bear the cost of transportation, and it does move long distances, where, as in the Rocky Mountain region, local supply far exceeds the consuming capacity of the neighboring population.

Division of Markets.—Generally speaking, Cuban and Puerto Rican sugar dominate the eastern markets as far west as Buffalo and Pittsburgh. On the other hand, the western beet sugar manufacturers, together with the refineries on the Pacific coast, control the market as far east as the Mississippi River, while a substantial portion of the output of plants in Louisiana and Texas is marketed in the South and the Southwest.

Balance Between Rates from New Orleans and Rates from Points in Colorado.—Rates on beet sugar, as from points located in Colorado, determine to a considerable extent the distribution of the product of the western factories. We may take the rates from Colorado points and from New Orleans as illustrations of an adjustment which is of considerable importance in the sugar trade. Prior to 1927 sugar rates from eastern Colorado to Oklahoma City were 72 cents per 100 pounds. This was also the rate from New Orleans to Oklahoma City. In 1927 the rates from both points of origin were reduced to 64.5 cents. In 1928 the New Orleans rate was raised to 65 cents. In 1933 an emergency rate of 51 cents was made effective from New Orleans to Group 308, embracing Oklahoma City, Tulsa, and various other points in central Oklahoma, as well as some points in Texas. The same rate was promptly established from eastern Colorado to points in Oklahoma generally. This

⁴² *Summary of Tariff Information, 1929, on Tariff Act of 7922. Schedule 5, Sugar, Molasses, and Manufactures of, Compiled by the United States Tariff Commission and printed for the use of the Committee on Ways and Means, House of Representatives.*

⁴³ *Sugar Reference Book and Directory, Palmer Publishing Corp., Hoboken, N. J., 1939.*

equality in charges enabled the Colorado sugar factories to compete in Oklahoma on equal terms with their southern rivals.

Colorado and Louisiana sugar refiners also compete in Texas, and here also the rail rates are set at such a level as to admit both sources of supply into the common market. Prior to 1927 the rate from eastern Colorado to Dallas, Texas (846 miles) was 72 cents and that from New Orleans to Dallas (483 miles) was 67 cents. In 1928, the New Orleans rate was lowered to 68 cents, but in 1929 the Colorado rate was cut to 63 cents, restoring the differential which had before existed. In 1932 the New Orleans and the eastern Colorado rates became 41 and 46 cents. Since sugar from Colorado to Dallas, in some instances, passed through Oklahoma, the rates to Texas were sometimes less for the longer distance than for the shorter distances over the same lines, but permission to depart from a federal law which forbade this type of rate adjustment was granted by the Interstate Commerce Commission in order to preserve the long-standing relationship between the competing districts.⁴⁴

On traffic from Colorado to Chicago (976 miles) the sugar rate since 1933 has been 41 cents on minimum carloads of 60,000 pounds and 36 cents on minimum carloads of 80,000 pounds. The rates from New Orleans are 39 and 34 cents. In this instance, also, the Colorado rates are lower to the distant points—in this instance, Chicago—where competition is especially severe, than to less remote intermediate markets which are less accessible to eastern and southern sources of supply. In approving this rate structure in 1933 the Interstate Commerce Commission spoke of the importance of sugar-beet production to the welfare and prosperity of Colorado and other sugar-beet producing sections, and of the necessity of marketing the bulk of the sugar produced there in the more populous areas in the East.⁴⁵

In general, Colorado producers meet, in Oklahoma, Texas, and the western parts of the Mississippi Valley, the prices set by Gulf and Atlantic seaboard refineries, as well as the competition of beet sugar factories in Michigan and near-by states. They absorb out of their gross receipts the freight rate and whatever additional sum is necessary to offset the public preference for cane as compared with beet sugar. The area in which they can distribute profitably on this basis depends on the willingness of the rail carriers to quote them rates which are not proportional to distance, but which may be explained by the necessities of a considerable industry upon which the agriculture of Colorado largely depends.

Competition of Cane Sugar Refiners in the Northern Mississippi Valley.—In considering the marketing of cane sugar, we have to remember that, as in the case of lumber, the country's needs are largely supplied by producers who are located on the outside edges of the United States and who dispose of

⁴⁴ 210 I.C.C. 675, 1935.

⁴⁵ 195 I.C.C. 127, 161, 1933.

their surpluses in a common interior market. Thus the Atlantic seaboard refiners reach as far west as the Missouri River and the twin cities of Minneapolis and St. Paul. The Savannah and Louisiana refiners dispose of their product in Chicago. California interests produce far more than is necessary to supply the population of the Pacific coast states; and as they cannot reach into Utah, Idaho, and Colorado successfully because that part of the country is dominated by the local beet sugar producers, they ship over the heads of their competitors into the Missouri River, Mississippi River, and Chicago markets, where they meet the eastern and southern refiners and the Utah, Idaho, and Colorado manufacturers.

Prices of Refined Sugar.—The basic price of refined cane sugar at all refining points is substantially the same. At other than refining points, the price is generally the New York price plus the lowest freight rate via the standard all-rail lines from any eastern refining point, or, in eleven far-western states, the San Francisco price and the rates from that point. Costs of production are not the same at all points; but at a given moment the ability of any refining district to enlarge, or even to maintain, its distributing area depends upon the relation of the railroad rate it pays to the railroad rate of its competitors.

The Conflicting Interests of New Orleans and of New York, Philadelphia, and Baltimore.—The critical rates on cane sugar are: (1) from New York, Philadelphia, and Baltimore to Chicago; (2) from New Orleans to Chicago; and (3) from San Francisco to Chicago. In 1931 the rates from New Orleans to Chicago (919 miles) and from Baltimore to Chicago (796 miles) were 54 cents per 100 pounds. From New York to Chicago (896 miles) the rate was 56.5 cents. This adjustment was the result of a somewhat complicated history, influenced by the tradition that rates from Philadelphia and New York should be greater than rates from Baltimore for reasons that will be discussed in explaining the differential rate controversy,⁴⁶ and influenced also by the desire of New Orleans to compete with New York in the northern Mississippi Valley. In 1932 the eastern carriers put into effect a rate of 42 cents from New York and 39 cents from Baltimore to Chicago.⁴⁷ A provoking cause was the loss of sugar tonnage to the New York State Barge Canal and to the St. Lawrence River. The southern carriers, to meet this competition as well as to reduce the tendency of sugar shipments to take advantage of the Mississippi River service, countered with rates of 34 and 39 cents from New Orleans to Chicago on minimum carloads respectively of 80,000 and 60,000 pounds. The eastern railroads did not at once meet the lower of these rates on the larger minimum, and so gave up for the moment the carriage, in large lots, of sugar intended for Chicago consumption. In 1933, however,

⁴⁶ See Chapter XVIII.

⁴⁷ 195 I.C.C. 127, 1934.

the eastern lines adopted a 34-cent rate from Baltimore to Chicago on minimum carloads of 80,000 pounds, thus reentering the field.⁴⁸

The Rivalry of San Francisco with Refiners in the East and South.—San Francisco is relatively distant from Mississippi Valley markets, but she desires a rate adjustment which will enable her to participate in the Valley trade. Her need for special consideration becomes more pressing as her shipments push farther east, because the competition of New York and New Orleans refiners is more effective as the Atlantic and Gulf seaboard are approached. This peculiar circumstance led the railroads serving California to ask the Interstate Commerce Commission, in 1914, to approve a rate from San Francisco to Chicago of 46 cents per 100 pounds, while at the same time they desired to charge 55 cents at the Missouri River and at points west thereof. This was in spite of the fact that sugar consigned to Chicago necessarily crossed the Missouri River on its way to destination. The proposed 46-cent rate was 23 cents higher than the rate charged from New Orleans at the time, but it was believed to be sufficiently low to enable western lines to share in the sugar traffic. The Interstate Commerce Commission acceded, in substance, to the request.⁴⁹

As a matter of fact, the new adjustment did largely increase sugar shipments from the Pacific coast. Before the new rates took effect, some 270,000 tons of sugar annually had gone direct from Hawaii by water and across the Isthmus of Tehuantepec to the Atlantic seaboard, there to be refined and shipped inland. After the new rates were introduced, all of this raw sugar, except under unusual circumstances, was brought to San Francisco. There it was refined and shipped out, largely in competition with sugar refined in the East. Meanwhile the middle-western sales of eastern refiners declined. Discussing the situation in 1923, the Interstate Commerce Commission pointed out that the American Sugar Refining Company, the largest seaboard refiner, and its subsidiary, the Franklin Sugar Refining Company, with their plants from 1000 to 1400 miles nearer the market than those of the San Francisco dealers, sold in 1920, in Illinois, Iowa, and Missouri, 28,000 tons less than the California and Hawaiian Sugar Refining Corporation, and nearly 77,000 tons less than they had themselves sold in these three states in the year 1914.

⁴⁸ 204 I.C.C. 253, 1934.

⁴⁹ 31 I.C.C. 511, 1914. The western lines asked permission, specifically, to charge rates from San Francisco to points in Missouri east of the Missouri River, and to points in Iowa and in Illinois, which should be 23 cents per 100 pounds less than the rates from New Orleans to the same points of destination. Since the rates on sugar from New Orleans to points in the three states named graded upward from east to west, the effect was to request authority to establish a rate of 46 cents to Chicago while continuing a rate of 55 cents at the Missouri River and points west thereof. The Commission authorized rates from San Francisco to Chicago that might be 25 cents higher than rates to corresponding points from New Orleans, and rates from San Francisco to the Missouri River that might be 23 cents higher than rates from New Orleans.

The Commission accordingly refused, in 1923, to permit western carriers to continue to charge less to more distant points such as Chicago than they charged to destinations upon the Missouri River which were nearer to San Francisco.⁵⁰

After 1914 the general level of sugar rates increased. In 1931 the rate from New Orleans to Chicago (919 miles) was 54 cents; and from San Francisco to Chicago (2258 miles) it was 84 cents. In 1933 these rates were 56 and 86 respectively, with minima of 60,000 pounds. The San Francisco rate, instead of being less to more distant than to near-by points, was blanketed back through many of the states west of the Missouri River, including Wyoming, Utah, Colorado, South Dakota, Iowa, Texas, New Mexico, Kansas, and Nebraska.⁵¹ It was still maintained at a subnormal level, however, in order to meet competition from eastern and southern points; and it is worth mentioning that the differential between the San Francisco rate and the rate from New Orleans to Chicago in 1931 was less than the differential of 23 cents which the Commission had thought reasonable in 1914. In 1931 the trans-continental carriers asked permission to reduce their rates on refined sugar from San Francisco to Chicago. Milwaukee, St. Louis and related points to 62 cents, without changing higher rates charged to intermediate stations. This reduction was intended to meet the competition of water routes handling Hawaiian sugar by way of the Panama Canal and the Mississippi River, or by way of the Panama Canal, the New York State Barge Canal and the Great Lakes. The petition asking approval of the suggested rates was denied. When, however, rail lines secured the reduction to 39 and 34 cents referred to in the text, proceedings relating to western sugar rates were reopened; and western carriers were permitted to establish a sugar rate of 65 cents to Chicago on a minimum of 80,000 pounds.⁵² This was not enough, and in 1935 western railroads were allowed to reduce rates still further to a level of 60 cents to Chicago and 63 cents to St. Louis on minima of 80,000 pounds or, if the all-water rates by intercoastal carrier and Mississippi River barge line from San Francisco to Chicago and St. Louis declined below the existing level, rates might go still lower, to a minimum of 50 cents.⁵³ Both in 1933 and in 1935 rates to points in intermediate territory might be higher than rates to the termini.⁵⁴

⁵⁰ 81 I.C.C. 448, 457, 1923.

⁵¹ 178 I.C.C. 789, 791, 1931.

⁵² 186 I.C.C. 523, 1932; 195 I.C.C. 127, 1933.

⁶³ Fifty-five cents on a minimum carload of 60,000 pounds.

⁵⁴ In 1933 the Interstate Commerce Commission stipulated that no rates from San Francisco to points west of Ogden or Salt Lake City, Utah, or Williams or Phoenix, Arizona, should exceed 65 cents per 100 pounds (195 I.C.C. 127, 1933). In 1935 carriers were authorized to maintain higher rates to intermediate points east of the Utah-Nevada state line and east of and including Williams and Phoenix, Arizona (211 I.C.C. 239, 255, 1935).

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PART IV

**RELATIONS BETWEEN THE CARRIERS AND THE USERS OF
TRANSPORTATION SERVICE**

CHAPTER XII

THE DUTY OF SERVICE



We have discussed in previous chapters two principal aspects of the transportation system of the United States. The first group of chapters in the present books, collected in Parts I and II, has been devoted to a description of the machinery of transport by land, by water, and by air. The second group, in Part III, has considered the major commodity movements which our machinery of transport has made possible. We now turn, in Part IV of this treatise, to the relations between carriers and shippers suggested by the titles "service," "carrier liability," and "equality," and later, in Parts V and VI, we shall again deal with problems of rates and competition with which carriers and shippers are concerned. These new relations and problems are conditioned by facts of technique and geography, as were matters discussed in Parts I, II, and III; but they are also molded by business practice, by customary and by statute law, and by decisions upon economic policy which commissions and courts have handed down. Let us now begin the discussion of these topics by stating simple principles drawn from the law of carriers. The first of these relates to the legal concept of a "bailment."

Bailments.—The business of freight transportation ordinarily involves what lawyers call a "bailment." A bailment has been defined as "a delivery of goods for some purpose upon a contract, express or implied, that after the purpose has been fulfilled they shall be redelivered to the bailor, or afterwards dealt with according to his directions . . . until he claims them."¹ In the case of transport the goods are delivered to the carrier for purposes of carriage; and after the carriage has been accomplished the articles are redelivered to the owner or are dealt with according to the owner's directions, as when they are turned over to a specified third person or when they are stored. Such a transaction is a bailment.

Bailments are of many kinds, and by no means all of them are connected with transportation. Thus in a famous case in the English courts Chief Justice Holt, in 1703, distinguished the following types:

- 1. "The first sort of bailment is, a bare naked bailment of goods, delivered by one man to another to keep from the use of the bailor. . . .

¹Northcutt v. State, 131 S.W. 1128, 1910.

2. "The second sort is, when goods or chattels that are useful are lent to a **friend** *gratis*, to be used by him. . . .

3. "The third sort is, when goods are left with the bailee to be used by him for hire. . . .

4. "The fourth sort is, when goods or chattels are delivered to another as a pawn, to be a security to him for money borrowed of him by the bailor. . . .

5. "The fifth sort is, when goods or chattels are delivered to be carried, or something is to be done about them for a reward to be paid by the person who delivers them to the bailee, who is to do the thing about them. . . .

6. "The sixth sort is, when there is a delivery of goods or chattels to somebody who is to carry them, or do something about them *gratis*, without any reward for such his work or carriage."²

The quaint language of this eighteenth-century case has been revised and enlarged upon in modern litigation, and there is now a whole department of the law to which judges resort for principles by which to determine the rights of bailors and bailees in contested cases. The principles which are selected and applied are different in the case of different sorts of bailments; for our purposes only those which relate to the fifth paragraph above need further to be considered.

Common Carriage.—During many centuries goods or chattels have been delivered by owners to be carried for a reward, to be paid by the person who delivered them to the bailee who was to do the carriage. Now this is a business, from the point of view of the bailee or carrier, as distinct as the business of a carpenter or a doctor or a mason, and possibly not different from these **in kind**. It happens, however, that the particular form of bailment to which Lord Holt referred in his fifth paragraph, and which was described in different words at the beginning of this chapter, is today treated as different in kind from many other sorts of business, and that peculiar rules have been applied to it. This is particularly true when the business is not only a simple "bailment" or a contract of carriage, but when the bailee, who performs the service, offers his facilities in a general way to all who may apply and not merely to a single selected client or to a limited group of customers. It is at this point that we encounter the distinction between "common" and "private" business in the field of carriage. Both common and private carriage are instances of bailment, and both are equally bailments for hire, in which goods are taken over and carried for a reward, and then are subsequently redelivered to the owner or according to the owner's directions. But the two types differ with respect to the generality of the offering which the bailee makes. Thus it has been held that "Everybody who undertakes to carry for anyone who asks him is a common carrier. The criterion is whether he carries for particular persons only, or whether he carries for everyone. If a man holds himself out to

do it for everyone who asks him, he is a common carrier; **but if he does not** do it for everyone, but carries for you and me only, that is **a matter of special contract.**"³

Contract and Private Carriage.—The concept of common carriage is so familiar that, in most cases, there is no difficulty in separating **common from** private undertakings. Occasionally, however, there are enterprises which **are** hard to place, either because they operate sometimes under private contract and sometimes through a general offering or because the nature of **their** offering is not clear and has, perhaps, to be implied from the course of conduct they pursue. Thus there has been some controversy with respect to ships **in** the coastwise trade which carry the goods of owners on the outbound voyage and return with a general cargo. Since the advent of the motor vehicle, moreover, particular attention has been paid to the distinction between common and private carriage upon the roads because of the importance of **the** private highway carrier operating for hire and the desire to maximize **the** responsibilities which such carriers must assume.

In motor vehicle operation the federal statutes recognize three types of operators: (1) common carriers, (2) contract carriers, and (3) private carriers. Under the Interstate Commerce Act the common carrier is the operator who carries for everybody, the contract carrier is one who carries under special and individual contracts or agreements, and the private carrier is one who transports goods which, characteristically, he owns.⁴ The laws of some states go even farther. Such statutes set up classes of common and classes of private carriers, and recognize, in addition, casual or occasional haulers who engage primarily in some other business but who occasionally transport passengers or freight for hire.⁵ All these classes or types may be reorganized, however, into

³ Bruce Wyman, *The Special Law Governing Public Service Corporations, etc.*, sec. 227, Baker, Voorhis and Company, New York, 1911.

⁴ Motor Carrier Act, 1935, Sec. 203a.

⁶ In Georgia, for instance, motor carriers are classified as follows {*Motor Truck Red Book*, 1936, p. 454):

Class A. Common carriers of passengers and/or property operating over a fixed route or between fixed termini in intrastate, or intrastate and interstate, commerce.

Class B. Common carriers of passengers and/or property operating over the highways of the state of Georgia but over no fixed route, in intrastate, or intrastate and interstate, commerce.

Class C. Common carriers of passenger and/or property operating over a fixed route or between fixed termini in interstate commerce only.

Class D. Common carriers of passengers and/or property operating over the highways of the state of Georgia but over no fixed route, in interstate commerce only.

Class E. Private carriers of passengers and/or property operating over the highways of the state of Georgia but over no fixed route, in intrastate, or intrastate and interstate, commerce.

Class F. Private carriers of passengers and/or property operating over a fixed route or between fixed termini in intrastate, or intrastate and interstate, commerce.

Class G. Private carriers of passengers and/or property operating over the highways of **the** state of Georgia but over no fixed route, in interstate commerce only.

Class H. Casual or occasional haulers, for hire.

the two original categories of common and private carriers, for all sorts of contract, casual, and other transport except common are merely varieties of private enterprise.⁶

A great proportion of the transport with which we have been concerned in previous chapters, whether by rail, water, highway, or air, is being accomplished by corporations or individuals who are engaged in the business of common carriage. They are bailees, offering their service of carriage to all who apply. This is not, it is true, equally the fact in all of the different forms of undertaking. Most passenger automobiles are operated by their owners, and, indeed, there is no contract of bailment in passenger transportation. Probably most freight highway movements are in owner-operated trucks or are covered by contracts of private carriage. But nearly all rail, most air, and a substantial preponderance of water, transport is conducted under conditions of common carriage, and where we deal with the business of transport it will be these common carriers which we shall have in mind, except when special reference is made to carriers of another sort.

Responsibilities of the Common Carrier.—Legal students are not entirely agreed upon the reasons which originally led to special treatment of the business of common carriage. We characterize the treatment as "special," but we have to remember that certain other businesses are also subjected to peculiar rules, though not the same as those applied to common carriers, so that an inquiry which starts with common carriage soon expands into an investigation of the nature of "public business." In the larger category place is found for enterprises such as telephones, cotton gins, and milk distributors, which are

⁶Not infrequently carriers endeavor to conceal the true character of their operations, either to relieve themselves of the necessity of securing a permit or to reduce their responsibilities. The following extract from a recent bulletin of the International Railway Congress will show the length to which operators sometimes go in Europe in order to carry without a license:

"For example, we find associations (sometimes fictive) of a limited number of members set up with the pretended sole object of conveying their members from their homes to their work and back. The managers of these so-called associations are frequently professional hauliers, who are unable to obtain the necessary concession . . . owing to their failure to comply with certain conditions. The price the passengers pay is stated to be a contribution to the association to meet the working costs. As no proper control is possible, the operators of such irregular transport, in the guise of employees of the associations, make sure of a profit and of being able to use their vehicles, which they could not do legally otherwise.

"Another way . . . is to *hire* vehicles belonging to operators who either do not or cannot obtain the necessary concession. These operators usually carry out occasional transport at the request of customers with their own vehicles and drivers, pretending that the vehicle has been hired for each journey and that the driver is working for and on behalf of the customer for which the transport is being worked.

"Another example is the *frequent use of private lorries* (trucks) for transport for others than the owner (especially in the case of return loads). The professional character of such transport is difficult to prove if the owner of the vehicle pretends not to be paid at all or not to look for a profit, being content with a payment which covers the outgoings or a part thereof. Actually even if he receives the minimum return he is able more easily to cover his own costs and this is his indirect profit." {*Bulletin of the International Railway Congress*, Vol. 18, February, 1936, p. 140.)

not bailees. Whatever may have been true in the past, in the United States today the tendency is strongly to impose special obligations where and when, from the point of view of public policy, these obligations seem to be desirable. And it has been pointed out that in early years in England, before production for a market was the rule, duties were associated with a much wider spread of undertakings than is the practice at the present time.

We may state the traditional duties of the common carrier simply, however, without regard to first origins and without attempting to explore the entire concept of public business. They are, in substance, four: (1) the duty of service; (2) the responsibility of safe delivery of goods intrusted to the carrier's charge; (3) the duty to treat all customers without discrimination; and (4) the duty to charge a reasonable and only a reasonable price for the service that is performed. We shall deal further with the duty of service in this chapter, leaving the other obligations to the chapters which are to follow.

Common Law Duty of Service.—The common carrier's duty of service has been expressed in one of the standard legal treatises as follows:

It is the common-law duty of a common carrier, on being tendered a reasonable compensation, to receive at reasonable times and carry all goods offered to it for transportation, within the line of its business or of the kind which it undertakes to transport. Having room or the facilities for transporting the goods, and holding itself out to the public as ready and willing to carry goods for all persons indifferently, the law imposes upon it the duty of receiving and carrying them over its established route.⁷

Why, one may ask, should a carrier ever desire to refuse to serve? Why, to follow the wording of the preceding paragraph, should it decline, having facilities and being tendered compensation, to transport goods of the kind which it has offered to transport? The answer in most cases is to be found in some angle of business policy. In commercial life, for instance, it is common practice for a wholesaler to refuse to place his goods with a retailer who handles competing lines, or for a retailer to refuse to handle the wares of a wholesaler who sells directly to the consumer. Sometimes, also, a manufacturer, such as a maker of shoe machinery, will refuse to sell one type of machine to a shoe factory unless the factory equips itself completely from the same source of supply. These policies are intended to increase sales and, therefore, production in the long run, but they work at the beginning by means of partial refusals to serve. Policies of this type are not permitted to common carriers.

Memphis News Publishing Co. v. Southern Railway.—One of the best-known instances in which a railroad refused to serve, for reasons that it thought satisfactory, occurred in Tennessee in 1902. It appeared that the Southern Railway had at this time a contract with the publishers of a daily newspaper, the *Commercial Appeal*, at Memphis, under which it undertook to carry

⁷D. C. Moore, *A Treatise on the Law of Carriers*, id ed., Bender, Albany, 1914, pp. 116-117.

papers from Memphis out into the country each morning on an early train. **The** value of the service to the newspaper was increased by making it exclusive, and so the Southern Railway also agreed to refuse, as far as it might lawfully do so, to carry upon this train newspapers of any other publishing company. In return, the publishers of the *Commercial Appeal* guaranteed a minimum revenue for the train in question, and offered certain other considerations which it is not necessary to explain.

The arrangement described operated without apparent friction until the year 1902, when the Memphis News Publishing Company began the publication in Memphis of the *Memphis Morning News*. The *News* secured several thousand subscribers in the territory reached by the early train of the Southern Railway, and demanded the right to ship its papers by this train to stations where the train was scheduled to stop. This demand was refused because the Southern Railway felt bound by its contract.

But the Supreme Court of Tennessee properly held that the contract constituted no defense. The railroad was a common carrier, said the Court. As a common carrier it must treat all alike. Granting that goods not dangerous in their nature and not unfit for shipment were offered at a proper place and time, and that the cost of carriage was tendered and the railroad had facilities for shipment, then it must accept and transport them. The failure of the railway to satisfy this elementary duty, as well as the discrimination inherent in the different treatment of the two publishing companies, was sufficient to dispose of the case.⁸

Chicago and Akron v. Suffern.—Another case of refusal to serve came before the courts in 1889. Here the offending carrier took up a switch which connected its main line with a certain coal mine, in violation of a plain provision of the constitution of the state of Illinois, in which the mine was located. The coal company sued, and the railroad did not deny the statement that the switch was removed because the coal mine had allowed a switch to be built from its mine to the line of a second and competing railroad, the Atchison, Topeka, and Sante Fe. This removal of a switch was an emphatic method of refusing service, and was held illegal when the case came to trial.⁹

Bennett v. Dutton.—Still another, and older, case involved two competing stage lines in New England—common carriers equally with the railroads which later supplanted them. One of these lines ran from Lowell, Massachusetts, to Nashua, New Hampshire. The other also ran from Lowell to Nashua, but at Nashua connected with a third line, making a through route from Lowell, through Nashua, to Amherst and Frankestown. The three stage coaches thus referred to may be designated as the Tuttle, French, and Dutton lines, respectively, from the names of their owners.

Inasmuch as the Dutton and French lines were operating as a single route,

⁸ *Memphis News Publishing Co. v. Southern Railway Co.*, 75 S.W. 941, 1903.

⁹ *C. & A. R.R. Co. v. Suffern*, 21 NE. 824, 1889.

Dutton insisted that passengers from Lowell who desired to continue beyond Nashua in his line should come to Nashua by the French stages. Indeed, Dutton would not receive into his coaches, at Nashua, passengers for places above Nashua who had come up from Lowell to Nashua on the same day in Tuttle's vehicles.

There was complaint of refusal to serve. The French-Dutton interests declared that their policy did not really constitute a refusal, but that it was merely a regulation of the place at which passengers would be received. Persons going from Nashua to Francestown were received at Nashua; persons going from Lowell to Francestown were received at Lowell. The policy was, however, more fundamental than Dutton or French admitted, and was so interpreted by the court. It was not for Dutton, said the judge, to inquire whether intending passengers came to Nashua by one stage or by another. If Dutton had room, he was bound to accept passengers without inquiry as to their antecedents.

As a result of these and many other cases, the duty of common carriers to serve is so clearly understood today that there is little controversy over the principle involved. Disputes which arise concern rather the limitations to and qualifications of the duty of service than its essential character. These limitations include the following:

Carrier Owes Duty Only to Its Public—It is inherent in the nature of the case that the carrier will limit the public which it undertakes to serve. The railroad business is transportation, and it owes no duty save to travelers or to shippers. This fact is generally recognized, although occasionally there are circumstances which give rise to litigation.

Thus, in Minnesota in 1914 there was clearly an attempt to impose upon a carrier obligations toward an outside public. In this case the Minnesota Railroad and Warehouse Commission required the Great Northern Railway to install a six-ton scale at one of its stations for the weighing of cattle. The scale was not essential for any transportation purpose, but it was convenient to dealers and stock raisers in buying and selling cattle. The Minnesota Commission saw fit to insist upon its installation; but the United States Supreme Court held that the railway had no obligations to dealers in livestock, apart from the transportation of their goods, and refused to sustain the disputed order.¹⁰

According to the same rule, a carrier is under no obligation to provide facilities for the sale of newspapers, fruit, and candy upon its trains. Nor has a person the right to travel to and fro upon a railroad for the purpose of soliciting passengers, for the railroad does not offer its services as a traveling newspaper stand or as a location for the sale of merchandise. Its public consists of persons who seek change of location either for the pleasure of travel or

¹⁰ *Great Northern Railway v. State of Minnesota*, 35 Sup. Ct. Rep. 753, 1915. See also *Great Northern Railway v. Cahill*, 40 Sup. Ct. Rep. 457, 1920.

because they desire to move from one place to another. This group does not include newspaper venders or express men or others of this type, and the railroad may refuse to serve such persons, or may discriminate between them at will.

Carrier Need Not Carry All Classes of Goods.—To a reasonable extent a carrier may also restrict the classes of goods which it proposes to transport. For example, a man named Honeyman presented himself in 1886 at the station of the Oregon and California Railroad at Portland with four dogs, and sought transportation to a town farther along the line. The railroad did not profess to carry dogs, did not wish to carry dogs, and its rules forbade the acceptance of such animals. The station agent explained all this to Honeyman. After some argument, however, the agent allowed Honeyman, as an accommodation, to put the dogs in the baggage car of the train and to give the baggageman a gratuity to take care of them. Subsequently one of the dogs was injured. The railroad successfully defended itself from liability on the ground that it was not a common carrier of dogs.¹¹

In another instance, the treasurer of a California county boarded a train in California with satchels containing \$91,952 in gold coin. The county treasurer was on his way to the state capitol at Sacramento, where he was to pay over the money which he carried to the state treasurer. Carrier's employees offered no objection when the county treasurer entered the train at San Jose, California; but all passengers were obliged to change trains at Niles, California, a way station, and the conductor of the second train refused to allow the treasurer to enter with his gold. Instead, he required that the funds be entrusted to a Wells Fargo Express agent who was on board. The treasurer objected. He asserted his right to go into one of the passenger cars with his satchels, or if not into a passenger car, then into the train baggage car. He offered at the same time to pay extra charges for the transportation of his money.

The railroad officer replied that money was not baggage and could not be taken into a passenger car. For the rest, he declared that the treasurer's ticket gave him no right to travel in a baggage car, and, finally, that the railroad was not a common carrier of money, except through the medium of the Wells Fargo Express. This position the courts later sustained.¹²

These are two cases in which the carrier was shown to have restricted its public offering by excepting named classes of commodities. Moreover, live-stock and valuables are only two out of many articles which carriers may decline to transport. A railroad may refuse explosives, or glass, or other commodities requiring special care or specially subject to damage. It may refuse shipments which result in violation of law. Some carriers carry passengers only, some freight only, and neither type is required to accept traffic of the

¹¹ *Honeyman v. Oregon & California Railroad Co.*, 57 Am. Rep. 20, 1886.

¹² *Pfister v. Central Pacific R.R. Co.*, 70 Cal. 169, 1886.

other sort if it has never undertaken to handle it. On the other hand, a carrier may not make fine distinctions. If it carries fruit, it must carry vegetables. If it carries horses, it must carry cows. If it accepts one article of a class, it must take other articles of the same class.

Miscellaneous Qualifications of the Duty of Service.—Other qualifications of the carrier's duty to serve are found in the principle that goods, to be carried, must be offered to the railroad at reasonable times and under reasonable conditions. It is sometimes against the public interest to require common carriers to keep their stations open twenty-four hours in the day, and the principle may be further extended. Not only must goods be tendered to the carrier at a proper time, but they must be presented at a proper place and be properly packed for carriage. If the carrier desires, it may even insist that the freight charges be prepaid. These are reasonable restrictions and, properly understood, do not weaken the force of the primary obligation under which the common carrier rests in rendering service.

Carrier Must Supply Facilities.—In addition to its obligation to accept freight, a railroad is required to supply proper facilities. In this a railroad differs from some other undertakings that are "affected with a public interest," in that the carrier's duty is not complete when it has placed the entire equipment which it possesses at the disposal of the public which it has elected to serve.

It follows that a railroad which offers service to the public is held to the obligation of providing adequate service. If business increases, so must the railroad plant be enlarged. Doubtless this obligation, like others, must receive a reasonable interpretation. Thus a railroad is not held responsible for failure to meet sudden and unexpected demands upon it. Nor, when traffic is seasonal, must it at all times provide facilities to handle the peak load, knowing that these facilities will remain unused during the greater portion of the year. Its duty in both instances is to provide facilities which will meet normal demand, and to divide its services, when temporarily insufficient, between applicants upon some reasonable and non-discriminatory basis. But normal traffic each railroad must accommodate, or surrender its franchise to some other and more capable group of business men.

Commission Regulation.—The common law duty of service which rests on common carriers has been considerably amplified by statute in the United States, and the enforcement of statutory provisions has been intrusted to a variety of commissions, state and federal, of which the Federal Interstate Commerce Commission is by far the most important. This last commission has no authority over air lines and no service jurisdiction over waterways, but it has powers over motor vehicle and railroad transport which promote reasonable and adequate operation.

The principal authority of the Interstate Commerce Commission over railroad service is derived from the sections of the Interstate Commerce Act

which invest it with power over car service. As used in the act, the term "car service" embraces the use, control, supply, movement, distribution, exchange, interchange, and return of all railroad vehicles—including cars, locomotives, and special equipment—and the supply of trains.¹³ This extensive jurisdiction does not mean that the Commission does, or is expected to, issue operating orders to railroad companies during normal times, nor may the Commission compel carriers to purchase cars or to multiply their tracks and stations. But it may at all times require railroads to use such cars only as are built and equipped for safe operation; it may, in emergencies, direct the distribution and use of existing equipment; and it may lay down rules with respect to car employment which promote efficient use under all conditions.

In addition to its powers over car service, other portions of the act enable the Commission to require rail carriers to make physical connection with each other or with spurs and sidings owned by shippers. It may compel carriers, under certain conditions, to admit other railroads to joint use of their terminals. And through its power to require the establishment of through routes and joint rates, and in the enforcement of sections of the law directing rail carriers to afford "all reasonable, proper, and equal facilities for the interchange of traffic" it may, to the degree necessary, reduce the obstacles to free movement of passengers and freight which arise out of the separate ownership of railroad lines. These powers, and similar authority within a more restricted field which local statutes vest in state commissions, enlarge and make effective the general rules of the common law.

The Interstate Commerce Commission, finally, possesses considerable authority over the service rendered by motor carriers, though its powers over highway traffic are less extensive than those which it is equipped to exercise over railroad operation. It has, notably, the power, for all types of motor carriers, to establish reasonable requirements to promote safety of operation, and for this purpose it may prescribe qualifications and maximum hours of service of employees and standards of equipment. It may, in addition, establish reasonable requirements for common carriers with respect to continuous and adequate service and for the transportation of baggage and express. These last phrases are extremely broad. The motor vehicle legislation is, however, so recent and the organization of the motor industry is still so diffuse that we cannot predict the extent of effective service control which the Interstate Commerce Commission will be able to maintain.

When Extensions Must Be Made.—The foregoing pages state briefly the obligations of common carriers in the matter of services and summarize the powers of the Interstate Commerce Commission over service which are derived from the statute law. More elaborate analyses of the underlying law can be found in any legal treatise upon "carriers," or, indeed, in discussions of the

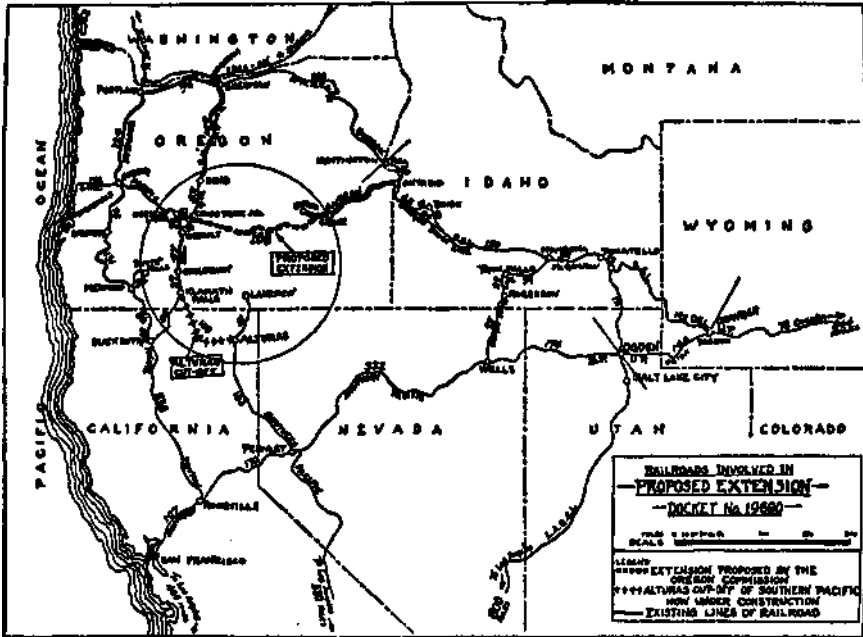
¹³ 1. L. Sharfman, *The Interstate Commerce Commission*, Part III, Vol. A, *Commonwealth Fund*. New York, 1935, pp. 55 ff.

law that governs public utilities, for carriers are not the only enterprises which owe a duty of service to the general public whose wants they undertake to supply. The activities of the Commission have also been the subject of repeated comment and explanation during many years. There are, however, some other features of the law of service, and some questions of policy related to this idea which have not yet been considered, and these should be, perhaps, additionally discussed.

One matter of considerable importance relates to the conditions upon which a common carrier may begin service. This, in turn, raises two secondary questions. One is whether a common carrier may be compelled to undertake service in an area which it has not formerly supplied; and the other is whether a carrier can be prevented from providing a service that it is willing and ready to offer. It may be recalled that the discussions preceding the enactment of the Transportation Act of 1920 contained suggestions for the enforced extension of government-owned railroad systems which some persons then desired to see established. It was the thought of Glenn E. Plumb, for instance, that if a region or locality should organize itself for taxation purposes and should offer to assume the part of the cost of a new railroad extension which an appropriate government board might declare proper, then the government railroads should be required to construct the extension. Presumably the contribution of the national government in such cases was expected to be substantial, for otherwise the arrangement would not have afforded much relief to local groups. The Plumb plan, however, contemplated a government-owned railroad; it would be harder to require a private corporation to comply with requests for extension than to force a government enterprise to extend its lines. The law in this respect is not peculiar to railroads, but applies, *mutatis mutandis*, to public utilities such as electric, gas, telephone, and water companies as well. The approved rule is that a utility may not be required to serve new territory. Its duty to serve does not extend beyond the area in which it has voluntarily dedicated its property to public use; this duty cannot be geographically extended without its consent. What the area of obligatory service may be is usually to be discovered from the company's franchise. In the case of a street railroad or motor bus line, the franchise is generally limited to operation upon a named street or streets. It is difficult, therefore, to force a street railroad to extend, at least if the company is operating over all the streets to which its franchise authority applies. An electric company, on the other hand, that has power under its franchise to serve the inhabitants of a municipal district, may be required to supply service in all parts of this district or to surrender its franchise and abandon the field. In these matters the position of the steam railway is analogous to that of the street railway rather than to that of the electric corporation.

Controversy in Eastern Oregon.—The Transportation Act of 1920 granted the Interstate Commission authority to order any carrier by railroad to extend

its lines if it thought that the extension was reasonably required in the interest of public convenience and that the expense would not impair the carrier's ability to perform its duties to the public. The language used, however,¹⁴ proved insufficient to impose a duty upon rail carriers that differed from that which they supported at common law.



OREGON EXTENSION CASE, 1929-

In a leading case upon this subject the Supreme Court considered, in 1929, an order by the Interstate Commerce Commission requiring the Oregon-Washington Railroad and Navigation Company to build certain lines in the east central part of the state of Oregon.¹⁵ Western Oregon was served in 1929 by north-and-south lines operated by the Southern Pacific Company. North-eastern Oregon was crossed by the Oregon Short Line, a subsidiary of the Union Pacific; but between the Southern Pacific and the Union Pacific, in

¹⁴ "The Commission may, after hearing, in a proceeding upon complaint or upon its own initiative without complaint, authorize or require by order any carrier by railroad subject to this part, party to such proceeding, 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 line or lines: *Provided*, that no such authorization or order shall be made unless the Commission finds, as to such extension, that it is reasonably required in the interest of public convenience and necessity, or as to such extension or facilities that the expense involved therein will not impair the ability of the carrier to perform its duty to the public. . . ." (Interstate Commerce Act, Sec. 1, par. 21.)

¹⁵ 159 I.C.C. 630, 1929.

¹⁶ 159 I.C.C. 630, 1929; 288 U. S. 14, 1933.

east central Oregon, there was no railroad, except for a branch of the Oregon Short Line which extended 127 miles in a westerly direction. A gap of 185 miles remained to be filled in this territory.¹⁷ The Public Service Commission of the State of Oregon desired the unoccupied area in the eastern part of the state to be supplied with railroad service, partly for the sake of the people who lived or could live therein, and also because a line across the state from west to east would provide residents of western Oregon with a more direct route to Ogden, Utah, and to points farther east. In 1927 the Public Service Commission petitioned the Interstate Commerce Commission to compel the railroads to build 185 miles of line from Crane on the Oregon Short Line branch to a point on the Southern Pacific near Crescent Lake. In 1929 the Interstate Commerce Commission issued the requested order. But in 1933 the Supreme Court of the United States declared the order void. This litigation established a precedent to which subsequent actions of the Commission have conformed.

Now the question at issue before the Supreme Court in 1933 was, directly, one of statutory interpretation. The Commission believed that the Interstate Commerce Act gave it authority to require the construction of a railroad between Crane and Crescent Lake. The Court held that the law did not confer this power, and pointed out that the area between Crane and Crescent Lake was one which the carrier had never undertaken to serve. The Court did not believe that Congress had intended by the Transportation Act to force carriers to spread beyond the field of their commitments, nor did it think that it would be constitutional for Congress to do this. States, remarked the Supreme Court, which had ordered carriers to make extensions beyond their undertakings had always, been held to violate due process, and the decisions of the Court would be searched in vain for the announcement of any principle which would support the Commission's decision. In this case the undertaking of the carriers was measured by the lines of railroad which they had already built.¹⁸

In so far as the Court's ruling was based upon its construction of the statute, the conclusions arrived at have no permanent significance, for laws can easily be changed. But the principle that the responsibilities of a railroad are to be limited to the operation of the lines which it has laid down and to the construction of minor additions to these lines presents difficulties from the point of view of public policy that deserve thoughtful consideration. In the Oregon case the company had a franchise which permitted it to build the disputed extension. The system had even at one time expected to construct the line, supplying some incidental evidence that the project was a normal

¹⁷ III I.c.c. 3,1926.

¹⁸ The Court was willing to concede the power of the Commission to order the construction of minor extensions and of the states to require the building of intrastate spur, industrial, team, switching, or side tracks.

one. And what is more important, it could be argued with force that the carriers in the territory were in the position of public agencies, to which a broad responsibility for adequate public service in their area could be ascribed. Although the public is not usually dependent upon a single railroad to the same extent that the users of electric power are dependent upon a single system, nevertheless it was evident in 1929 that eastern Oregon would be served by the Union Pacific or by the Southern Pacific Company or not at all. To the degree that a railroad occupies and encircles a territory so as to make the district its own, to that degree it should be held accountable for service that the appropriate public agency may think proper, subject only to the limitation of "reason" and to the need of adequate payment for what it is asked to do. This was the view of the minority of the Supreme Court in the Oregon case, and it is to be hoped that such an interpretation of the underlying law will ultimately prevail.

Certificates of Convenience and Necessity.—The assumption in the United States during most of the last century has been that a country benefits by the multiplication of its means of transport. But we have recently begun to appreciate the waste which may result from the unrestrained development of means of communication. The problem is not, of course, to be entirely limited to transportation matters. There can be too much capital invested in lines of enterprise which have nothing to do with transportation, and this may be true even when the later forms of capital equipment are more efficient than the earlier forms. At least, when new equipment presses on the market at a rapid rate, a community may suffer unnecessary loss through the obsolescence of previously used equipment, the disruption of established methods of doing business, and the idleness of men at one time employed. There is a gain in such cases from the superior efficiency of the new device, but there is a loss from the destruction of old tools and methods. The gain should be preserved and the loss minimized in so far as possible; but so long as the gain accrues to one set of individuals and the loss is borne by another, no attempt at calculating the balance is likely to be made. This is why it has been suggested that new inventions of all sorts be required to obtain government approval before they may be put into operation. In this form the proposal has not received support. Yet the idea behind it affords one of the principal reasons why persons who wish to enter the public utility industry must obtain permission from public authority before they are allowed to begin operation. The evidence of such permission is a permit or certificate of public convenience and necessity, usually issued by a regulatory commission. The certificate is refused if the public is already sufficiently and efficiently supplied with the service which it is proposed to augment. It is granted if the new service is needed. In the former event, we have the interesting condition in which the public, instead of insisting upon an extension of service, deliberately declines to allow it.

Statutory Power to Grant and Refuse Certificates.—At the present time authority to grant or to refuse certificates of convenience or necessity is vested in the Interstate Commerce Commission in so far as railroad, water, and motor vehicle carriers are concerned which desire to operate in interstate commerce. Air lines are subject to the federal Civil Aeronautics Authority. We shall illustrate the practices associated with the administration of certificates of convenience and necessity at this point by a description of the activity of the Interstate Commerce Commission in the railroad field, leaving policies applied to other forms of transport to be discussed when the question of coordinating these different agencies comes to be considered.

Railroads.—Certificates of convenience and necessity were first used in the United States in 1892, when they were required for all railroads in New York State.¹⁹ Most states now compel common carriers by rail to obtain certificates from a railroad or public utility commission prior to undertaking new construction and operation. Such state certificates are significant for street railways and for purely local railroad enterprises, although the extension of federal control over interstate commerce and, in particular, the grant to the Interstate Commerce Commission of the authority to issue certificates of convenience to carriers engaged in interstate commerce have reduced the functions of state commissions in the railroad field to comparative unimportance.

Activity of the Interstate Commerce Commission.—The jurisdiction of the Interstate Commerce Commission over new railroad construction dates from 1920, when Congress gave it power to grant or to refuse certificates of convenience and necessity and forbade carriers subject to the Interstate Commerce Act to build or to abandon lines without its permission.²⁰

During the past ten years the Interstate Commerce Commission has issued certificates of convenience and necessity in authorization of new railroad construction as follows:

¹⁹ W. E. Mosher and F. G. Crawford, *Public Utility Regulation*, Harper, New York, 1933.

²⁰ 41 Stat. L. 456, 1920. Section 402 of the act of 1920 reads in part as follows:

"(18) After ninety days after this paragraph takes effect no carrier by railroad subject to this Act 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 under this Act over or by means of such an 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, and no carrier by railroad subject to this Act 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.

"(22) The authority of the Commission conferred by paragraphs (18) to (21), both inclusive, shall not extend to the construction or abandonment of spur, industrial, team, switching or side tracks, located or to be located wholly within one State, or of street, suburban, or interurban electric railways, which are not operated as a part or parts of a general steam railroad system of transportation."

Year Ended December 31	Miles of Line Authorized To Be Built	Mi les of Line Authorized To Be Abandoned
1928	717	587
1929	618	540
1930	1596	1807
1931	144	1019
1932		1418
1933	32	2404
1934	71	25 14
1935	89	1692
1936	105	1903
1937	38	1547
1938	37	2014
1939	30	2138

In deciding whether to grant or to refuse a certificate of convenience in a particular case the Commission has inquired whether the new lines proposed are likely to be self-sustaining, whether they will divert traffic from existing facilities, and whether they are adequately financed.²¹ If these three questions can be answered in the affirmative, there is a strong presumption that the railroad should be built. The Commission has, however, refused to lay down a general rule, and it has tried to steer a middle course between the protection of existing enterprise and the encouragement of initiative and willingness to take risks to which present systems owe their existence.

Between January, 1928, and October, 1937, ^{the} Commission granted 155 applications for the construction of branch lines, extensions, and new enterprises, for a total of 3866 miles. It denied 44 applications for a total of 3326 miles. Presumably its influence is to be measured by the applications refused rather than by those approved because the Act to Regulate Commerce is purely restrictive in these matters; in any case, the record indicates an active supervision. As a matter of fact the Commission's work has probably been less important than it would seem at first sight, for reasons that will be evident from the following paragraphs.

A reasonably satisfactory way to discuss the effectiveness of its control over new railroad construction is to list the principal projects which the Interstate Commerce Commission has disapproved in recent years. These projects include the following:

1. Denver, Colorado, to San Pedro, California—800 miles (1933). The Denver Pacific Railroad Company applied in 1931 for authority to construct a new electrified line from Denver, Colorado, to San Pedro, California. The project was expected to cost \$98,459,000. Power to operate was to be obtained from Boulder Dam. The only witness for the proponent admitted that construction along the route proposed was impossible.²²

²¹ 1. L. Sharfman, *The Interstate Commerce Commission, Part III, Vol. A, Commonwealth Fund*, New York, 1935, pp. 348 ff.

²² 193 I.C.C. 687, 1933.

2. Allegheny City to Easton, Pennsylvania—344 miles (1932). This plan was backed by interests controlling the Delaware and Hudson Company. It was to form part of a direct low-grade route between New York and Pittsburgh, designed to accommodate through traffic between New York Harbor and the West. The estimated cost was \$177,740,373, or about \$628,000 per mile, including equipment. Plans for a route of this sort had been discussed as early as 1903 or 1904, and applications for certificates authorizing construction had been twice approved by the Public Service Commission of Pennsylvania. The Interstate Commerce Commission was of the opinion that general business conditions indicated the impropriety of any additional railroad mileage in the East in the immediate future.²³

3. Southern Mississippi line—294 miles (1929). The Imperial Railroad Corporation, organized in 1928, proposed to build a railroad from Mendenhall in the southern part of the state of Mississippi north and northeast to Birmingham, Alabama. The company relied for its revenue upon the development of grain, cotton, and lumber traffic. The estimated cost of construction was set at the low figure of \$600,000, or approximately \$2000 per mile. Only one witness appeared for the applicant. This witness had had no experience in constructing or in operating a railroad. No arrangements had been made for securing a right of way, no surveys had been made, and the estimates of costs were obviously unreliable. Testimony from opponents of the project indicated that the territory to be traversed by the proposed line was adequately served by existing carriers which were prepared to extend their lines at any time that extension might be justified.²⁴

4. Texas Panhandle lines—333 miles (1932). This application was by a subsidiary of the Texas and Pacific Railway. It proposed a railroad from a point on the Texas and Pacific, 348 miles east of El Paso, running north and northwest into the Texas Panhandle country, at an estimated cost of \$12,770,000. The area to be traversed raised grain and cattle, and the Texas & Pacific believed that traffic from the district could be developed by better service. The application was backed by the governor and the Railroad Commission of the State of Texas and by business interests in Amarillo, Fort Worth, and at other Texas towns. The Interstate Commerce Commission stated in its opinion, however, that existing roads provided convenient access to the most important markets of the territory, and that their service was • supplemented by an extensive system of truck transport. The apparently successful farming shown by the record in localities where hauls of ten miles and upward to markets were necessary, as well as the large amount of uncultivated land within fifteen miles of existing lines, showed the lack of urgent necessity for further transportation facilities at the time.²⁵

²³ 187 I.C.C. 598, 1932.

²⁴ 150 I.C.C. 274, 1929.

²⁵ 184 I.C.C. 55, 1932.

5. St. Louis to Kansas City—236.2 miles (1935). The applicant was the St. Louis-Kansas City Short Line Railroad Company, a corporation organized in 1925. The project contemplated a double-track railroad between St. Louis and Kansas City, to cost, without equipment, \$35,206,000. The mileage would be approximately 240 miles by the new route as against 278.7 by the Wabash and 280 miles by the Burlington-Alton railroads. The Commission observed that the territory was well served by existing railroads and other means of transportation. These lines had ample capacity to handle an increase in business, and could ill afford to lose the traffic which the proposed operation would divert. Moreover, it was not shown that the applicant had funds available for the construction of the properties which it wished to build.²⁶

Other applications involving at least 100 miles of line which were denied between 1928, and October, 1937, include a proposal to build no miles in north-western Texas,²⁷ one to build 128 miles in the cotton-manufacturing districts of North and South Carolina, a plan for additional railroad mileage in the vicinity of Kansas City,²⁸ another for construction in the neighborhood of Del Rio, Texas,²⁹ and the project of the Western Pacific Railroad to invade the San Joaquin Valley of California.³⁰ At least two of these secondary projects were inadequately financed.

Consideration of the five major and the five secondary projects which the Commission disapproved between 1928 and 1937, suggests that three of the former and at least two of the latter would not actually have been undertaken even if certificates had been obtained. If we deduct the mileage involved in these plans from the total of projects disapproved the mileage of rejected proposals is reduced from 3326 to 1646 miles, or less than 1 per cent of the total mileage of the country in 1937. The conclusion is inevitable that the Commission's power to control new construction was of little importance in the railroad field under the conditions of this decade.

Withdrawal from Service.—The general theory with respect to abandonment of railroad service is that parties which offer to perform the service of common carriage place themselves by this offer in relations with the state which cannot be dissolved save with the consent of all parties concerned. One of the many cases in which the law on the matter has been laid down is that of *State v. Dodge City*,³¹ in which the county attorney of Gray County, Kansas, sought to restrain a railroad from tearing up part of its roadbed in the county. The Supreme Court of Kansas said:

While the title to a completed railroad is vested in the corporation, it is only private property in a qualified sense. Railroads, like all other public thoroughfares,

²⁶ 212 I.C.C. 107, 1935.

²⁷ 162 I.C.C. 398, 1930.

²⁸ 207 I.C.C. 175, 1935.

²⁹ 187 I.C.C. 244, 1932.

³⁰ 162 I.C.C. 5, 1930.

³¹ 36 Pac. 747, 1894-

are public instrumentalities. The power to construct and maintain railroads is granted to corporations for a public purpose. The right to exercise the very high attributes of sovereignty, the power of eminent domain, and of taxation to further the construction of railways could not be granted to aid a purely private enterprise. The railway corporation takes its franchises subject to the burden of a duty to the public to carry out the purposes of the charter. The road, when constructed, becomes a public instrumentality, and the roadbed, superstructure, and other permanent property of the corporation are devoted to the public use. From this use neither the corporation itself, nor any person, company, or corporation deriving its title by purchase, either at voluntary or judicial sale, can divert it without the assent of the state. It matters not whether the enterprise, as an investment, be profitable or unprofitable. The property may not be destroyed without the sanction of that authority which brought it into existence. Without legislative sanction, railroads could not be constructed. When once constructed, they may only be destroyed with the sanction of the state. . . .

The legal principles stated in the previous paragraph are given expression in decisions based on common law and in the statutes of many American states. Since 1920 they have been also embodied in the Act to Regulate Commerce, at least to the extent that this statute now vests in the Interstate Commerce Commission the power to grant or to refuse permission to a railroad to withdraw from the field of interstate commerce.³² It is not necessary at this point to discuss the question of the conflicting jurisdictions of state and federal governments in matters of abandonment, because our interest is now in the duty incumbent upon the carrier rather than in the agency authorized to enforce that duty. It is sufficient to point out that public consent must be obtained before a railroad can withdraw its service. Naturally, the policy described should be reasonably-administered. It is obvious as a practical matter that the state cannot prevent a railroad company from surrendering its charter and retiring from the entire business of transportation, although the state can prevent a partial abandonment and require a railroad, if it is to operate at all, to maintain service upon all parts of the system covered by its articles of incorporation, and service of all types contemplated in its original undertaking. Nor should the government go even as far as this, if part of a transportation line has clearly ceased to perform a useful service, because the continued operation of such a road would impose a burden upon the resources of the community as a whole. One of the advantages of a private and Individualistic society is that mistaken or obsolete enterprises are written off at the expense of those who are responsible for them, and not carried at the charge of society; and abandonment is the process by which the writing off may take place. It may even be wise to insist that the property be abandoned. Thus, a member of the New England Governors' Railroad Committee de-

³²M. L. Sharfman, *The Interstate Commerce Commission*, Part III, Vol. A, *Commonwealth Fund*, New York, 1935, pp. 331 ff. D. P. Locklin, *Economics of Transportation*, *Business Publications*, Chicago, 1938, p. 637.

clared, in November, 1932, that at least 2000 out of the 8000 miles of New England railways had become obsolete since the absorption by trucks of a large portion of the short-haul business of which they had formerly possessed a monopoly; and he advocated the transformation of these obsolete lines into modern highways.³³

Causes of Railroad Abandonment.—A study prepared by R. W. Westmeyer, based on 565 cases involving 7997 miles of line, presents a useful classification of the causes of railroad abandonments between 1920 and 1932.

The Westmeyer table shows that exhaustion of natural resources is the most important reason for abandonment, and that competition, especially motor competition, comes next. We have already pointed out that it is in the public interest to permit a carrier to discontinue service in cases where the need for rail facilities has passed, whatever the carrier's responsibilities may be under common or under statute law.

REASONS FOR RAILROAD ABANDONMENT, 1920-1932³⁴

Reasons Given	Number	Mileage	Per Cent, Number	Per Cent, Mileage
Exhaustion of natural resources	190	2165	33.6	27.1
Destruction or abandonment of plant or resort	34	267	6.0	3.3
Failure of project to develop	10	256	3.5	3.2
Combinations of above factors	10	150	1.8	1.9
Exhaustion and motor competition	35	729	6.0	9.1
Exhaustion and miscellaneous	12	192	2.0	2.4
Plant destruction and miscellaneous	5	69	1.0	0.8
Failure of project and motor competition	1	15	0.1	0.2
Motor competition	34	608	6.0	7.6
Motor and other competition	15	194		3.7
Motor competition and miscellaneous	23	722	4.0	9.1
Steam railway, electric, and water competition	18	336	3.2	4.2
Depression and motor competition	3	65	0.5	0.8
All other	165	2129	29.4	2.6
	565	7997	100.0	100.0

Influence of the Interstate Commerce Commission.—The influence of the Interstate Commerce Commission on railroad abandonments has been inconsiderable during the past decade, largely because general conditions have compelled the Commission to approve almost every proposal for abandonment

³³New York Journal of Commerce, November 18, 1932.

³⁴H. G. Moulton and Associates, *The American Transportation Problem*, Brookings Institution, Washington, 1933, p. 152.

which has been submitted. Between January, 1928, and October, 1937, the Commission granted 1079 certificates for abandonment of branch or main railroad lines, and refused but 49. Out of the 49 dismissals some were based on jurisdictional or other technical grounds, and some were tentative, with permission to renew the carriers' requests after a brief lapse of time if earnings had not meanwhile improved. Only two refusals of permission to abandon involved as much as 100 miles of road, and only two others as much as 50 miles. In a few cases the Commission required a relatively prosperous carrier to continue to carry the burden of an unprosperous segment of its line, but these instances were relatively unimportant, and even in such cases the Commission sometimes accompanied its dismissal of the railroad's application with a warning to protestants that mileage would not permanently be maintained which must be operated at a loss. Most denials of permission to abandon were based upon the hope that conditions would improve, or upon the feeling that unprofitableness had not been demonstrated. This was a sound attitude for the Commission to take. The net result nevertheless suggests that government regulation of railroad abandonment under the conditions which railroads now are compelled to meet may not be worth the very considerable effort that the Interstate Commerce Commission is required to exert in administering the present law. This conclusion is even more definite in the case of abandonments than it was in matters which relate to new railroad construction, because decisions of the Commission cannot serve in abandonment proceedings, as they do in the case of applications for permission to build new lines, to eliminate unfit enterprises. The most that such decisions accomplish is to permit the self-elimination of undertakings which themselves desire to withdraw or, when adverse to the applicant, they compel the continuance of operations of questioned utility.

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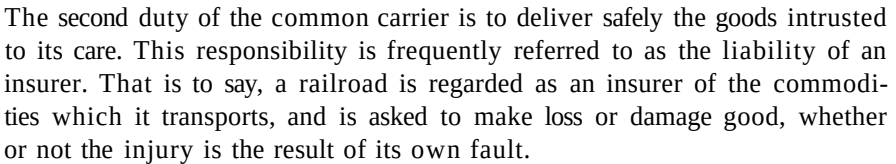
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COMMON CARRIER LIABILITY



Railroad Is Not Technically an Insurer.—Strictly speaking, a railroad is not an insurer. This point was decided by the United States Supreme Court a number of years ago in a case in which suit was brought against the Nashville and Chattanooga Railroad Company to recover the value of a consignment of cotton destroyed by fire while in the railroad's hands.

The cotton in question had been insured by an insurance company, and this company, having paid the loss, sued the railroad in the name of the shipper. The railroad refused to pay, alleging that it stood in relation to the owner at most in the position of double insurer, and that the owner being indemnified, could not thereafter sue or permit suit in his name against the carrier.

In reply to this argument the court ruled that the railroad was not an insurer, although often loosely so called. Its contract, the court said, was not one of indemnity, independent of the care and custody of the goods shipped; it was not entitled to a cession of the remains of the property, or to have the loss adjusted upon principles peculiar to the law of insurance. The insurance company which had originally paid the shipper for the loss was therefore allowed to maintain suit in the shipper's name, and eventually to recover the value of the cotton from the railroad.¹

Nature of the Carrier's Liability.—While the railroad is not, therefore, technically an insurer of the articles it transports, it is nevertheless subject to peculiar liability with regard to them. Where injury or loss occurs, the presumption is that the railroad is at fault. Though there are exceptions which will presently be mentioned, the general rule is that proof that goods are delivered to a carrier in good condition and received by the consignee in bad condition is sufficient to support a claim for recovery.

¹Hall and Long v. The Railroad Companies, 80 U. S. 367, 1871.

The common law liability of carriers in old England was stated many years ago to be that if "a delivery to carry or otherwise manage . . ." is made "to one that exercises a public employment, . . . and he is to have a reward, he is bound to answer for the goods at all events. . . . The law charges this person," said Lord Holt, "thus intrusted to carry goods, against all events, but acts of God, and of the enemies of the King. For though the force be never so great, as if an irresistible multitude of people should rob him, nevertheless he is chargeable. And this is a politic establishment," the judge continued, "contrived by the policy of the law, for the safety of all persons, the necessity of whose affairs oblige them to trust these sorts of persons, that they may be safe in their ways of dealing; for else these carriers might have an opportunity of undoing all persons that had any dealings with them, by combining with thieves, &c, and yet doing it in such a clandestine manner as would not be possible to be discovered. And this is the reason the law is founded upon in that point."²

It would be unjust to our railroad managements to argue that they are prone today to conspire with thieves to the disadvantage of shippers; but the policy of the common law as it was formulated in mediaeval England still finds justification by reason of the shipper's inability to determine, in most cases, the cause of loss or damage to goods when loss or damage occurs. The injury commonly happens at a distance from the shipper's place of business. He has no representative upon the ground, nor any means of obtaining information from the carrier's servants. Not only is the carrier the better-informed party, but it is usually in a better position than the shipper to prevent repetition of the loss in later cases by adopting proper safeguards. Even under changed economic conditions, therefore, the legal rule imposing liability upon the carrier irrespective of negligence remains a "politic establishment" and is consistently enforced by the courts.

Excepted Causes.—We have now stated the common law principle which controls the assignment of responsibility as between carriers and shippers in case of loss or damage. There are, however, certain exceptions to the rule laid down, as there are to most rules. The carrier's peculiar liability does not extend to losses due to the following causes:

1. Acts of God.
2. Acts of the public enemy.
3. Acts of the shipper himself.
4. Acts of public authority.
5. The inherent vice or nature of the goods transported.

In case of all such losses, the carrier is liable only if shown to be negligent, and is not liable from the mere fact that goods have been damaged while in its custody.

²*Coggs v. Bernard*, 2 Lord Raymond, 909; 1 *Smith's Leading Cases*, 158, 1844.

Let us consider a few instances which will illustrate the nature and limitations of a carrier's liability according to the foregoing principles and qualifications thereof.

Illustrative Cases.—One quite simple case concerned the shipment of two pieces of granite from Minneapolis, Minnesota, to Waseca in the same state. The evidence tended to show that the blocks of granite were in good condition when delivered to the carrier, and that when they arrived at Waseca they were broken and had to be replaced. The damage was not due to one of the excepted causes, and the carrier was held liable, although it was not known that the injury proceeded from the carrier's fault.³

But the decision of the court was different in a case some years earlier which involved the loss of two trunks. These trunks were delivered to a railroad at Cincinnati for transportation to Washington, D.C. There was continued and heavy rainfall while the trunks were en route, so much so that the carrier feared washouts and exercised great care in the handling of the train on which the trunks were loaded. Eventually the carrier even withdrew the train from its main track and placed it in a yard at Conemaugh, near the Conemaugh River. While the carrier's equipment was supposedly safe at this point, a dam that held back a reservoir on a tributary stream gave way, and a wave of water, descending a narrow valley, destroyed both the train at Conemaugh and its contents. The catastrophe was known as the Johnstown flood. It caused loss, but the loss was due to an excepted cause, namely, an act of God, and the carrier was not held liable.⁴

An illustration of another excepted cause, the inherent vice of the article shipped, may be found in a case where a shipper forwarded a hogshead of molasses on one of the warmest days of summer. The molasses fermented and burst while being unloaded, but the carrier was not held responsible.⁵ Cases where cattle gore each other in course of transportation are similarly treated by the courts.

Acts of the public enemy include damages due to acts of war. Thus, during the Civil War, railroads were not held liable for goods seized by the Confederate Army,⁶ and the same rule would have been applied during the recent World War had articles within the jurisdiction of American courts been seized by German armies.

In short, there is a considerable class of cases involving loss or damage to goods where courts believe public policy not to require the application of the strict rule of carrier's liability, but only a modified rule, coupling liability with negligence.

Statutory Regulation of Liability.—In view of the occasional differences of opinion between courts, and the consequent uncertainty of the law with

³ *Haglin-Stahr Co. v. Montpelier and W. R.R. Co.*, 102 Atl. 940, 1918.

⁴ *Long v. Pennsylvania*, 147 Pa. St. Rep. 343, 1892.

⁵ *Faucher v. Wilson*, 38 Atl. 1002, 1895.

⁶ *Lewis & Co. v. Ludwick*, 98 Am. Dec. 454, 1869.

respect to excepted cases, many state legislatures have defined by statute the kinds of loss for which railroad companies shall be held liable. The best-known provisions which derive their authority from statute are, however, not state, but federal. They are to be found in the clauses of the standard bill of lading and in the standard livestock contract prescribed by the Interstate Commerce Commission under authority of Congress.

The provisions of the standard bill of lading with respect to "excepted causes" are as follows:

No carrier or party in possession of all or any of the property herein described shall be liable for any loss thereof or damage thereto or delay caused by the act of God, the public enemy, the authority of law, or the act or default of the shipper or owner, or for natural shrinkage. The carrier's liability shall be that of warehouseman, only, for loss, damage, or delay caused by fire occurring after the expiration of the free time allowed by tariffs lawfully on file . . . after notice of the arrival of the property at destination or at the port of export (if intended for export) has been duly sent or given, and after placement of the property for delivery at destination, or tender of delivery of the property to the party entitled to receive it, has been made. Except in case of negligence of the carrier or party in possession (and the burden to prove freedom from such negligence shall be on the carrier or party in possession), the carrier or party in possession shall not be liable for loss, damage, or delay occurring while the property is stopped and held in transit upon the request of the shipper, owner, or party, entitled to make such request, or resulting from a defect or vice in the property, or for country damage to cotton, or from riots or strikes.

A briefer statement, though on some points more explicit, is printed in the uniform livestock contract.

Except in the case of its negligence proximately contributing thereto, no carrier or party in possession of all or any of the live stock herein described shall be liable for any loss thereof or damage thereto or delay caused by the act of God, the public enemy, quarantine, the authority of law, the inherent vice, weakness, or natural propensity of the animal, or the act or default of the shipper or owner, or the agent of either, or by riots, strike, stoppage of labor or threatened violence.

Unless caused by the negligence of the carrier or its employees, no carrier shall be liable for or on account of any injury or death sustained by said live stock occasioned by any of the following causes: Overloading, crowding one upon another, escaping from cars, pens, or vessels, kicking or goring or otherwise injuring themselves or each other, suffocation, fright, or fire caused by the shipper or the shipper's agent, heat or cold, changes in weather or delay caused by stress of weather or damage to or obstruction of track or other causes beyond the carrier's control.

The clauses of the bill of lading and livestock contract repeat the exceptions to carrier's liability before discussed, with some additions. The reader may be expected to observe these additions, but they will not now be discussed beyond saying that exceptions to carrier's liability may be multiplied by*

proper contract between the parties, or exceptions may be laid down by statute or prescribed by duly authorized state or federal commissions, and the new conditions will be sustained by the courts.

Beginning of Common Carrier's Liability.—We may now return to the general rule imposing responsibility upon common carriers for safe delivery of persons and property intrusted to their care. Out of these principles grows a 'substantial part of the law of common carriers. We shall not, in this chapter, attempt to state the whole of railroad law, but we shall call attention to a few of the matters which are frequently in dispute.

One important question is as to the moment at which a carrier's liability begins. Is the issue of a bill of lading necessary to fix responsibility upon the railroad? Must the shipper deliver freight at the carrier's depot? Must the freight be boxed or marked in any particular way? What, in brief, constitutes acceptance by the carrier?

In the case of *Meloche v. Chicago, Milwaukee, and St. Paul Railway Company*, the plaintiff was the survivor of the firm of Meloche Brothers, who, prior to August 25, 1896, carried on a drug business in the village of Ontonagon, Michigan. Some days before August 25, the firm closed its drug store and packed the contents. The goods were properly marked for shipment to Ishpeming, Michigan, and were placed inside the defendant's freight depot for immediate shipment.

Because the railroad had no car by which to ship on the day of delivery, the freight was held until the following morning. In the afternoon of August 25, before the goods had been shipped and before a bill of lading had been issued, a fire occurred in Ontonagon which destroyed almost the entire village, including the goods of Meloche Brothers. On these facts, the railroad was held liable.⁷

On the other hand, the railroad was not held liable in the case of *Burrowes v. Chicago, Burlington, and Quincy Railroad Company*.⁸ In this case the plaintiff testified that just prior to May 12, 1907, he had given a tent show in the village of Loup City, Nebraska. He desired to move his show to the village of Ashton, some twelve miles distant on the line of defendant's railroad. May 12 was Sunday. On that day the railroad placed a car on its side track at the plaintiff's disposal, and he was notified of its position. On Sunday afternoon, plaintiff and his employees took possession of the car and placed therein his main tent with its poles, stakes, ropes, and so forth, together with a gas machine which he used to manufacture gas and thus supply light for his evening performances. When he had partly loaded his outfit he or one of his men closed the car door. The remainder of his plant, which included his cook tent, his sleeping tents and bedding, together with some personal baggage, his gasoline stove, and cooking utensils, were kept out for

⁷ *Meloche v. C. M. & St. P. Ry. Co.*, 74 N.W. 301, 1898.

⁸ *Burrowes v. C. B. & Q. R.R. Co.*, 123 N.W. 1028, 1909.

use overnight. These were to be loaded the following morning, and plaintiff was then to furnish a statement of weights and contents to the railroad agent, who would then seal the car and fix the charges for transportation. The car was to go forward with the company's 9:30 passenger train.

On Monday morning at about five o'clock it was discovered that the car which contained plaintiff's goods was on fire. In spite of all efforts to extinguish the blaze, the car with its contents was totally destroyed. No notice was given to the defendant or to its agent that plaintiff had commenced to load the car, and the railroad agent had no actual knowledge of the fact of loading until the car was discovered to be on fire.

In neither of these cases did the goods start upon their journey to destination. In neither case was a bill of lading issued. In the one case, however, the shipper had completed his share in the transaction. He had packed the freight, marked it, and placed it in the carrier's depot ready for transportation. The carrier's agent was aware that the freight was on hand. The delivery was complete. In the other case, the shipper delayed the completion of loading for his own convenience. The consignment was not ready to move, for something still remained to be done by the shipper before transportation could be begun. The delivery was incomplete, and the shipper, not the carrier, was still responsible for the safety of the goods.

Ending of Liability.—Another important question is as to when the liability of a common carrier ceases. Until this liability is at an end, the carrier must make loss good, irrespective of the cause of the loss, unless "excepted causes" are responsible. After liability ceases the common carrier is liable only for the negligence of its agents.

On this point two contradictory rules are to be found in the common law.

Norway Plains Case.—One of these rules is known as the "Massachusetts rule," and springs from a decision in the leading case of *Norway Plains v. Boston and Maine Railroad Company*.

The *Norway Plains* case involved two parcels which were shipped from Rochester, New Hampshire, to Boston, Massachusetts. One parcel arrived on Saturday, November 2, and was ready for delivery at least as early as November 4. The other parcel reached Boston late on Monday, November 4. The consignee knew on Monday that his goods had arrived, but he did not take them. During the night of November the railroad station at Boston burned down and the parcels were destroyed.

In this case the judgment was for the carrier. The court held that the responsibility of the railroad as common carrier continued until the goods were removed from the cars and placed upon the platform. If it was not possible to deliver the goods at once, because the consignee was not at hand or for any other reason, the carrier was required to keep the freight safely, but its liability was only for loss or damage due to its own negligence.⁹

⁹*Norway Plains Co. v. Boston & Maine R.R. Co.*, 61 Amer. Dec. 423, 1854.

Moses v. Boston and Maine Railroad Company.—The other rule is known as the New York or New Hampshire rule. It is in substance that the peculiar liability of the railroad continues after arrival of the goods until consignee shall have had a reasonable time to remove them from the carrier's premises.

The leading case which supports this principle is *Moses v. Boston and Maine Railroad Company*.¹⁰ Here it appeared that the Boston and Maine Railroad carried ten bags of wool from Exeter to Boston, Massachusetts, between November 2 and 4, 1850. The wool reached the railroad's Boston depot between one and three o'clock in the afternoon of November 4. From two to three hours were required to unload from cars to warehouse, and the warehouse closed at five o'clock. The wool was still in the warehouse at five, and during the night of November 4 it was destroyed by fire.

Under the decision in the Norway Plains case the carrier would not have been liable on the foregoing facts, for the wool had certainly arrived and had been unloaded from the cars before the fire occurred. But in the *Moses* case the court held that arrival was not enough. The consignee was entitled to a reasonable time in which to remove his goods, and during that time the railroad was liable as common carrier for loss irrespective of negligence.

Mark Owen Case.—It is of some interest to observe that the carrier's liability continues for the time specified in the tariff or bill of lading, even though the consignee has commenced to unload. This principle was laid down by the United States Supreme Court in 1921, in the case of *Michigan Central v. Mark Owen & Company*.¹¹

In this case four carloads of grapes reached Chicago at different times. Upon the arrival of each car, it was placed upon a public delivery track of the railroad company. The consignee accepted each car, breaking the seals thereof; and both parties agreed that at the time the consignee started to unload, each of the cars contained all the grapes which had been originally given to the railroad for transportation.

Subsequent to the beginning of unloading, 126 baskets of grapes disappeared. The shipment moved under a bill of lading which continued carrier's liability for forty-eight hours after arrival of freight, but carrier maintained that its special liability had been terminated, nevertheless, by consignee's access to and partial removal of the goods. This the Supreme Court refused to concede, and the railroad was held responsible for the loss incurred.

To Whom Delivery May Be Made.—Delivery of freight to the proper person is an obvious duty of the common carrier, and this obligation is strictly enforced by the courts. Unless there are special circumstances which permit the delivery to be made otherwise, the delivery must be made to the consignee of the goods, or to his duly authorized agent, and the carrier is responsible for goods delivered to any other person. Likewise, if the carrier does deliver

¹⁰ 64 Amer. Dec. 381, 1856.

¹¹ 41 Sup. Ct. Rep. 554, 1921.

to **the** designated party it is free from further liability, and this is the fact even though while the shipment is in transit the consignor may have changed his mind. What constitutes an agent of the consignee is to be determined by the ordinary principles of the civil law. Who the consignee may be is usually a simple question of fact, although careless shippers sometimes lose the protection which the law intends to convey by mistaking the identity of persons with whom they are in correspondence and to whom goods are shipped. Contracts of carriage, in these respects, are enforced with great strictness just as banking law protects the owner of an account from unauthorized charges even when made on plausible excuse. In general, carriers know their responsibilities and pay for their mistakes.

There is one variation in practice, however, which, because of its importance, deserves special mention. It sometimes happens that a shipper intends to cause goods to reach a certain person but does not desire the delivery to be complete until some act has been performed such as the payment of the purchase price of the goods consigned or, at least, a formal acknowledgment of the debt. Or what amounts to the same thing, the shipper desires to borrow upon his consignment, and the bank which makes the loan wishes to retain control over the goods shipped, as security for its advance, until some equivalent security has been put in place of these commodities upon which the bank relies for its protection. The needs of the parties under such circumstances are met by the use of what is known as an "order" bill of lading. A shipper who makes out an "order" bill consigns the goods not to the person who is expected ultimately to acquire possession of them but to himself. The same name appears upon the bill as consignor and consignee, just as a bank check may be payable to the man who signs it. Such an order, indorsed in blank and accompanied by a draft upon the purchaser of the articles, may be sent by the shipper to an agent at point of destination; or the bill-and draft may be sold to a bank which will forward them to the bank's agent. In either case the agent will call upon the prospective recipient of the goods and will either collect the purchase price or obtain acceptance of the draft. Proper arrangements having been made, the agent will then deliver the indorsed order bill to the purchaser who will, in turn, present the order bill to the railroad and receive the goods. It is, of course, essential to the success of this mode of dealing that the freight be delivered by the railroad to the holder of the bill and to no one else. Neither the original shipper, therefore, who is both consignor and consignee, nor the purchaser of the articles shipped, nor any other party whatsoever, can obtain goods shipped upon an order bill of lading without presentation and surrender of the bill, and courts will hold carriers strictly to account to see that this condition is fulfilled. The complexity and the possibility of error in this course of business is justified by the very great convenience which it offers to many shippers.

Measure of Damage.—When goods are not delivered the carrier must make

the loss good by a money payment. This requires a valuation, and in spite of the need for precision, only general indications can be given as to what the valuation is likely to be. The place where the value of the lost goods is to be estimated is always the point of destination, and the time is the moment when the goods should have arrived; so much, at least, is settled. And there is reasonable agreement that sentimental and speculative damages are not to be recovered, although Bonbright points out that such a rule cannot be literally applied. In its simplest form this reduces the process of valuation to the ascertainment of the market value which the articles would have possessed at the specified time and place, and this method is, in fact, frequently employed. It presents, however, two difficulties. One is that the goods in question may not be currently bought and sold at the place of destination and so may have no market value, at least at that place. This may be because they are unique, as a work of art of which there is no duplicate, or because customers are few and the goods are usually brought in from outside. There is another possible difficulty, however, and that is that the practice of valuing at market price at point of destination may yield a figure that includes profits and does not accurately measure loss. In the case of *Illinois Central Railroad v. Crail*,¹² for instance, a Minneapolis coal dealer had bought a car-load of coal weighing 88,700 pounds and, on its delivery at the railroad siding, had discovered a shortage of 5500 pounds. He sued to recover the value of the 5500 pounds at the current retail price of coal at Minneapolis; but he actually replenished his supply from subsequent imports bought at wholesale rates in other places. In the *Crail* case the demand of the Minneapolis dealer for the use of retail price in valuation was denied, and recovery was awarded on the basis of the wholesale price. Courts dislike to commit themselves to following a rigid rule, and cases are apt to be decided by taking into consideration the circumstances surrounding the purchase, sale, and transportation of goods and by seeking to ascertain the loss which the disappointed shipper has suffered in each instance. It is unfortunate that such a practice may lead to distinctions in the treatment accorded different manufacturers, dealers, and consumers who may fail to receive identical shipments at a single place and time.¹³

Special Damages.—A curious feature of the law of recovery in rail transport is the rule of "special damages." This is a rule which attempts to provide indemnity in cases where failure to deliver causes special loss to the shipper while it protects the carrier from large claims when there is no notification of the need for special care. It declares that a shipper who loses an unusually advantageous sale, or who is subject to penalty provisions in a contract, or who for any other business reason will suffer extraordinary loss by failure of

¹² 281 U. S. 57, 1930.

¹³ James C. Bonbright, *The Valuation of Property*, McGraw-Hill, New York, 1937. See the excellent discussion in chap. xiii.

the carrier to deliver his consignments promptly and in good condition may recover more than the usual indemnity, to cover this special loss, provided always that he has advised the carrier of the circumstances in advance. Such a rule appears to do equity without imposing an extraordinary burden upon the party whose responsibilities are increased. As a matter of fact it probably works more injustice than justice. It is unfair, for example, to the carriers for they are not compensated in the rate for their liability to special damage. Goods are classified and rates fixed with an eye to the likelihood of normal damage incident to transport, and this classification is not changed when a single shipment moves under conditions which increase the carrier's liability in case of loss. The carrier, therefore, receives no payment for the extra risk which it assumes. The rule is discriminatory because it does not require that the special payment shall be made in case of loss to all who ship a given quantity of a given article between two specified points at a stated time but only to certain persons whose business arrangements are such that they can anticipate more than the usual loss from carrier dereliction. And finally, the law of special damages abandons the policy of uniform and published rates to the extent that it contemplates an indemnity not based upon average conditions but one which varies from individual to individual as the circumstances in each case may seem to require.

Limitation of Liability.—In any ordinary transaction either party may stipulate in the contract for a limitation of his liability. This the common carrier may also do, within limits. Although he may not avoid responsibility for losses due to his own negligence, he may add, as we have seen, to the list of losses for which he is to be liable as warehouseman only. Moreover, the carrier may quote rates which are dependent upon the value of the articles shipped. If the shipper fails to declare what the value is, then the carrier will charge a minimum rate, and if loss or damage occurs, may refuse to be responsible for more than a minimum amount, which will be stated in the bill of lading. If the shipper declares a value that is above the minimum, the carrier's responsibility will be greater, but he will be entitled to a higher rate.

An example of successful limitation of liability by a common carrier may be found in the American Express Company case of 1917.¹⁴ Here a colt was shipped under a so-called livestock contract. The contract contained spaces in which the freight was described. It further stated the rate to be charged, and that the rate was dependent upon the value of the goods. This was followed by clause 3. This clause contained enumerations of various classes of animals and fixed a primary valuation for each class; for instance, "For . . . horses . . . \$100." "For . . . colts . . . \$50." The fourth and fifth clauses provided that, after ascertaining the rate to be charged for all classes of animals embraced in clause 3 by applying to those classes the rate provided by the tariff sheets filed with the Interstate Commerce Commission, there

¹⁴ 244 U. S. 58, 1917.

should be added to such rate a stated percentage of the amount by which the declared valuation of the shipper exceeded the primary valuation fixed by the terms of clause 3. The fifth clause also concluded with the declaration that the shipper, in order to avail himself of the alternative rates, had declared a value as follows, and contained blanks for the insertion of such a valuation.

In this case the shipper made no declaration of value. The colt moved at the lowest rate. The animal was lost. The owner sued to recover \$1916.70, the colt's full value, but recovered instead \$50, or the limited value stipulated in the livestock contract summarized above.

A contract limiting liability need not, under the common law, be signed by the shipper—it is not even necessary that the shipper read it. It is sufficient that he forward freight under a bill of lading that contains limiting clauses. On the other hand, the limitation must take place by contract, express or implied. A newspaper or bulletin-board notice disclaiming responsibility, for instance, will not protect the carrier, and the railroad must give a consideration in return for the benefit which it secures. All these and still other matters have been discussed by the courts.

In actual practice, the extent to which carriers may limit their liability for loss or damage to freight is controlled by statute, so that it is necessary to consult the laws of the different states in order to determine finally the carrier's responsibility in any given case. On interstate shipments, and particularly with regard to losses which are the result of carriers' negligence, the relations between carrier and shipper are governed by the following acts:

Carmack Amendment.—The material provisions of the Carmack amendment to section 20 of the Act to Regulate Commerce, approved June 29, 1906,¹⁵ are as follows:

That any common carrier, railroad, or transportation company receiving property for transportation from a point in one state to a point in another state shall issue a receipt or bill of lading therefor and shall be liable to the lawful holder thereof for any loss, damage, or injury to such property caused by it or by any common carrier, railroad, or transportation company to which such property may be delivered or over whose line or lines such property may pass, and no contract, receipt, rule, or regulation shall exempt such common carrier, railroad, or transportation company from the liability hereby imposed: *Provided*, That nothing in this section shall deprive any holder of such receipt or bill of lading of any remedy or right of action which he has under existing law.

The Carmack amendment permits a shipper to recover from an initial carrier for loss or damage, occurring anywhere in the course of shipment, to a commodity which passes over several railroads on its way to final destination.

This may be illustrated by the following diagram:



¹⁵ 34 Stat. L., 595, 1906.

Let the lines *AB*, *BC*, and *CD* represent distinct, but connecting, railroads. Let us suppose that a shipment originates at *A* and is consigned to *D*. Let us suppose, further, that this shipment is damaged at some point between *C* and *D*. Under the Carmack amendment, the consignor may sue either the initial line *AB*, or the line *CD* upon which the damage occurred. Before the passage of the Carmack amendment, the shipper could sue line *CD*, but he could not sue *AB* unless *AB* had specifically agreed to carry over the whole route and had so adopted roads *BC* and *CD* as its agents. Such agreements *AB* was careful to avoid. Speaking in legal terms, the Carmack amendment construed the mere receipt of property for transportation to a point beyond the line of the receiving carrier as an agreement for through transportation, and therefore it logically deprived the initial carrier of the power to limit its responsibility to the class of accidents which occurred upon its own line.

Stated in another way, the liability of an initial carrier for loss or damage which takes place anywhere between the point of origin and the point of destination of a shipment is exactly the same, when several connecting carriers are concerned, as it would be if the initial carrier owned and operated the entire railway between the points selected. The privilege granted to the shipper by the act of 1906 is a considerable convenience to him, and it involves no real hardship to the railroad because the initial carrier may in its turn proceed against connecting carriers if these carriers are liable under general principles of common or of statutory law.

In addition to the provisions which give shippers the right of recovery against initial carriers, the Carmack amendment declares that an initial railroad may not make a valid contract exempting itself from liability for loss or damage which it, or its connections, may have caused. This means, in plain language, that a railroad may not stipulate for immunity from the results of its own negligence.

Agreed Valuation under Carmack Amendment.—However, even after the Carmack amendment was passed, it remained possible for carriers to escape the results of their negligent acts by the device of a restricted valuation, such as that mentioned on page 272. This was because the United States Supreme Court held that agreements for restricted valuation were not in a technical sense contracts which avoided responsibility for negligence. It is true that such agreements actually reduce the amounts which shippers can collect when they are damaged by the negligent acts of carriers, but the court is disposed to disregard this aspect of the question. Indeed, the chances that agreements of this type would stand were improved by the new law for the reason that the passage of the Carmack amendment was regarded by the courts as an exercise of federal power which made invalid state laws relating to the liability of carriers for loss or damage to interstate shipments of freight.

First Cummins Amendment.—There is reason to believe that Congress did not expect that limited valuation agreements would be considered legal after the legislation of 1906. At any rate, this legislation was supplemented in 1915 by the so-called Cummins amendment to the Act to Regulate Commerce. The first Cummins amendment was approved on March 4, 1915.¹⁶ This new law had three parts:

The Cummins amendment extended the territorial application of the provisions of the Carmack amendment to the transportation of goods within the territories of the United States and the District of Columbia, and to goods exported to adjacent foreign countries.

The Cummins amendment also fixed, definitely and rigidly, the liability of the common carrier by making it liable for the full actual loss, damage, or injury caused by it or by any of its connections to the goods which it transported. The language of the amendment on this point was as follows:

. . . and any such common carrier, railroad, or transportation company . . . shall be liable to the lawful holder of said receipt or bill of lading or to any party entitled to recover thereon, whether such receipt or bill of lading has been issued or not, for the full actual loss, damage, or injury to such property caused by it or by any such common carrier, railroad, or transportation company to which such property may be delivered or over whose line or lines such property may pass within the United States or within an adjacent foreign country when transported on a through bill of lading, notwithstanding any limitation of liability or limitation; of the amount of recovery or representation or agreement as to value in any such receipt or bill of lading, or in any contract, rule, regulation, or in any tariff filed with the Interstate Commerce Commission; and any such limitation, without respect to the manner or form in which it is sought to be made, is hereby declared to be unlawful and void: *Provided, however,* That if the goods are hidden from view by wrapping, boxing, or other means, and the carrier is not notified as to the character of the goods, the carrier may require the shipper to specifically state in writing the value of the goods, and the carrier shall not be liable beyond the amount so specifically stated, in which case the Interstate Commerce Commission may establish and maintain rates for transportation, dependent upon the value of the property shipped as specifically stated in writing by the shipper. . . .

The third part of the first Cummins amendment was a provision forbidding a carrier to provide a shorter period for giving notice of claim than ninety days, for filing claims a shorter period than four months, and for the institution of suit a shorter period than two years.

The first Cummins amendment passed Congress by a substantial majority, in spite of the opposition of some legislators who feared that it would result in an increase in railroad rates. It struck particularly at the agreements for restricted valuation which, as has been pointed out, continued even after the passage of the Carmack amendment—

Second Cummins Amendment—The second Cummins amendment was passed on August 9, 1916.¹⁷ This law eliminated the proviso of the first Cummins amendment relating to goods hidden from view by packing, etc., and added the following important clause:

Provided, however, That the provisions hereof respecting liability for full actual loss, damage, or injury, notwithstanding any limitation of liability or recovery or representation or agreement or release as to value, and declaring any such limitation to be unlawful and void, shall not apply, first, to baggage carried on passenger trains or boats, or trains or boats carrying passengers; second, to property, except ordinary live stock, received for transportation concerning which the carrier shall have been or shall hereafter be expressly authorized or required by order of the Interstate Commerce Commission to establish and maintain rates dependent upon the value declared in writing by the shipper or agreed upon in writing as the released value of the property, in which case such declaration or agreement shall have no other effect than to limit liability and recovery to an amount not exceeding the value so declared or released, and shall not, so far as relates to values, be held to be a violation of section ten of this Act to regulate commerce, as amended; and any tariff schedule which may be filed with the commission pursuant to such order shall contain specific reference thereto and may establish rates varying with the value so declared or agreed upon; and the commission is hereby empowered to make such order in cases where rates dependent upon and varying with declared or agreed values would, in its opinion, be just and reasonable under the circumstances and conditions surrounding the transportation. The term "ordinary live stock" shall include all cattle, swine, sheep, goats, horses, and mules, except such as are chiefly valuable for breeding, racing, show purposes, or other special uses.

The second Cummins amendment was an acknowledgment that the first legislation bearing this name had gone too far, and a return to the conditions of 1906. Its effect was to permit carriers once more to make agreements limiting their liability for loss or damage caused by their negligence to everything except ordinary livestock. The only qualification attached was that the agreed valuation should be accompanied by rates, authorized by the Interstate Commerce Commission, which should vary with the released value of the property transported. Even this qualification was omitted in the case of baggage carried on passenger trains or boats.

The restoration of the old procedure was made on representations of the Interstate Commerce Commission, backed by shippers who preferred to take the chance of loss rather than pay high rates, or to insure in outside companies.

Summary Statement with Respect to Limitation of Liability.—At the present time, therefore, the situation with regard to the limitation of their liability by common carriers is as follows:

All questions relating to the limitation of liability on interstate shipments are controlled by federal law. Controversies arising with respect to intrastate

¹⁷ 39 Stat. L. 441, 1916.

shipments are settled according to the principles of the common law or by state statute.

It is permissible for a carrier to restrict its liability for loss or damage by contract with the shipper, provided it does not seek to escape the effects of its own negligence. In actual practice, however, the Interstate Commerce Commission prescribes the terms of the bill of lading which must be used on interstate shipments, and so determines the contract to which shippers and carriers subscribe.

In the case of baggage carried on passenger trains, carriers and shippers may agree upon a valuation which will limit the amount that may be recovered in case of loss. This agreement upon a restricted valuation is not regarded as a limitation of liability, and holds good even in case of losses due to carriers' negligence. The shipper must, however, receive a consideration for any concession which he is asked to make.

In the case of other property, not including ordinary livestock, an agreement upon a limited valuation may be consummated and enforced if the carrier has been authorized or required by the Interstate Commerce Commission to establish rates dependent upon the value which the shipper declares. Such agreements protect the carrier even when the loss or damage is due to carriers' negligence.

Liability of Common Carriers Other Than Railroads.—The common law is no respecter of persons, so that the principles which have been explained in this chapter apply to carriage by air, water, and motor vehicle as well as to railroad carriage. The case is different, however, with respect to statutory and to some degree with respect to contractual provisions. The Carmack and the Cummins amendments are made applicable to motor transport by the Motor Carrier Act of 1935. They do not govern shipments by air. These mostly move under contracts of carriage used by the Railway Express Agency which contain the usual common-law exemptions from liability and limit recovery to specified maximum amounts.¹⁸ Water carriage is subject to several different federal statutes and, in general, is so different from land and air carriage in the details of its statutory and contractual regulation that this treatise will make no attempt to discuss the liability of carriers for the loss of shipments that are water-borne.

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¹⁸ The limits are \$50 for any shipment weighing 100 pounds or less and 50 cents per pound for shipments weighing over 100 pounds.

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CHAPTER XIV

EQUALITY OF CHARGES



Equality of Rates.—The simplest statement which can be made concerning transportation rates is that carriers should treat alike all who apply to them for service. This is the rule of the common law for all common carriers and is the principle laid down by statute for our railroad lines. Unequal treatment of patrons by a common carrier is known as "discrimination between persons."

Rates Need Not Be the Same to All.—It is not necessary, in order to avoid personal discrimination, that a carrier shall quote the same price to all for the haulage of a given weight a stated distance, but it may not prefer one person to another for reasons inconsistent with the public welfare. That is to say, differences may not be arbitrary or merely reflect the view of the carrier and of a favored shipper without regard to the larger equities involved.¹

Let us illustrate this principle by examples drawn from recorded practices of the railroads:

Wholesale Principle.—A carrier may not reduce its rates upon quantity shipments, at least for quantities beyond the carload, below its rates for smaller amounts, without becoming guilty of discrimination. This, at least, is the traditional rule, and there are many instances in which carriers have attempted to offer such discountstand in which the rule has been clearly laid down. Thus, in *United States v. Tozer*, the railroad charged 34 cents per barrel for hauling each of two barrels from Hannibal, Missouri, to Helper, Kansas, as against a rate of 46 cents for a single barrel. This was held to be illegal.² In the

¹ Cf. the following: "If railway and public utility operation constitute real cases of 'joint supply,' specific rates may be based—except for the special or 'out-of-pocket' costs attributable to each service—only upon the relative demand for each service, the 'value-of-service' principle. In this event, discrimination could be conceived only as unequal treatment for different individuals using like services or as a disregard of any special costs of production which might be discovered. If, on the other hand, the entire unit costs of producing different services may be discovered through the variation of the proportions in which the various services are produced, discrimination is the result of rates which depart in any respect from such unit costs, a practice which results in consequences, at least upon production, similar to those of simple restrictive monopoly." (N. L. Smith, *The Fair Rate of Return in Public Utility Regulation*, Houghton Mifflin, Boston, 1932, p. 85.)

² *U. S. v. Tozer*, 39 Fed. 369, 1889.

Anaconda Mining Company case there was a difference in rate between two kinds of coke, one of which ordinarily moved in carloads and the other in trainloads. The rate from the ovens in West Virginia and Pennsylvania to Chicago was \$2.65 per ton on the first sort and \$2.35 per ton on the second; This was declared improper.

In a case decided in 1882 the evidence showed a railroad rate from Salineville to Cleveland, Ohio, of \$1.60 per ton of coal. The railroad offered a rebate of from 30 to 70 cents per ton to all persons shipping 5000 tons or more during the year.⁴ This was illegal.

One of the first cases which the Interstate Commerce Commission had to decide was that in which a New England carrier offered a discount of 10 per cent of the rate to any person on the line of its road who should receive consignments of 30,000 tons of coal or more at any single station in the course of a year.⁵ As in the previous instances, the decision was against the carrier. Still more elaborate was an older English arrangement between the Ruabon Coal Company and the Great Western Railway of England. In this case the railway began by separating the portion of its rate designed to cover terminal expense from that designed to cover the line haul. The latter was, except for small quantities, the same per ton per mile whatever the quantity shipped. The former varied as follows:

**When the freight paid by the
Ruabon Coal Co. to the Great
Western Railway Co. exceeded
per year:**

£	The terminal charge was:	
	s	d
40,000	0	3
30,000	0	6
20,000	0	9
15,000	1	0
10,000	1	3
5,000	1	6
Small sums	1	6

In addition to the arrangements just described, the Ruabon Company undertook to send sufficient coal over the railroad's line to points more than 100 miles from the colliery to produce for the railway a gross yearly revenue of £40,000 per year. After one year the supply of coal was to be further increased so as to yield the railroad £60,000, providing the additional coal could be sold in London, and after two years another increase was to bring the railroad earnings from Ruabon coal up to £80,000. When the railroad revenues had become £60,000 the freight rate was to be reduced 3d per ton. When they were £80,000 the reduction was to be 6d⁶

⁸ Anaconda Mining Co. v. C. & E. R.R. Co., 19 I.C.C. 592, 1910.

⁴ Hays v. Pennsylvania, 12 Fed. 309-315, 1882.

⁶ Providence Coal Co. v. Providence & Worcester R. Co., 1 I.C.R. 363, 1887.

⁶ Nicholson v. The Great Western Railway Co., 1 Ry. & Canal Traffic Cases 121. 1858.

In all these cases a distinction should probably be made between instances, as with the carload rate, where the reduction in price is designed to increase the size of the unit of shipment, and instances, such as the Providence and the Ruabon examples, where the purpose of the concession was quite as much to increase the number of shipments as to affect their average size. In passenger traffic the same contrast is presented by the party ticket, good on a single journey for a party of ten or more, and sold at a reduced rate to groups of that size,⁷ and the mileage ticket, which one person can use repeatedly until the ticket is exhausted. The excursion rate, which is sometimes good on a single train only and sometimes is usable on any train during a stated period, resembles alternatively the party rate or the mileage ticket type.

Objections to Quantity Discounts.—American courts and commissions have generally approved of reduced rates for quantity movements of passengers, whether in the form of mileage, excursion, party rate, or commutation tickets. There is not much danger of abuse in the case of passengers, nor are passengers directly competitive with each other as freight may be.

The tolerance extended to passenger arrangement has not, however, been extended to freight shipments, at least beyond the level of a carload rate. This is, perhaps, for two reasons.

In the first place, it is not certain that a railroad receives a consideration for the concession which it makes when it accepts a large quantity of freight for a lower price per 100 pounds than it exacts for a smaller quantity. It may be cheaper for a carrier to handle twenty cars between Chicago and New York for one person than to handle twenty cars for twenty persons, but the economy is not inevitable, and the railroad can fairly be asked to prove its case. Nor is there much basis from which to estimate the amount of the saving, if saving there be.

What is still more important is the fact that quantity discounts favor the large shipper against the small. In the Providence coal case, indeed, there appeared to be only one shipper who was in a position to take advantage of the railroad's offer. To what extent a large company may legitimately exert its strength in competition with smaller rivals is a question to which neither economist nor government official is yet prepared to give an answer. American courts, however, declare that a large corporation is not to be allowed to force or to buy any better treatment on the railroads of the country than is enjoyed by the small producer.

Capital [said Judge Baxter of the United States District Court in a leading case] needs no such extraneous aid. It possesses inherent advantages, which cannot be taken from it. But it has no just claim, by reason of its accumulated strength, to demand the use of the public highways of the country, constructed for the common

⁷ In the Matter of Passenger Tariffs, 2 I.C.R. 445, 1889; I.C.C. v. B. & O. R.R. Co., 3 I.C.R. 192, 1890; *ibid.*, 145 U. S. 263, 1892.

benefit of all, on more favorable terms than are accorded to the humblest of the land; and a discrimination in favor of parties furnishing the largest quantity of freight, and solely on that ground, is a discrimination in favor of capital, and is contrary to a sound public policy, violative of that equality of right guaranteed to every citizen, and a wrong to the disfavored party, for which the courts are competent to give redress.⁸

Recommendations of the Federal Coordinator.—It deserves mention, however, that, in spite of the prevailing opinion in these matters, the Federal Coordinator of Transportation in 1935 recommended that railroads quote reduced rates on shipments of from 5000 to 10,000 tons in loads of 80 tons per car. The Coordinator argued: (1) that ships and pipe lines already quoted rates on such quantities; (2) that railroads could handle trainload lots more cheaply than carload lots because terminal costs incident to collection, assemblage, and delivery would be reduced; and (3) that the little men would not suffer. All that the little man now has open, said the Coordinator, is the relatively high carload rate, while his strong competitor has provided himself with miles of pipe line or with fleets of vessels. If his condition were changed at all by the proposed alteration in railroad practice it would be for the better, to the extent that alone or in cooperation with others he could take advantage of the cargo rates.⁹ In harmony with these recommendations the Interstate Commerce Commission in 1939 declared its willingness to permit rail carriers to introduce low trainload rates with a minimum of 1800 tons to be shipped under one bill of lading, from one consignor, to one consignee, at the same time, in competition with barge line service upon the Mississippi River.

Competition.—Most cases of discrimination between people are due to competition, not to attempts to recognize differences in the cost of handling business received from different shippers. Competition leads directly to rate-cutting. Sometimes the cuts are open and are extended to all who may apply; sometimes they are secret and limited, and only a few shippers can take advantage of them. General rate cuts lead to rate wars; limited cuts produce discrimination. It is with the second type that we are concerned in this chapter.

How far it is consistent with the public welfare to recognize competition as a reason for price differences is a matter upon which opinions differ. If it is to be done it should be done openly, but it may be that it should not be done at all. In the United States the Supreme Court ruled over forty years ago that public carriers might not grant price concessions to one shipper and deny them to another merely because the two parties differed with respect to the alternatives which they could command. This decision was handed down in the leading case of *Wight v. United States*, decided in 1897.

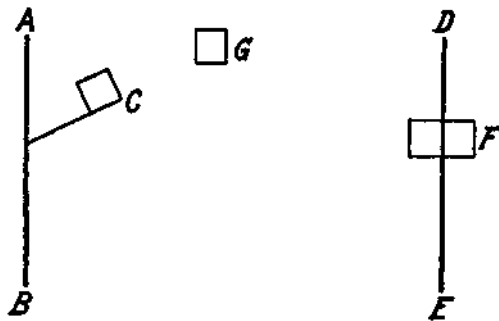
⁸ *Hays v. Pennsylvania*, 12 Fed. 309-315, 1882.

⁹ *United States, Office of the Federal Coordinator of Transportation, Freight Traffic Report, Vol. 2, 1935, pp. 91-92.*

Wight v. United States.¹⁰—The Wight case arose under a clause in the Act to Regulate Commerce which specifically forbade a carrier to charge **one** shipper less than another for the transportation of a like kind of traffic under similar circumstances and conditions. The litigation concerned a teaming allowance in the city of Pittsburgh. The facts are illustrated in the accompanying diagram.

In the diagram, the lines *AB* and *DE* indicate two competing railroads running into Pittsburgh. *F* is a freight house belonging to Railroad *DE*; and *C* and *G* are two privately owned warehouses, one located on a spur of the railroad *AB* and the other located in the city of Pittsburgh but not on any railroad line.

The favored shipper in the Wight case was a man named Bruening, who had a beer warehouse at *C*, and who, because of this advantageous position, received his freight without the necessity of paying a drayage charge. In order



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to share in Bruening's traffic, railroad *DE* offered, if Bruening would ship over its line, to team his freight across the city of Pittsburgh from *F* to *C* without charge, thus making the same delivery at *C* as railroad *AB* was already prepared to make, and at the same expense. Later, Bruening, who had accepted the offer, proposed that he should do the city hauling himself, and that railroad *DE* should pay him 3% cents per 100 pounds to cover the expense. This was done.

The rate on beer from Cincinnati to Pittsburgh was 15 cents, whether freight moved over *AB* or *DE*. But under the arrangements between Bruening and carrier *DE*, Bruening enjoyed an advantage over the owner of a warehouse located as was the warehouse at *G*. For *G* had to pay 15 cents and accept delivery at *F*, while Bruening paid only 15 cents less 3½ cents, or 11½ cents, for delivery at *F*, the difference being used to cover the teaming cost to *C*.

¹⁰ 167 U. S. 512, 1897. See also *Richmond Chamber of Commerce v. Seaboard Air Line*, 44 I.C.C. 455, 1917.

The discrimination in Bruening's favor was defended on the ground that Bruening's warehouse, by reason of its location, had the benefit of competition. This made conditions, it was said, dissimilar at *C* from those at other warehouses, such as those at *G*, and justified a lower rate to Bruening than was given to his competitors.

The United States Supreme Court ruled, however, that railroad rates must be the same to all unless conditions were dissimilar, and further, that the presence or absence of competition did not make conditions dissimilar in any sense which would justify a difference in rate between two persons shipping a like commodity from the same point of origin to the same city of destination.

Report of the English Rates Advisory Committee.—In contrast to the decision of the American court in the *Wight* case we may consider the report of the English Rates Advisory Committee rendered to the Ministry of Transport in Great Britain soon after the close of the World War. The English Committee, in the course of a discussion of services which English railways were rendering to traders, either free or at a nominal charge, mentioned the following types of service:

- i. Where traders have a private siding connected with one of the railway companies the other railway companies cart the goods of the trader to and from the company's nearest railway station free of charge for collection or delivery, and also pay him on such traffic any siding rebates or allowances that he would have received had the traffic passed over the siding. There are 53 of such sidings. . . . In addition, a railway company with whose line a private siding is connected carts goods to and from parts of the traders' works which are not adjacent to the siding from and to their stations without charge for collection or delivery, and other companies follow suit. This practice formerly existed in other parts of the country but has been abolished except in these districts.

2. At certain public wharves upon the canals the railway companies collect or deliver goods (as the case may be) usually by boat, as if such wharves were stations of the railway companies, making no charge for such collection or delivery, or for loading and unloading the barges, the traffic being actually charged at the rate applicable at the station nearest to the public wharf, and where the rates are *C* and *D* a rebate being allowed. There are 30 of such public wharves, . . . in some cases private works of the traders with canal frontage being treated as public wharves and in other cases works in the neighbourhood not actually fronting on the canals receiving similar privileges.

3. Where a trader has a shed for potatoes at a station of one of the railway companies, the other railway companies collect or deliver potatoes at such shed without making any charge for such collection or delivery. There are six of such potato sheds. . . .

4. Where anchors or chains are sent at *C* and *D* rates from the work of a trader the railway companies convey the same to one/of the three test houses at Cradlcly, Netherton and Tipton Basin for the purpose of being tested, and after they have been tested collect them and forward them to their destination, making no further charge than would be made if the carriage had been from the works

of the trader to the ultimate destination without interruption, or from the group in which the test house is situate. Where the goods are sent at S to S rates a charge is made for delivery to the test houses, but they are collected there after test without charge.

These concessions appear to have arisen out of the competition between railways and canals, or between railway companies themselves, and have resulted in some cases in the traders securing free boatage or cartage over distances amounting to from three to five miles, or even as much as eight miles when their works have been distant from the railway station of one of the companies.

The railway companies estimate that the withdrawal of these concessions to the traders will effect a saving to the railway companies of 80,950 a year.¹¹

It will be observed that three out of the four instances listed by the English Committee fall within the rule of the Wight case, the fourth instance being analogous to a transit rate. The "Wight" rule is nevertheless not applied in England; and the Committee accordingly advised that the railways should be left free to act, at least until a pending general revision of rates came into force, when the matter could, if necessary, be reconsidered.¹²

Let us now consider some of the methods which carriers have used in according discriminatory treatment to shippers whom, for business reasons, they desired to prefer.

Free Passes.—A form of favoritism which has had some vogue on American railroads consists of the granting of free passes to favored shippers in order to hold their business from competing lines. In Great Britain railway companies have long followed the practice of issuing to traders who send large yearly consignments of goods by rail, tickets for use by their employers at rates lower than ordinary season tickets. The conditions under which tickets are issued are largely standardized, and the principle involved seems to be approved by public sentiment.

In the United States, the equivalent practice is that of granting passes. In

¹¹ Ministry of Transport, "Report of the Rates Advisory Committee on the Interim Revision of Railway Rates, Tolls, Fares, and Charges," July and October, 1920, Part III. Fares lower than ordinary and services rendered free or at nominal charges, *British Sessional Papers*, Vol. XVII, 1921, Cd. 1148.

¹² The English view that competition is an acceptable reason for discrimination, even between individuals, has found recent expression in the Road and Rail Traffic Act of 1933. The fundamental law in England, of course, forbids railway companies to grant any undue or unreasonable preference or advantage to or in favor of any particular person or company (18 Victoria 243, 1854, Par. 2). But in the Road and Rail Traffic Act of 1933 (24 George V, chap. 53, Part II, Sec. 37) it is provided that a railroad may apply for and the Rate Tribunal may grant permission to agree with a trader upon a charge for the carriage of the latter's goods. Agreed charges, the obvious purpose of which will be to prevent the diversion of shipments from rail to truck are not subject to the requirement that railways shall make equal demands upon all persons under like circumstances, although other traders whose business is detrimentally affected by a proposed arrangement may be heard and the Tribunal is expected to refuse requests which are improper. In actual practice a great many agreed rates are permitted in England with little criticism of the principle involved.

most cases, a pass saves the recipient more money than it costs the railroad, and so passes are a cheap form of currency for the railroad to employ in proportion to the benefit received. On the other hand, the abuse of passes involves a considerable sacrifice of revenue, while in so far as passes are given to some shippers and not to others they produce objectionable discrimination.

"I would recommend," wrote a freight agent in the Middle West to his superior, "in order to treat Mr.—, General Superintendent,—Coal Co., without discrimination and place him on an equality with other producers of coal on our line, that he be given time pass good between—, Chicago and Danville. From present indications- they are in shape to put out something over one hundred cars of coal per month, which I think entitles them to transportation recommended."

Passes were at one time freely issued in the United States. At certain times and places their abuse amounted to a scandal. At present the practice not only is limited by the laws of many states, but it is controlled in detail by the following section of the Act to Regulate Commerce:

No common carrier subject to the provisions of this Act shall, after January first, nineteen hundred and seven, directly or indirectly, issue or give any interstate ticket, free pass, or free transportation for passengers, except to its employees and their families, its officers, agents, surgeons, physicians, and attorneys at law; to ministers of religion, traveling secretaries of railroad Young Men's Christian Associations, inmates of hospitals and charitable and eleemosynary institutions, and persons exclusively engaged in charitable and eleemosynary work, to indigent, destitute, and homeless persons, and to such persons when transported by charitable societies or hospitals, and the necessary agents employed in such transportation; to inmates of the National Homes or State Homes for Disabled Volunteer Soldiers, and of Soldiers' and Sailors' Homes, including those about to enter and those returning home after discharge; to necessary caretakers of live stock, poultry, milk, and fruit; to employees on sleeping cars, express cars, and to linemen of telegraph and telephone companies, to Railway Mail Service employees, post-office inspectors, customs inspectors, and immigration inspectors; to newsboys on trains, baggage agents, witnesses attending any legal investigation in which the common carrier is interested, persons injured in wrecks and physicians and nurses attending such persons: *Provided*, That this provision shall not be construed to prohibit the interchange of passes for the officers, agents, and employees of common carriers, and their families; nor to prohibit any common carrier from carrying passengers free with the object of providing relief in cases of general epidemic, pestilence, or other calamitous visitation.

The list of persons to whom railroad passes may be issued has been extended since 1906 to include, in addition to the above, officers, agents, employees, and their families, of telegraph, telephone, and cable lines, members of National Guard organizations traveling to and from joint encampments with the regular army, and accredited agents and officers of the Post Office Department. There may be some question as to whether common carriers may properly be

asked to supply free transportation to all the persons enumerated, but the law is permissive only, and the important thing to observe is that the list does not include shippers of freight, and so prohibits the form of discrimination with which this section is concerned.

Rebates.—The rebate has become notorious in the United States because it has been a method for meeting the pressure of competition in a semi-secret way. Strictly speaking, to grant a rebate is merely to repay to a shipper a portion of the rate which he has in the first instance paid for the transportation of his freight. It may or may not be true that the balance which the railroad retains constitutes a fair compensation for the railroad service, and so one cannot say without additional information how far the railroad has lost by the transaction. But rebates are objectionable in railroad work for the reason that they represent a return to the practice of individual bargain as contrasted with a one-price system of rate-making, making discrimination easy if the carrier wishes to indulge in it. Moreover, rebating involves departures from the rates which railroads in the United States publish and file with the Interstate Commerce Commission, and so is directly contrary to statute law.

There are probably two reasons why railroads have preferred to charge a high rate and repay a portion of it rather than to charge a lower rate in the beginning. In the first place, it is easier to keep a concession concealed when the published rate is actually collected, because the shipping papers, such as the bill of lading, the way bill, and the freight bill, bear the published charge, while the partial repayments of this charge to the shipper is known to few persons, even of those in the railroad's employ.

Another reason is that the rebate lends itself to the system of exclusive contract. An exclusive contract is an agreement under which a shipper gives his entire business to some one carrier for a certain period in return for a reduction in rates. Such a contract was that concluded in the seventies and early eighties between the Southern Pacific Railroad and Pacific coast shippers. At this time the Southern Pacific was anxious to meet the competition of **the** water route between San Francisco and New York in the way least expensive to itself. To do this, it examined the books of shippers to determine the exact cost in individual instances of shipping over the water lines. Having learned shipping costs, the Southern Pacific then offered a rail rate which made the advantages of shipping by rail at least as great as those of shipping by sea. These low rates were accorded only to persons who would agree to ship nothing by water and everything by rail. This was the exclusive-contract feature. The system was administered by rebate, and violation of the contract made it impossible for the shipper to collect his rebate. Since no rebate was paid on any business until the expiration of the period for which the contract was concluded, the position of the railroad was secure.¹³

The common law does not permit common carriers to enter into exclusive

¹³ Stuart Daggett, *History of the Southern Pacific*, Ronald, New York, 1922, chap. xiv.

contracts, and the fact that rebates facilitate arrangements of this type is a strong argument against the practice of rebating.

Changes in Published Rates.—Without allowing rebates, railroads may discriminate effectively by means of advances or reductions of published rates. If changes in rates are made on short notice, and a few but not all shippers have advance knowledge of what is to be done, the shippers who are forewarned will have an advantage over other shippers who are not informed. They will be able either to delay their shipments in order to take advantage of a promised reduction in rates, or hasten them in order to anticipate an increase. And they will be able to conclude contracts for future work with a precision and confidence which less favored persons cannot possess.

Moreover, rate changes may be so arranged in point of time as to benefit particular businesses. How this may work was shown in 1892, when complaint was made of discrimination in favor of the Standard Oil Company. It was then alleged that the Central Pacific Railroad, running from Ogden, Utah, to Sacramento, California, was lowering oil rates from \$ 1.25 per 100 pounds to 82½ or 90 cents when the Standard Oil Company desired to make shipments from eastern refining points to the Pacific coast, the rates being subsequently raised when the shipments had been completed. A letter to the vice-president of the Standard Oil Company, bearing upon an episode of this sort, written under date of December 4, 1888, got into the public press, and seems to establish the fact that transactions of this nature were going on. The letter follows and is self-explanatory:¹⁴

SAN FRANCISCO, December 4, 1888

W. H. TILFORD, VICE-PRESIDENT, STANDARD OIL COMPANY,
26 BROADWAY, NEW YORK.
DEAR SIR:

I herewith hand you copy of a letter I have just received from Mr.———, Assistant General Freight Agent of the Southern Pacific Company, this city. This letter I interpret to mean the 90-cent rate is for us to stock up from time to time, and that the \$1.25 rate will be in effect whenever we may desire. This \$1.25 rate is what Mr.———refers to in the latter portion of his letter, as my offer of 90 cents to Mr. Stubbs was on condition that he has the rate of \$1.25 put into effect when we might ask him. This letter also reads as if the 90-cent rate and the \$1 rate was to be put in effect January 1st. No doubt Mr. Stubbs was unaware that we were stocked up at the present rate of 82½.

The Transcontinental Association adjourned at Chicago yesterday, and I understand that Mr. Stubbs is now on his way home. I will see him on his arrival here, and if Chairman Leeds of the Transcontinental Association has been notified to put the 90-cent rate in effect January 1st I will have the same corrected by wire and the \$1.25 rate put in. As soon as Mr. Stubbs reaches home I will telegraph you

¹⁴*Ibid.*, pp. 244-245.

whether it is intended that the 90-cent rate should be put in effect January 1st or the \$1.25.

Yours truly,

E. A. TILFORD.

Personal discrimination by means of sudden changes in open rates is now impossible because the Act to Regulate Commerce requires 30 days' notice of all changes, either up or down. Moreover, the Interstate Commerce Commission has the power to suspend changes in railroad and water rates for seven months, and motor vehicle rates for 180 days, and may be relied upon to exercise this power when it has reason to believe that such a change will work discrimination or be otherwise improper.

Payment for Property or Service Supplied by Shipper.—Another type of discrimination sometimes occurs through payments to shippers for property supplied or for services rendered in connection with transportation. Such payments are not necessarily discriminatory or illegal. They become so only when excessive, or when the shipper is compensated for some service that it is no part of the duty of the carrier to perform.

Private Cars.—Payment for the use of a freight car is payment for OP* form of service.

One of the earliest complaints with respect to private cars originated with a New York dealer in livestock back in 1890. This gentleman was accustomed to buy cattle in the West and to ship them to New York. He complained of an arrangement between the railroad and one of his competitors, the firm of Schwarzchild & Sulzberger, under which this firm supplied yard facilities at New York for cattle which were consigned to it, and also, through a company organized for the purpose, supplied 250 stock cars for the loading of its livestock. The carrier (Delaware, Lackawanna and Western Railroad Company) paid Schwarzchild & Sulzberger 3½ cents per hundredweight of cattle passing through for the use of the yardage facilities, and for the use of the stock cars a mileage allowance that amounted to \$13.71 per round trip between Chicago and New York. The yardage money went directly to the parties mentioned, while the mileage payments were made to a so-called express company which Schwarzchild & Sulzberger controlled.

Speaking of this arrangement, the Interstate Commerce Commission said:

The mileage paid by the railroad companies pursuant to the contract as compensation for the use of the cars, from September 1st, 1888, to September 1st, 1890, was \$205,582.68. The entire expenses of the Express Company, including car repairs and salaries of its officers and manager, for the same period, were \$34,050.48, leaving a net profit of \$171,532.20. To this must be added the yardage charge paid S. & S. The amount of this is not shown by the testimony, but at three and one-half cents per hundredweight for a carload of 22,000 pounds it amounts to \$7.70 per car, and if the shipments amounted to 100 carloads per week it amounts to \$770 per week, or \$40,040 per year. . . .

To put **the** matter in another form, **the** effect may be looked at upon a single carload shipment. The car mileage for the round trip of a car is \$13.71. The yardage paid is \$7.70—total, \$21.41. Assuming a round trip to be made in a week, the interest on the cost of the car for that period at 6 per cent is 72 cents, leaving a net profit of \$20.69. This represents substantially the advantage S. & S. receive over other shippers on a single carload shipment, and they either have so much more profit if their cattle are sold at the market price, or they can sell at a correspondingly lower price than their competitors who are not so favored, and command the market.¹⁵

Shippers still frequently build cars for the transportation of special types of commodities. Tank cars, refrigeration cars, and coal cars are illustrations of this practice. A shipper who owns cars is more likely to have cars at his disposal when he needs them than a shipper who relies entirely upon the railroad, and the cars are also more likely to suit his special requirements.

But while a shipper may build cars and even rent them to the railroad for a price, his revenue from this source may not exceed a reasonable return upon his investment. He may not, directly or indirectly, secure a reduction in rates as a result of his car ownership, nor may he ask for special service except in the respects mentioned. What is true of railway cars is also true of other railroad facilities.

Elevation Allowances.—The so-called elevation of grain is a process by which grain is unloaded from wagons or railway cars, taken into a warehouse, cleaned, graded, stored, and subsequently redelivered, perhaps for local consumption or perhaps for further transportation. Elevation greatly facilitates trading in grain, and is also convenient for the railroad, since it allows the consolidation into heavier carloads of small consignments received at country stations. For this reason, railroads sometimes pay part or even the whole cost of elevation. The practice has some reasonable basis, but it may easily lead to discrimination.

The propriety of elevation allowances has been before the courts and the Interstate Commerce Commission in a number of cases. In a leading case in 1904, it appeared that the Union Pacific Railroad desired to have all of its grain cars unloaded into elevators at the Missouri River, partly to keep these cars upon its line and partly to secure a heavier average loading per car by a subsequent reloading. The company accordingly conveyed land in Council Bluffs and Kansas City to a man named Peavey, and agreed to pay Peavey, if he would construct a grain elevator, the sum of 1¼ cents per 100 pounds on grain passing through the elevator. Peavey was an extensive buyer and shipper of grain on his own account, as well as an operator of elevators. At one time, indeed, he handled 60 per cent of all the grain shipped from Union Pacific stations. By virtue of the arrangement described, he of course received 1¼

cents per 100 pounds on the greater part of his material. This raised the question as to whether or not Peavey was receiving a special favor.

In 1904 the Interstate Commerce Commission considered the Peavey contract, and pronounced it legal.¹⁶ The Commission said that the amount of the allowance given Peavey was not unreasonable, and the fact that Peavey derived incidental advantages from the arrangement, as he certainly did, was not sufficient to justify denunciation of the contract.

In 1907, the Commission had so far changed its view as to cut down Peavey's allowance to $\frac{3}{4}$ cent per 100 pounds, on the ground that this amount would cover the bare cost of elevation and that no profit should be allowed.¹⁷

The following year it declared even the reduced allowance to be illegal. The allowance had meanwhile been extended to all elevators at Omaha, and not merely to Peavey & Co., but the payments still discriminated in favor of shippers who owned elevators against shippers who did not. Railroads, said the Commission, might pay for the transfer of grain from their own cars to the cars of connecting roads. But the elevation allowance did more than this.

If, however [said the Commission], the Union Pacific Company gives to the shipper over its line the privilege of securing for nothing an official weight and inspection of his carload of grain; if it issues to him a certificate by which it agrees to hold a certain amount of grain of a certain grade at the pleasure of the shipper and send that grain forward to whatever destination the shipper names, an entirely new element is introduced into the transaction. This is not an incident of transportation, nor is it performed for the benefit of the carrier. It is a part of the grain dealer's business, is for his benefit, and is of value to him. If it is accorded to one dealer and not to another, a preference in favor of the dealer who receives it arises. This service the railroad company has no right to render free when this works an undue discrimination against other shippers.¹⁸

The Commission's order of 1908 was reversed by the courts on the ground that the elevation allowance to Peavey & Co. covered a transportation service, that it was reasonable in amount, and that it was not made illegal by the fact that shippers like Peavey were able to have their grain inspected, weighed, cleaned, and graded in the elevator at the same time that it was stored.¹⁹ In 1912 the Commission expressed the opinion that $\frac{1}{4}$ cent was sufficient to cover the cost of transportation elevation,²⁰ and three years later the carriers voluntarily discontinued all such payments at the principal cities where the discussion had taken place.²¹

¹⁶ In the Matter of Allowances to Elevators, etc., 10 I.C.C. 309, 1904.

¹⁷ In the Matter of Allowances to Elevators by the Union Pacific Railroad Company, 12 I.C.C. 85, 1907.

¹⁸ Traffic Bureau, Merchants Exchange v. C. B. & Q. R.R. Co., 14 I.C.C. 317, 330-331, 1908.

¹⁹ Peavey & Co. v. U. P. R.R. Co., 176 Fed. 409, 1910; I.C.C. v. Diffenbaugh, 222 U. S. 42, 1911.

²⁰ In the Matter of Elevator Allowances, 24 I.C.C. 197, 1912.

²¹ Grain Elevator Allowances, 34 I.C.C. 442, 1915.

Industrial Railroads.—An industrial railroad is, as its name implies, a railroad owned by an industry and used, at least in part, to facilitate plant operations. A logging road running from a sawmill into the forest, is such an enterprise. The trackage which connects the plant units in a manufacturing establishment is another. When plant units are so connected, the presumption is that the duty of the main-line carrier is to place cars on an exchange track outside of or on the edge of the trackage owned by the factory, leaving it to the manufacturer to move the car from place to place within his plant. But the manufacturer may argue that the main-line railroad should place cars at the warehouse door convenient for loading or unloading, even though the warehouse is located on factory-owned trackage. When the owner of a manufacturing establishment takes this view, he will generally suggest that he take charge himself of all movements over tracks within his plant; but he will ask for compensation for the hauling and "spotting" which he undertakes to do. In such cases the first question is as to the main-line carrier's duty in connection with such transportation. A carrier may not pay for the rendering of a service which it, the carrier, is under no obligation to perform. Assuming that the main-line railroad is bound to perform the service called for, the next question is as to what reasonable allowance it may make to the person who undertakes the operation in the carrier's behalf. If the shipper does intramural hauling for the carrier, and the latter pays too much for the accommodation, then the shipper obtains an advantage that may ruin a less fortunate competitor. Nor is the situation different, although the facts become more complicated, when the industrial railroad extends beyond the boundaries of the owning plant, accepts traffic from outsiders, and connects with the main-line railroad at some distance from the place where the manufacturing process is carried on. If the principal carrier pays the industrial railroad an excessive proportion of a through rate for hauls in which main-line and industrial carriers jointly are concerned, then the manufacturer who owns the industrial railroad will secure an unearned profit which will operate to reduce the net freight rate he pays.

Hutchinson Salt Case.—A few instances in which the industrial railroad has been used as a means of discrimination are as follows:

In the Hutchinson Salt case²² it appeared that one of the mills of the Hutchinson Salt Company, at Hutchinson, Kansas, was located between the tracks of the Atchison, Topeka, and Santa Fe Railway Company and the Chicago, Rock Island, and Pacific Railway Company. The salt company owned 4000 or 5000 feet of track connecting its plant with both of these railroad systems. It owned no other track.

In July, 1902, the Hutchinson Salt Company organized the Hutchinson and Arkansas River Railroad Company. This new company bought the track which had formerly belonged to the salt company. Application was then made

²² In the Matter of Transportation of Salt from Hutchinson, Kansas, 10 I.C.C. 1, 1904.

to the Santa Fe and to the Rock Island, and these systems agreed to grant the Hutchinson and Arkansas River Railroad Company a division of 25 per cent of the through rate on bulk salt from Hutchinson to Kansas City, Omaha, etc., subject to a maximum of 50 cents a ton to all Missouri River points. The rate on bulk salt to Kansas City was then 10 cents per 100 pounds, or \$2 per ton, and up to October 12, 1903, \$15,301.39 had been paid as divisions.

The Hutchinson and Arkansas River Railroad Company rendered no service in return for the division which it received, except to allow the use of its track. It owned no equipment, did no switching, and issued no bills of lading. In fact, there was no mention of service in the negotiations which led up to the granting of the allowances mentioned in the preceding paragraph. The point dwelt upon was not service, but the alleged fact that large quantities of foreign and domestic salt were being sold upon the Missouri River, and that some inducement must be held out to producers if any bulk salt was to be moved from the Hutchinson field into this territory.

When we remember that the cost of manufacturing a ton of salt in Kansas in 1903 was approximately \$2, not including the cost of transportation, the significance of the arrangement that has been described is clear. The Santa Fe and Rock Island might have reduced their rates on salt, if they had desired to help Kansas salt manufacturers to compete on the Missouri River. Such a reduction could have been defended. But to offer a saving of 50 cents a ton to a subsidiary of one salt company without offering the same reduction to other salt companies was to work a discrimination which neither the law nor public policy would allow.

International Harvester Case.—In the International Harvester case,²³ testimony showed that, in 1901, the McCormick Company of Chicago operated an extensive plant for the manufacture of agricultural implements. As part of this plant, it had constructed and was maintaining within the limits of its ground 17 miles of railroad track. It used two steam locomotives and several electric motors upon these tracks in the various operations connected with its business.

Cars were delivered to the McCormick Company by the Santa Fe system, the Burlington system, and the Chicago Junction Railway, one of the switching lines in Chicago. These railroads sent their locomotives upon the McCormick Company's tracks in the course of delivery of cars, and performed there certain switching services which, although rendered free of charge, caused the manufacturer some congestion and embarrassment.

Being dissatisfied with existing conditions, the McCormick Company organized the Illinois Northern Railroad. The new railroad acquired, maintained, and proceeded to operate the 17 miles of track formerly owned by the McCormick Company, together with about 5 miles of track that connected

²⁸ In the Matter of Division of Joint Rates and Other Allowances to Terminal Railroads
10 I.C.C. 385, 1904.

the McCormick switch with the line of the Santa Fe. The McCormick Company and its successor, the International Harvester Company, absolutely controlled the Illinois Northern, besides supplying it with a large and probably the major portion of its traffic.

In the ordinary course of business the Illinois Northern Railway now received cars from the main-line railroads at Chicago, switched them 4 miles or less, and delivered them either at the McCormick plant or at one of the industries along the 5 miles of track acquired from the Santa Fe. At first it demanded and received from \$1 to \$3.50 per car from its connections for the switching service. The Interstate Commerce Commission was of the opinion, when it considered the matter, that \$3.50 was a reasonable charge. But following this, the Illinois Northern demanded that its connections allow it not a switching charge but a division of the through rate amounting to 20 per cent of the rate on business destined to the Missouri River. Inasmuch as the rate on farm machinery to the Missouri River was \$60 per car, the payment to the Illinois Northern for its work suddenly increased from \$3.50 to \$12. The Commission found that companies like the Santa Fe and the Burlington assented to the increase demanded in order to secure traffic from the International Harvester Company. It therefore concluded that the railroads connecting with the Illinois Northern were using their relations with that company as a means of giving unlawful favors to the International Harvester Company, to whose benefit the earnings of the Illinois Northern ultimately accrued. This was a repetition of the salt case in another form.

Reciprocity in Purchasing.—The question has recently been raised whether it is legitimate for a manufacturer who sells supplies to a railroad to insist that the railroad distribute its patronage in proportion to the commercial tonnage which the manufacturer routes over the purchasing railroad's lines. Some of the larger shippers of railway supplies send periodically to each of various carriers a list or summary of the shipments which they have routed over each carrier's line. Still more generally, it is the practice of shippers who desire to make sales to railroads to appeal directly by correspondence or personal interview to the carriers' traffic departments, in an effort to cause these departments to intercede in their behalf with the purchasing departments. Shippers have usually been successful in securing such intercession; and traffic departments frequently urge purchasing departments to favor particular shippers in awarding contracts because of the routing of traffic which such shippers control. In some instances manufacturers and dealers have threatened to divert, and sometimes have diverted, their business from one carrier to another because the first carrier made purchases from other concerns. On the other hand, railroads have used their purchasing power as a club with which to influence the routing of traffic. Sometimes the result of all this has been that carriers have paid higher prices or have accepted an inferior quality of merchandise, although this has not always been the case. The net effect of the practice is difficult to determine.

Looking at the relations between supply houses and carriers as a whole, it does not seem likely that the carriers as a group buy more or that the railway supply houses ship more because of their bargaining than would have been bought and shipped if "reciprocity" had been eliminated from the negotiations. It may, however, be true that insistence on reciprocity makes it more difficult for new and relatively small supply houses to establish themselves. Small carriers may also be at a disadvantage. The system of bargaining, moreover, involves a certain expense with no clear resulting gain. Opinions differ as to whether "reciprocal buying" leads to what may properly be termed personal discrimination. The examiner for the Interstate Commerce Commission who heard the testimony relating to the practice was sufficiently impressed with its disadvantages to recommend that the Commission ask Congress to rescind the provisions of the law under which shippers have the right to specify the routes over which their goods are transported, and to vest authority in the Commission to require carriers to purchase, after competitive bidding, from the bidder whose bid was most favorable to the carrier. The Commission did not adopt this recommendation, preferring to leave the matter, for a time, to the carriers and shippers, in the hope that abuses might be corrected on the initiative of those concerned.

Other Forms of Discrimination.—Among other methods of discriminating between persons are the underweighing or misdescription of shipments connived at by both parties in order to defeat the published rate, the preferential allotment of cars, free storage or storage at unremunerative rates, the rendering of service in a special manner without extra charge, as when cars are stopped en route to complete the loading required for the application of a car-load rate, preferential switching, failure to collect for demurrage, switching or reconsignment, excessive payments for supplies, the acceptance of excessive or improper claims for loss or damage to property transported or for services which shippers allege that they have rendered but do not really perform, the extension of credit to shippers in contravention of rules which the Interstate Commerce Commission has laid down, and the guarantee of loans which shippers secure from commercial banks. This list does not pretend to be exhaustive, for railroads may favor shippers at any of the numerous points where the two come into business contact, if not restrained by their own interest, by public opinion, or by the force of law.

Each annual report of the Interstate Commerce Commission refers to cases of personal discrimination, some of which subject carriers to substantial penalties when brought before the courts. Many of these violations of the law are, however, unintentional, and in other cases it is not always evident that a violation has occurred until the decision of the Commission or of some court has been handed down. Methods of business change and old rules have to be adapted to new circumstances, so that, as Sharfman well says, questions of discrimination shade imperceptibly into the vast body of commodity and

distance relationships, in which alleged violations of law necessarily **become** matters of controversy.²⁴

Objections to Personal Discrimination.—The public objection to discrimination is in essence the democratic one that it deprives the individual of that equal chance for the pursuit of liberty and happiness which is conceived to be his inalienable right. It does this directly, by means of a difference in charge, and indirectly, by its tendency to concentrate business in a few hands. The margin upon which success in business depends today is so narrow that few concerns can resist the pressure of a competitor who enjoys a constant, though perhaps small, advantage, such as he can secure through preference in railroad rates. Discrimination also produces fluctuations in rates, interfering with the forecasting of costs that lends stability to business enterprise. And finally, by substituting the individual bargain for the fixed price it recurs **to** a method of marketing which even private business finds wasteful.

The view that personal discrimination by common carriers is intolerable has found repeated expression both in statute and in common law. Nor are the carriers themselves anxious to continue practices which involve sacrifices of revenue, or to run counter to a public view which their managers largely share. Cases of discrimination are today comparatively rare, and, when found, frequently result from complex arrangements, the final result of which is not always clearly perceived even by the parties most concerned.

Prohibition of Personal Discrimination in the Federal Act to Regulate Commerce.—Discrimination between persons is forbidden by the laws of most states and also by federal statute. The pertinent clauses of the Act to Regulate Commerce, may be summarized as follows:

Section 1 extends the jurisdiction of the Interstate Commerce Commission to include private cars, terminal facilities, car distribution, etc. It also contains the so-called "commodity clause," forbidding a railroad to transport in interstate or foreign commerce any article, other than timber and the manufactured products thereof, manufactured, mined, or produced by it, or which it may own in whole or in part, or in which it may have any interest, direct or indirect, except articles necessary and intended for its use in the conduct of its business as a common carrier. The same section (Par. 7) forbids the granting of passes except to enumerated types of travelers.

Section 2 declares it unlawful for any common carrier subject to the Act to Regulate Commerce to collect a greater or less compensation from one person than from another for a like and contemporaneous service in the transportation of a like kind of traffic. Special rates and rebates are particularly denounced, and carriers are forbidden to deliver freight at destination until all charges have been paid except under such rules and regulations as the Commission may from time to time prescribe.

²⁴ 1. L. Sharfman, *The Interstate Commerce Commission*, Part III, Vol. B, p. 362, Commonwealth Fund, New York, 1936.

Section 3 declares it unlawful for any common carrier subject to the Act to Regulate Commerce to give any undue or unreasonable preference to any person, or to subject any person to undue or unreasonable prejudice or disadvantage.

Section 6 requires carriers to file their rates with the Interstate Commerce Commission, and to keep these rates posted for public inspection. Thirty days' notice is required for a change, and no rate other than the published rate may be collected.

Section 10 declares that common carriers who grant or shippers who accept transportation for property at less than the published rate are alike guilty of misdemeanors, punishable by fine or imprisonment or both. False billing, false classification, and false weighing are forbidden. Persons who solicit carriers for concessions are liable to the same penalty as those who receive concessions.

These provisions, together with clauses giving to the Interstate Commerce Commission authority to prescribe and inspect railroad accounts, appear to provide our chief regulatory body with sufficient power to control cases of personal discrimination in interstate and foreign commerce as fast as these cases are defined and discovered. State laws are generally modeled on the federal statute, and the two together form a body of legislation that is reasonably complete and satisfactory as far as discrimination between persons is concerned.

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PARTV

RATES



CHAPTER XV

THE TOTAL RETURN FOR THE SERVICE OF TRANSPORTATION—FIFTH AND FOURTEENTH AMENDMENTS



In the three preceding chapters we have examined the duties of common carriers under the general heads of service, liability, and the obligation to treat all users equally. We have now to consider the subject of pricing policy—a subject which requires deliberate discussion because of its importance and because of the many angles from which the matter must be viewed. In the present section, which will deal with rates, we shall be concerned principally with three matters: first, what is the aggregate return which the owners of the transportation system of any country should expect to receive for their services; second, in what proportions should this return be collected from each of the many users of the transportation service or, if this cannot be determined definitely, what peculiarities in the demand for and the supply of the service should be regarded in the allocation; and third, how can the process be simplified and a tariff system be made to work? In the following section we shall consider more largely the nature of the competition to which common carriers are subject and the rate structures which this competition has helped to form. Our discussion will be based principally upon railroad experience because illustrations in this field are relatively abundant and thought is more mature.

General Consideration Relating to Railroad Rates.—The prevalent view among railroad men with regard to rates is that railroad rates are adjusted by a process of intelligent guessing so as to produce, in the long run, the greatest net revenue to the railroad which makes the rates. This view is qualified, to a greater or less degree in individual cases, by reference to the public interest, or to a level of charges which has the sanction of custom. Academic discussion has gone beyond this point but, on the whole, the literature upon the theory of transportation rates, whether concerned with railroads or with other machinery of transport, is inferior to that which deals with price generally or that related to the practical policies of other industrial concerns. The defect is most striking on the side of demand, but it extends to other aspects of the subject also. Without undertaking too ambitious a review of what is, after all, a difficult subject, let us consider a few of the facts which affect rate

judgments in transportation and some principles which the fixing of rates involves.¹

Free v. Non-free Transportation.—In discussing the basis of railroad charges, it should be remembered that the first proposition to be established is that railroads shall charge any rate at all. Doubtless transportation companies could not continue under private management unless permitted to charge for their services; but it is not inconceivable that the people of a community should prefer to administer their railways on at least as liberal terms as they do their highways, free to all users, even though this involved government ownership and the levy of taxes to meet the expenses of maintenance. The Erie Canal and the artificially improved Mississippi River are now operated upon this basis. Even haulage expenses might be met from the proceeds of general taxation, although it is unlikely that this would be done except in very special cases.

It is altogether probable that a railroad is worth more to a community than that community pays in rates for its maintenance and operation. How much more it would be a matter of curious speculation to decide—the figure is sometimes set at two or three times the sum which the railroad earns. The reader is reminded of the discussion in Chapter II with respect to the benefits which a transportation system may confer. Reasons were given in this earlier argument for the belief that carriers should pay their way, even though cheap transport affords indirect advantages to the community which enjoys it. Certain other solid reasons against the provision of free or even partially free transportation by any government for its citizens may be added at this point. One such reason, for instance, is that a policy which requires shippers to pay for services rendered them tends to reduce waste both in the construction and in the use of transportation facilities. A second reason is that railroad rates are easier to collect than government taxes. Finally, the fact that a system of adequate railroad rates permits of private, instead of government, ownership of railroads has weight in a country which, like the United States, is conscious of the advantages of private operation and ownership of transportation lines.

Total Return to a Railroad for the Service of Transportation.—If we concede without elaborate discussion that every railroad should pay its way, we then come to two additional problems:

- i. How much, in the aggregate, should each railroad properly demand?
2. What should determine the rates on particular hauls? That is to say, how shall the burden of paying the total return which is deemed just be distributed among the different people who make use of railway facilities?

It Is to the Public Advantage to Pay as Little as Possible for the Service of

¹See D. P. Locklin, "The Literature on Railway Rate Theory," *Quarterly Journal of Economics*, Vol. 47, February, 1933, p. 167.

Transportation.—There is logically an infinite series of gradations between charging nothing at all for railroad transportation and charging the utmost which their necessities may force users of railroads to pay.

Frankly speaking, it is to the public interest to pay the least amount possible for the service of moving goods and people from one place to another. This is, indeed, true not only of the service of transportation, but also of all other services which the public buys. The less that is paid for one thing, the more is left for another. The less paid for transportation, the more remains for production, or the more time can be reserved for purely pleasurable activities. From the point of view of the general public, therefore, the smaller the aggregate revenue of the carriers the better, assuming always that the services supplied remain the same.

The last sentence in the preceding paragraph suggests, however, some important qualifications to the doctrine that the best standard of total railroad revenues is the lowest one. Whatever the aggregate railway revenue may be, it must suffice to maintain the railway plant in as good condition as the needs of the community demand, and it must cover the operating costs incurred in running this plant in a satisfactory manner. Indeed, railway revenue must do more than this, for it must also provide a surplus from which to pay individuals who invest capital in railway enterprise for the use of the capital which they so invest. Nothing short of this will render a railway system truly self-supporting. To save in rates at the expense of permanence of service is like attempting to economize in one's clothing bill by buying less durable shoes, or, to use a still better illustration, like reducing factory costs by installing poorer machines. In either case the apparent saving will presently produce an actual increase *in* expenses, assuming always that the shoes or the machines formerly in use were of the quality best suited to the needs of the persons who used them.

Efficiency of Railroad Management.—As a practical matter, whether a community pays more or less for its railway service depends upon two things. The first of these is the efficiency with which the service is conducted, and the second is the price which is paid (1) for material, (2) for railway labor, and (3) for the use of capital.

The efficiency of railway service is ordinarily measured by objective tests, such as the average speed of trains, the number of tons per train, the average tractive power of locomotives, the gross ton-miles per freight train hour, the consumption of fuel per 1000 gross ton-miles, the cost of repairs per locomotive-mile or per car-mile, the percentage which loss and damage payments bear to freight and switching revenue, and by other indices of the same general sort.

The tendency of averages of the kind indicated in the preceding paragraph has been, in recent years, as follows:

Railroad Operating Averages	1930	1938
Average tractive effort of locomotives (lbs.)	45,225	49,803
Net ton-miles per loaded car-mile	26.7	26.1
Freight train speed (miles per hour)	13.8	16.6
Car-miles per car per day	30.5	31.3
Gross ton-miles per train hour	25,837	31,138
Fuel consumption per 1000 gross ton-miles (lbs.)	121	115

An apparently reasonable conclusion from the figures given is that the efficiency of the American railroad system has been improving, and this may well have been the case, even though we do not know the perfect standard to which performance should approach. The concept of efficiency will be found to be a difficult one, however, when we consider it with care. Clearly many of the changes in averages which are referred to as indications of increasing efficiency could be imposed, almost at will, by the decisions of railroad managements. This is true, for instance, of increases in the tractive power of locomotives, in the average size of cars, in the number of tons per train, and in the average speed of movement, while in a measure it is also true of reductions in fuel consumption and in loss and damage claims. But to do this would require large capital investments and, interest and depreciation being taken into the account, it might increase rather than decrease total costs. The attainment of a particular average at any time indicates not efficiency but only a reasoned decision that no higher or lower results are economically defensible in a special case.

Generally speaking, management has three duties. In the first place, it must formulate its objectives. Secondly, it must assemble, in proper proportions, the factors of production which it needs. And thirdly, it must set these factors in such physical and psychological relations with each other and direct them in such a way that the ratio of output in terms of the objectives to the force expended is as large as it can be made. It would seem that American railroad managements have decided in recent years, in discharging their responsibilities, that the ratio of capital to labor in railroad enterprise should be increased. More machines and fewer men are being used, and the averages reveal the operating results. Such a change is responsive to alterations in price; on the whole, it is a performance of the second management duty, not of the third. Certainly it is not inspired by the childish wish to lengthen trains or to run them faster merely to satisfy a sense of workmanship or a feeling of power. Not the fact of bigger cars, but the accuracy of management choice between alternatives with respect to the size of cars, the type of track, the character of terminals, and the kind and number of employees in the light of the price of each, measures the efficiency of the directing control. These adjustments are believed to have been well made, but the success attained is not properly gauged by the yardsticks that are usually employed, and the whole problem deserves more study than it has yet received.

Expenditures for Labor.—According to figures compiled by the Bureau of Railway Economics, railway operating expenses in the year 1938 were as follows:

	Amount	Distribution Expressed in Cents per Dollar of Gross Revenue
Labor (salaries and wages)	\$1,660,119,971	46.5
Fuel (locomotive)	113,171,714	6.3
Materials and supplies and miscellaneous	579,758,903	16.3
Loss and damage, injuries to persons, and insurance	57113,415	1.6
Depreciation and retirements	201,825,004	5-7
Taxes		9-5
Hire of equipment and joint facility net rentals	340,781,954	
	129,636,021	3-6
Total expenses and taxes		89.5
	\$3,192,616,982	
Total operating revenues	\$3,565,490,753	100.0

The table just given shows very clearly that the labor expenditures are the largest which a railroad has to make. The fact would be even more evident than it is were we to take account of the large part which the cost of labor plays in the price of materials and in determining the sums which governments find it necessary to collect in taxes.

The sums spent by American railroads for wages and salaries to their employees engaged in operation have been in recent years as follows:

Year	Amount (Thousands)	Per Cent of Operating Revenues
1930	\$1,366,594	44.8
1931	1,965,416	46.9
1932	1,436,842	46.0
1933	1,336,214	43-2
1934	1,441,922	44.1
1935	1,554,246	45.0
1936	1,738,016	41.9
1937	1,865,392	44.8
1938	1,660,230	46.5

Influences Which Affect the Amount Paid in Railroad Wages.—A considerable proportion of the employees of American railroads are strongly organized in four great brotherhoods—those of the locomotive engineers, the locomotive firemen, the conductors, and the trainmen. The railway shopmen have affiliated with the American Federation of Labor, although many of them until recently were organized locally into unions coextensive with the lines of the railway systems which employed them. The level of pay of these organized employees undoubtedly reflects the bargaining power exerted by the unions.

For the rest, there are two theories that attempt to explain the level of wages which are paid or should be paid to railroad labor. The first of these proceeds on the basis of a budget in which are assembled those items which are considered by the persons who draw up the budget to be essential to the maintenance of the efficiency of railway labor, or, more generally, to the maintenance of what is called a decent or American standard of living. The second attempts to relate wages in the railroad industry to wages in other comparable lines of work. The laborers themselves are inclined, not unnaturally, to appeal to the standard of living test when the general level of wages tends to decline, and to the comparative test, or to the doctrine that wages should reflect the bargaining power of the labor group, when conditions seem ripe for a rise.

In view of the large proportion of railroad expenditures which goes for the payment of wages and salaries, we may safely say that the aggregate revenue which railroads collect from the shipping and consuming public depends more upon the level of wages which the public consents to have paid to railway labor, and, incidentally, to labor producing supplies for railroad use, than upon any other element in railroad operation. This relationship between railroad revenues and expenditure for wages is generally recognized. Indeed, the large share of carrier outlay which goes to labor not only aligns the railroad labor group in favor of demands for increases in railroad rates, but it has a bearing upon issues that affect the efficiency with which transportation service is conducted and so, ultimately, the level of railroad rates. Generally speaking, the practical result, under present conditions, of any increase in the efficiency of the transportation plant which is not accompanied by an offsetting increase in the demand for transport service will be a decrease in the employment of labor or a lowering of the average wage.² This is why labor is resolutely opposed to plans for railroad consolidation, without contesting the assertion that a reduction in the number of operating systems may reduce the cost of carrying passengers and freight. The problem of railroad rates at any time and also, in a measure, the selection of methods by which

² The effect of such an increase in efficiency unbalanced by any increase in transportation demand will, of course, be felt by all parties contributing to the production of transport service, not by labor alone. But the following circumstances may be mentioned in justification of the statement in the text: (1) Recent proposals for railroad economy have been designed to eliminate railroad deficits. They have not, characteristically, been expected to reduce rates. There is no reason to suppose that changes of this character will increase the volume of transport service which can be sold. (2) Economies in operation tend to displace factors in inverse proportion to their efficiency. There is some ground for the belief that rail labor at the present margin of employment is less efficient than rail capital at the margin, the difference being explainable by the superior organization and fighting ability of the labor group. (3) Whatever is true of relative labor efficiency, the proportion of the Annual expenditures of transport companies that is attributable to labor is so much **greater** than that attributable to capital that labor can scarcely escape a substantial share in the localized sacrifice which any increase in efficiency without an increase in the volume of sales will require.

transportation work shall be carried on is always partly a question of the payments to and the standard of living of that part of the community which is engaged in railroad work. This is a social matter, but we must not forget that in the railroad industry it has a vital bearing both upon methods of operation and upon the level of railway rates.

Expenditures for Material.—Railroads spend approximately three dollars in the purchase of materials and fuel for every five dollars and a half which they invest in labor. The sum involved is, therefore, very large, although it does not represent the largest of the expenditures which the carriers have to make.

The level of payments for material depends largely upon general industrial conditions, and partly also upon the relative bargaining skill of representatives of the railroads as compared with that of representatives of the manufacturers of railroad supplies. Generalization with regard to such matters is difficult and dangerous. Railway materials are bought upon the best terms which railway purchasing agents can secure—men whose jobs depend on their success in buying at the bottom of the market. Men acquainted with these agents are likely to credit them with average shrewdness and interest in their work. Cases of collusion between supply men and railroad men are so rare as to be negligible, and the presumption is that the railway pays the going price, and not more than the going price, for the material which it has to buy. On the other hand, the fact that prominent industrialists serve as railroad directors and that bankers become interested both in transportation and in the business of railroad supply indicates the possibility that carriers pay prices which are not always as low as they might, under other conditions, be forced to be.

Railroad Purchases Largest in Times of Active Business.—It perhaps deserves mention, however, that the going price for railroad material is swelled by the fact that railroad purchases are largest in times of active business when prices generally are high, and smallest during times of general depression when prices are low. Railroads buy heavily when prices are high because their income increases in periods of prosperity, and also because it is easier, then, to borrow money in order to anticipate needs of the more or less distant future. In this railroads are not unique. All types of business enterprise are apt to spend more liberally in times of rising prices and to curtail their expenses when prices fall, uneconomical as the practice may seem to be. But the magnitude of the railroad industry and the large proportion which its purchases bear to the total production of certain articles give prominence to a policy, when followed by railroad managements, which might escape notice in the case of less important concerns. If it were possible for railroads to purchase more heavily in the trough and less extensively at the peak of the business cycle, they would not only save money for themselves but they would exert a general stabilizing effect upon industry that would be of national advantage.

Payments for the Use of Capital.—In the long run, and assuming that railway enterprises are continuing affairs, not to be liquidated and their assets distributed among the proprietors, the payments made by railroad companies for the use of capital invested in the railroad business must cover dividends to stockholders plus interest and rental charges paid to creditors of railroad corporations or to owners of property which railroads use.

In the year 1938, the payments to owners of railroad capital amounted to \$709,684,809. This was less than one-half of the sums paid directly to railroad labor and less than the expenses for material and fuel. On an estimated valuation of \$20,000,000,000, it represented a return of 3.5 per cent.³

Speaking generally, the minimum amount which must be set aside for interest, rentals, and dividends under a regime of private property is such a sum as will make investments in railway securities sufficiently attractive to owners of capital to enable railways to secure the use of private funds.

The railroads of the United States need for their development, in order to keep pace with the needs of an expanding population, an annual addition to their capital which, in the past, has been estimated at from \$740,000,000 to \$1,000,000,000. To obtain such funds, they must offer inducements comparable with those obtained in other fields into which capital may flow. The rate of return which railroads are obliged to offer may be comparatively low, but it should be certain, and it cannot be indefinitely reduced. Unlike the question of wages, the matter of payments to owners of capital is not, at least in current discussions, complicated by the consideration of standards of living. This is partly because the individual who owns railroad stock or bonds is not so obviously and publicly associated with the railroad business as is the railroad employee and partly because the former is not usually dependent upon the income from his securities for his entire support.

Nature of Controversies in Recent Years.—During the past generation the question of payments for the use of capital has come up in two ways. The first, and possibly the more fundamental, has taken the form of a demand on the part of carriers for increased rates in order that they may increase the payments which they have been able to make for the use of capital invested in their plant. The other class of cases has been the result of attempts by legislatures or by railroad commissions to reduce railroad rates—attempts which the railroads have resisted, at least in part, on the legal ground that the proposed reductions would deprive them of property without due process of law and would thus run contrary to the prohibitions contained in the federal Constitution.

Valuation Controversy.—When legislatures or commissions exercise their power to reduce rates, they encounter opposition based upon the right of individuals, including corporations, to be protected against deprivation of

³Of the payments to capital in 1938, \$56,043,296 consisted of dividends paid out of surplus. These figures are for Class I railroads only.

their property without "due process of law." This is a right conferred by the Fifth and Fourteenth Amendments to the Constitution of the United States. By court interpretation "due process," in the constitutional sense, refers to formal procedure; but it* also—and this is significant in the present connection—is a phrase which restrains federal and state governments from unreasonable and unfair takings of property, whatever procedure may be set up. Under the rule of "due process," moreover, restrictions applied to the earnings of a business property which prevent the owner from realizing a fair return upon its value when it is devoted to business use will be considered as equivalent to a taking of that property itself. Due process at this point leads to "valuation," for it follows from what has been just said that corporations are compelled to set up and that courts must consider property valuations in cases under the Fifth and Fourteenth Amendments. They must do this, and they must also determine rates of return which they will accept as fair. All this is clear enough, once the phrase "due process" has been interpreted to cover more than mere procedure, and the courts have proceeded step by step along the path upon which their feet have been placed. In the transport field valuation doctrine has been applied chiefly to railroads, and there have been times when it has been important in this field. On the whole, however, it has been hard to value railroads: first, because railroad properties are not so frequently bought and sold or so uniform in type as to establish a market price; and second, because railroad earnings cannot be used as a basis for inference in valuation cases without independent evidence that these earnings are reasonable. Not only this, but valuation has not been serviceable in railroad rate cases because business conditions have long been such as to prevent carriers from earning a fair return upon values which they may establish. These difficulties, and the extreme complexity of valuation theory also, have made valuation unpopular, even in legal circles. We may dismiss, with this brief reference, a subject which, under other conditions, might have been elaborately discussed.

Increases in Rates and Prices.—The change in the trend of railroad rates from a steady progress downward to a generally consistent progress upward occurred in 1916. The average receipt per ton per mile on American railroads fell from .757 cents in 1900 to .754 cents in 1908 and to .719 cents in the year ending December 31, 1916. Since 1916, the average receipts per ton per mile reported to the Interstate Commerce Commission have been .715 cents in 1917, 1.275 cents in 1921, 1.097 cents in 1925, and .983 cents in 1938.

The spectacular increase of railroad receipts from an average of .719 cents per ton per mile to 1.275 cents Per ton Per mile in a space of five years was, of course, due to an equally spectacular change in price levels. Later reductions to an average of .983 are principally to be explained by motor vehicle competition. Both types of pressure have led carriers to ask the Interstate Commerce Commission for higher rates in order to earn larger revenues which

will permit the payment of a return upon invested capital comparable with that obtainable in other lines of business. The applications have led to a series of important Commission cases, in which the financial condition of the American railroad system has been repeatedly discussed.

Applications for Increases in Rates.—The principal railroad applications for increases in their rates are listed in the accompanying note.⁴ The most important of these applications were submitted (1) in 1920, when carriers were restored to private operation after the World War, and (2) following the financial and business collapse of 1929, when a general decline in business,

* 1911. Proposed advances in Official Classification Territory (20 I.C.C. 243, 1911). Proposed advances in Western Trunk Line, Trans-Missouri, and Illinois Freight Committee territory (20 I.C.C. 307, 1911). The applications covered several hundred thousand rates west of Chicago. In the East a general advance in class rates was asked for, together with an increase of about one-half of the commodity rates in the territory affected. The advances were denied.

1914. Carriers north of the Ohio and Potomac again sought general freight increases, ranging this time from 3 to 50 per cent (31 I.C.C. 351, 1914; 32 I.C.C. 325, 1914). Granted in part.

1917. General application for a 15-per-cent increase of all freight rates except on certain designated commodities by carriers in the East, West, and South (45 I.C.C. 303, 1917). Tariffs carrying the higher rates were suspended, but some increases were eventually allowed.

1920. General application for increases sufficient to increase revenues to 6 per cent, pursuant to enactment of the act of 1920 (58 I.C.C. 220, 302, 1920). Granted, but part of the approved increases were taken away in 1922 (68 I.C.C. 676, 1922).

1926. Carriers west of the Mississippi River asked for a 5-per-cent increase (113 I.C.C. 3, 1926). The Commission held that there was no emergency to justify a horizontal increase, but suggested that the railroads initiate proceedings to change particular rates.

1931. General application for a 15-per-cent increase (178 I.C.C. 539, 1931; 179 I.C.C. 215, 1931; 191 I.C.C. 361, 1933). Denied, but some temporary and lesser advances were approved, subject to prescribed conditions.

1933. Application by shippers for a general reduction in railroad charges (195 I.C.C. 5, 1933). Denied.

1935. Application by substantially all Class I carriers to increase rates, for the most part by 10 per cent, subject to various maxima and exceptions. The Commission permitted railroads to impose surcharges of specified amounts to normal freight rates during a period beginning in April, 1935, and terminating on July 1, 1936. This period was subsequently extended to December 31, 1936, but a petition for an additional extension was denied (208 I.C.C. 4, 1935; 215 I.C.C. 439, 1936; 219 I.C.C. 565, 1936).

1937. Application to increase rates upon specified items. This action was taken before the removal of the emergency charges referred to in the preceding paragraph, and was intended to carry enough of these temporary advances into the permanent rate structure to yield perhaps 70 per cent of the revenues which the surcharges had produced. The Commission approved, in 1937, most of the advances which were desired (223 I.C.C. 657, 1937).

1938. General application for increase in freight rates by 15 per cent and for advance of passenger coach fares in Eastern territory to a level of 2.5 cents per mile. The passenger fare advance was denied. The Commission declined to authorize any increase on some commodities, allowed a 5-per-cent increase on some, and a 10-per-cent increase on others (226 I.C.C. 41, 1938; 227 I.C.C. 17, 1938).

1938. Pullman Company proposed to increase all Pullman fares and charges by 10 per cent. Commission authorized advance of 5 per cent, with the suggestion that charges for the use of upper berths be not increased (227 I.C.C. 644, 1938).

1938. Carriers in Eastern territory asked permission to increase coach fares to a level of 2.5 cents per mile for an experimental period of 18 months. Granted, but at the expiration of the period a further extension of time was refused (227 I.C.C. 685, 1938).

together with inroads upon rail traffic by motor vehicle competition, destroyed railroad credit and made it difficult for a substantial portion of the railroad mileage of the country to earn its operating costs. During these two periods, and especially in the second, the necessary minimum of payments for the use of railroad capital was repeatedly discussed.

Generally speaking, there have been four questions involved in the series of decisions to which reference has been made. These may be stated as follows: (1) Will increased rates yield increased revenues? (2) Do railroads need increased revenues? (3) May the public properly be asked to pay higher rates because of railroad necessities? (4) If rail rates are to be advanced, according to what method shall this be done?

The position of the Interstate Commerce Commission in the various advanced-rate cases has been that advances in rates can be relied upon to produce additional revenue when first introduced, although in the long run they may have a contrary effect.⁵ Experience with actual changes in 1931 and subsequent years has verified at least the first of these suppositions. As for the need, the difficulties which the railroads faced in 1920 were great, and those which the carriers have encountered since 1929 have been even more dangerous. There is no present desire to dispute this fact, although in 1931 the Interstate Commerce Commission was still reassuring itself with* the observation that the tide of economic activity would turn and that the railroads had inherent advantages over the motor truck which would enable them to withstand competition in the long run. The advanced-rate cases have provided opportunity for the discussion of both of these matters. These cases have also concerned themselves with questions of technique.⁶ But besides all this they are pertinent to our present subject because they consider, and for the most part accept, the" necessity of including payments for the use of capital among the costs which railroad revenues must provide. Strictly from the legal point of view this is not necessary, for the legal requirement is that rates should be reasonable and in determining reasonableness courts and commissions have referred to matters other than those related to carrier costs. Moreover, in times of business depression the wisdom or even the legality

⁵ The Commission said, in 1931: "There are elements of plain peril to the railroads in such an increase in freight rates as they propose at the present time. The chief dangers are (1) that . . . it will stimulate new competitive forces already rapidly developing, (2) that it will alienate or impair . . . friendly feeling . . . and (3) that it will disturb business conditions . . . and accelerate the tendency toward a localization of production. . . ." (178 I.C.C. 539, 575, 1931)

⁶ There are several alternatives from which to choose when an increase in charges is to be made. These include: (1) a general, percentage, increase in rates; (2) flat increases applied to all class and commodity tariffs; (3) selective advances of rates applied to articles which can be easily increased in price or which are relatively expensive to transport. The Interstate Commerce Commission prefers the third method to the other two; it emphasizes also the desirability of using* the proceeds of any comprehensive increase, through pooling or by some equivalent device, for the relief of the particular carriers whose necessities provide the reason for any increase that may be approved.

of constructing rate systems so as to provide a return upon capital is contested on two grounds. In the first place it is argued that in time of stress railroads can secure genuine relief only from general business recovery. From this point of view high rates, which impede the flow of commerce, defeat the very purpose for which they are installed. This is a variation of the argument that higher rates do not produce greater earnings. And in the second place it is maintained that rates adjusted to produce a fair return to capital will become unreasonable and illegal when conditions are such that a return to capital in railroading is inconsistent with a return to capital invested in business which makes use of railroad service. This is usually expressed by saying that rates which exceed the value of the service rendered are improper whether or not they provide the carrier with revenue with which to meet his capital costs.⁷

It cannot be said that the decisions of the Interstate Commerce Commission have supplied us with much thoughtful analysis of the conflicting claims of carriers and shippers where the interests of the two diverge, but they have brought the importance of capital payments into relief and have shown, on the whole, a recognition of the necessity of allowing a return to the investor if new capital is to be attracted to the railroad industry and the work of transport is to remain in private hands. It is of secondary importance whether this be done through a stable rate level applied with little change in good times and in bad or by a level which rises and falls inversely to prosperity in industry at large. The necessary circumstance is that in the long run capital as well as labor and material costs shall be recognized and supplied.

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⁷ It should be obvious that this argument should lead also to the conclusion that the general level of railroad rates need not yield revenue sufficient to pay the wages of railroad labor or the cost of purchasing carrier supplies as well as conclusions with respect to railroad capital.

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CHAPTER XVI

RATES ON PARTICULAR HAULS. THE THEORY OF PRICING



The theoretical problem of establishing correct rates in particular instances is simplified when the argument can assume a total railroad revenue which is accepted by all concerned as reasonable. For the task then becomes one of distribution, analogous in many ways to the problem of taxation. Just as a legislature can discuss tax schedules upon the basis of a budget, so can a traffic manager or a railroad commission discuss rates, if he or it can work upon the basis of an estimated volume of business involving expenditures for labor, material, and capital, which, while not fixed, still bear some relation to standards which have been agreed upon as right.

A railroad man who appreciates the necessity of finishing the railroad year with a surplus will naturally attempt to fix rates so as to cover, in the case of every shipment, the operating cost of handling that shipment, together with such a percentage of profit as will, on the expected volume of business, take care of the overhead expense. Such a policy is "natural" because it seems simple and adequate, and also because it appears to lay the burden of the costs of railroad service upon the shoulders of parties who benefit from transportation, i.e., the shippers. It follows that we may begin the consideration of the theory of railroad rates on particular hauls with an analysis of railroad costs, postponing for the moment discussion of the demand for railroad service.

Constant Costs.—There are two peculiarities of railroad costs. One is that such costs do not vary in exact proportion to changes in the volume of traffic which the railroad handles, and the other is that railroad costs are joint and therefore difficult to segregate.

Few carrier costs are constant over long periods, but over short periods expense is apt to change slowly as traffic rises or falls. This is partly because the costs of maintenance are in part a function of exposure, not of wear. This is true of terminals, roadbed, and equipment, for instance. Ties rot, bridges rust, stations decay or are damaged by frost and rain, whether few or many trains pass over the road. The cost in such cases is a function of time and of the amount of property exposed, and only in part the direct result of use. There is also another reason why railroad costs do not vary with business, suggested by

the catchword "surplus capacity." It happens that railroads employ indivisible capital units of considerable size—bridges, track, tunnels, terminal buildings—which, if they are to be used at all, must be built to a certain standard and which have, in most cases, a certain excess capacity at the time they are installed. Because of this excess capacity it is not generally necessary to increase the amount of fixed capital with every addition to traffic, and so interest charges are relatively constant so long as the surplus in capacity endures. Indeed, men* as well as machines may have surplus capacity, and the reasoning that attributes constancy in cost to the operations of the locomotive has some application also to the locomotive engineer.¹

According to A. M. Wellington, author of a standard treatise upon railroad location, railroad expenses may be analyzed as shown in the accompanying table. Assuming a fairly prosperous line of the second grade with a business of 20,000 tons per mile and a gross revenue of \$7,000 per mile:

	Per Cent	Per Mile
Gross revenue	100.00	\$7000
Operating expenses, unaffected by either alignment of volume of traffic	33-3	2-333
Operating expenses, increasing directly with considerable changes in alignment or volume of traffic, but not with trifling changes	26.7	1867
Operating expenses, increasing directly with the less important changes in alignment or traffic	6.7	467
Total operating expenses	66.7	\$4667
Fixed charges (6 per cent on \$30,000 per mile)	25.7	1800
Total expenses	92.4	\$6467
Surplus available for dividends	7-6	\$ 533

The table takes account both of the constancy of railroad interest charges in the face of increasing business, and of the relative stability of maintenance and operating expenses as traffic grows. It indicates, further, a figure of 59 per cent which is the sum of the percentages of fixed charges and operating expenses unaffected by either alignment or volume of traffic. This is the proportion which absolutely constant costs are said to bear to the total outgo of a

¹ Locklin and others distinguish between constant expenses which represent the return on capital invested and general expenses such as the salaries of executive officers, which, although constant, must be regularly incurred if operations are to continue. Doubtless there are degrees in "constancy," but it may be suggested that the significant difference between capital investment and expenditures for the salaries of general officers is only in the time during which the enterprise is committed to reliance upon the apparatus secured by its expenditure. A machine which is leased for a term of five years and a president hired under a five-year contract fall from the corporation's point of view in the same category. This matter of classification may have more than an academic interest if railroad employees successfully maintain, as they seem to desire to do, that a railroad company is under obligation to provide continued employment for its personnel in service even when improvements in technique or decline in business would enable it to handle traffic with fewer men.

railroad corporation. It may be well to dwell a little longer upon some aspects of the question which this table suggests.

Stages of Traffic—Wellington recognizes, and it is generally admitted, that the constancy of railroad expense does not persist in the face of considerable changes in the volume of traffic. Statisticians have long observed that railroad costs do keep pace reasonably well with the amount of business over a series of years. M. O. Lorenz, statistician to the Interstate Commerce Commission, explained this fact years ago on the ground that the distinction between fixed and variable expenses in the railroad field depended upon the length of time under consideration. Some expenditures, he said, grew by jerks. Thus one might take the case of a small railroad with one locomotive hauling five cars daily. Five more cars would add but slightly to the expense, but presently a second locomotive would be required and the capital charges would increase. Or again, if a book shelf is half filled, a few additional books will add nothing for the time being to the expense for shelves, but eventually, a new case must be added.²

The fact that rail expenses do or do not seem to keep pace with expenses, according to the point of view, has led to the development of the notion of stages in the intensity of traffic. This idea of stages supposes an initial plant and a steadily increasing volume of traffic. The first stage is assumed to last from the moment when observations are begun to the point when a new investment of capital becomes necessary. During this time capital costs remain constant, even though the volume of traffic grows. But when new capital is required, a second stage begins. Capital or constant costs in the second stage are higher than they were in the first, but they do not again increase until a further investment becomes necessary, and then a third stage begins.³ This is what Lorenz characterized less formally as a growth in expenses by jerks. Of course, the stage theory oversimplifies the process, for investment in a railroad enterprise is continuous, not an affair of intervals, although particular pieces of capital may be only periodically replaced. Yet the simplification is helpful. There is, however, no need to complicate the theory again, as a German author does by the introduction of substages and by the idea of relatively as well as absolutely constant costs.

Aggregate v. Unit Costs.—The phrase "constant cost" has been used in the foregoing discussion to indicate those expenses which, in the aggregate, do not change with changes in the volume of the business done, neither rising as traffic grows nor falling off as traffic declines. The opposite conception to con-

² M. O. Lorenz, "Constant and Variable Expenditures and the Distance Tariff," *Quarterly Journal of Economics*, February, 1907. The illustrations that Lorenz gives do not exactly support the rule which he states because they depict changes in the volume of business rather than the mere lapse of time. They do, however, relate to the situation which the writer evidently had in mind.

³ Emil Merkert, "Theoretische Abhandlung über die Preisbildung im Verkehrswesen," *Archiv für Eisenbahnwesen*, Juli-August, 1931,

stant cost is that of "variable cost." Variable expenses increase roughly and decline roughly in proportion to the volume of business which a railroad may handle. Another term for variable costs is "out-of-pocket" costs. Costs which may be segregated, which are first incurred when a particular article is offered for transportation, and which disappear when that article ceases to move, are known as out-of-pocket costs. They change, by their very nature, in proportion to the amount of traffic, and they are, therefore, variable. Doubtless there are no costs which are purely constant or purely variable, but there are costs that are predominantly of one character or the other, and this is all that the present discussion needs to assume.

The difficulty in adhering to a uniform terminology when treating the subject of railroad cost is illustrated, however, by the fact that the same costs which appear to be variable when regarded from the point of view of railroad outlays in the aggregate become constant when the cost is expressed in terms of the unit of production; and constant costs also become variable with the same shift in point of view.

The statement just made may be illustrated by the following table:

CONSTANT, VARIABLE, AND TOTAL COSTS OF RAILROAD OPERATION ⁴

Volume of Traffic, Train Miles	Aggregate Expenses			Expenses per Train Mile		
	Constant	Variable	Total	Constant	Variable	Total
10,000	6,000	1,000	8,000	60	10	80
20,000	6,000	4,000	10,000	30	10	50
30,000	6,000	6,000	12,000	10	10	40
40,000	6,000	8,000	14,000	15	10	35
50,000	6,000	10,000	16,000	12	10	31
60,000	6,000	12,000	18,000	10	10	30
70,000	6,000	14,000	20,000	8.6	10	18.6
80,000	6,000	16,000	22,000	7.5	10	17.5
90,000	6,000	18,000	24,000	6.6	10	16.6
100,000	6,000	20,000	26,000	6.0	10	16.0

Study of this table shows that the same class of expenses which varies in proportion to the volume of traffic taken as an aggregate remains a constant amount, by that very circumstance, for each unit of the traffic hauled. On the other hand, the costs which are independent of volume when totals are considered, become less and less important parts of the expense of production of any traffic units as the number of these units is increased. It follows that the constant costs become progressively less important and the variable costs more important in the complex of cost considerations which determine price as traffic grows. At least, this is true within each of the "stages" into which we

have assumed that business is divided. When new capital investment is required, and one stage yields to a succeeding one, constant costs regain a portion of their influence on price. We cannot, therefore, say what proportion of railroad costs are constant and what proportion variable, not only because the percentage differs at different times and places, but also because the proportion changes with the volume of traffic. This is a fact sometimes overlooked in academic discussions of the subject.⁵

Do Constant Costs Affect Price?—Wiedenfeld has made the observation that constant costs are not price determining. These costs, he argues, consist mostly of payments for the use of railroad capital. But the investment in a railroad, once made, can neither be withdrawn nor diverted. Thus failure to pay a return on capital does not decrease the amount of capital in use nor, consequently, the output of the plant, with the result that prices for service are not affected. The compensation received by investors is a consequence of price, not a cause of it.⁶

From a long-time point of view it cannot be successfully maintained that the general costs of an undertaking do not affect the prices which that concern will charge. This is, first, because it is not completely true that the capital in a railroad enterprise is irrevocably committed to that business. Terminal lands can in part be put to other use; machine shops may engage in non-railroad work; equipment may be allowed to deteriorate and the money normally used for maintenance may be invested elsewhere. Operations of this sort may to a certain extent reduce the amount of capital in a railroad business, and so decrease the output, until the price of the product has been raised. It is to be remembered in this connection that a small withdrawal of railroad capital may produce a considerable effect upon service. It is not necessary, therefore, that the entire capital be withdrawable in order that constant costs should exert an influence upon price. What is more important still, railroads normally require new capital each year so that they may expand their facilities to care for the needs of expanding business. The average of new capital investment in United States railroads between 1920 and 1929 was \$797,000,000. In 1930 and 1931 the amount was less because of depressed business conditions, but even in 1930 the railroad raised \$362,000,000 of new capital. Unless the aggregate returns from railroad service promise to cover interest on new investment, such additional capital cannot continue to be raised. Doubtless it is

⁵ Acworth assumes, as a rough measure, that half of total railroad expenses are fixed and half vary with the traffic. If, he says, it costs x to deal with 1,000,000 units of traffic, 5,000,000 units will cost, not $5x$ but $\frac{1}{2} + (\frac{1}{2}x \cdot 5) = 3x$ (W. M. Acworth, *Elements of Economics*, p. 55). Hadley, in one of the earliest discussions of the subject, put the proportion of constant expenses at 60 per cent, and Ripley, much later, estimated it at 67.5 per cent. Jones guesses that two-thirds of the total expenses of a railway, and approximately one-half of the operating expenses, are independent of the volume of traffic. These general assumptions more or less consciously and deliberately neglect the qualifications mentioned in the text.

⁶ Kurt Wiedenfeld, *Grundriss der Sozialökonomik*, V Abteilung, III Teil, *Transportwesen*, Mohr, Tubingen, 1930.

the interest on the new investment, not that paid on previous capital outlay, that is essential from the point of view of prospective investors; but it will be obvious "that failure to provide a return upon investments previously made will check the inflow of new capital. For this reason a community must be prepared to pay the constant as well as the variable costs of railroad operation."⁷

Calculation of the Cost of Additional Traffic in a Particular Case.—However, while railroad rates must, in the aggregate, yield revenue to cover both constant and variable costs, yet in particular instances traffic may be accepted which covers only variable or out-of-pocket costs. Starting from any given condition of railroad traffic, there is advantage to a private company in following any policy which will increase its revenues more than its expenses. If a rate will do this, it is sound policy to accept the charge unless, of course, the result will be to sacrifice the chance of securing a still higher price.

Let us return to Wellington's illustration and see how slight will be the additional expense of handling a few additional units of traffic under the assumptions from which this illustration proceeds. Let us suppose, then, that in the Wellington calculation, the traffic upon which he bases his figures is increased by 10 per cent. This increase may perhaps be considered, in the language of the table, a 'less important change.' If it is so classified, and if the assumptions of the table are correct, then the increase in expenses which will follow such a variation will be 10 per cent, not of the total railroad expense of \$6467 per mile, or \$647, but 10 per cent of that portion of operating expense which increases directly with less important changes in alignment or traffic, or \$47. Moreover, a little calculation will show that while, after the new business has been secured, the total cost will become \$6514 and the average cost

per ton———, or 29 cents, the additional cost per unit of new business will
22,000

be only———, or approximately 2 cents. How far the rate on the new business
2000

shall be fixed on the basis of the additional cost, and how far the new traffic shall be called upon to pay a proportion of the more general expenses of the railroad which existed before it was called into being, and for the presence of which it is not responsible, is a problem of policy in the solution of which cost figures offer little aid.

Bearing of the Preceding Analysis Upon Rate Competition Between Railroads.—It may be observed at this point that the analysis in the preceding paragraph helps to explain why radical rate reductions result from competition of rival carriers. Even though a carrier's normal costs are 29 cents a ton and rates are adjusted accordingly, such a carrier may be able to accept new business for a great deal less than 29 cents; indeed, it may cut as low as 2 cents and still maintain a balance between intake and outgo, provided, of course,

⁷Cf. W. Spicss, "Tarif, eine Enzyklopadische Studie," *Archiv fur Eisenbahnwesen*, September - Oktober, 1930.

that the 2-cent rate can be strictly limited to new traffic, and that it does not operate to reduce revenues on business already in hand. This accounts for the fact, for instance, that, published rates on grain between Chicago and New York fell during the trunk-line rate wars of the seventies and eighties from 45 cents to 15 cents, and that the Pennsylvania Railroad at this time transported immigrants from New York to Chicago at the moderate charge of \$1 per head.

Moreover, the same kind of reasoning which demonstrates that the cost of additional business to a carrier may be low and, inferentially, that a railroad may cut rates radically, yet with profit, in order to increase its tonnage, will show that such a railroad must energetically resist every attempt to deprive it of traffic. Thus, if business costs 20 cents to handle, and if, of the 20 cents, 15 cents is independent of the volume of business handled, then a carrier can better afford to quote a rate of 6 cents than to let the business go to its competitor. For a rate of 6 cents will pay out-of-pocket costs and contribute something toward general expenses, while anything more may, in the face of active competition, leave the carrier without any revenue at all, but with 15 cents of general expenses to bear. This is the other side of the rate-war problem.

If there is no rate-cutting, but merely a change in the volume of railroad traffic, now up, now down, then every increase will bring a more than proportionate increase in net profits, and every decrease a more than proportionate decline.

Costs and Long- and Short-haul Rate-making.—If the reasoning with respect to out-of-pocket or variable costs is thoroughly understood, many otherwise inexplicable railroad rate practices will be made clear. It is a common complaint that American railroads have reduced rates to competitive points upon occasion until these rates have become the same or even less than the rates to less distant places on the same line. We have, indeed, already considered legislation directed at this particular policy. But if it can be shown that the lowest rate charged covers the extra costs which follow the acceptance of the competitive traffic, then it can also be demonstrated that the railroad gains by carrying this business, and that charges on non-competitive traffic are not increased. This was explained by Hadley nearly fifty years ago in a reference to certain oyster shipments on the coast of Delaware,⁸ and his explanation has been expounded to college students during many generations. The same principle was the substance of the railroad defense against attacks both on the transcontinental rate structure and on the basing point system of the Southeast. Each of these last-mentioned schedules of rates levied charges allegedly sufficient to cover out-of-pocket costs on competitive traffic, but not high enough to yield much more; and in each case the carrier could show that the advantage of the railroad was being served and that non-competitive charges were not necessarily increased. It does not follow that the old transcontinental

⁸ A. T. Hadley, *Railroad Transportation*, Putnam, New York, 1900, p. 116.

and basing point systems should have been retained, but at least one sound argument was used in their behalf.⁹

Joint Costs.—In spite of the extended use of cost data in mileage tariffs, in long- and short-haul rate-making, and in many other parts of the modern structure of railroad rates, there is great difficulty in applying the cost analysis to particular cases for two reasons. The first of these may be explained by reference to the discussions of cost on preceding pages. We have seen that rail rates should always cover variable costs, but that in many instances a railroad may profitably quote prices which make little or no contribution toward constant costs. The fact that some traffic will, and other traffic will not, be asked to contribute toward constant costs suggests that there is an element of policy in rate-making which the cost analysis does not entirely explain. A second characteristic of railroad costs which also provokes discussion in the field of policy is that rail costs are largely joint costs.

The term "joint cost" is a familiar phrase in textbooks in economics, A simple illustration of the concept in the field of railroading may be found in the railroad box car. Probably no other unit of equipment is so standardized and used for such a variety of purposes as a box car. It may haul canned goods, or dry goods, or kitchenware, or soap, and all of these articles may be loaded at once for an identical destination, be hauled by the same locomotive, pass over the same track, and arrive at the same terminal for delivery to their respective consignees. Another example is the transportation plant which is constructed to accommodate traffic in one direction but which handles, with equal facility, traffic in the opposite direction. The expenditure for track laid down from *A* to *B* enables trains to run also from *B* to *A*, and no additional investment may be required to permit the second haul.¹⁰

In a case of this kind the railroad finds it very difficult to determine the expense of transporting any one commodity. The fact is that the costs of moving all the commodities loaded into a single car are jointly incurred; and while each kind of shipment may be responsible for some special expense of carting or bracing, most of the expenses are incurred for the traffic as a whole, and not for any single element of it. Nor is it possible to distinguish the costs of building a railway in one or in the other direction separately without allocations which are in their nature arbitrary. These are not cases of constant cost, for our illustrations do not deal with an increasing or a decreasing volume of transactions, but they are, perhaps, instances which have importance.

Whether, in the illustration, the railroad business offers an example of joint cost, as the phrase is used in textbooks, has sometimes been disputed. Ac-

⁹ See W. M. Daniels, *The Price of Transportation Service*, Harper, New York, 1932, for a discussion of the computation of out-of-pocket costs in transcontinental rate cases and, in general, for an excellent treatment of the subject of railroad rates. On the subject of transcontinental rates see also chap. xix.

¹⁰ D. H. Wallace, "Joint and Overhead Cost and Railway Rate Policy," *Quarterly Journal of Economics*, August, 1934.

According to the classical statement, joint costs exist when the production of one commodity is inevitably accompanied by the production of one or more other commodities, and no definite part of the total expense can be assigned to any member of the group. Thus Ely points out that it is impossible to segregate the cost of producing tenderloin steaks from the expense of producing soup bones, or either one of these from the cost of making hides.¹¹ Of course railroad services are not joint in the sense in which Ely uses the word, for the transportation of a ton of cotton goods does not necessarily entail the transportation of a ton of shoes, or of any other article whatsoever. On the other hand, it is not necessary to limit the concept of joint cost as narrowly as classical writers were wont to do. There are, as a matter of fact, several alternatives when several products are or can be produced together in ways to which the term joint cost has been applied. It may be that the relative amounts of these several products will invariably be the same. This will never be entirely the case, but operations such as the production of coke-oven gas may approximate it. A given amount of coal of a given kind will always yield, roughly, the same relative amount of coke and gas. Another alternative is that the relative amounts of the different products may be varied at will. Every ox must have beef and every ox must have bones, but the proportion of either to the total weight may be varied. Finally, there are cases in which the additional product may, if desired, be dispensed with, although it may be possible to produce several articles or services by one process if this practice is preferred. Here we have the case of the railroad. A carrier may transport a ton of cotton, and this need not entail the transportation of any other article. But the carrier may possibly decide to carry the cotton along with shoes in a single car, and when this is done, the difficulty of segregating cost and the problem of fixing relative price will appear; and these will be of the same nature as though the transportation of cotton and of shoes had been associated in the same intimate way as the production of beef and bone.¹²

¹¹ R. T. Ely and Others, *Outlines of Economics*, 4th ed., Macmillan, New York, 1926, p. 171.

¹² J. M. Clark, *Standards of Reasonableness in Local Freight Discriminations*, Columbia University Press, New York, 1910. See also F. W. Taussig, "A Contribution to the Theory of Railway Rates," *Quarterly Journal of Economics*, July, 1891. The subject is further discussed in A. C. Pigou, *Wealth and Welfare*, Macmillan, London, 1912, chap. xiii, and in a series of replies and rejoinders between Taussig and Pigou in issues of the *Quarterly Journal of Economics* for February, May, and August, 1913. The idea of joint cost is sometimes extended to cover instances which the text discusses as cases of constant cost. Let us suppose that a carrier which transports 5x units of a commodity decides to undertake the transportation of 6x units instead. In calculating the cost of handling the sixth unit, it will bear in mind the fact that rail costs are fixed and variable; that an additional unit will not, perhaps, increase fixed costs; and that the fixed or constant expenses must be derived somehow from the six units handled. Let us now suppose that the carrier offers, instead, to transport $5x + y$ units, where y is a commodity that has not yet been carried. The aggregate cost of hauling $5x + y$ may not be much greater than the cost of hauling 5x alone, and the decision where to place the burden of the common costs may be decided in the second case according to the same principles which controlled the decision in the first. The writer prefers to distinguish the two sorts of cases, although they have much in common; but some authors use the term joint cost to cover both.

Both "jointness" and "constancy" of railroad costs bring it about that much of the expense incident to railroad service must be allocated more or less arbitrarily because it is impossible to attach it in causal sequence to any single haul. There are several principles to which we may turn for guidance in such an allocation, and we may consider these now with as much precision as the subject permits.

Allocation of Non-separable Expenses in Proportion to Out-of-pocket Costs.

—In the opening paragraphs of this chapter there was reference to the desire of railroad men to add to the out-of-pocket costs of every haul a percentage to take care of overhead expense. This would be a comparatively simple basis for distribution for either constant or joint costs, especially if we assume that all transportation services should bear the same proportion of the overhead expenses incident to railroad transportation. Some such method of handling overhead is common to many kinds of business other than railroading. Thus, in building a house, a contractor will add a fixed percentage to the bids submitted by subcontractors in order to provide for the general costs of supervision, his risk, and profit. Or in fixing prices on manufactured goods, a firm which produces several lines may assume as a guide, at least to its initial price quotations, that each line may properly be expected to contribute a standard proportion to the overhead costs of the enterprise.

If a carrier does assume that all kinds of traffic which it handles should contribute the same proportionate amount to cover general costs, its procedure in rate-making will be in each case to increase the figure of out-of-pocket costs by a uniform percentage. Thus, if two consignments cost in the aggregate \$1000 to haul between A and B, and \$200 of the expenses can be allocated to commodity X and \$300 to commodity Y, it may perhaps be assumed that a distribution of the total cost of \$1000 between the two articles in the proportion of 200 to 300 will be equitable. This will produce a rate of \$400 for the first, and \$600 for the second, consignment.

A variation of this method with somewhat greater pretense to accuracy will involve a further analysis of the conditions of handling each shipment with reference to average loading, speed of trains, methods of collection and delivery, loss and damage to freight, etc., and a distribution of general costs which is not entirely in the proportion of out-of-pocket costs, but which is also influenced by characteristics of the business that are known, although their effects cannot be exactly determined.

Allocation of Costs Largely Guesswork.—It must be confessed that the allocation of general costs upon the basis of specific costs is often very much a matter of guesswork. The traffic manager of a railroad does not proceed, after long inductive inquiry, to determine what the cost of a given movement may be. What he does in the first instance is to reflect that certain items must be covered because they represent expenses which originate with the traffic under consideration and which would disappear if that traffic

were not there. The traffic manager is conscious, beyond this, of certain physical characteristics which affect the expense of transporting the business which is to be moved. He has also before his mind rates upon other articles which seem to resemble this one. A traffic manager who is attempting to decide what rate commodity X shall pay already knows what commodity Y and commodities A, B, C, and D are paying. These commodities are all of like type; they require about the same degree of attention, they travel about the same distances, and there is a *prima facie* reason why their rates should be the same.

The method is rough enough, in all conscience. Nor is it free from theoretical difficulty. On the other hand, the point of view is clear. It is, to repeat, that the joint non-separable costs of a railroad, which everybody recognizes are present in railroad operation, and the constant costs which, if one cared to exaggerate sufficiently, might be conceived of as springing into full being, like Minerva, the moment the railroad begins to operate, should be divided according to some basis connected with the costs which can be actually and separately determined.

Disadvantages in Using Out-of-pocket Costs as a Basis for **Allocation**.—The disadvantage in distributing non-allocatable costs in proportion to out-of-pocket expenses is that the policy will probably restrict either net profits or social gain more than some other basis of division may do. If we consider the objective to be net profits and make the assumption of monopoly, the conclusion easily follows. For if an enterprise completely dominates the market, its arrangements will be dictated by the theory of monopolistic price. Under such a system the limitations of price will be found in the refusal of consumers to purchase because of the attraction of forms of consumption other than those with which the price-fixing policy is concerned. High prices will be charged when and where consumption of the priced commodity or service will be but slightly repressed and low prices where the reverse is true. One ideal price structure and only one will yield the maximum net return. Now the point to be considered in this connection is that the price structure which will yield maximum profits under monopoly conditions will seldom, and only by pure chance, be a structure in which the price charged for each service will be equal to the out-of-pocket costs of rendering that service plus a percentage addition to cover general costs.

If we introduce the idea of competition, disharmony still persists. For under any conditions and at any time, with a given cost schedule and a given character of demand, the maximum profit to an aggregate of agencies supplying a market or to any one of them will only by chance be secured from a price arrangement based upon the mechanical distribution of costs with which we are, for the moment, concerned. What the actual optimum price adjustment will be, will depend upon many facts, including the changes

in unit costs of production which will accompany changing quantities of output and the characteristics of the demand schedules which are expected to absorb the product; but from the point of view of maximum profit a price structure which treats general costs merely as a function of out-of-pocket costs is certainly to be condemned.¹³

Finally, if we abandon the calculation of net profits and substitute, instead, the idea of social gain or some equivalent conception, we have for the third time to conclude that a practice of price-fixing which relates all prices to the out-of-pocket costs of rendering them neglects the factor of demand, without which the importance of an activity to a community cannot be measured. Doubtless it is unsafe to assume that a service is worth rendering when the prospective consumers are unwilling to pay all the costs involved, but neither is it admissible to conclude that the allocation of non-separable costs in production in proportion to out-of-pocket expense, which is only an accounting expedient to solve a problem that is insoluble except on grounds of general welfare, will lead us to conclusions upon which we can depend.

Meaning of "Value of the Service."—The fact that the costs of common carrier transport are difficult to establish, because so many of them are common and joint, and the realization that the demand for transportation should be considered in fixing its price, has given currency to the term "value of the service" in rate discussions. This phrase has been used in a number of ways, as has also the equivalent term, "charging what the traffic will bear." Doubtless in the older days it meant quite simply getting all the shipper could be induced to pay. This might be limited by the fact that the shipper had his own facilities for transport, or by the pressure of competition; or the

¹³ The Interstate Commerce Commission recently discussed this situation in an important case as follows:

"We have already seen that since 1929 one very important factor in the railroad situation has been the growth of competitive forms of transportation, which have deprived the railroads of much traffic which they might otherwise have had and have also compelled them to reduce the rates on much other traffic, in order to hold it to the rails. The present unsatisfactory financial condition of the railroads can, indeed, be ascribed very largely to this fact. The result of this loss of traffic and of the establishment of low competitive rates is to increase the burden upon the traffic which is in effect tied to the rails by force of circumstances, if the credit of the railroads is to be strengthened and maintained.

•The problem can be stated in this way: If the railroads enjoyed a monopoly of transportation and adequate cost records were kept, it would be possible, although perhaps not desirable, to distribute the burden equally over every form of traffic, by requiring it to pay its *pro rata* share of the expenses of operation, taxes, and like charges and also its *pro rata* share of a reasonable return on the fair value of carrier properties. Faced as to some traffic by the competition of other forms of transportation which are able and willing to quote lower rates, the railroads have the alternatives of losing such traffic or of keeping it at rates which pay less than a *pro rata* share of expenses and return. In such circumstances, the only way to maintain a satisfactory financial condition is to charge the traffic which is not subject to competition more than its *pro rata* share of expenses and return. Such procedure, also, is not unfair to the non-competitive traffic, so long as the resulting rates are not greater than they would be if the competitive traffic were not handled, and so long as the maximum possible revenue is obtained from the latter traffic." (223 I.C.C. 657, 738-739' 1937-)

charge might be a monopoly price without private or public control.¹⁴ Since the expression, even when limited, still implied the unreserved pursuit of the carriers' business advantage, further qualifications were introduced. Thus what the traffic would bear in the long run was distinguished from the maximum price that could be charged at any moment. More precisely stated, the phrase referred to a rate that would in the long run bring in, over and above the special costs of the traffic carried, the greatest clear return possible under the special circumstances of each particular case.¹⁵ But the test of even this formulation was railroad profit; and as the carrier could not convince the shipper that the interests of the two were identical, emphasis came to be laid on the volume of traffic. Charging "what the traffic will bear" then meant charging the rates at which most goods would move, it being understood, though not always said, that the railroad should meanwhile earn at least a fair profit. Thus E. P. Ripley of the Santa Fe defined the phrase to mean: "What the traffic will bear and still move most freely and enable the products and the manufactures of one part of the country to be used to the utmost possible extent in the other." The same idea was, possibly, behind the declaration that charging what the traffic would bear had reference to equality of sacrifice by the payer. That is to say, it may have meant that goods of low value which could not afford a high rate would be carried for little money, but that costly goods would be charged high rates.

We shall refer to the idea of "sacrifice" again on a later page. Carried still further by the shipper in later years, "value of the service" or "what the traffic will bear" has been used to suggest the necessity of a profit to the shipper, and we have seen the Interstate Commerce Commission refuse to permit the carriers to charge rates that would bring them only a fair return on the ground that the traffic would not bear it.¹⁶

Value of the Service and Demand.—The most useful conception of value of the service makes it the equivalent of shippers' demand for the service of transportation. This demand, in so far as passengers are concerned, may be inspired either by direct pleasure afforded by a journey, or by heightened satisfaction due to presence in one place rather than in another, or by business advantage expected as a result of movement. Only the last of these is susceptible of measurement. Because of the difficulty of handling the concept of demand with respect to passenger service, discussions of the "value

¹⁴ A. C. Bird, for many years general traffic manager of the Chicago, Milwaukee, and St. Paul, is credited with the remark that he made rates by "competition, comparison, and compromise." This, under competitive conditions, would be very much a policy of charging what the traffic would bear.

¹⁵ J. M. Clark, *Standards of Reasonableness in Local Freight Discriminations*, Columbia University Press, New York, 1910, p. 55.

¹⁶ See Eleanor Heyman, "The Value of the Service: Its Various Meanings and Uses," *The Journal of Land and Public Utility Economics*, August, 1933.

of the service" usually concern themselves with freight, and this is legitimate because the fundamental problems in either branch of transportation are alike.

Freight is usually shipped for business reasons. The reason is, moreover, ordinarily the same: it is the wish to cause and to profit by the increase in price of selected articles that may follow a change in their location. The value of the service of transportation may be measured consistently with this point of view by calculating the difference between the cost of acquiring a commodity at point *A* and the price which can be obtained for this article at point *B*. Freight may move, under exceptional conditions, where no such difference exists, but only when non-business considerations enter in, or as a result of policies which look to an ultimate rather than to an immediate reward.

If the article can be produced at both *A* and *B* the difference may be due to a greater cost at *B*. It may not be possible, however, to produce at *B*, in which case the price which can be secured at that point will depend upon the cost of importing a substitute or on the competition of other goods to which the consumer may turn. Locklin points out that there may also be cases in which the article can be produced at *B* at less cost than at *A* but is nevertheless imported into *B* because it is more profitable to devote *B*'s energy to other kinds of work. In such an instance the price at *B* may be higher than at *A* though the potential costs of production are not greater; this is not really an exception, but it suggests that an increase in the price at *B* above some imperfectly defined level may cause entrepreneurs at *B* to reconsider their decision not to produce certain goods which they have been accustomed to import. We are dealing here with positions of equilibrium, and this is to be remembered also when we consider the assertion that value of the service does not determine the transportation rate but that, on the contrary, the rate determines the value of the service. By this is meant that an article produced at *A* and sold at *B* will sell in *B* at a price sufficient to cover the production cost at *A* and the transportation cost for the carriage of the good from *A* to *B*, whatever the latter may be. The situation is certainly not so simple as the objection that we cite implies, although it may well enough be incorrect to disregard the possible effect of transportation costs upon price. The proper generalization is that transportation rates, like all other costs of production and distribution, tend to limit supply at any point and that this fact with others leads to the successful selection of a particular price among a number which may be considered for disposal of a supply of goods. We shall treat of some aspects of equilibrium in a later chapter upon "location" but more sketchily than the subject deserves. Before leaving the subject of the value of the service, it may be proper to observe that there is only an imperfect analogy between the principle of rate-making on a demand basis and the principle of taxation which requires

that high taxes be levied on the owners of large capitals or the recipients of large incomes because such taxes are supposed to occasion less sacrifice per dollar to the taxpayer than equal taxes paid by poorer persons. The practice of progressive taxation cannot be carried into the rate-making field because the shipper with an active demand for transport may have a smaller income than the man who obtains little benefit from this service. Sacrifice and benefit are two distinct ideas. "Value of the service" is a concept which relates to benefit, and it cannot be explained by a doctrine based on sacrifice.

Intensity of the Demand for Transportation.—Now if we set up a concept of demand for railroad service, it will be possible to consider the characteristics of this demand, just as we discussed previously the behavior of railroad costs. We may inquire, for instance—and this is often done—whether the demand for the transportation of goods of high value is more intense than the demand for the transportation of low-priced goods. Some German writers maintain that this is the case,¹⁷ because, they say, a greater gain usually results from the movement of valuable than from that of low-priced goods. To determine whether or not this is true would require some investigation, especially if the gain is to be reckoned in terms of a percentage of the original cost, not in absolute amounts. Daniels, indeed, points out that higher-priced tonnage, though yielding absolutely more to the railroad in freight revenue per ton, pays for transportation a smaller percentage of its ultimate market value than does the low-class freight.¹⁸ Nor is there any a priori reason why we should suppose that differences in value in different markets should be proportionate to the values of the articles considered. Values and differences in value are, after all, different things. If, however, all that is meant by the common statement is that a higher rate per 100 pounds can generally be charged for the transportation of an article worth \$5 from A to B than for an article worth 50 cents, then the statement may be true, and possibly convenient to remember in drawing up a tariff, though it would have no great theoretical significance. The conclusion would rest on the use of two unlike units—price in dollars and rates per 100 pounds—units which should be reduced to a common basis before laws regarding them should be announced.¹⁹

Elasticity of the Demand for Transportation.—Other questions may be

¹⁷ Emil Merkert, "Theoretische Abhandlung über die Preisbildung im Verkehrswesen," *Archiv für Eisenbahnwesen*, November-December, 1931.

¹⁸ W. M. Daniels, *The Price of Transportation Service*, Harper, New York, 1932, p. 16.

¹⁹ Something can, of course, be said for the contention that the cost of transporting valuable goods is greater than the cost of transporting low-priced goods. This is not only the result of different methods of handling and of the different quantities in which the two sorts of articles are offered for shipment, but it is also because loss and damage to valuable goods, when they occur, involve larger sums of money. But Miller, in his book, *Inland Transportation* (p. 514), asserts: "Beyond the cost element, the value of the commodity may be taken as an index of the ability of the good to bear a charge, and rates may therefore be fixed roughly in proportion to the value of the shipment. Such a scheme is akin to the principle of equality of sacrifice in the field of taxation, except that here the particular good rather than the individual is regarded as the unit." There would seem to be no sufficient basis for these statements.

asked when we substitute for the phrase "intensity of demand" the allied concept of "elasticity of demand." How does the "value of the service" behave as more and more transportation is offered for sale? Articles of elastic demand are defined in this connection as commodities for which a reduction in the price per unit will cause such an enlargement of use that consumers in the aggregate will spend more for them than when the prices per unit were higher.²⁰

It, is said of elasticity, as of intensity of demand for transportation, that this depends largely upon the value of the product. Only in this instance the relation is said to be reversed. Thus the demand for the transportation of articles of high value is inelastic, and that for the transportation of low-valued goods is elastic. Now the notion of "elasticity of demand" as used by economists is a complicated thing, dealing with rates of change rather than with absolute amounts. Moreover, the demand for every article is elastic within certain price limits and inelastic within other limits. These facts make precision of thought and language necessary in enunciating any general rule regarding the relative elasticity of the demand for transportation of articles in different groups.

Granting, however, that the demands for the transportation of different articles may have different degrees of elasticity, this may be due to either of two separate causes. The difference may be traced to the fact that the consumptive demands for the transported articles are different. Since we need a common measure to explain this phenomenon, we may assert that the utility of a commodity unit which sells for a high price per pound will decrease by a less proportion after a given increment in supply than the utility of a unit which sells for a low price per pound. The statement is intelligible, and it may or may not be true. Or the demand for the transportation of a high-priced article may be inelastic for quite another reason, which has little or nothing to do with consumptive demand but which we have already mentioned in discussing the intensity of the demand for transportation. If two articles sell, respectively, for \$10 and \$100, and if the freight rate on each is \$i, then an equal increase of \$1 in the rate applied to each will have differing effects on consumption and probably upon the demand for transportation. Emil Sax pointed out many years ago that transportation costs bore a smaller proportion to the exchange value of high-priced than of low-priced goods; it followed, he said, that a change of so many absolute units in the transportation charge produced less effect in the selling price and on the market relationships in one case than in the other.²¹ This may be spoken of, perhaps, as an example of the inelastic demand of high-priced goods, but it is a different sort of elasticity from that which we have previously explained.

The Incidence of Changing Rates.—The effects of changes in railroad rates on the demand for railroad service are especially difficult to trace because

²⁰ Daniels, *op. cit.*, p. 17.

²¹ Emil Sax, *Die Verkehrsmittel in Volks- und Staatswirthschaft*, Holder, Wien, 1878, p. 25.

rate changes do not necessarily raise or lower the demand for transportation but may instead be shifted to members of society who are neither shippers nor consumers. Obviously a decrease in, a rate may have one of four results. First, shipments may increase and prices may fall. Second, shipments may remain stationary and shippers' profits may rise. This was expected to be the result when, in May, 1929, railroads made experimental reductions in the rates on wheat and wheat flour for export from the Middle West. These experimental reductions actually reduced wheat prices more than they raised farm profits, much to the disappointment of those interested.²² Third, land rentals may rise. A study of freight rates which affect the South Dakota farmer has pointed out the important effect of changes in freight rates on the price of land, especially when rates are reduced. In such cases, according to the study, the competition for additional land will rapidly raise land prices. When rates go up the influence on land values and rentals is likely to be visible more slowly, though in the end it will be felt.²³ Fixed capital, like land, may absorb some of the results of rate changes. Fourth, there may be shifts in the location of manufacturing and commercial centers in order to benefit fully by the advantages expected from, or to minimize the disadvantages of, a change in rates. Certainly the elasticity of demand for railway transport will be different according to which of these events occurs.²⁴

Rates in a Free Market.—If we assume that the supply of rail service can be freely and indefinitely increased, and that the demand for the service varies according to laws which we may empirically discover or correctly deduce, then the price for transportation service will reach an equilibrium, just as the price for any other article will be balanced by the play of contending forces. In such a market the concept of "value of service" will have its indispensable part. It will not, it is true, be alone determining. The value of service, indeed, at any given moment will depend upon the supply of services offering, according to the familiar law of market price, just as the cost of rendering a particular service will vary with the quantity demanded. Likewise in a market in which the supply is restricted, the value of the service, or the consumer demand of which it is the measure and expression, will operate, this time in accordance with the elementary laws of monopoly price; and if the monopoly is not complete, some sort of midway adjustment will be made. In both cases some persons will be unable to command service, namely, those whose effective demand is not sufficiently intense to enable them to pay the market price; and some would-be transport agencies will be unable to exist because they will not be able to sell the services which they offer at prices

²² Bureau of Railway Economics, *A Study of the Economic Effects of Reductions in Freight Rates on Export Wheat—1929*, Washington, 1930.

²³ M. R. Benedict, *Freight Rates and the South Dakota Farmer*, Bulletin No. 269, South Dakota State College, Agricultural Economics Department, February, 1932.

²⁴ See H. R. Trumbower, "The Incidence of Freight Charges on Agricultural Products," *Journal of Political Economy*, June, 1925.

that will enable them to endure. But this is part of the process by which **prices** are made, and the complexities of railroad costs and the uncertainties attending demand will not destroy its development, though they may interfere somewhat with the regularity and predictability of the result.²⁵

Value of Service as a Basis for the Distribution of Non-allocatable Costs.—Under a thoroughgoing plan of regulation the problem becomes somewhat different. In such a scheme market forces do not have free play; and although competition is limited, revenues are also controlled below the point which a monopoly might reach. That is, revenues must not exceed operating costs plus some determined return upon a rate base. From this point of view value of service serves primarily as a means of distributing non-allocatable costs. The total net income of the enterprise is fixed. The charges which embody this fixed return have to be spread over the whole volume of business, and these charges are increased, for purposes of distribution, by all the operating costs which cannot be attributed directly and with confidence to the particular transactions which can be said to have brought them forth. The advantage of then allocating constant and joint costs according to the demand for the service is that this basis, of all alternatives, recovers the necessary sums from the users of the transportation plant with the least discouragement of business. Where the traffic cannot pay its way, the rate is reduced—not indefinitely, but to the level of the out-of-pocket costs. Where the traffic is unaffected by an increase in charge, the rate is advanced—not, again, indefinitely, because there is a net revenue which must not be exceeded, but so as to reduce the weight on more sensitive shoulders. What, then, can be said for the principle of value of service in rate-making is that where a total sum which a community is to pay for the carriage of its persons and its goods has been independently determined, then this sum may be distributed among consumers according to their demand for service. It may be added, though this problem is not now before us, that this policy may even extend to the variation of the level of rates at different periods of time, so that a pre-determined volume of revenue may be principally collected at those moments when business finds it most convenient to pay.

Incidental Results of Value-of-service Rate-making: Protection of Established Industries.—It has been pointed out that the practice of charging rates

²⁵ It has been said that competition tends to eliminate differences in rates based upon the varying attitude of consumers. This is because such rates imply the recovery of higher profits from the more eager customers, and because the lure of these profits will attract competitors to the service of the high-profit-yielding groups until the margins above normal disappear. It would be going too far, however, to deny that costs may be allocated with an eye to the characteristics of demand even when competition exists. There are instances, as for example when motor truck transportation became important, where the new competition has caused the simplification of an elaborate structure of discriminating rates administered by the railroads. But general experience in industry seems to show that variations in price between goods produced under similar conditions of out-of-pocket expense can persist even when competition is active. These may be cases of "imperfect competition," but they are rather more likely to express representative practice than do conclusions based upon severely abstract and simplified assumptions.

according to what the traffic will bear has some of the characteristics of the **protective** tariff system. It may promote an unnatural development of industry because it taxes the efficient plant and the improved process more heavily than the less efficient plant and the established methods of production. This **is** because efficiency widens the spread between cost and market price, and so increases the value of the service of transportation. On the other hand, a poorly managed or badly equipped enterprise can bear only low rates; and these, on the "value of service" principle are all it will have to pay.²⁶

Wastes in Transportation.—Under some circumstances an adjustment of rates largely influenced by the value of service to the shipper may also lead to waste in transportation. This is because the system tends to maximize the volume of transportation. It is by no means clear that the country recording the greatest number of ton-miles of transport is the country which is best served. The efficiency of a transport system is, perhaps, not measured by the number of ton- or passenger-miles that it produces, but by the decrease in the entire cost of production or the enhancement of the value of the product which its operations bring about. Value of service rate-making, unfortunately, is designed primarily to produce ton-miles. It encourages movement because it lowers the barriers of rates whenever and in the degree that these barriers hamper traffic. This may lead to waste. For example, it promotes competition by indirect routes because ton-mile rates are placed low enough in such cases to attract the business. It leads also to the invasion of markets by remote producers who are less well situated with respect to a consuming area than are other producers close at hand. Sometimes, indeed, competing producers may simultaneously invade one another's markets. Thus New England manufacturers may sell their goods in Chicago, while Chicago products of the same sort are sold in New England. According to Ripley, such practices inordinately swell the volume of ton-mileage, they produce rigidity of industrial conditions, and they constitute, in general, a tax upon American production.²⁷

Public Policies and Transportation. The Relief of Urban Congestion.—Whatever the permanent public view with respect to the maximizing or the minimizing of the number of ton- and passenger-miles on a modern transport system, the production of a maximum amount of traffic will never be the only purpose which machinery of traffic will be asked to serve. Communities will desire to promote different policies at different times, so no complete list is possible; but there are some important objectives which government has sought in recent years, and these will, perhaps, provide examples of policies which do not require a maximum of transport for their success.

Many people believe, to take one instance, that the congestion of population in our large cities should be reduced. This belief leads to the approval of low commutation rates, enabling persons who earn their livelihood in a city to

²⁶ M. H. Robinson, "Railway Freight Rates," *Yale Review*, August, 1909.

²⁷ See chap. xviii, on the competition of routes.

reside some distance from their place of work. The text of the Interstate Commerce Law, as well as the statutes of many states, declares that commutation passenger tickets are not forbidden. Doubtless low rates to commuters increase the volume of railway business, and might be defended on this ground; but they receive public support because of their effect upon settlement.²⁸ Freight rates as well as passenger rates may increase or diminish urban congestion. President Harding once complained that the existing scheme of adjusting freight rates favored the basing points and so increased an undesirable tendency to concentration. Such a tendency could be partially controlled by a carefully considered rate policy. Elements in the program which have actually been discussed include the reduction of rates from the Middle West to Gulf and south Atlantic seaboard towns until shippers find it more advantageous to ship some kinds of traffic through southern cities than through the congested center of New York. For similar reasons it is proposed to lower rates to small Rocky Mountain communities or to raise them to the Pacific coast cities with which these communities compete. Or still again, a general enlargement of the spread between carload and less-than-carload lots might strengthen local distributing centers in all parts of the United States against the great mail order houses of Chicago. Government may influence the distribution of population and trade by rate adjustment, provided, first, that it holds a clear opinion as to what distribution is the best, and second, that it sets up a proper machinery to carry out the decisions which it has made.

The Stimulation of Foreign Trade.—European governments have been conscious for many years of the possibility of restricting import or promoting export trade by means of favoring railroad rates. While rail schedules offer little assistance to domestic industries located upon the seaboard, they are at once more flexible and more precise than customs tariffs in protecting plants in the interior. It is not necessary to consider here the various adjustments by which railroad rates can be made to serve the ends of foreign trade,²⁹ or to explain the clauses in trade treaties which seek to forestall and to prevent such action by either of the contracting governments. Railroads in the United States use export tariffs for two purposes. One object is to equalize the advantages of outlying ports with the advantages offered by the city of New York; the other is to permit American exporters to place their products in foreign markets at lower prices than the normal expenses of shipment would allow. **The** first object looks rather to the distribution of American foreign trade than to its increase, but the second serves a distinctly nationalistic aim.

The Encouragement of Shipping.—Another way in which rates can be used is for the encouragement of shipping. After the conclusion of the World War,

²⁸ Raymond T. Bye, "Social Welfare in Rate Making," *Political Science Quarterly*, December, 1917.

²⁹ See Ernst Seidler and Alexander Freud, *Die Eisenbahnen in ihren Beziehungen zur Handels-politik*, Duncker & Humblot, Leipzig, 1904.

the United States Congress attempted a curious and unsuccessful experiment intended to stimulate American shipping by manipulation of railroad rates. This experiment was undertaken in Section 28 of the Merchant Marine Act of 1920. Section 28 provided, in brief, that no railroad should give traffic intended for export from the United States the benefit of an export rate unless the ship which was to carry the goods from the seaboard to a foreign country was documented under American law.³⁰ The primary defect of this statute was that it worked unequally. It interfered, that is to say, with existing practice at cities where export rates had been common in the past, and did not interfere so much with business at cities like New York, where export rates were rare. The result, therefore, was that New York would have gained and other ports would have lost through the operation of the law. This was a consequence which Congress neither intended nor desired. Moreover, the law was uncertain, because a shipper could not always know, when his consignment started for the coast, whether he could obtain space for it on an American ship. Hence he could not ask the railroad at the beginning to give him the advantage of an export rate, nor could he be sure that he would ever be in a position to claim this rate. For these and other reasons Section 28 was never enforced.³¹

However, the Merchant Marine Act of 1928 contained, besides Section 28, a preamble declaring that it was the policy of the United States to do whatever might be necessary to develop and encourage the maintenance of a merchant marine suitable to carry the greater part of its commerce and to serve as a naval or military auxiliary in time of war or national emergency. This declaration of purpose has been referred to by the Interstate Commerce Commission in some of its decisions. Notably, the Commission has been less willing to allow transcontinental railroads to lower their rates to compete with intercoastal shipping, because the suggested policy of rate reduction threatened to cripple a part of that merchant marine which Congress desired to support. Such a Commission policy destroys ton-mileage, because it prevents railroads from competing for traffic which they are willing to transport. It runs counter, therefore, to the value-of-service theory, and must be justified on other grounds.

The Encouragement of Agriculture.—Finally, among the public policies which governments may seek to realize through the adjustment of railroad rates, we may mention the encouragement of agriculture. It is well known that there have been recent attempts to assist agriculture by preferential rate-making both in England and in the United States. The British plan was associated with a measure of tax reform. In the British government budget of 1928 the government undertook to relieve the railways of a large proportion of the local taxes which they were paying. In return for this relief, British railroads

³⁰ 41 Stat. 988, 999, 1920.

³¹ Stuart Daggett, *Report on Section 28 of the Merchant Marine Law*, prepared for the Presidential Committee on Coordination of Rail and Water Facilities, Washington, 1924.

were required to reduce their rates—not generally, but on certain selected commodities, and in agreed percentages. The most usual rebate in the British scheme was 10 per cent, and the articles selected for special treatment were (1) enumerated agricultural commodities, (2) coal for export or delivered to iron or steel works, (3) enumerated materials necessary to the mining and the iron and steel industries, including ores, timber delivered to mines, cinders, and limestone.³² We may observe that the English railroads obtained compensation for the rate reductions which they were required to make, and that agriculture was not the sole beneficiary; but these details do not obscure the fact that the British plan proposed to foster agriculture by means of a reduction of railroad rates.

In the United States, Congress sought to give relief to agriculture in 1925 by passing the much-debated Hoch-Smith resolution.³³ There is some difference of opinion as to what the Hoch-Smith resolution meant. In its last paragraph, however, Congress directed the Interstate Commerce Commission to effect such lawful changes in the rate structure of the country as would promote the freedom of movement by common carriers of the products of agriculture affected by the depression. In attempting to comply with this instruction, the Commission has pointed out: (1) that different commodities may be asked to contribute unequally toward the payment of railroad overhead expense; (2) that the permissible variation is between a rate which just covers out-of-pocket cost as a minimum and the highest rate which the traffic will

³² *Railway Age*, September 21, 1929, p. 686.

³³ The Hoch-Smith resolution read as follows:

"That it is hereby declared to be the true policy in rate making to be pursued by the Interstate Commerce Commission in adjusting freight rates, that the conditions which at any time prevail in our several industries should be considered in so far as it is legally possible to do so, to the end that commodities may freely move.

"That the Interstate Commerce Commission is authorized and directed to make a thorough investigation of the rate structure of common carriers subject to the interstate commerce act, in order to determine to what extent and in what manner existing rates and charges may be unjust, unreasonable, unjustly discriminatory, or unduly preferential, thereby imposing undue burdens, or giving undue advantage as between the various localities and parts of the country, the various classes of traffic, and the various classes and kinds of commodities, and to make, in accordance with law, such changes, adjustments, and redistribution of rates and charges as may be found necessary to correct any defects so found to exist. In making any such change, adjustment, or redistribution the commission shall give due regard, among other factors, to the general and comparative levels in market value of the various classes and kinds of commodities as indicated over a reasonable number of years, to a natural and proper development of the country as a whole, and to the maintenance of an adequate system of transportation. In the progress of such an investigation the commission shall, from time to time, and as expeditiously as possible, make such decisions and orders as it may find to be necessary or appropriate upon the record then made in order to place the rates upon designated classes of traffic upon a just and reasonable basis with relation to other rates. Such investigation shall be conducted with due regard to other investigations or proceedings affecting rate adjustments which may be pending before the commission.

"In view of the existing depression in agriculture, the commission is hereby directed to effect with the least practicable delay such lawful changes in the rate structure of the country as will promote the freedom of movement by common carriers of the products of agriculture affected by that depression, including livestock, at the lowest possible lawful rates compatible

bear as a maximum; and (3) that Congress intended by the Hoch-Smith resolution to force rates on agricultural products to the lower portion of the zone of reasonableness.⁸⁴ It is true that the Supreme Court interpreted the law differently,³⁵ but rather so that constitutional difficulties might be avoided than because it really questioned the legislature's intent.³⁶

Conclusion.—The general conclusion from this survey of public policy in its relation to railroad rates is that the basis of distributing the non-allocatable costs of railroad traffic will seldom be value of service alone, but that it will be determined by the geographical position and natural resources of a country, by the character of its population, by its methods of doing business, and above all by the views which the community holds regarding the proper course of its development. While it is a good working rule that every transportation service rendered shall pay at least its out-of-pocket costs, the total amount beyond this which the carrier will collect will depend upon the valuation of the capital employed and the sum of other overhead expenses necessary for production. Finally and specifically, the portion of the overhead attributed to a particular service will be set according to general principles, or even according to rules of thumb, which will be changed from time to time and which will be good or bad according as the result which they produce conforms to the patterns of which the community approves,³⁷

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with the maintenance of adequate transportation service: *Provided*, That no investigation or proceeding resulting from the adoption of this resolution shall be permitted to delay the decision of cases now pending before the commission involving rates on products of agriculture, and that such cases shall be decided in accordance with this resolution." (43 Stat. 801, 1925.)

³⁴ 129 I.C.C. 25, 33, 1927.

⁸⁵ 281 U. S. 658, 1930.

⁸⁶ Harvey C. Mansfield, "The Hoch-Smith Resolution and the Consideration of Commercial Conditions in Rate-Fixing," *Cornell Law Quarterly*, April, 1931.

⁸⁷ The American public is less accustomed to the conscious manipulation of railroad rates to further national policy than is, for instance, the public of a nation like Germany. It is expected in Germany that the *Reichsbahn* will quote rates with an eye to national advantage. This will sometimes mean that the *Reichsbahn* is to be encouraged to capture traffic from the French railways. But the German railroads are also expected to facilitate German exports. They are, moreover, to favor German seaports against Dutch seaports, and German ships against foreign ships. Low rates are to be quoted on certain imports to provide German manufacturers with cheap raw materials. On other imports rates are to be kept high to enable German producers to hold the domestic market. German writers are highly critical of railroad policy inspired solely by a desire for profit, and contrast it constantly with a system consciously operated with national policies in mind. See K. Giese, *Hauptprogram der Reichsbahn politik*.

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CHAPTER XVII

RATE AND CLASSIFICATION PRACTICE. MILEAGE SCALES



Need for Simplicity in Rate Quotation.—Carriers which quote rates seek to make their statements regarding price simple enough to be easily understood and condensed enough to be disseminated at reasonable cost. A second and obvious requirement is that these rates shall conform to whatever theory of pricing the carrier may approve, and a third is that the total return recovered from the traffic shall be satisfactory. These objectives they attempt to attain through their published tariffs with a success which varies in different places and at different times. We shall be principally concerned in this chapter with questions of technique, although the principles which the carriers currently recognize will have also to be considered.

Development of the Consolidated Classification.—It is the need for simplicity which leads to classification. To classify commodities is merely to divide them into groups, separating items in such a way that the units assigned to each group are sufficiently similar to justify uniform treatment. A freight classification arranges, items so that in each group they may be accorded uniform treatment with respect to the price of transport.

Carriers have grouped the* articles which they have carried, more or less, for rate purposes, since the practice of carrying for hire began; but the earlier varieties of classification were relatively so simple that they throw little light upon the practices and problems of the present time. In the United States, therefore, most business history that deals with the subject describes only the development of the consolidated railroad classification which is used at the present time, and for the same reason we shall limit our historical reference to the modern period.

The origins of the consolidated classification are to be found in the groupings worked out by individual railroads. These became numerous before the Civil War; indeed, it has been estimated that there were as many as 138 distinct classifications at one time in what is now termed Eastern Trunk Line territory.¹ Each of these had been built up independently of the others. The

¹ Homer H. Shannon, "History of Freight Classifications," *Traffic World*, January 31, 1931, p. 283.

number of classes varied in the different publications, and **there** was little **or** no relation between the groupings in one classification and those in another.

This lack of correlation which prevailed in the early period between different groupings of commodities for rate purposes was inconvenient when freight originating upon one railroad found its ultimate destination upon another, because the variety of treatment often made it impossible for a shipper to learn in advance the charges on a consignment that utilized the facilities of several lines. The first result was that special classifications for through shipments were set up, and the second that more general groupings were substituted for the classifications of individual companies. Notable examples of this were the Joint Western Classification, prepared in 1882 and generally adopted by most lines west of Chicago by 1889; the Official Classification, made effective in 1887 for the territory east of the Mississippi and north of the Ohio and Potomac rivers; and the Southern Railway and Steamship Association Classification, adopted in 1889 by the southern roads. Since this last year there have been intermittent efforts to substitute a single classification for those which still existed in the later eighties, but only with partial success. The effort, to repeat, has not been entirely successful, but still three things have been accomplished. First, the number of minor classifications that persisted after the emergence of the general agreements of the years 1882 to 1889 has been decreased until only a few state and local classifications remain, generally governing rates applicable to traffic which has its origin, destination, and entire transportation within a single state. Second, the description of articles listed in the principal classifications and the rules and regulations these documents contains are now substantially the same. And third, the three major classifications, with that of the state of Illinois, are published in a single volume, a practice which makes it easy to ascertain the rating of any selected article in any part of the United States. This volume is known as the *Consolidated Classification*. Its publication accomplishes a degree of uniformity and simplification that avoids most of the difficulties shippers were formerly compelled to meet, although the final merger of all ratings into a single classification has yet to be approved.

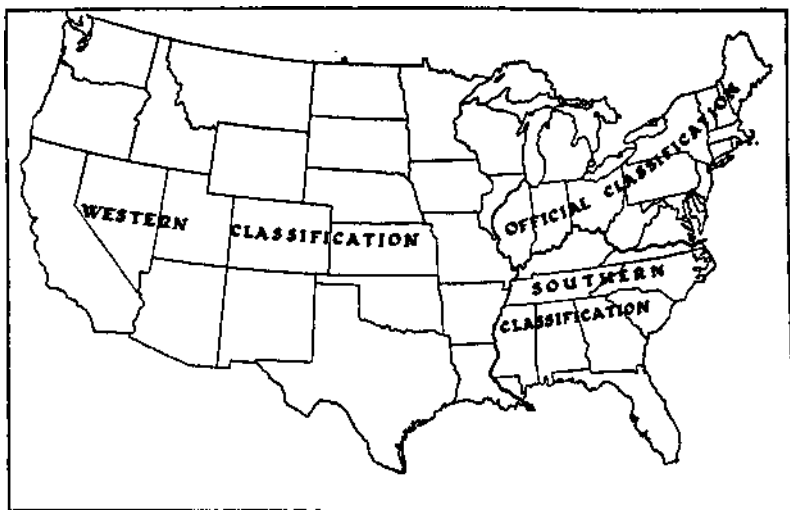
Territorial Application of the Major Classifications.—An exact definition of the Official, Southern, and Western Classification territories is difficult, but in general terms the territories are as follows:

Official Classification territory: The United States north of the Ohio and Potomac rivers and east of the Mississippi River, except (1) the northern peninsula of Michigan, (2) the states of Wisconsin and Minnesota, and (3) that portion of the state of Illinois lying north or west of a line drawn from Chicago to East St. Louis.

Southern Classification territory: The United States south of Official Classification territory and east of the Mississippi River.

Western Classification territory: The northern peninsula of Michigan, **the**

states of Wisconsin and Minnesota, that portion of the state of Illinois lying north or west of a line drawn from Chicago to East St. Louis and all United States territory west of the Mississippi River.²



FREIGHT CLASSIFICATION TERRITORIES

Classifications Used by Motor and Water Carriers.—Freight classifications are used by other carriers than railroads, including motor truck lines and water carriers operating in intercoastal, coastwise, Great Lakes, and inland waterway service. Of these the motor classifications are the most recent. Immediately after the passage of the Motor Carrier Act of 1935, carriers and groups of carriers throughout the country were confronted with the problem of providing for classifications to be used in connection with class rates. The types of classification which were presently proposed were so various that American Trucking Associations, Incorporated, a national organization of motor carrier members of affiliated organizations, was asked to prepare a document which the entire industry might use. This work was accomplished in three stages: first, a committee of the Associations was appointed to consider the problem; second, carriers and shippers expressed their views at an annual convention of the national association; and third, a second committee of approximately a hundred members, representing motor carriers in more than forty states, met to work out details incident to the compilation of a classifica-

² *The Freight Traffic Red Book*, Traffic Publishing Company, New York, 1939. It is necessary to consult the railroad tariff in order to know with certainty the classification that applies in any given case. Ordinarily the application can be guessed, but this is, particularly, not the case when a shipment originates in one classification territory and is delivered in another. Joint rates in such cases are always governed by one classification, which may be that of the territory of origin or, more frequently, that of the territory of destination; when the charge is made up by combining two local rates, however, two classifications may be used.

tion based upon principles which the convention had approved. The final result bears the name "National Motor Freight Classification." It has not, like the railroad classification, been adopted by all companies which might employ it, but it was already used by 3768 motor common carriers in 1937, and was then characterized by the Interstate Commerce Commission as "predominant,"³ although minor classifications, in special territories, were also used.⁴

The National Motor Freight Classification resembles the Consolidated Classification in many respects. Notably, its less-than-truckload ratings, in 1937, corresponded with the less-than-carload ratings of the Consolidated, and its volume ratings with the carload ratings of the railroad issue. The reason was that motor carriers felt at the time that competition with the rails would not permit the maintenance of ratings which differed materially from those of their competitors. Speaking generally, the principles employed in most motor classifications are similar to those applied by the railroads, but the variety of shipments is less and, in particular, the classes to which the railroads assign goods of high specific gravity and low value per unit of weight have less importance.⁵ For this reason the number of groupings in motor classifications is apt to be smaller than the number which railroads find necessary. Because of differences in the technique of handling shipments the rules in motor differ also from those in railroad classifications. In general, the practice of classification in motor service is still in process of development, both because of the new and relatively unorganized condition of the industry and because of the recent development of regulatory control.

Classification Listings.—Turning now to the construction of a classification, and using the Consolidated Railroad Classification as the document with which it is desirable to become familiar, we have to observe that this classification is divided into two parts. One contains rules and regulations which relate to the documentation, packing, and handling of shipments, and to the assessment and collection of charges; the other is filled with a list of articles bordered with columns in which are numbers or letters indicating the class to which each article is assigned. To illustrate this arrangement the first page of the listing in Consolidated Classification No. 12, effective March 30, 1938, is reproduced on page 343.

A few explanations will make it easy to understand this sample page. The first thing to observe is that the classification lists and distinguishes articles according to the form in which they are presented for shipment as well as by the nature of the goods themselves. Thus acetate may be carried in glass in barrels, in metal cans in barrels, in bulk in barrels, or in quantities of 30,000 pounds or over either in bulk or in metal cans. Each manner of packing is associated

³ 8 M.C.C. 287, 292, 1938; 4 M.C.C. 68, 73, 1937.

⁴ 2 M.C.C. 25, 1937. An example is the *Official Motor Freight Classification*, applicable throughout New England and between points in New England, on the one hand, and points in certain eastern states, including New Jersey, on the other.

⁵ *Motor Truck Red Book*, Traffic Publishing Company, New York.

TERRITORIAL APPLICATION OF RATINGS.

The ratings in the territorial columns opposite the separate descriptions of articles which follow are for use in connection with class rate freight tariffs which specify that the rates therein are governed by the Official, Southern, Western or Illinois Classification, as the case may be.

ARTICLES				ARTICLES			
Item							
1	ABRASIVES:			13	acetate, Amyl, Butyl, Ethyl, Isopropyl, Methyl, Propyl or Vinyl; Acetone, N.O.I.B.N.; Butyraldehyde; Diacetone or Methyl Acetone:		
2	Alundum, Corundum, Emery or other natural or synthetic abrasive material consisting chiefly of aluminum oxide or silicon carbide:				In glass in barrels or boxes	1	1 1
3	Crude or lump:				In metal cans in barrels or boxes, L. C. L.	2	2 2
	In bags, barrels or boxes, L. C. L.	4	4 4		In bulk in barrels, L. C. L.	3	3 3
	C. L., min. wt. 50,000 lbs.	6	C or 9 C		In metal cans in barrels or boxes, or in bulk in barrels, C. L., min. wt. 30,000 lbs., or in tank cars, C. L., Rule 35.	5	6 5
4	Flour or grain, in bags, barrels or boxes:			14	ICIDS:		
	L. C. L.	R26	4 4	15	Abietic, in barrels:		
	C. L., min. wt. 36,000 lbs.	5	B or 7 5		L. C. L.	3	3 3
5	Refuse, consisting of broken Wheels, Wheel Stubs or Wheel Grindings:				C. L., min. wt. 36,000 lbs.	5	5 A
	In packages, L. C. L.	4	4 4	16	Acetic, glacial or liquid, or Propionic:		
	C. L., min. wt. 40,000 lbs.	6	C or 2 C		In carboys, L. C. L.	1	1 1
6	Wheels:				In carboys, C. L., min. wt. 24,000 lbs., Rule 34.	5	15 A
7	Pulp Grinding, on skids or in boxes or crates:				In glass in barrels or boxes, L. C. L.	1	1 1
	L. C. L.	3	3 3		In glass in barrels or boxes, C. L., min. wt. 30,000 lbs.	R26	15 A
	C. L., min. wt. 30,000 lbs.	5	6 A		In bulk in barrels, L. C. L.	3	13 3
8	Other than Pulp Grinding:				In bulk in barrels, C. L., min. wt. 30,000 lbs., or in tank cars, C. L., Rule 35.	5	16 5
	In barrels, boxes or crates, or each weighing 300 lbs. or over, on skids, L. C. L.	3	3 3		UVol. 177.1. C. C. 529.)		
	In barrels, boxes or crates, or each weighing 15 lbs. or over, loose, packed in hay, straw or similar material, or each weighing 300 lbs. or over, on skids, C. L., min. wt. 30,000 lbs.	40	6 A	17	Acetylsalicylic, in barrels or boxes:		
9	Abrasive Cloth or Paper, including Emery or Sand Paper, in packages:				L. C. L.	1	1 1
	L. C. L.	3	3 3		C. L., min. wt. 30,000 lbs.	3	3 3
	C. L., min. wt. 36,000 lbs.	5	6 5	18	Arsenic, fused in bars, in Duralfin paper in wooden boxes only or in steel drums:		
10	Accounting Card (Card Punching, Sorting or Tabulating), Adding or Computing Machines or Parts, in boxes:				L. C. L.	2	2 2
	L. C. L.	1	1 1		C. L., min. wt. 36,000 lbs.	5	6 5
	C. L., min. wt. 24,000 lbs., Rule 34	3	3 3	19	Arsenic, other than fused:		
11	Acetaldehyde or Acetalal (aldol) in steel barrels:				In carboys, L. C. L.	1	1 1
	L. C. L.	3	3 3		In carboys, C. L., min. wt. 24,000 lbs., Rule 34.	5	4 4
	C. L., min. wt. 30,000 lbs., or in tank cars, C. L., Rule 35	5	5 A		In barrels, L. C. L.	3	3 3
12	Acetanilid:				In barrels, C. L., min. wt. 36,000 lbs.	5	6 5
	In containers in barrels or boxes	1	1 1		In tank cars, C. L., Rule 35.	5	27 5
	In bulk in barrels or boxes, L. C. L.	2	2 2	20	Boracic:		
	In bulk in barrels or boxes, C. L., min. wt. 30,000 lbs.	4	4 4		In glass in barrels or boxes	1	1 1
					In cloth bags, in multiple-wall paper bags, in cans or cartons or in bulk in barrels or boxes, L. C. L.	3	13 3
					In cloth bags, in double-wall or multiple-wall paper bags, in cans or cartons or in bulk in barrels or boxes, C. L., min. wt. 36,000 lbs.	5	137 5
					(JVol. 177, I. C. C. 529.)		

with a separate and different rating. It is proper to make such distinctions because the cost of handling any item and its liability to damage depend on the kind of package in which it is inclosed as well as upon the character of the goods within the package. The same illustration shows that ratings depend upon quantity, at least to the extent that carload shipments are assigned to lower classes than less-than-carload shipments. What constitutes a carload we shall presently inquire. Not all articles are specially treated when shipped in carloads but all upon the selected page happen to be so distinguished.

Another point to be noticed is that articles do not always receive the same rating in all the classifications. If they did, of course, three classifications would be unnecessary. Differences in groupings are due to either or both of two causes. It often happens that a given article may be more valuable or more subject to damage in one part of the country than in another, and if and when this is true the commodity may be differently regarded by railroads in different territories and assigned to different places in the Official, Southern, and Western classifications. Sometimes, however, an apparent variety in treatment grows out of the circumstance that the number of groupings in the three classifications is not in each case the same. This fact may be conveniently indicated in the following table.

RATINGS IN OFFICIAL, SOUTHERN, AND WESTERN CLASSIFICATIONS

Classification					Rating									
Official	i	x	Rule 25	3	Rule 26	4	5	6						
Southern	12	—	3	—	4	57	8 or B	9 or A	10 or C	11 or D	12			
Western	12	—	3	—	4	5	A	B	C	D	E			

CLASS RATE RELATIONSHIPS FIXED BY THE INTERSTATE COMMERCE COMMISSION

Southern
(1001.C.C. 513, 630, 1925)

Classes	1	2	3	4	5	6	7	8	9	10	11	12
Percentage of 1 st class	160	85	70	55	45	40	35	30	15	22.5	20	17-5

Western Trunk Line
(1641.C.C. 1, 195, 1930)

Classes	1	2	3	4	A	5	B	C	D	E
Percentage of 1st class	100	85	70	55	45	37.5	31.5	30	11.5	17.5

Official
(164 I.C.C 314, 379, 1930)

Classes	1	2.	R15	R2.6	4	5	6
Percentage of 1 st class	100	85	^{*3} 70	55	50	35	17.5

but percentages of the first-class rate. The use of indications of this sort, which have been prescribed by the Interstate Commerce Commission in some cases increases, in effect, the number of groupings in the classification in which it appears. This makes for greater precision in adjustment, but also for greater complexity in presentation. It may be added, though there is no example on the page which we have reproduced, that in all the classifications there are so-called "multiple classes" such as 1%, or one and one-fourth times first class, $\frac{1}{2}$ or one and one-half times first class, Di, or double first class, and so on.⁸

Classification Committees.—A few years ago there were nearly 6000 items in the Consolidated Classification, and it may well be imagined that the continued adjustment of the ratings of such a number of goods accepted for railroad transport to the changing conditions of business is a large and important task. The assignment of articles to classes, to say nothing of the formulation of classification rules, is not accomplished once for all but is subject to constant revision. Carriers have set up three principal committees for the Official, Southern, and Western classifications respectively, with headquarters at New York, Atlanta, and Chicago, to receive evidence and to hear arguments for or against applications by shippers and carriers for changes in rules and ratings and requests for the classification of new articles or of articles presented for shipment in new forms. These committees meet about every three months. In addition to the three there is a committee for the Consolidated Classification itself with headquarters at Chicago. Members of the Consolidated Classification Committee act as agents for a long list of carriers beginning with the Aberdeen and Rockfish and ending with the Yreka and Western Railroads.

⁸The complete list is I, $\frac{1}{4}$ 1 $\frac{1}{2}$, I $\frac{3}{4}$ DL, 2 $\frac{1}{2}$ t 1, 3t 1, 3 $\frac{1}{2}$ t 1, and 4t 1. Abbreviations in the classification, including some not used in the type page, comprise L.C.L. for less than carload, CL for carload, S.U. for set up, K.D. for knocked down, C.O.D. for collect on delivery, and N.O.I.B.N. for not otherwise indexed by name and not more specifically provided for.

As agents they cause the classification to be printed and filed with the Interstate Commerce Commission, just as railroad tariffs are printed and filed. The Commission has full authority to approve, change, or disapprove railroad classifications, and does not hesitate to use its power.

Principles Governing the Classification of Freight.—We have dealt so far with the purely formal aspects of classification, such as name, geographical application, physical appearance, and controlling personnel of the principal classifications in the United States. The subject can hardly be left, however, without some reference to the principles which guide the carriers, through their representatives, in distributing articles among the classification groups, and without some mention of the more important rules which the Consolidated Classification contains.

A classification is not a tariff but only a set of groups to which tariff rates can be conveniently applied; and the allocation of an article in the classification does not, therefore, determine the price which will be charged for its transportation. It does, however, determine the relation between this price and the rate upon another article listed. For if the second item is placed in the same group as the first the rate will be the same for an identical haul, and if the two items are in different groups the rate will be less or more. In order, now, to decide whether two articles are to be charged the same or different rates it is generally necessary to consider most of the questions which have been touched upon in the preceding chapter in discussing the theory of railroad rates. Indeed, the attitude of transportation men toward such matters is often more fully presented in connection with classification practice than at times when their interest is less directly involved.

According to traffic experts the considerations which govern the classifying of freight may be divided into five general classes, of which two relate to transportation only, one to insurance, and two to commercial requirements. These five considerations are the following:

- i. Weight per cubic foot, with special attention to cases of extraordinary size, shape, or weight.
2. Value per 100 pounds, associated by railroad men with the concept of what the traffic will bear.
3. Liability to loss or damage from pilferage, breakage, leakage, spontaneous damage or decay, and likelihood that the article will damage other freight.
4. Competition and commercial necessity.
5. Volume of traffic.

An illustration of how these considerations influence classification may be found in the series of descriptions given below and the rating which is, in each case, assigned. The ratings are drawn from the current Official Classification (No. 12); the descriptions are abbreviated.

1. Common lumber, in carloads.

- a. Common lumber has a weight per cubic foot that permits heavy loading, and it is not of extraordinary size, shape, or weight.
- b. Its value per 100 pounds is low.
- c. Common lumber is but slightly liable to loss or damage in any of the specified ways.
- d. Lumber moves long distances in competition with other timber moving short distances, and it is one of the chief necessities of life.
- e. The volume of movement is extremely large.

Common lumber is thus entitled to and has been accorded the lowest rating, 6th class, in Official Classification territory.

2. Lumber made of woods of value (e.g., foreign woods) in carloads.
 - a. The weight per cubic foot is still entirely satisfactory.
 - b. Its value is much greater; hence its share of the transportation burden ought to be greater, other things equal.
 - c. While no more susceptible to damage than lighter wood, it is more valuable; hence the loss, if the freight is damaged, is greater and, all things considered, the insurance risk is greater.
 - d. Competition and commercial necessities vary, but the competition of other commodities is less severe than in the case of common lumber.
 - e. The volume of traffic is less.

Woods of value fairly stand one class higher than common lumber, and are rated 5th class.

3. Common furniture parts, or simple pieces of cheap furniture that may be knocked down flat, such as school desks, cheap refrigerators, stands, ironing tables, chair backs and seats, table legs, etc., in carloads.

- a. These articles furnish much less weight per cubic foot than lumber but, since they are "knocked down," they weigh more per cubic foot than do most articles of furniture.
- b. They are, of course, more valuable than lumber, but they are cheap articles of necessary use in every household, and their value is low when compared with other furniture.
- c. Common furniture parts, K.D., are more liable to damage than lumber, but since they are packed flat they are not excessively liable to damage; and because they are cheap articles, the amount of risk is not great.
- d. Competition is keen, but less so than on lumber, and trade necessities require a moderate rate.

The articles in this group are rated 4th class, or one class higher than lumber made of woods of value.

4. Certain kinds of chairs of slightly greater value, and less compactly packed, which take the next highest rating, or R26, 20 per cent less than 3d class.

5. A large number of articles of varying values and weights per cubic foot that take a still higher rating in carloads, viz., 3d class.

6. Still farther along we reach articles such as valuable "set up" furniture in less-than-carload quantities which are rated first class, $1\frac{1}{2}$, $1\frac{1}{4}$, and $1\frac{3}{4}$ times first class.

7. Finally, there is bamboo and rattan furniture that takes a rating of twice first class in less-than-carload lots.

Alternative Suggestions.—Essentially a classification based upon the factors indicated in the preceding pages represents an attempt to relate railroad charges to the two elements of cost and value of the service in ways that can be simply understood and applied in the day-to-day conduct of railroad affairs. Business men are not much interested in pure abstraction, and the principles involved in current classification practice are discussed with less subtlety than economists are sometimes disposed to display. There is some disposition, nevertheless, to consider whether cost and the value-of-service concepts are properly combined by existing practice. There have been classifications, such as those used by the old canal undertakings and by the Stockton and Darlington Railroad in England in its early days, which laid greater stress on value;⁹ and there have been systems such as the *Wagen-Raum* or "space" method used by many European railroads in the seventies in which the only distinctions, or almost the only distinctions, were those based upon cost.¹⁰

More recently it has been suggested that goods should be so classified that a railroad car would always earn approximately the same revenue—a proposal that would imply a grouping of commodities determined by the average or typical loading in pounds to be expected. And on the value side it has been asked whether the exaction of higher freight rates on articles of higher value should proceed proportionately or whether the influence of the value factor should diminish as the classification deals with goods of higher and higher selling price.¹¹ But discussions of this sort lead us back into the general theory of rate-making, in which we have no further time to engage.¹²

⁹ J. F. Strombeck, *Freight Classification*, Houghton Mifflin, Boston, 1912, pp. 18-20.

¹⁰ One form of the "space" system recognized only four classes: (1) fast freight; (2) less-than-carload freight; (3) traffic in carloads of 5000 kg.; (4) traffic in carloads of 10,000 kg. The classification system introduced into Alsace-Lorraine after the Franco-Prussian War was but little more complicated. It contained only seven classes, two for fast freight and less-than-carload freight, four for half and full carloads in open and in covered cars, and a special class for certain raw materials shipped in carload quantities (Albert Pauer, *Lehrbuch des Eisenbahn-Tariffwesens*, k. k. Hofund Staatsdruckerei, Wien, 1900, p. 5).

¹¹ M. O. Lorenz, "Commodity Values and Freight Rates," *Traffic World*, March 8, 1930, p. 649.

¹² A current practical problem is, however, presented by the increasing use of containers in railroad and motor vehicle service. A container is a steel box, packed by the shipper and offered to the carrier as a closed unit. Much of the economies expected from its use depend upon its acceptance as a unit. The container may, nevertheless, hold a variety of articles, of various values and variously rated in the current classification. The question is whether container shipments should be assigned to a single class, **irrespective of the contents** of the box,

Classification Rules.—Classifications render their greatest service in grouping large numbers of articles into small numbers of categories so that the process of rate quotation may be simplified; this same grouping stabilizes the relations between the rates on goods in any class and, to some extent, between the rates in different classes. Not all goods, it is true, are shipped under the classification, for when the volume of any movement is very large it may be desirable to treat it separately and not as part of a class which must contain freight of somewhat different characteristics. Rates which are quoted on individual commodities are known as "commodity rates"; if there is an effective commodity rate on a given shipment, that rate, indeed, must be applied even though the article involved may also be mentioned in the classification as belonging to a certain class.¹³

Classifications do more, however, than group the articles which carriers transport. They contain a number of deliberately adopted rules which express the carriers' judgment with respect to many practices connected with the shipment of freight. Some of these rules are highly technical. Thus the Consolidated Classification permits goods to be shipped both in wooden and in fiber-board containers, and specifies what the minimum thickness of the sides and ends of these containers shall be. These pronouncements hardly raise questions of principle, although it is to the common interest that adequate packing restrictions be observed. Other pages reproduce standard forms of shipping contracts designed partly to limit carriers' liability in case of loss and partly to promote the orderly and efficient conduct of transportation; or they indicate, for instance, how C.O.D. shipments shall be handled and what the carriers' charges shall be when it collects the sales price of the consignment at destination and remits the proceeds to the consignor. In these and in similar matters the Classification defines and describes a considerable variety of operating and commercial transportation practices in ways which employees of carriers are expected to know and to apply.

There are rules in the Classification, however, which are of a somewhat broader sort, or which, at least, embody conclusions that have been considerably discussed. Certain of these rules are reprinted for the reader's information.

EXTRACTS FROM RULES PUBLISHED IN THE CONSOLIDATED CLASSIFICATION EFFECTIVE
MARCH 30, 1938

Rule 7

Unless otherwise provided:

The name of only one shipper, one consignee and one destination shall appear on a shipping order or bill of lading; but when a shipment is consigned straight

or whether the contents of each container should be sorted out and the items assigned to different groups for the purpose of rate-making.

¹⁸ Actually, the tonnage moving under commodity rates is several times as great as that moving under class rates. The number of articles governed by the classification is, however, much larger than that enjoying commodity rates.

or "To Order," the shipping order and bill of lading may specify the name of a party at the same destination to be notified of the arrival of the shipment.

The surrender of carrier's original order bill of lading properly endorsed is required before delivery of the property, but if such bill of lading be lost or delayed, the following will govern: The property may be delivered in advance of the surrender of the bill of lading upon receipt by the carrier's agent of a certified check (or cash) in an amount equal to one hundred and twenty-five per cent of the invoice or value of the property or, at the carrier's option, upon the receipt of a bond, acceptable to the carrier, in an amount for twice the amount of the invoice or value of the property, or a blanket bond may be accepted when satisfactory to the carrier as to surety, amount and form.

Comment: This rule reminds employees of their duty to "take up" order bills of lading before the delivery of property, but permits the acceptance of other security. The use and importance of order bills of lading has been considered in Chapter XIII.

Rule 13

Unless otherwise provided:

Section I. The minimum charge for a single L.C.L. shipment from one consignor to one consignee on one bill of lading shall be:

(a) If classified 1st class or lower, for 100 lbs. at the class or commodity rate applicable thereto; or

(b) If classified higher than 1st class, for 100 lbs. at the 1st class rate; or

(c) If shipment contains different articles, and no article is rated higher than 1st class, for 100 lbs. at the class or commodity rate applicable to the article taking highest rate; or if any one of the articles is rated higher than 1st class, for 100 lbs. at the 1st class rate; but

(d) In no case shall the charge on a single shipment be less than 50 cents. . . .

Section 2. The minimum charge for C.L. Shipments shall be \$15.00 per car.

Comment: Because of Rule 13 it is ordinarily cheaper to ship consignments of less than 100 lbs. by express than by freight. Paragraph (c) of Rule 13, applying to grouped shipments, is of obvious importance.

Rule 15

Section 1. Except as provided in Sections 2 and 3, the charge for a L.C.L. shipment must not exceed the charge for a minimum carload of the same freight at C.L. rate; the charge for a car fully loaded must not exceed the charge for the same lot of freight if taken as a L.C.L. shipment.

Comment: Rules 13 and 15 are simple and definite. They are well understood and easily enforced.

Rule 17

When articles not specifically provided for, nor embraced in the Classification as articles "N.O.I.B.N.," are offered for transportation, carriers will apply the classi-

fixation provided for articles which, in their judgment, are analogous; in such cases agents must report the facts to the proper officer of the Freight Department in order that the rating applied may be verified and the necessary classification provided.

Comment: A classical instance involving the application of this rule was discussed by Gellett Burgess in "Pigs is Pigs." Classification by analogy, unfortunately, sometimes results in differences in opinion, and the variations in the treatment of the same article in different classifications. The only remedy seems to be an appeal to the Interstate Commerce Commission in disputed cases.

Rule 20

Parts of pieces constituting a complete article, received as one shipment, on one bill of lading, will be charged at the rating provided for the complete article.

Comment: A shipment of tables and of marble tops for tables, moving as one shipment but in separate packages, will be classified as "tables" if the goods are shipped on a single bill of lading; but if the shipper is willing to take the trouble to pack and bill the marble tops separately, these "tops" will be classified by themselves and assigned to a lower group.

Rule 38

Unless otherwise provided in the governing tariffs, if there is an effective commodity rate on a given shipment that rate and not the class rate must be applied, except that rates (either class or commodity) specifically designated as applicable on import, export, coastwise or intercoastal shipments must be applied on such shipments to the exclusion of all other rates not so designated.

Comment: Commodity descriptions are applied strictly, and only articles clearly embraced within a commodity description will be treated as removed from the classification. Thus a commodity description "cotton goods in the piece" does not include "cotton plush," although plush is made from cotton and is sold "in the piece." (Cf. 225 I.C.C. 556, 557, 1937.)

Rule 10

Section 1. Except as otherwise provided, when a number of different articles for which ratings or rates are provided when in straight carloads are shipped at one time by one consignor to one consignee and destination, in a carload . . . they will be charged at the actual or authorized estimated weight and at the straight carload class or commodity rate (not mixed carload rate) applicable to each article. . . . The carload minimum weight will be the highest provided for any article in the mixed carload, and any deficit in the minimum weight will be charged for at the highest carload rating or rate applicable to any article in the mixed carload.

Section 2. Subject to the conditions of Section I, when the aggregate charge upon the entire shipment is made lower by considering the articles as if they were divided into two or more separate carloads, the shipment will be charged accordingly. . . .

Section 3. When the aggregate charge upon the entire shipment is less on basis

of carload rate and minimum carload weight (actual or authorized estimated weight to be charged for if in excess of the minimum weight) for one or more of the articles and on basis of actual or authorized estimated weight at less than carload rate or rates for the other article or articles, the shipment will be charged for accordingly. . . . Charges on articles in packages shall not be higher than on the same articles loose.¹⁴

Rule 14

Section 1. Carload ratings or rates apply only when a carload of freight is shipped from one station, in or on one car, except as provided in Rule 24, in one day, by one shipper for delivery to one consignee at one destination. Only one bill of lading from one loading point and one freight bill shall be issued for such C.L. shipment. The minimum C.L. weight provided is the lowest weight on which the C.L. rating or rate will apply.

Rule 24

Section 1. When C.L. freight, the authorized minimum weight for which is 30,000 lbs. or more, is received in excess of the quantity that can be loaded in or on one car, the following shall apply:

The shipment must be from one station, by one shipper, in one day, on one shipping order or bill of lading, to one consignee and destination.

Each car, except car carrying excess, must be loaded as heavily as loading conditions will permit, to the marked capacity of the car if practicable, and each car so loaded charged at actual or authorized estimated weight, subject to established minimum C.L. weight, and at C.L. rate or rating applicable.

Section 2. The excess of quantity that can be loaded in or on one car shall be charged:

If loaded in one closed car, at actual or authorized estimated weight, and at C.L. rate or rating applicable on entire shipment.

If loaded on one open car, at actual or authorized estimated weight and at C.L. rate or rating applicable on entire shipment, subject to a minimum charge of 4,000 lbs. at 1st class rate.

Comment: Rules 10, 14, and 24 are printed in the text in sequence and out of their proper order because they all refer to a single subject—carload ratings—and because they have been the occasion of much controversy. In general, carload rates are much lower than are rates for shipments in smaller quantities, so that it is advantageous to shippers to cause their consignments to be classed as "carloads." This the carrier will do, but only on certain conditions, the chief of which is that a minimum quantity is offered. But this condition raises at once a number of problems. What, for example, is a fair minimum? Is a minimum always unfair when the article is so bulky that the specified amount cannot be loaded into a standard car? Suppose that a shipper orders a car of a certain size and that the carrier supplies a larger car. Shall the shipper be held to the minimum on the car which he ordered, or to the minimum on the

¹⁴ **Rule 10 as stated in the text governs shipments in Official and Southern Classification territories only. The rule in Western Classification territory is somewhat different.**

car which he uses? Must the goods in a carload shipment all **be presented** to the carrier at one time? Must they all be owned by a single shipper, or may a number of shippers combine and offer their goods together? May shippers of carloads require the railroad to deliver to several consignees or only to one consignee? May a number of differently classified articles be placed in a carload to make up the minimum weight, and if this is permissible, what rate and what minimum will apply when the various articles are subject to different classification requirements? Does a shipment become a carload lot merely because it is shipped in carload quantities, or are there other differences between carload and less-than-carload consignments, such, for instance, as that shippers load and unload the freight in the one case and the carriers load and unload it in the other? What happens when enough freight is offered to fill a carload and a half? Does the first carload pay a low rate and the remaining half-carload a higher rate, or does the entire shipment take the carload rating upon a poundage basis? These are only some of the problems which present themselves in connection with carload shipments. The rules reproduced in the text do not answer all the questions which have been asked, but they do attempt to settle some possible disputes, and to do this in advance before transportation shall have taken place.

Freight Tariffs.—We may now pass from the subject of classification to that of tariffs. In most instances the tariff is a separate publication, varying in size from a single sheet to a volume equal in magnitude to the Consolidated Classification itself. Sometimes it has no relation to any classification, as when a so-called "commodity tariff" publishes rates upon one or upon a group of related articles which justify individual treatment because of their importance. Frequently, however, it is a "class tariff," and when this is so the tariff will state the rates per 100 pounds to be charged for the transportation of articles assigned to each of the groups which the classification has set up between points of origin and of destination that the tariff names or for distances that the tariff specifies. Tariffs are prepared according to rules laid down by regulatory commissions.¹⁵ They must be filed with appropriate regulating bodies. All tariffs must be accessible to shippers. Once printed and filed, the rates in a tariff must be adhered to; and the statutory rule which requires adherence to the published price is enforced by severe penalties.

Traffic Associations.—Tariffs may be prepared and printed by individual railroads; many tariffs, however, are published by agents or by associations working for groups of railroads, and this is convenient because it makes certain

¹⁵ These rules may be very elaborate. The most extensive are those prepared by the Interstate Commerce Commission for the guidance of railroads. These rules specify the size of the tariff, the contents of the title page and of the index, the order in which information is to be presented, the symbols to be used, the number of permitted supplements, the method of amendment or cancellation, and they contain page after page of other directions intended to insure clarity and completeness in tariff publication. Motor vehicles engaged in interstate commerce **are** also subject to Interstate Commerce Commission control, **and other** commissions, state **and federal**, issue tariff orders within the limits of their jurisdiction.

that, at any time, the railroads which serve the same localities will charge the same rates. These same associations provide opportunity for consultation between railroads on rate policies and perform certain services for their members.¹⁶

Work of the Transcontinental Freight Bureau.—In the case of the Transcontinental Freight Bureau, which is sufficiently typical to serve as an example of the Association group,¹⁷ these services include: (1) the publication of tariffs and their interpretation; (2) a weighing and inspection service; and (3) consideration of proposed changes in tariffs. The actual operations of the Transcontinental Freight Bureau are conducted by a permanent chairman, assisted by a committee of freight traffic managers of Pacific lines with respect to proposed changes in rates or regulations. The Bureau maintains a considerable staff of inspectors at important junction points in Pacific coast territory,

¹⁶ The principal freight associations are the following:

1. The New England Freight Association.
2. The Trunk Line Association.
3. The Central Freight Association.
4. The Illinois Freight Association.
5. The Southern Freight Association.
6. The Western Trunk Line Committee.
7. The Southwestern Freight Bureau.
8. The Texas-Louisiana Freight Bureau.
9. The Transcontinental Freight Bureau.
10. The Pacific Freight Tariff Bureau.
11. The North Pacific Coast Freight Tariff Bureau.
12. The National Perishable Freight Committee.
13. The Canadian Freight Association.

The principal passenger associations are the following:

1. The New England Passenger Association.
2. The Trunk Line Association—Passenger Department.
3. The Central Passenger Association.
4. The Southern Passenger Association.
5. The Southwestern Passenger Association.
6. The Western Passenger Association.
7. The Transcontinental Passenger Association.

In addition to these leading associations, passenger and freight, there are a number of minor or local associations, sometimes with jurisdiction over a state or over some other small defined section, as in the case of the Utah Freight Bureau or the Texas Freight Bureau, sometimes limited to a single city or to a single class of traffic, as in the case of the Buffalo Freight Committee, the Cincinnati Freight Committee, the Ohio Coal Traffic Association, or the Gulf Foreign Freight Committee.

¹⁷ The membership of the Transcontinental Freight Bureau consists of twenty lines, all operating west of Chicago and all having mileage west of the Missouri River. The practical control of the affairs of the association, however, lies in the hands of the nine companies which reach the Pacific coast.

The general administration of the Bureau's business is intrusted to an executive committee composed of representatives of Pacific coast terminal lines. There is also an auditing committee, and an advisory committee composed of railroad counsel who assist in the defense of cases before the Interstate Commerce Commission, that bring into issue rates, charges, rules, or regulations published by the Bureau. The actual operation of the Bureau, as stated in the text, is conducted by a permanent chairman.

and employs traveling inspectors also. These men correct errors in descriptions and weights of shipments on carload and less-than-carload, local and through traffic. Publication of tariffs is conducted on instructions from the freight traffic managers of Pacific coast lines. The Bureau has no independent initiative in the matter, but acts as publishing agent only.

The most far-reaching work done by the Transcontinental Bureau, and this is probably the most important service rendered by other associations also, is in relation to changes in tariffs. Proposals for changes in rates, rules, or regulations originate with a member line or with a shipper, and upon receipt by the Bureau are docketed for reference to a standing rate committee. This is a committee of three, elected by the executive committee. Pending consideration, the item is printed in a weekly docket bulletin published by the Bureau and is distributed to a considerable mailing list. In due time the standing rate committee takes up the new proposal, considers it, sometimes seeking information from carriers or listening to oral representations by shippers on the matter, and renders a decision. Decisions of the committee are mailed to the freight traffic managers of the Pacific lines, with copies to the executive committee. If the rate committee is not unanimous in its opinion, or if the freight traffic managers are not unanimous in their approval, the question is set for discussion before the next meeting of traffic managers and is there disposed of. The freight traffic managers act, of course, as direct representatives of their several lines. If they agree upon a rate, either with or without discussion, this rate will presently be authorized by the carriers, acting individually, and published by the Bureau. If they disagree, each road will act as it deems best for the protection of its own interests.

Simple Forms of Rate Quotation.—The tariff is the price list of the carrier industry. Its construction, like that of the classification, is designed to present in intelligible form the information concerning rates which shippers of freight require. For this the foundation has been laid in the classification. Thanks to this last-named publication the tariff is able to quote rates, to a considerable extent, on groups of articles and not on named commodities; but on the other hand, it has to provide rates to and from specific stations, a problem with which the maker of the classification has not been concerned.

The obvious way to quote rates simply is to present them in terms of so much per mile, and we shall presently consider the subject of mileage tariffs. But this method is less simple than it seems if distances over actual routes are to be employed, and it places the responsibility for computation of the price upon the shipper rather than upon the carrier where it belongs. Even some forms of mileage tariffs, therefore, publish rates from station to station, and wherever this is done the traffic man will be compelled to organize his rate material with a care that will necessarily increase as the scope of his tariffs is enlarged.

FREIGHT TARIFFS

(Form prescribed by L. C. C. Tariff Circular No. 50, effective October 1, 1928, and as amended, also in harmony with tariff Circular—A.A.R.No.1, dated July 9, 1938—W.J.KeUyChmrmn.)

No Supplement to this Tariff will be issued L C C N o . _____
except for the purpose of canceling the Tariff, (Cancels) C C No _____

(To be shown on tariff* of less than 6 page and N. & S. R. R. TARIFF No.—
on tariff issued in loose-leaf form.) (Cancels Tariff No.—)
(Rule 50, Circular 50.) (Use of Road's Tariff No. Optional.)
(Rule 5b Cir. 20)

NORTH & SOUTH RAILROAD

(Rules 5c and 4b, Cir. 20)

OF CONNECTION WITH

BALTIMORE & OHIO R. R. (FX4-No.—)
(Rules 5c and 4b, Cir. 20.) CENTRAL R. R. CO. OF NEW JERSEY (FX5-No.—)
EAST & WEST R. R. (FX4-No.—)
Full corporate name* of NEW YORK CENTRAL R. R. (FX4-N. Y. C. No.—)
carriers must be shown. (Line Buffalo, N. Y., Clearfield, Pa., and East)
PENNSYLVANIA R. R. (FX4-No.—)
(AND OTHER RAILROADS AS SHOWN ON PAGE 2.)

LOCAL

JOINT

OPTIONAL

EXPORT

IMPORT

FREIGHT TARIFF

(Rule 3d, Cir. 20)

CLASS AND COMMODITY RATES

(Rule 5d, Cir. 20.)

FROM STATIONS ON THE (Rule 5e, Cir. 20) TO STATIONS ON (Rule 5e, Cir. 50.)

NORTH and SOUTH RAILROAD

EAST and WEST RAILROAD

(AS NAMED WITHIN)

(AS NAMED WITHIN)

(Points of origin and destination to the number of 12 (each) may, if practicable, be shown on Title Page—Rules 3e, and 4d. Cir. 20.) (Form of Origin and Destination Stations, as per Recommendation 13 (a), Tariff Circular—A. A. R. No. 1, dated July 9, 1938-1)

Governed, except as otherwise provided herein, by _____ Classification, L. C. C. No. — (Issued by (Offl. Westorsou.)

_____, Agent: by Exceptions thereto, N. & S. R. R. Tariff No. —, I. C. C. No. —, and by Rules Circular —, I. C. C. No. —, (Rule 5f, Cir. 20.)

This tariff contains rates that are higher for shorter than longer distances over the same routes. Such departures from the terms of the amended Fourth Section of the Interstate Commerce Act is permitted by authority of Interstate Commerce Commission Fourth Section Order No. 10090. (Rule 28, Circular 20.)

Transportation service in connection with The East and West R. R., is subject to restoration and discontinuance as indicated on page 4. see bottom of pages for tariff page numbers. (Rule 12, areolar 20.)

Issued December 26,

1938.

Effective February 1, 1939.

(Rules 8a, 14a and 64. Cir. 20. If tariff is to be ~~filed~~ on less than 50 days notice, Rules 3h and 14a of Tariff cir. No. 20 will have to be observed.) (Ereopt as otheralso provided herein.)

RICHARD ROE,

JOHN JONES,

JOHN SMITH,

General Freight Agent,

Ass't General Freight Agent,

Division Freight Agent,

City, _____

City, _____

.....

N. x.

(Showing different Officials is optional with carrier, however, discouraged by the Commission. The Division Freight Agent to be shown is the one from whose territory the rates apply, if a road desires to adopt such plan.)

issued by

JOHN DOE,

Chief of Tariff Bureau,

922 John Street,

City.

(Rule 5i, Cir. 20)

(File _____)

(1000)

(Indicates supply printed.)

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Must be shown on title page Order of I. C. C. June 7, 1915, effective July 15, 1915.

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SAMPLE TARIFF TITLE PAGE

(Reproduced, by courtesy of the Traffic Publishing Company, New York, from the 1940 edition of the Freight Traffic Red Book-)

Two simple forms of rate quotation may provide an elementary illustration of tariff-making technique.

CLASS RATES BETWEEN NORTHVILLE AND SOUTHVILLE, U. S. A.

(Rates in Cents per 100 Pounds)

							Rule	Rule
Classes	1	2	3	4	5	6	25	26
Rates	10	17	15	11	10	8	15	12

II

RATES BETWEEN KANSAS CITY, ST. JOSEPH, OMAHA, AND SIOUX CITY
AND

POINTS IN KANSAS

(Rates in Cents per 100 pounds)

Between	And	¹	2	3	4	5
Meriden	Kansas City	36½	3°	24	19	12½
	St. Joseph	36½	30	24	19	12½
	Omaha	75	56½	44	34	27½
	Sioux City	100	81½	56½	44	34
Lang	Kansas City	59	49	39	32	25
	St. Joseph	59	49	39	32	25
	Omaha	84	71½	57½	47	37½
	Sioux City	109	90	70	57	46½
Etc.	Etc.	Etc.				

As the size of the tariff increases the devices for rate simplification multiply. Instead of quoting separate charges in the case of every pair of towns, points of origin and destination are grouped and the same schedule of rates is applied from every town in one group to every town in another. Or key cities are selected, and rates are first quoted from point of origin to the key city and then from the key city to point of final destination. Or a territorial directory is used together with the tariff, and rate indications are scattered between the two volumes. It is easily shown that rate publication gives ample opportunity to the ingenuity of experienced men, even though we cannot explore its ramifications.

Mileage Tariffs.—The main difference between the problems presented in classification making and those presented in tariff making is that the latter deal with relations in space and the former do not. But the reverse is not true, namely, that classifications deal with questions of cost and of value while

tariffs do not. This is partly because tariffs are quoted for the transportation of articles which are not classified; but it is also because the rates applied to different classification groups, no less than the groupings themselves, follow variations in cost, competition, value, and other circumstances of which the classification takes note. But while influences which affect classification have their bearing upon rates we shall discuss rates principally with regard to their effect upon space relations, with such other comments as it may seem proper to inject.

With this approach in mind we shall begin our discussion with the subject of mileage tariffs.

Forms of Mileage Scales.—In a general sense, any tariff is a mileage tariff to the extent that the rates in it vary with distance. Most tariffs in new or non-competitive territory or on non-competitive traffic are of this sort, and such mileage systems are common in all countries. There is a difference, nevertheless, between station-to-station tariffs which name specific rates from *A* to *B* and from *C* to *D*., and tariffs which quote rates of so much a mile, irrespective of point of origin or of destination. These last-named tariffs are called "mileage scales." They illustrate the principle of mileage rate-making in its purest form, and we shall devote the rest of this chapter to their examination.

There are two well-known types of mileage scales. One is used in Germany and the United States, and the other is employed in France and England.

The American and German mileage scales are distinguished by the fact that they quote absolute rates and not rates per mile. The form which such a mileage tariff may assume may be illustrated from schedules prescribed by the Interstate Commerce Commission a few years ago in the Western Trunk Line Rate case.

DISTANCE SCALES OF RATES PRESCRIBED IN THE REPORT FOR CONSTRUCTING RATES ON CLASS I APPLICABLE TO INTRATERRITORIAL TRAFFIC WITHIN AND BETWEEN W.T.L. RATE ZONES

Distances	Rate Scales			
	Basic	I	II	III
5 miles and under	30	32	34	36
10 miles and over 5 miles	31	34	36	38
15 miles and over 10 miles	33	36	39	41
20 miles and over 15 miles	34	38	41	43
25 miles and over 20 miles	36	40	43	46
30 miles and over 25 miles	37	41	46	49
35 miles and over 30 miles	39	43	48	51
40 miles and over 35 miles	40	45	50	54
45 miles and over 40 miles	41	47	51	56
50 miles and over 45 miles	43	49	55	59

The contrast between American and English practice may be illustrated by an extract from an English scale of charge prescribed by the English Railway Rate Tribunal in 1927.

SCALE OF CHARGES IN RESPECT OF GOODS AND MINERALS EXCEPT COAL, COKE,
AND PATENT FUEL BY MERCHANDISE TRAIN¹⁸

Class in Respect of Merchandise to Which Charges Are Appli- cable	Standard Rates for Conveyance				Standard Terminal	
	For the First 10 Miles or Any Part of Such Distance (Per Ton Per Mile)	For the Next 30 Miles or Any Part of Such Distance (Per Ton Per Mile)	For the Next 50 Miles or Any Part of Such Distance (Per Ton Per Mile)	p per ton per mile	Station Terminal at Each End (Per Ton)	
	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
1	1.90	0.95	0.55	0.50	0	3
2.	2.. 15	1.05	0.70	0.65	0	5
3	2.. 25	1.10	0.80	0.70	0	6
etc.						

The English type of mileage schedule differs from the American in two principal respects: first, in that it states separately the portion of the rate which is designed to cover terminal expense,¹⁹ and second, in that the haulage charge is given in pence per mile, so that a process of multiplication is necessary in order to find the actual charge, whereas in the American scale the absolute charge and not the charge per mile is given. There is a further difference between the two forms of rate quotations in that the American schedule quotes rates by zones of several miles, while the English unit is the single mile. Thus the American schedule is a zone or *staffeltarif* rather than a strict mileage schedule, and this is characteristic of all Commission rates. The zones are not, however, to be confused with the groups which characterized the traditional trunk-line scheme of rate-making. Unlike the trunk-line groups, the zones of the American mileage scale are systematic, uniform within generally determined limits, and unaffected by differences in the intensity of competition within the area over which the scale applies.

¹⁸ Great Britain, Railway Rates Tribunal, *Statutory Rules and Orders*, 1927, Mu. 851. It is not, of course, to be understood that the form of mileage tariff printed in the text is the only one used in England.

¹⁹ In addition to station terminals, which are assessed against all freight, the English schedules assess charges against the shipper for loading, unloading, covering, and uncovering in the case of goods for which their services are performed.

The following extract from the French general freight tariff effective January I, 1939, shows a form of rate quotation intermediate between English and American practice.

GENERAL MERCHANDISE TARIFF, SLOW FREIGHT

Series No. 1

I Distance	II Rate per Ton	Additional Rate per Ton per Km. Charged for Distances Intermediate Between Those Stated in Column I	
		fr.	
6 kilometers	13 04		34
25	38 50		30
50	71		26
100			11

According to the rates quoted in this French tariff the charge for hauling one ton 6 kilometers is 13 francs, 4 centimes. The charge for hauling a ton 25 kilometers is 38 francs, 50 centimes. So far the method of quotation is identical with that employed in the United States. In the United States, however, the rate for 25 kilometers would be applied to all distances over 6 but not exceeding 25 kilometers. Under the French system the rate for a haul of, say, 10 kilometers would be arrived at by adding the rate for 6 kilometers to a product obtained by multiplying the excess distance over 6—in this instance 4 kilometers—by the kilometer charge provided in Column III—in this instance 1 franc, 34 centimes. The total charge for a haul of 10 kilometers so calculated would be 13 francs and 4 centimes plus 5 francs and 36 centimes, or 18 francs and 40 centimes. There are no zones under the French system; if the rates were plotted to scale the diagram would resemble the English rather than the American schedule. On the other hand, the calculation is simplified for the shipper by the use of fixed points in the tariff, and there is a further resemblance to American practice in that terminal expenses are covered by the rate.

Calculation of Distances.—There are four principal questions to be considered in preparing a mileage scale. Of these, the first is how the distances upon which the scale is based are to be calculated. The difficulty in ascertaining distances arises out of several causes. First, railroad mileages are by no means simple geographical facts, since constructive and arbitrary mileages are in common use both in the United States and in European countries. A second difficulty is present even when it is desired to use geographical distances in establishing rates between given points, for the reason that it is always neces-

20"Receuil General des Tarifs de la Societe Nationale des Chemins de fer Francais," *Transports* G.V. P.V. Fascicule No. 1, p. 19. The French tariffs list separate "accessory charges," covering registration, loading, unloading, etc., in addition to the "haulage charges" tabulated in the text.

sary to choose between alternative routes when there is more than one line of railroad between the starting point and the point of destination. Lastly, the calculation of distances between any railroad station and all other stations in a country may involve a prohibitive amount of labor. This fact has already been mentioned as a reason for the use of groups. In the Central Freight Association case the carriers ordinarily used the shortest workable routes in presenting their proposals for revision of rates, and the rates calculated over the shortest workable routes were applied to shipments over longer routes between the same destinations. There were, it is true, some exceptions. Thus, if a short route involved a two-line haul it was not used if either of the lines composing it had a longer but reasonably direct route of its own between points of origin and destination. Routes via two or more lines in the same railway system were given preference over routes by way of railroads which had no corporate connection with one another, and practicable routes which a shipper would expect to use were taken in preference to unused or theoretical routes. The Commission assented to these methods except in certain matters of detail.

The Central Freight Association case was decided in 1917. Eight years later, in the Southern Class Rate case, the Commission considered routing practice once more in connection with mileage tariffs, and now required the use of the shortest possible route in fixing rates instead of the shortest workable route, embracing as a maximum, however, the lines of not more than three carriers for distances up to 200 miles, four carriers for distances from 200 to 500 miles, and five carriers for longer distances. One year afterward, in 1926, on petition of the carriers, it restored the old requirement of using the shortest workable route, but defined the phrase to mean the shortest route that was, irrespective of existing traffic arrangements, physically adapted to the movement of traffic without plain and serious sacrifice of economy and efficiency. Again, on further representation that the determination of an "economical distance," as contrasted with an absolute short-line distance, involved the use of informed judgment and opened the door for endless argument as to the correctness of the results reached, the Commission redefined the term "shortest workable route" in a new proceeding as the shortest route over which carload traffic could be moved without transfer of lading. This final formulation was the one used in the Western Trunk Line case and in the Eastern Class Rate investigation, and is the one which may be deemed finally approved. The ultimate solution is not entirely satisfactory to the carriers, some of which, at least, argue that the Commission's rule produces rates based on routes that are uneconomical and never used, and that it deprives the originating carrier of its statutory right to use the whole length of its line. The failure to allow an arbitrary amount to cover the added cost of shipments that require a two-or-more-line haul is also the subject of criticism. However, the simplicity of the prescribed rule and the objective character of the test applied have con-

vinced the Commission of its merit, while the added cost of two-line hauls is provided for in determining the level of the general scale.

Terminal Charges.—Mileage tariffs require the elaboration of still other practices besides those relating to the form of rate quotation and the determination of distance. There is, for instance, the question of the terminal charge. The cost of moving shipments may be analyzed into terminal and conveyance costs, and both types of expense must be provided for in the rates. French and English scales do this in one way, and German and American in another. Thus in France and England there is a separate schedule for terminals, apart from the haulage rate. The English list of terminal charges includes a payment for the use of the terminal and, in addition, charges for loading and unloading, and covering and uncovering, where these services are rendered. The French list is similar. On the other hand, German and American railroads normally weigh, load, and unload piece goods without separate charge, covering the expense involved by an addition to the general rate, or at least partially covering this expense; for it is probable that, as in the United States, some of the terminal outlay is provided from the conveyance rate of the first few miles.

The following list sets forth the initial rates employed in a number of the recent Commission scales:

1. Central Freight Association scale, 1917	16 cents
2. New England scale, 1918	10.5 cents
3. Southern scale, 1915	30 cents
4. Southern scale, 1926	34 cents
5. Southwestern scale, 1927	36 cents
6. Western Trunk Line scale, 1930	32 cents
7. Eastern Class Rate scale, 1930	30 cents
8. New England scale, 1930	32 cents
9. Southwestern scale, 1934	31 cents

It will be observed from the figures in the list that the initial rate **set in** the Central Freight Association scale of 1917 was 16 cents, and that the rate set in the New England case of 1918 was 20.5 cents, but that the later cases used first-class minima ranging from 30 to 36 cents per 100 pounds. The figures selected, and the changes from a lower to a higher base, undoubtedly reflect changes in the results of cost studies presented to the Commission in connection with its various investigations. Generally speaking, studies made between 1916 and 1918 indicated a terminal outlay of from 16 to 18 cents. Later studies, however, showed considerably higher figures, amounting to 30 cents or more for two terminal handlings, including an allowance for overhead expense.

Motor truck terminal costs may be expected to be somewhat lower than rail terminal costs because of the simpler character of motor terminal installations, and this, if true, is important both as an independent fact and

because of the influence which it will have upon railroad charges. Where motor competition is active the railroad rates for the initial and early succeeding zones will be relatively lower than would otherwise be the case even though the cost of railroad handling remains high.²¹ In this way competition will alter the form of a rate system which is primarily based upon cost. It is not yet certain, however, how far motor truck rivalry will hamper the introduction and extension of rail mileage tariffs. Trucks themselves make large use of mileage scales, and their terminal and initial rates are by no means always below railroad charges for the same distances. But in a number of cases it may be expected that the initial charges will be less.

General Level of Scales,—By and large, the level of a mileage scale, as distinguished from the initial rate at which it begins, or the terminal charge which is added to the conveyance rate, will depend upon the revenue it is desired to obtain or upon the general competitive conditions it is necessary to meet. This is, however, qualified by the frequent necessity of fitting the scale into some larger structure. Thus in the Southern Class Rate investigation the carriers proposed to build a scale around three so-called "peg" points: first, an initial rate of 30 cents, to be justified by studies of terminal costs; second, a rate of 145 cents for 330 miles, which was the rate and distance from Cairo to Birmingham; and third, a rate of 160 cents for 460 miles, which was the rate and distance from Atlanta to the Ohio River. The second and third pegs were derived from rates previously established by the Interstate Commerce Commission. Similarly, in constructing a scale for use in Central Freight Association territory, the carriers assumed as a guiding rule that the sixth-class rate for the distance of 475 miles between Chicago and the western termini of the trunk lines should not exceed 16 cents, because any greater sum would exceed the existing rate from Chicago to Rochester, New York—that is, to a point which lay outside of the Central Freight Association area and was presumably unaffected by the pending revision. Again, in the Eastern Class Rate investigation, the carriers started with a fifth-class rate of 34 cents for 440 miles, the distance from Pittsburgh to New York. Thirty-four cents was the existing rate between Pittsburgh and New York, and it was desired to leave this rate unchanged because of the immense

²¹ See Class Rates in the Southwest (210 I.C.C. 560, 1935) where the Commission approved an initial rail rate of 25 cents to meet motor truck competition. In 1936 the Pennsylvania Railroad conducted a study of platform and clerical costs at sixty of its most important freight stations, which affords, perhaps, reliable information concerning current costs of handling less-than-carload traffic in Eastern territory. These inquiries showed a total out-of-pocket cost for platform and clerical work of \$2.46 per ton, or 12.3 cents per 100 pounds. This computation, however, made no allowance for overhead. Average trucking costs, on the same basis, for pick-up and delivery were 17 cents per 100 pounds; but this again made no provision for overhead. At some stations both rail and truck costs were higher. This single study is not thought to be sufficient to disturb the conclusions stated in the text, although it suggests that different terminal cost calculations may lead to varying results. In the litigation before the Interstate Commerce Commission in 1936 (218 I.C.C. 441, 479, 1936) it was necessary for the Pennsylvania to show a low terminal expense in order to defend certain **rates** which **it** **proposed**.

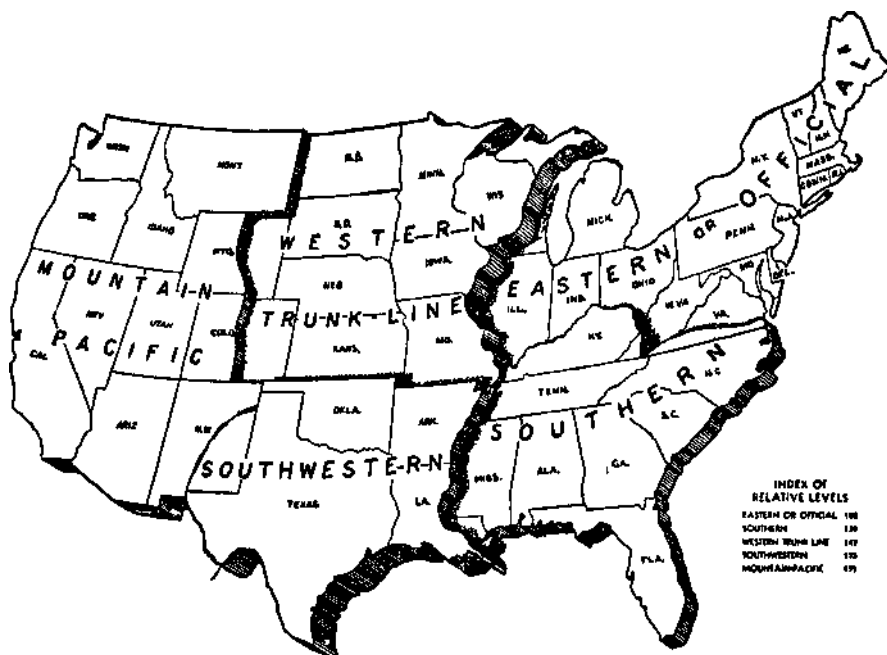
volume of iron and steel which moved on it from the Pittsburgh district. On a fifth-class rate of 34 cents, the carriers built a first-class rate of 97 cents, and a general scale in which the first-class rate increased from an initial 30 cents to the amount of 97 cents in the course of the first 440 miles. It happened in all these cases that the Commission was able to find a way to avoid the compulsion of these outside adjustments, yet even the Commission in the Western Trunk Line case of 1930 felt itself controlled in a general way by its own decisions in Southwestern and in Trunk Line territories, and was compelled to fit the new Western Trunk Line scale somewhere in between the levels in effect on the south and on the east.

The principal complaint which has been directed against the general level of American railroad mileage scales is that the rates in Southern territory particularly are on a higher level than are charges north of the Ohio and east of the Mississippi rivers. The general contrast between different sections of the country with respect to mileage scales is depicted in the accompanying relief map, in which intraterritorial mileage rates are compared in a very general way. Evidently rates are highest in the West and become lower as one proceeds from West to East and from South to North. Since the printed map was prepared the Interstate Commerce Commission has reduced mileage rates in the South; differences in charges may still be expected, however, where differences in volume of business and intensity of competition are found.²²

Rate of Progression. How Far a Formula Exists.—It follows from what has been said that the general measure of a mileage scale may be controlled by preexisting and external conditions. But the form of a scale is another matter; and with respect to form theoretical considerations may be given freer play.

Is there a formula which can be used in constructing a mileage tariff? The answer to this question is that the older mileage scale-makers are apt to mention some formula, such as that mileage rates should increase with the square of the distance, and that suggestions for a formula may be found in some theoretical discussions. Even the Interstate Commerce Commission has used a formula, based upon a method of separating costs between terminal and line hauls which its statistician has worked out, and built upon the assumption that the rates in a mileage scale should express the product of the number of miles and the line haul cost per 100 pounds added to a constant terminal charge. It may be said in passing that a formula like this results in a constant rate of progression, and so has the merit of simplicity. The German *Stuckgut* tariff of 1927 is almost, if not quite, a tariff of this sort up to distances of 800 kilometers, where noticeable zones begin to appear. In spite of this, the Commission has no formula, but only opin-

²² Sometimes, however, volume of business is small because rates are high. But this cannot be assumed, offhand, to be the case.



COMPARISON OF THE LEVELS OF INTRATERRITORIAL CLASS MILEAGE RATES, 1937

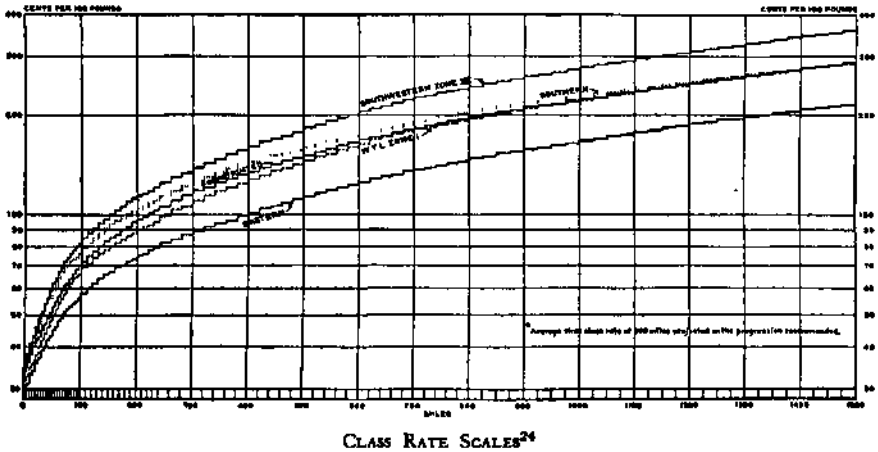
ions on particular questions; and there is no American rate theory that goes further at the present time.

Characteristics of American Mileage Scales.—The Bureau of Statistics of the Interstate Commerce Commission has devoted some attention to the subject of progression in freight rate mileage scales. This has resulted in suggestions for slight changes in the principal scales in order to remove irregularities so that the percentages which the rates at successive distances will bear to the charge at 300 miles will advance systematically, although, on the whole, at a declining rate. The form which the mileage scale proposed by the Bureau assumes and the shape of other selected scales actually in use are given in the accompanying diagram, and this illustration may serve as the basis for a few paragraphs of additional description of American mileage schedules.

The important feature of the American rate schedules, from the point of view of the immediate topic of discussion, is that they all show a declining rate of progression, accomplished partly by enlargement of the zones in the case of hauls extending over longer distances, and partly by the failure to add equivalent amounts to the rate as the schedule advances from zone to zone. With respect to the length of zones and the points of change from

²⁸ Tennessee Valley Authority, *The Interterritorial Freight Rate Problem of the United States*, Government Printing Office, Washington, 1937.

zones of one length to zones of another, most American mileage scales in the chart are identical, with the exception of the Central Freight Association scale and that in the Far West. That is to say, rates are quoted for blocks of 5 miles up to a distance of 100 miles, then in blocks of 10 miles up to a distance of 240 miles, then in blocks of 20 miles until the 800-mile point is reached, and in blocks of 25 miles for distances over 800 and up to and including 1500 miles. With respect to rate additions from zone to zone, the scales are not identical, but the amounts added range in the shorter distances from an average of 1.368 cents from 5-mile zone to 5-mile zone over the first 100 miles in the Eastern Class Rate scale, to one of 2.736 cents



in the Southwest. In the longer distances the amounts added per zone tend to be greater than in the shorter, but the enlargement of the zones brings it about that the rate of increase falls off. This is the basis for the statement that the scales show a declining rate of progression. It should be pointed out, however, that if we consider percentages instead of absolute amounts the result is somewhat different. Although it is never true that doubling the distance doubles the rate, the percentage of increase in the rate which follows a doubling of the distance is irregular, and shows a tendency to increase in the greater distances. Thus an increase in the length of haul from 200 to 400 miles generally causes a greater percentage change in the rate than an increase from 100 to 200 miles, and the percentage change when the haul is extended from 400 to 800 miles is still greater.²⁵

In the Southern Class Rate investigation,²⁶ it was said that "It is a gen-

²⁴ Interstate Commerce Commission, Bureau of Statistics, *Progression in Freight Rate Mileage Scales*, Statement No. 3719, File No. 26-A-u, September, 1936.

²⁵ Stuart Daggett, "Mileage Rates and the Interstate Commerce Commission," *Quarterly Journal of Economics*, February, 1932.

²⁶ 100 I.C.C. 513, 642, 1925.

erally recognized principle of rate making that the rate per ton per mile should continually decrease as distance increases. The freight rate combines two factors of cost, (1) terminal cost, and (2) line-haul cost. Since terminal cost remains constant, whatever the length of haul, it follows that even if line-haul cost increases uniformly, the *rate* per ton-mile, which combines the two factors of cost, will continually decrease with distance. This result will, of course, be much more marked in the shorter hauls. Stated in another way, the curve of the scale will gradually approach a straight line as distance increases, if we start with the assumptions that terminal cost is constant and that line-haul cost increases uniformly."

The Bureau of Statistics points out that a strict application of a formula based upon the principle given would produce a straight line in the rate scale itself. This is because the charge for the initial distance would necessarily be fixed to cover the entire terminal cost, and additions for longer hauls would be at an unvarying rate per pound per mile. However, in practice, it is customary to step up the rates by increments, maximum at the start and tapering to a minimum at a considerable distance, often placed at 800 miles, up to which point the scale is curvilinear but beyond which the progression takes the form of a straight line. In some class rate scales there is a curvilinear progression up to about 300 miles, a rectilinear progression from 300 miles to 800 miles, and another rectilinear progression at a different angle beyond 800 miles.²⁷

In discussing the relationship of rates on the longer hauls to those on the shorter, the Commission does not usually refer to the value of the service or to competitive influences, although there are cases, as in the Pacific Northwest and in the South, where these considerations evidently have had weight. Still less does it undertake to calculate the best distribution of consumers' and producers' surplus from transportation after the fashion of some European discussion.²⁸ What the American Commission has to contribute is on the side of cost, with the exception of the matter about to be mentioned, which bears directly upon the question of rate progression.

Do Conveyance Costs Decline as Distance Increases?—It is the view of the Interstate Commerce Commission that the initial rate does not and should not completely cover the initial expenditure incurred in transporting freight. This conclusion is, perhaps, the final result of the evidence with respect to terminal costs accumulated in the course of its investigations. The principal reason given is that a scale so constructed would be prohibitive for shorter hauls and would drive traffic to motor trucks. If terminal costs are not to be covered by the initial rate, then the balance of expenditure not

²⁷ Interstate Commerce Commission, Bureau of Statistics, *Progression in Freight Rate Mileage Scales*, Statement No. 3719, File No. 26-A-n, September, 1936.

²⁸ Cf. J. M. Clark, *Standards of Reasonableness in Local Freight Discrimination*, Columbia University Press, New York, 1910, pp. 140 ff.; C. Colson, *Transports et tarifs*, Rothschild, Paris, 1908, pp. 71 ff.

provided for must be added to the conveyance rate, amounting, in substance, to a surcharge, which becomes less and less as the length of haul becomes longer.

Whether, beyond this, the cost of conveyance per mile declines as the distance increases is a matter on which there is some difference of opinion. In the Western Trunk Line case the carriers argued against the use of steadily diminishing units of progression on the ground that long hauls require a continuing succession of expensive services at intermediate terminals. This is also the opinion of the English Railway Rates Tribunal for distances above 100 miles.²⁹ On the other hand, it can be maintained that the line cost itself becomes less per mile as distance increases, because railroad cars and railroad tracks are more efficiently used on long than on shorter hauls. Less-than-carload freight is handled, for distances up to 75 miles, largely in way trains. These trains are lightly loaded, often with a weight of less than 10,000 pounds; the freight is loaded in station order, cars stop at all stations, and regular service is provided. Freight shipped greater distances, on the contrary is handled in through trains. The load per car in through service is often as high as 20,000 pounds, the stops are fewer, proportionately less of the distance traveled is on branch lines where the density of traffic is small, and although there is more switching, the cost per ton is lower. Differences between the cost of long and of short hauls are much less for carload than for less-than-carload freight, but even in the case of the former, some variations in the cost of service may occur.³⁰

Orders of the Interstate Commerce Commission.—The American type of mileage scale has been rapidly displacing older rate structures in the United States during the past fifteen years. This has been due to the persistent efforts of the Interstate Commerce Commission. The first large case in which the Commission prescribed a mileage scale was the Central Freight Association

²⁹ Sec C. E. R. Sherrington, *Economics of Rail Transport in Great Britain*, Vol. II, Longmans, New York, 1928, p. 102.

³⁰ On the general subject of progression, the reader may consult a carefully prepared article in the *Traffic World* for September 17, 1927, in which the author, an accountant, comes to the following conclusions:

1. Rates of progression for the various hauls should give consideration to all of the road haul transportation conditions: (a) train service, (b) car service, (c) maintenance and use of fixed property, (d) intermediate yard and interchange service, and (e) unusual conditions pertaining to particular situations.

2. The rate of progression should be at its highest on the very short hauls and at its lowest on the long hauls. The relation of the highest to the lowest should be wider in an L.C.L. scale than in a carload scale because of the increasing load per car as the distance increases.

3. The lowest rate of progression in a carload scale should be reached after the influence of local train and branch-line service has largely disappeared—usually after 100 or 125 miles.

4. The lowest rate of progression in an L.C.L. scale should not be reached until 200 or 300 miles or beyond.

5. Separate schedules should be provided for L.C.L. class distance scales and for carload class distance scales, recognizing the totally different conditions pertaining to each and with totally different short- and long-haul relationships.

Scale case in 1917. Following this, the Commission took advantage of an application by the New England railroads for an increase in rates to extend the mileage system into New England. The use of a mileage scale was proposed by the carriers in the New England case, in order to avoid protracted discussion of particular rates and to hasten the relief which they hoped to secure, but the Commission readily assented for more general reasons. A third extensive proceeding in which a mileage scale was prescribed was that of the Southern Class Rate investigation of 1925. Then came decisions in the Mountain-Pacific area, in the Southwest, in what is known as Western Trunk Line territory, and in Trunk Line territory. Besides these important decisions, the Interstate Commerce Commission prescribed scales in a number of minor cases.³¹

³¹ Professor Sorrell has published a list of scales (*Traffic World*, April 12, 1930) established or sanctioned by the Interstate Commerce Commission between 1910 and 1928. Brought up to date by the 'addition of cases decided during the period 1929 to 1938, the tabulation stands as follows:

MILEAGE SCALES ESTABLISHED OR SANCTIONED BY THE INTERSTATE
COMMERCE COMMISSION BETWEEN 1910 AND 1938

Year	Number	Year	Number
1910	1	1924	21
1911	4	1925	24
1912	1	1926	27
1913	0	1927	27
1914	1	1928	27
1915	4	1929	17
1916	9	1930	24
1917	10	1931	34
1918	6	1932	34
1919	1	1933	32
1920	4	1934	16
1921		1935	13
1922	10	1936	13
1923	17	1937	8
		1938	6

This tabulation seems to indicate a falling off in the number of scales annually established or sanctioned by the Interstate Commerce Commission since 1933, and it may be that there are difficulties in practice which, for awhile, were overlooked. On the other hand, an enumeration of the cases in which the Commission has published and prescribed or approved mileage scales only imperfectly expresses the use of this technique. For a scale once established does not need to be renewed each year, but continues to function until changed. The large territorial scales which the Commission has set up have shown solidity and permanence and are continuously in force. An existing scale also serves as a measure of rates to which it does not directly apply. In many cases the Commission will require a carrier to adopt, in a new territory, a scale used elsewhere, or it will prescribe rates which are percentages of rates carried in such a scale. In still other cases the Commission will compare actual rates with charges that would have been collected if an appropriate mileage scale had been in force, and so reach conclusions as to reasonableness. For these reasons a decline in the number of new scales annually specified does not necessarily show any lessening of reliance upon this type of charge.

The effect of all this was to disrupt many of the freight rate adjustments which we have described in previous chapters, as well as a number of other arrangements which are not mentioned in the text. Thus class rates north of the Ohio and Potomac and east of the Mississippi rivers are now set according to a prescribed Commission scale, and are no longer computed according to the percentages called for by the trunk-line formula. Rates in the South follow another scale, the basing-point system' being discarded. Rates to and from Texas are now on a mileage basis, and the Texas Common Point territory has been broken up. No scale has yet been applied to transcontinental traffic. American rates are far from being uniformly on a distance basis, first, because the Interstate Commerce Commission scales do not cover the entire United States; second, because even where effective they do not apply to all commodities; and lastly, because the federal rulings do not govern intrastate traffic, and not all state commissions have followed the federal lead. Yet in spite of this, the use of mileage scales is becoming widespread in the United States.

Arguments in Favor of Mileage Scales.—Most people would be inclined to admit that recent Commission scales represent an improvement on past practice. Certainly American rates were frequently so confused as to defy analysis, and this needed to be changed; and American rate-making was on a sectional basis, with sharply defined lines between territories, based on accidents of historical development. This, also, was a condition which required revision. The Interstate Commerce Commission has worked patiently and constructively at these and other rate problems. In its own eyes the great advantage of the new dispensation is to be found in the relative simplicity of mileage rates as compared with the structures they have replaced, and in the fact that charges in a mileage scale are consistent with each other. Simple structures are, not necessarily better than complicated ones, in rates any more than in biology, but they are easier to understand, and the first step in conscious human progress is understanding. Rates in a mileage system are more likely to be consistent with each other because distance is easier to measure than, say, competitive advantage. Speaking of the advantages of a mileage scale in eliminating discrimination, the Commission has quoted a League of Shippers as follows:

Granting perhaps that the costs of railroad service may not vary in ratio to increasing distance, yet costs are not ascertainable and it seems generally to be agreed that no system of class rates could or properly should be constructed with reference to variations of the details of cost even if they were available. But there is one standard at least readily available by which to measure and unify all class rates and that is the standard furnished by the quantity of service rendered expressed in terms of miles. In other words, the measure of service furnishes an inflexible yard stick to which all charges could be made to conform without discriminations. Every community would then find its place automatically fixed by the accident of

its location and there would be no room for attempting to equalize natural advantages and disadvantages.³²

Besides the advantages of simplicity and orderliness, mileage rates have other merits. They are, for instance, relatively stable. They may be expected to change less frequently than rates based, for example, upon the value of the service. Business and settlement can adjust themselves to any long-continued practice. Mileage scales are an approximation, as the League of Shippers said, to a measurement of the quantity of service that shippers are securing. Mileage rates tend to check wasteful transportation. It is not always true that the shortest route is the most economical, but it does seem probable that a community will save money if it ships, in general, over direct ways. And finally, mileage rates tend to diffuse population because they deprive the larger towns of the bargaining advantages which are connected with their superiority in numbers and in wealth.³³

The Commission summed up these and other considerations affecting the policy of mileage rate-making in its decision in the Eastern Class rate investigation.

What alternatives [asked the Commission] are offered by those who oppose such a basis? The fact is that with certain exceptions . . . the only alternatives which are here offered are (i) adherence to rates which have the sanction of long-established custom, and (2) the adjustment of rates so that more remote producers can compete in a common market to better advantage with their nearer rivals.

Long-established custom is a matter to be considered in the revision of rates, but certainly it cannot justify rates which are unreasonable, unduly prejudicial, or otherwise unlawful. Doubts may be resolved in favor of what has long existed, and the acquiescence of shippers in such an adjustment may tend to show that it is free from undue prejudice; but otherwise custom is of little weight. And clearly we are without power to adjust rates for the purpose of neutralizing the geographical disadvantages of producers.³⁴

³² 100 I.C.C. 513, 567, 1925.

³³ See J. H. Alldredge in *Traffic World*, October 11, 1930, p. 882, and C. E. Cotterill, in *Ibid.*, November 8, 1930, p. 1163, for a discussion of the advantages and disadvantages of mileage rates.

³⁴ 164 I.C.C. 314, 382, 1930. American defenders of mileage scales argue, as the text points out, that rates in these scales vary with distance. The fact that American scales make use of zones and that the rate of progression declines is regarded as an incident. It is interesting to compare with this position the defense of mileage scales, or *staffeltarife*, by German writers, based upon the contention that zone tariffs with declining rates of progression eliminate distance. Thus Giese takes pains to demonstrate that the decline in the kilometric rate in the German "normal tariff" amounts to a shrinkage in distance, so that a haul of 1600 kilometers becomes equivalent to one of only 610 kilometers. This is because the charge for 1600 kilometers in the "normal tariff" is only what would be exacted for a haul of 610 kilometers if the unit rate did not decline as the length of haul increased. Giese even declares that this practice in rate-making is to be ranked with the great technical inventions that have had the effect of shortening distance by improving means of communication (K. Giese, *Hauptfragen der Reichsbahnpolitik*). Whether a mileage scale characterized by the use of zones and with a declining unit rate is to be thought of as abolishing or as recognizing distance will probably

Arguments Against Mileage Scales.—In opposition to the favorable views set forth in the preceding paragraphs, there is a respectable opposition to the principle of mileage tariffs. Mileage rates are not simple, it is contended, or at least they are not more simple than other rates can be made. They promote an undesirable distribution of industry, injuring the carriers by reducing the ton-miles of service performed and injuring the nation by restraining the healthy growth of great cities. It is argued that mileage does not measure cost, not only because of differences in topography and in density of traffic but also because distance charges do not reflect the costs of handling at intermediate terminal yards and gateways. Still more important, distance does not measure the value of the service. Specifically, mileage rates do not give adequate recognition to competitive factors. Business must be carried on under competitive conditions. Competition does not follow geographical lines or conform to variations in distance, and consequently a system of rates which adheres rigidly to distance frequently resists the normal flow of traffic. While the Interstate Commerce Commission has shown a weakness for mileage rates, another branch of the government, the Post Office Department, has defended a proposed increase in the rates on first-class mail by observing that the controlling factor in fixing rates is not the relative cost of the different classes of mail matter and service but the relative amount which the traffic will bear in view of competition without reduction of organization and facilities which contribute to the integrity of the organization as a whole. This, say the critics of mileage scales, expresses the policy which should be followed in determining railroad rates.

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depend on the system which the scale displaces. Such a scale conforms less to distance than a mileage tariff with no zones and with a constant unit rate. It conforms more to distance than do the American group and basing point systems. At best, the analogy with the great technical inventions increasing the speed and lessening the cost of supplying transportation is slight.

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PART VI

COMPETITION



CHAPTER XVIII

VARIETIES OF COMPETITION. RATES ON GRAIN



The last chapter dealt with the elementary technique of railroad rate-making and with the subject of mileage scales. We cannot dismiss the subject of rates, however, without some further explanation of the influences which determine carrier charges and some additional discussion of rate structures to which these influences give rise. For this our earlier excursions into the theory and the economic geography of transport now give us some support. In particular, we have to consider the nature of competition in the carrier industry and its effect upon the price of transport.

Competition of Parallel Lines.—Competition which controls the rates for shipments of commodities may be of several sorts. The simplest form of competition is that between transportation agencies which operate on parallel routes. That is, there may be two parallel railroads, or a railroad and a waterway, or a railroad and a motor vehicle service, or any combination of agencies which offer themselves simultaneously to the public as media by which a transportation service may be performed. When two or more independent agencies seek traffic which either one can transport, the rates charged are likely to be lower than when a single carrier bargains with the shipping public. This statement of the probable effect of the competition of carriers operating upon parallel routes would seem to require no proof other than appeal to well-known experience. It should be said, however, that some students of transportation question it, at least in so far as the operation of parallel railroads is concerned. The argument that parallel railroads do not compete is based upon two assumptions. One is that competition between enterprises which employ large amounts of fixed capital, as railroads do, is so disastrous that the managers of such companies refrain from competition on grounds of general policy. It is admitted that parallel railroads competed in former years, as during the trunk-line rate wars between carriers connecting Chicago and New York,¹ but this kind of rivalry is said to belong to the experience of the distant past. The other assumption is that rates of all railroads connecting any two points must be the same. It is clear that they should be the same, unless one line is prepared to relinquish all traffic

¹See a later section of this chapter.

which its rival is able to carry; and observation will show that rates for equal service usually are the same between the same two points. Where rates are the same, it is said, there can be no competition. The answer to this denial of the reality of competition between parallel railroads is that equality of rates does not preclude competition for, first, there may be competition in speed, reliability, and care, even when rates are equal. And if this answer is objected to on the ground that equality of service is assumed in the argument, it may be pointed out that the level of rates, where there are two railroads, may be lower than the level where there is only one; and if this is true, there is evidence of competition, even though all railroads concerned charge the same rates. William R. Wheeler, one-time traffic manager of the San Francisco Chamber of Commerce, once described the sort of competition which results from the rivalry of modern railroad companies so clearly that the testimony deserves citation:

It is a popular fallacy, I think, that because there is not a rate war . . . following the advent of a new road into a territory, . . . therefore, there is no competition. There is competition in the service and that is what we desire. There is also competition in this respect, . . . if you have two roads who have a voice in the rate question, you stand double the chance of gaining tariff concessions that you do if there is only one road to deal with; if there are three roads, you stand three times the chance of getting your concessions; in other words, you do not find—are not as apt to find—three men of one mind as you are two men of one mind and so on as the number grows. We already have had an example of that here in San Francisco: there was a proposition something more than a year ago to advance rates between San Francisco and Stockton . . . and the fact that it required the consent of three roads instead of two was the only thing that prevented that advance going into effect at that time; we were successful in convincing one of the roads that it was unfair to us to raise those rates and they declined to join in the advance.²

Indirect Routing.—It is not, however, necessary for routes to be parallel for competition to exist between them. One of the striking features of the operation of the American transportation plant is that it offers service, at equal rates, over routes which differ greatly in length. Thus traffic between Chicago and New York moves over the Baltimore and Ohio Railroad (920 miles), over the Pennsylvania Railroad (908 miles), and over the New York Central Railroad (974 miles). But it also moves by water from New York to Newport News and thence west over the Chesapeake and Ohio Railway, or it may travel north to Canada and thence west over the Grand Trunk. The facts developed in the differential rate controversy described later on in this chapter, and the struggle between the Great Lakes carriers and the railroads which compete with them, mentioned in Chapters III and VII, afford illustrations of the competition of routes of unequal length.

² Stuart Daggett, "Later Developments in the Union Pacific Merger Case," *Quarterly Journal of Economics*, August, 1914.

In the West, freight from Chicago may be carried directly over the Chicago and North Western, Union Pacific, and Central Pacific to San Francisco, or it may travel 921 miles to New Orleans before it starts its journey west.³ Shipments from Portland, Oregon, may move 945 miles by way of the Union Pacific line or 1487 miles by way of the Southern Pacific lines to a common destination at Ogden, Utah. Testimony in the Union Pacific merger case showed that the Southern Pacific Company solicited freight destined to the Pacific coast from points almost as far west as Pittsburgh, hauled these goods to the Atlantic seaboard, thence transported them on vessels to New Orleans, and from that point hauled them in railway cars through El Paso to San Francisco. These illustrations are selected from instances of very long hauls because the routes mentioned can be easily traced and the roundaboutness of the routing readily perceived; but the same practice, though less conspicuous there, is to be found in local business also.

Carriers which compete with direct lines by means of circuitous routing have been accused of promoting waste in transportation. The charge is, to some extent, justified. Ripley declares that indirect routing produces the following evil effects: the amount of transportation in the United States is unnecessarily increased; net railway profits on the traffic are reduced to the vanishing point; industrial conditions are made more rigid; and centralization of population and of industry is encouraged.⁴ It may be added, however, that direct routes are not always the most economical, for these routes may be congested, or there may be empty cars on the roundabout line which can be used at no great expense, or some other circumstance may make it desirable to depart from the strait and narrow way. Whatever may be the conclusion with respect to the justification of indirect routing, the fact remains that circuitous routes as well as direct routes compete, and that they thus affect, as we have said, the development of producing centers and the prosperity of cities engaged in the work of distribution.⁵

, Rivalry of Markets and Producing Centers.—Another form of competition appears where several geographically remote producing centers seek to supply

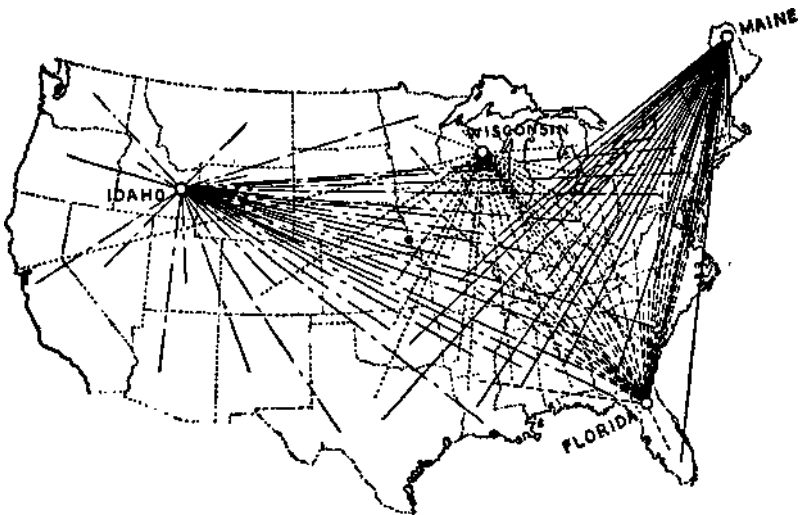
³ Stuart Daggett, "The Decision on the Union Pacific Merger," *Quarterly Journal of Economics*, February, 1913.

⁴ W. Z. Ripley, "Economic Wastes in Transportation," *Political Science Quarterly*, September, 1906. Clark observes that every time any place is especially and markedly favored in the matter of railway rates, the way is laid open for uneconomical transportation (*Standards of Reasonableness in Local Freight Discriminations*, Columbia University Press, New York, 1910). During the World War the Railroad Administration in the United States insisted upon direct routing in so far as this lay within its power; and in the case of coal, producers were even forbidden to market their product outside of assigned areas. The coal regulations were defended on the ground that elimination of cross-hauling prevented waste, as well as because the policy furnished an incentive to the use of local coal supplies which would not otherwise have been worked in competition with higher grades from outside districts.

⁵ See H. G. Brown, *Transportation Rates and Their Regulation*, Macmillan, New York, 1916, pp. 40 ff., for a theoretical discussion of cases in which the carriage of goods by a longer route may be more economical than their carriage by a shorter route.

a single market, or where several markets seek access to a single source of supply. The commodity movements described in preceding chapters illustrate the competition of markets and producing centers and, consequently, of the lines which serve them. It is evident, for instance, that Florida competes with California in the markets of Chicago, and that the railroads from Florida to the North compete with the railroads stretching from California to the East, although the two groups of lines touch only at one extremity. An equally clear case is presented by the movements of lumber from the South and from the Northwest.⁶

Competitive Shipments of Potatoes.—Still another convenient example not previously described is afforded by the white potato. Potato shipments repre-



RAIL DISTRIBUTION OF POTATOES⁷

sent a large part of the total annual rail shipments of all fruits and vegetables in the United States. They are grown in every state of the Union and move in carload quantities every day of the year.

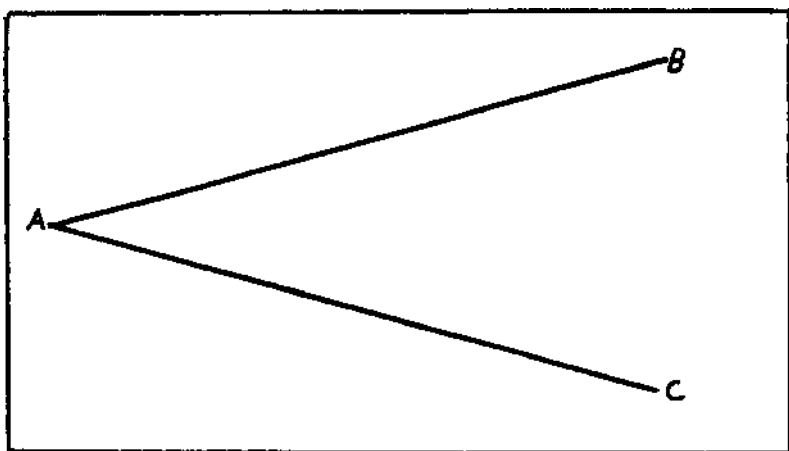
The accompanying map pictures carlot potato shipments from four states during the season 1924-1925. The same markets are supplied from Maine, Wisconsin, Idaho, and Florida, so that an increase in the quantity forwarded from one state makes it more difficult for the products of the other states to find a sale. This is an instance of market competition analogous to the cases of lumber and canned meats.

Brown says that the competition of producing centers shipping to a com-

⁶ See chap. xi.

⁷ Bureau of Railway Economics, *Commodity Prices in their Relation to Transportation Costs*, Bulletin No. 12, February, 1926,

mon market is likely to be relatively unimportant in reducing rates.⁸ The loss, he says, will fall on the owners of favorably situated land in the producing areas. It is doubtless true that, when a source of supply which has hitherto monopolized a given market meets the competition of a new area of production, the revenue of land and also the returns to fixed capital which has been contributing to the supply shipped to the market will decrease. If there is no alternative use to which this land and capital can be put, then the market value of these agencies will decline. Since the railroad connecting the older source of supply with the market is one of the forms of capital which cannot, in many cases, be withdrawn, the revenue



COMPETITION OF DIRECTIONS

of the carrier will decline as well as the revenue of other factors of production. But it cannot be assumed that this will not provoke a change in rates. Such a reduction is, on the contrary, extremely likely, for reasons which are given in Chapter XVI.

Competition of Directions.—When a single producing center serves two or more markets, we have a case which is slightly different from that discussed in the preceding section. Such a situation would be illustrated by the shipment of Georgia cotton to North Carolina or New England mills, or by the shipment of California peaches to Portland, Oregon, or to Denver, Colorado.⁹ The problem in this case may be depicted as follows:

Let us suppose a producing center *A* and two markets, *B* and *C*, connected with *A* by the railroads *AB* and *AC*. These two markets may be said to be in competition with each other, because each is bidding at *A* for a portion of a single supply. If the markets compete, then the railroads which serve

⁸ Brown, *op. at.*, p. 62.

⁹ See chap. xi.

them will compete. A reduction in the rate from *A* to *C* is likely to be followed by a cut in the rate from *A* to *B*. Just when and how far the rate from *A* to *B* will fall in order to protect the interests of the line *AB* will depend upon the assumptions made, and the facts present a problem to which economic theory may be applied with interesting results. If, for instance, the production at *A* cannot be much increased, and if slight reductions in price at *C* or *B* will result in a considerable expansion of the quantity consumed at each of these places, then conditions are ripe for active competition between interested lines. Other assumptions may lead to a different result. When a single producing area thus serves several markets, the resultant rivalry has been characterized as "competition of directions," and contrasted with the "competition of locations" which occurs when several producers ship to a single market.

Competition Between Commodities.—There is still another form of competition between rival towns, which bears the infelicitous name of "competition between commodities." This term refers to the competition which takes place between cities for the business of handling articles that are manufactured or processed somewhere between the place of production of the raw material and the sale of the finished product to the ultimate consumer. In a sense, all manufactures fall within this class; but the issue is especially controversial when production areas of the raw material are far removed from the consuming areas of the finished goods, when the values of the finished products are not greatly in excess of the value of the materials from which they have been derived, and when fabricating plants have been located in proximity to the materials and others near to the consuming region.¹⁰

Such a case is that of grain. Wheat is produced as grain but it is consumed as flour. The milling process may be performed almost anywhere between the place of origin and the place of final consumption. The business is considered a desirable asset to any community. Where the milling industry will actually locate will depend largely upon the relative railroad rates on grain and those on flour. If the rates on grain are high and those on flour are relatively low, grain will be milled near the place of production; if the rates on grain are low and those on flour are high, grain will be milled near the place of consumption. Another business in which the competition of commodities has been important is the packing house industry. The contentious question here is where the livestock shall be slaughtered and converted into forms which can be directly consumed. Eastern and western cities compete for the location of packing houses. The result of this struggle between East and West is largely determined by the relation between the rates on finished products and those on raw material. If the rates on livestock are low and the rates on dressed beef are high, then the tendency

¹⁰ L. C. Sorrell, "Transportation Charges and the Market Area," *Traffic World*, June 7, 1930, pp. 1517 ff.

will be for the packing business to establish itself near the great consuming centers of the Atlantic seaboard. If the rates on livestock are high and the rates on dressed beef are low, then slaughter in the East will be only sufficient to supply special markets such as that furnished, for instance, by the New York "kosher" trade. It is one of the industrial victories of the Middle West that a rate relationship has been established that permits the concentration of the packing industry at Chicago, St. Louis, Omaha, St. Paul, and the other cities listed in Chapter X. But controversies between East and West still continue; and in 1928 and again as late as 1937 the Interstate Commerce Commission rendered decisions which tended to improve the position of the East. In 1928, when the rates per 100 pounds from Chicago to New York were: on livestock, 56.5 cents, on packinghouse products, 56.5 cents, and on fresh meats, 79 cents, the Commission reduced the livestock rate to 50.5 cents without altering the other charges, a relative change much desired by packing interests in New York.¹¹

In 1937 the eastern slaughterers were on the defensive, but they were able to defeat an attempt by the railroads to lower rates on fresh meats and packinghouse products from Chicago to points east without changing the rate upon livestock. This attempt was provoked by the increasingly successful competition of highway trucks. The proposed reductions did not extend to New York, but they included a suggested cut from 51 to 38 cents on fresh meats from Chicago to Buffalo, as against cattle rates of 39 cents, and a reduction from 38 to 26 cents to Cincinnati, as against a cattle rate of 28 cents. In spite of evidence that an alarming diversion of traffic from rail to truck had taken place, the Commission refused to approve the proposed schedules on the ground that they would prejudice packers in Central territory and prefer unduly packers in the Chicago district.¹² In addition to the problems presented by grain and livestock, the relationship between the rates on lumber and furniture, on cream and butter, on corn and cornmeal, etc., have been brought to the Interstate Commerce Commission for its consideration.

Importance of Carrier Competition.—The result of competition in the carrier industry is that the practice of quoting rates upon a strict mileage scale gives way to a process of balancing in which the carrier weighs the likelihood of losing business to other lines as well as the cost of carriage. The loss is easily visualized when the competition is between carriers alone; it is none the less real, when competition of markets and commodities exist. Most great rate structures are the result, indeed, of both carrier and market com-

¹¹144 I.C.C. 731, 1928. It is interesting to observe that arguments in cases involving the competition of commodities often stress secondary issues because the litigants believe, and are probably correct in believing, that the Interstate Commerce Commission will refuse to fix rates merely to bring about commercial equality between the parties concerned. This was strikingly true in the livestock rate controversies of 1928 and 1937.

¹²220 I.C.C. 677, 1937.

petition, for except where two carriers lie side by side and serve identical communities, both types of rivalry are sure to be involved.

This balancing of rates is easily observed when rate systems involving important commodities are examined. We have already discussed the adjustment of rates on lumber, oranges, and sugar in describing the traffic flows of these articles, and we have just mentioned the subject of livestock in considering the relationship between rates on finished goods and charges upon material. And, indeed, the effect of competition in the livestock industry is far from adequately described when the rates on livestock and on packing-house products or on fresh meats have been compared, for the rates on each of these goods from different marketing centers to common points of destination have long been set competitively and with a general picture of the industry in view. Thus the rates on fresh meats from Chicago, Kansas City, and Fort Worth are the same to Memphis, Tennessee. The rates on packinghouse products from Oklahoma City and Fort Worth to southern destinations are related to the rates from Kansas City and Wichita.¹³ Similarly the rates from St. Paul, Des Moines, Omaha, and Kansas City are related to each other on shipments to Mississippi River towns such as Dubuque, Burlington, Hannibal, and St. Louis. Kansas City, St. Joseph, and Omaha pay the same rates on livestock to Chicago. The rate from Kansas City to St. Louis is 7 cents per 100 pounds less than the rate from Omaha.¹⁴ The cattle rate from St. Louis to Pittsburgh, Buffalo, New York, and other eastern points was for many years 5 cents greater than that from Chicago. This spread was increased during the period of federal railroad operation to 6½ cents and then, in 1928, to 7½ cents. In 1930 the Interstate Commerce Commission ruled that the difference should not exceed 5 cents.¹⁵ Trinidad, Pueblo, Denver, and Cheyenne take the same rates on livestock on shipments to markets upon the Missouri River.¹⁶

The tendency in such adjustments is to arrange the rates so that charges from competing towns to common points of destination shall be the same, or at least so that the costs of shipment, including the rate on the gathering haul into the livestock center and the charge for the subsequent outgoing movement of the products, shall be approximately equal on different routes and by way of different towns.¹⁷ It is all the more striking that this has been

¹³ 191 I.C.C. 257, 274, 282, 1933.

¹⁴ 176 I.C.C. 1, 86-89, 1931.

¹⁵ 165 I.C.C. 277, 1930. The ruling mentioned in the text applied to livestock shipments originating west of the Mississippi River.

¹⁶ 176 I.C.C. 1, 86-89, 1931.

¹⁷ Adjustments of the sort indicated in the text are facilitated in the livestock industry by the grant of transit privileges. Thus livestock may be stopped en route at the initiative of the carriers for the purpose of feeding and watering. Such stops do not affect the rate, nor are they regarded as a concession to shippers. In addition, western carriers generally allow livestock to be stopped, usually for not more than ten days, at a number of stated points, and then to be forwarded at the balance of the through rate to points of ultimate destination. The difference

accomplished in the livestock industry, because railroad livestock rates are set on a mileage scale. What has been done is to distort the mileage scale by sheer manipulation until the desired results have been obtained.¹⁸

Grain Rates.—No commodity rates illustrate the effect of competition more clearly than do the rates on grain, and for this reason, as well as because of the importance of the commodity, the remainder of this chapter will be devoted to the description, history, and explanation of the rail charges upon grain.

The reader is referred back to Chapter X for discussion of the movement of grain from the country elevator where it is first collected from the farm, to the primary market, and to the place of ultimate consumption. At every step in this long pilgrimage rates on grain are assessed, reflecting the presence of competition—rates that are delicately balanced between the larger cities to effect a distribution of business which both towns and competing railroads accept as preferable to open warfare.¹⁹

How far competition has resulted in a determined relationship between rates from the principal centers of the grain-handling industry can be seen when actual comparisons are given. Thus the rail rate from Duluth to Chicago on traffic passing farther east is the same as that from Minneapolis.²⁰ The rate from Minneapolis to Chicago, in 1934, was set at 3 cents less than that from Omaha and Kansas City to the same destination, after a long controversy

between the balance of the through rate and the local rate from transit station to point of destination may be considerable. The local rate (in 1928) on livestock from Fort Worth to Kansas City was 49 cents per 100 pounds; the local from Kansas City to New York was 83 cents, or a total of \$1.32. The through rate from Fort Worth to New York, with privilege of stopover at Kansas City, was \$1.05 (144 I.C.C. 731, 1928).

Shippers use the privilege of stopover to rest their stock, to sort and consolidate it with other shipments of the same kind, and to test out the possibilities of local sale. Shippers, particularly, who have rounded up their animals on forest reserves or western ranges and have driven them to the railroad for movement to market are not usually in a position to grade the animals before loading, nor are they familiar with the classification desired for advantageous sale. The animals are loaded without regard to size, ownership, or stage of development, and are consigned to a commission man with instructions to sort, grade, and sell. Some or all of these operations may be accomplished at the transit point. The rules governing transit vary at different markets, but generally the shipper pays for switching, loading, and unloading stock stopped at a transit point and not there sold (176 I.C.C. 1, 104, 1931). The Interstate Commerce Commission has been asked to relieve shippers from these payments, but has refused upon the ground that the rate for the line haul of livestock should be held as low as possible, and that the cost of extra services should be assessed against those shippers who desire them. Transit arrangements facilitate the movement of livestock, but they are too generally available to change the direction of its flow.

¹⁸ In some cases points of origin or destination of livestock have been grouped and an average distance has been used in figuring the rate which has not corresponded with the actual distance from any point in the group. In other cases nominal or constructive distances have been used, or it has been decreed that a particular point, say, 360 miles away from the point of origin, shall be required to pay the mileage rate for 380 miles or 340 miles as the Interstate Commerce Commission may direct.

¹⁹ 68 I.C.C. 665, 674, 1922.

²⁰ 215 I.C.C. 83, 1936.

during which the differential ranged from 15 cents to 4.5 cents per 100 pounds. Southwestern millers contended that the rates from Minneapolis and from Kansas City should be the same, but they did not convince the Interstate Commerce Commission of the soundness of their contention.²¹ Omaha and Kansas City take the same rate to Chicago, but the rate from either to Chicago is 4 cents per 100 pounds greater than the rate to St. Louis. To eastern points, correspondingly, the rate from Chicago is 4 cents less than the rate from St. Louis. On shipments to Memphis, a gateway through which grain passes into the southeastern states, the rate from Omaha is 1 cent per 100 pounds higher than the rate from Kansas City. Cairo and Memphis are equalized on shipments to the East by making the outbound rates from Memphis 6 cents lower than those from Cairo, while the inbound rates to Memphis are 6 cents higher than those to Cairo.

Inbound Gathering Rate.—These are chiefly outbound rates. The price which the primary market can afford to pay for country grain depends, also, upon the rate from the country elevator to the primary market, as well as upon the rate from that market to points east and south. Chicago and St. Louis compete in this way for local grain in Iowa. So do Chicago and Milwaukee. From Iowa points north of the main line of the Rock Island the rates to Milwaukee and to Chicago are equalized, although in many instances the distances to Chicago are less than those to Milwaukee. It appears, for instance, that the inbound rate to Milwaukee is the same as that to Chicago from a considerable territory of origin. Omaha and Kansas City compete in the purchase of grain as far south as the two northern tiers of counties in the state of Kansas. The rates into Des Moines, Sioux City, and Sioux Falls have much to do with the ability of these towns to compete with one another and with Omaha.²² Independence, Missouri, and Kansas City are rivals.²³ Cairo, Illinois, competes with St. Louis and Memphis in the purchase of grain in Illinois, Iowa, Nebraska, and Missouri, and in the sale of grain in the Southeastern and Mississippi Valley territories, and in Arkansas and Louisiana.²⁴ The rates from Texas points to Memphis are the same as those to Vicksburg and are related to the rates to St. Louis.²⁵

These are more or less chance illustrations, showing the relations of rivalry between different grain shipping and buying centers, and suggesting the importance of railroad rate adjustments in determining the flow of wheat.

Transit Privileges.—Transit privileges on grain permit the stopping of a shipment at a transit point to undergo commercial processes such as grading, mixing, and drying. A "milling-in-transit privilege" allows grain to be un-

²¹ 205 I.C.C. 301, 1934.

²² 73 I.C.C. 347, 1922.

²³ 69 I.C.C. 83, 1922.

²⁴ 61 I.C.C. 219, 1921.

²⁵ 205 I.C.C. 301, 1934.

loaded, milled into flour, and then reshipped. Shipments which take advantage of these privileges are charged local rates into the transit points, but when reshipped they are forwarded to ultimate destination at the balance of the through rate, so that the total freight rate upon wheat milled in transit is no more than the carrier would have collected had the consignment moved without interruption from point of origin to final stopping place. When privileges of this kind are in force, the adjustment of rates into and out of particular markets becomes of less importance and the number of centers which may compete in the intermediate handling of grain becomes greatly enlarged.

When transit arrangements are effective over one route but not upon another the difference in treatment may influence the direction of traffic, or it may stop certain movements altogether. Grain appears to differ from livestock in this respect. Indeed, transit policies on grain are sometimes formulated with these possibilities in mind. This was the case in 1934 when railroad carriers proposed to deny transit privileges to grain destined to Southern territory which did not move into Gulf and South Atlantic ports on tariffs lawfully in file with the Interstate Commerce Commission. It happened that grain from the Pacific Northwest was then moving into southern ports on water rates not on file with the Commission. The refusal of transit rights might have increased the cost of delivering this grain, thus protecting middle western growers. Other grain destined to the South via Memphis reached Memphis in boats belonging to the Federal Barge Line, operating upon the Mississippi River. Not all rates on this traffic were filed with the Commission. Refusal of transit to this movement would have tended to discourage the use of federal barges.²⁶ In an analogous suit in 1937, carriers proposed to refuse transit privileges in Pacific Coast territory to grain grown in non-contiguous foreign countries.²⁷ This was an attempt to protect domestic corn growers against foreign competition.

In a more general way grain transit arrangements sometimes disturb rate adjustments which the Interstate Commerce Commission has built upon other principles. A good deal of attention has been paid to this aspect of the practice in recent years. Ordinarily, under the Interstate Commerce Commission system, grain rates from local western points to eastern territory are made by adding inbound local rates to primary markets to what are known as "proportional" rates from primary markets to ultimate destinations. Primary markets where this is the custom bear the additional name of "rate-break" points. Proportional rates are applied to all outbound grain which originates back of the rate-break cities, whether the inbound haul has been long or short, whether there has been a prior use of several or only of one railroad lines, and whether or not the inbound and outbound carriers have

²⁶ 204 I.C.C. 309, 1934. The carriers' proposal was denied.

²⁷ 220 I.C.C. 156, 1937.

concurred in publication of these charges. Most rates quoted in the present text in explaining the relative adjustment of rates out of competing grain markets are proportional rates. Such tariffs are balanced in accordance with Commission policy. But it sometimes happens that the transit balances payable on grain which leaves a primary market for further transportation are less than the proportional rates which the Commission has prescribed. When this appears the rate adjustment in the territory is impaired, and there may also be discrimination because transit balances are not available to all but only to shippers who can comply with certain restrictive conditions. To avoid this difficulty the Commission ruled, in 1934, that the proportional rate out of a market should be the exclusive basis of charge, and that transit balances nominally applicable to outbound movements should, when proportional rates existed, be disregarded.²⁸ On complaint of grain and milling interests, however, this ruling was subsequently withdrawn.²⁹

Export Grain Movements.—The movement of grain for export proceeds generally from primary markets either east or south.

With respect to the actual distribution, the United States Department of Commerce describes the situation as follows:

The Gulf ports draw most of their wheat for export from Texas, Oklahoma, Colorado, and Kansas, and from southern Missouri and southern Illinois. The western sections of the first four states ship through the port of Galveston, while the eastern sections, southern Missouri, and southern Illinois ship through New Orleans. Missouri River points are also generally tributary to the Gulf rather than any other seaboard. The North Atlantic ports of the United States draw most of their wheat for export from the great wheat-producing region north of Kansas, and also the section east of the Mississippi and north of the Ohio Rivers. These ports also compete with the Gulf ports for traffic from the Central Western section and the Missouri River territory. The eastern Canadian ports of Halifax, St. John, and primarily Montreal, draw wheat from these North Central States and also from the great wheat fields of Canada, which are located in Manitoba, Saskatchewan, and Alberta. In reality the American and Canadian movements should be considered as one unit because American ports handle large quantities of Canadian grain and, on the other hand, Canadian ports handle large quantities of American grain. The routes to the ports of both countries are strongly competitive.

The Pacific coast ports of Portland and Seattle draw wheat for export from the wheat-producing states in the Northwest—namely, Oregon, Washington, Idaho, and Montana—while Vancouver also handles some grain from western Canada.

²⁸ 205 I.C.C. 301, 333-342. 1934.

²⁹ 223 I.C.C. 235, 1937. The Commission said, in this later case: "It is our conclusion that carriers should be permitted to file tariffs which will authorize restricted departures from the exclusive application of proportional rates at rate-break points for a limited period of time. The provisions to be published in these tariffs should represent the present best judgment of carrier and shipper representatives. They should provide for transit at rate-break points on rates now applicable via such points, including transit on proportional rates, in order that a quantity of transit thought to be a proper amount shall be provided. . . . The tariffs authorized herein should bear expiration date of December 1, 1938. . . ."

San Francisco does not figure as an important port in the export grain trade and is unable to draw much wheat from the Northwest.

It is not to be assumed that these routes are definite and fixed. As a matter of fact, there is constant shifting, but the general movement is as stated. Car shortages, the availability of inland water transportation, or the conditions of ocean transportation occasionally enable one seaboard to draw from the territory which is generally tributary to another. In 1920 and 1921, for instance, some wheat from the Pacific Northwest was shipped to Gulf ports for export because of the abnormally high ocean rates prevailing at the Pacific ports at that time.³⁰

Threefold Character of Competition on Grain Shipments.—We have in the case of export grain a threefold competition: first, between parallel railroad lines; second, between rail and water services; third, between routes to Atlantic ports, whether Lake or rail, and routes to Gulf ports, whether river or rail. Nor is, of course, the rival limited to the carriers themselves; it extends to numerous cities on one or the other of possible grain routes which are anxious to participate in the work of grain distribution.

Relative Railroad Rates to Seaboard Cities.—The following table shows how closely related are the rail rates on wheat from a point like Chicago to New York with rates from the same point of origin to other possible export destinations.

TRANSPORTATION CHARGES ON WHEAT FROM CHICAGO⁰ TO LIVERPOOL, 1938

(Rates in Cents per 100 Pounds)

Route	Inland	Ocean	Total
Via New York	23.50	14.95	38.45
Via Philadelphia	11.50	14.95	37.45
Via Baltimore	11.00	14.95	36.95
Via Montreal	11.50	16.45	38.95
Via New Orleans	14.00	14.10	38.10

⁰ The Chicago rates are proportional rates.

The basic rate set forth in this table is the rail rate from Chicago to New York in 1938. The inland rate to New Orleans all-rail in this year was half a cent more than to New York, while the rate to Philadelphia was one cent, and that to Baltimore one and one-half cents, less than the New York rate.

Origin of Seaboard Differentials.—The relationship between the New York, Philadelphia, and Baltimore rates on grain has its origin as far back as the seventh and eighth decades of the nineteenth century, when the New York Central Railroad, identified with New York City, the Pennsylvania Railroad, identified with Philadelphia, and the Baltimore and Ohio Railroad, representing Baltimore, as well as other railroads in Trunk Line territory,

³⁰ United States Department of Commerce, *Transportation in Relation to the Export Trade in Agricultural Products*, by Roland M. Kramer, Trade Information Bulletin No. 215, 1924, p. 3.

established rates to Atlantic seaboard cities designed to distribute eastbound business among the various towns upon the 'seaboard, and thus indirectly among the great railroad systems which served these towns.

We should remember that when the Baltimore and Ohio reached Chicago in 1874, no one knew how much Mississippi Valley traffic each of the seaboard cities could fairly hope to attract. The roads serving these cities were young, ambitious, and led by aggressive men. When the Baltimore and Ohio opened its Chicago branch, the company was heralded all over the Northwest as a relief for the farmers and as the Grangers' friend. President Garrett declared at this time that upon completion of his lines he would, like another Samson, pull down the temple of rates upon the heads of the other carriers. The attitude of the Baltimore and Ohio led to retaliation, and the so-called trunk-line rate wars were the result. Of these, the first continued from January, 1874, to December, 1875; the second from April, 1876, to April, 1877; the third from June, 1881, to January, 1882; and the fourth and last from March, 1884, to November, 1885.

Trunk-line Rate Wars, 1874-1885.—It is difficult to measure the extent of the rate reductions which the railroad wars of the seventies and eighties brought about, because rates were not required to be published in these times, and even published rates were not uniformly charged. But it appears that before November 25, 1874, ^a shipper was required to pay 45 cents per 100 pounds in order to ship a consignment of fourth-class freight from Chicago to New York, while it cost a passenger \$19 to travel between these cities. Fourth-class rates are quoted as examples because these included grain rates, and in 1881 grain was said to have constituted 73 per cent of the total tonnage carried by the trunk lines to the principal Atlantic ports.⁸¹ On March 25, 1874, the fourth-class rate was cut to 30 cents, or a reduction of one-third, while the passenger rate fell to \$9, a reduction of more than one-half. Nor were these the lowest limits reached. In the conflict that raged between April, 1876, and April, 1877, the fourth-class rate fell to 20 cents, which was the lowest grain rate ever in effect up to that time except for one month in 1873; and in 1881 the rate was reduced to 12½ cents, and in 1885 to 10 cents, for brief periods of time. Meanwhile, passenger fares of \$7 per person were quoted in 1881 from New York to Chicago, and in 1884 immigrant business westbound between these termini was handled at \$1 a head. Since the distance was approximately 1000 miles, this meant a charge of about a mill per passenger per mile.

Rates quoted during the trunk-line rate wars were clearly too low to yield profits to the carriers, and they were, possibly, less than the out-of-pocket costs occasioned by the traffic. They were published as war measures, each company hoping that by imposing losses upon its competitors it could make its point of view prevail.

⁸¹ *The New York Harbor Case*, 47 I.C.C. 643, 682, 1917.

Opposed Rate-making Principles.—The immediate issue in the rate wars was the relative rate which should be charged from Chicago to the seaboard cities of Baltimore, Philadelphia, New York, and Boston. The distances to these four cities from Chicago were, respectively, 802, 823, 900, and 1009 miles. Baltimore and Philadelphia, being nearer Chicago than New York was, thought they were entitled to relatively lower rates than New York; and this view was adopted by the Baltimore and Ohio and the Pennsylvania railroads, in the hope of attracting traffic from the other trunk lines. Mr. Garrett declared that his principal object was to make Baltimore the principal outlet for the products of the Great West;³² and he expressed the opinion, in support of a rate adjustment which should reflect differences in distance, that water could be as easily made to run up hill, by natural law, as the laws of trade and of all experience could be ignored.³³ The two cities, however, did not rest their case upon nearness to Chicago alone. Inasmuch as New York was nearer Europe than was either Philadelphia or Baltimore, and since, also, New York possessed the advantage of more numerous sailings and better banking facilities, her competitors felt that they needed concessions in railroad rates in order to compete on equal terms. New York, of course, stood out for equal rates to all four seaboard cities, contending that the easy grades from the West by way of the Mohawk and Hudson valleys offset her handicap of greater distance, and arguing also that steamship lines quoted the same ocean rates to Boston, New York, Philadelphia, and Baltimore, so that no one of these cities was at a disadvantage on the water side.

Attentive readers will observe that arguments in the differential rate controversy rested, on each side, upon two different and opposing principles. The city of Baltimore and the Baltimore and Ohio Railroad desired relatively low railroad rates from the interior (1) because Baltimore was nearer to Chicago than other towns, and her advantages should be recognized, and (2) because she was farther from Europe and less well equipped with steamships than her rivals, and her disadvantages should be compensated. New York, which bore the chief burden of the opposition, was no more consistent than Baltimore, for at one time she insisted upon the advantages which she possessed, and at another time denied that she enjoyed facilities superior to those of her chief rivals. It would be possible to enlarge upon the argument by enumerating contentions discussed during the sixty years after 1874, but during this entire period the original contradiction persisted unimpaired.³⁴

Early Agreements on Differentials.—Originally, in 1869, the rate on east-bound class traffic, including grain, was made 10 cents less to Baltimore and

³² *Railroad Gazette*, June 5, 1875.

³³ *Commercial and Financial Chronicle*, September 23, 1876.

³⁴ See R. W. Harbeson, "The North Atlantic Port Differentials," *Quarterly Journal of Economics*, August, 1932, for the most recent statement of the arguments pro and con in the differential controversy.

7 cents less to Philadelphia than it was to New York. In 1870 these figures were changed to 5 and 3 cents on grain, though the differentials on higher classes remained unchanged. In 1876 Messrs. Vanderbilt, Scott, King, and Jcwett, representing the various trunk lines, conferred at length in an attempt to settle the relationship which should exist. Vanderbilt then agreed that the rates on all freight billed from competitive points in the interior to foreign ports should be the same by all the lines, and hence the same through all the competing seaboard cities, and the other companies in turn, agreed that the rates on freight not intended to be shipped to foreign ports should be the same to Baltimore, Philadelphia, New York, and Boston.³⁵ This particular arrangement seems never to have become effective, but in December, 1876, the carriers put a modified version into effect. According to this later plan, the rates to Europe by way of New York, Philadelphia, and Baltimore were to be the same, while freight intended for local consumption at port cities was to be charged 10 per cent less to Philadelphia and 13 per cent less to Baltimore than it was to New York. Westbound freight took the same basis as freight not exported.³⁶ To carry out the agreement, a committee was subsequently appointed, composed of the foreign freight agents of the different lines. The committee met in New York weekly to determine what the ocean rates had been during the preceding week. These ocean rates, added to the established inland rates—presumably the rates to New York—were telegraphed to the West on the last day of each week, and formed the basis, during the week following, for the rates from inland points to foreign ports through all the North Atlantic seaboard cities.³⁷

Agreement of April, 1877.—The agreement of December, 1876, broke down, less because of dissatisfaction with its terms than because of alleged rate-cutting. Thus the New York Central, the Erie, and the Pennsylvania companies joined in charging the Baltimore and Ohio with making contracts for freight from the West to Baltimore at less than the rates agreed upon, and with making them, too, in many cases and for large amounts, as if in accordance with instructions from headquarters.³⁸ In April, 1877, nevertheless, the compact was replaced by another agreement, set forth in the following terms:

Memorandum of agreement made this 5th day of April, 1877, between New York Central and Hudson River RR. Co., Erie Railway Co., by H. J. J., receiver, the Pennsylvania RR. Co., and the Baltimore & Ohio RR. Co., witnesseth:

To avoid all future misunderstandings in respect to geographic advantages or disadvantages of the cities of Baltimore, Philadelphia and New York, as affected by rail and water transportation, and with the view of effecting an equalization of the aggregate cost of rail and ocean transportation between all competitive points in the West, Southwest, Northwest and all domestic and foreign points reached through the above cities, it is agreed:

³⁵ *Commercial and Financial Chronicle*, November 18, 1876.

³⁶ *Ibid.*, December 23, 1876.

³⁷ *Ibid.*, January 6, 1877.

³⁸ *Railroad Gazette*, April 6, 1877.

First—That in lieu of the percentage differentials heretofore agreed upon, there shall be "fixed differentials" upon the rates of all eastbound traffic from all competitive points beyond the western termini of the trunk lines, whether on freight shipped locally and afterwards exported or shipped for direct export. These differentials shall be as follows: Three cents per 100 to Baltimore, and 2 cents less per 100 to Philadelphia than the agreed rates established from time to time to New York, and all such traffic shall be billed at the rates thus fixed, and no export or other drawback shall be paid thereon; it being further agreed that the cost to the shipper of delivering grain at each port, from the terminus of each of the roads to the vessel on which it is exported, as well as the number of days free storage allowed thereon, shall be the same.

Second—That the rates to Boston shall at no time be less than those to New York on domestic or foreign freight.

Third—Should rail and ocean steam through bills of lading be issued, neither of the parties hereto will accept, as its proportion, less than its current local rates to its seaboard termini. But no joint rail and ocean rail bills of lading shall be given or recognized by the parties hereto.

Fourth—That on all westbound traffic passing over the roads of the parties hereto from competitive points at or east of their respective eastern termini to all competitive points west, northwest, or southwest of their western termini, the differences in rates from Baltimore and Philadelphia below New York shall on 3d class, 4th class and special, be the same as the differences fixed on eastbound business, and on 1st and 2d classes 8 cents less per 100 from Baltimore and 6 cents less per 100 from Philadelphia than the agreed rates from New York, and that after existing contracts governing foreign business can be terminated, neither of the parties hereto will accept as its proportion of this ocean steam and rail rate less than the established local rates. . . ,³⁹

Later History of Differential Rates.—The agreement of 1877 is given at length because its main provisions remained in force until quite recent years. Until 1899 there was no change at all. In this year the differentials of Baltimore and Philadelphia on export grain were cut in half, becoming 1½ cents and 1 cent instead of 3 cents and 2 cents. In 1903 the differentials on export iron and steel were also cut in half, and in 1905 the differentials on export flour were reduced to 2 cents and 1 cent. Finally, in the Eastern Class Rate investigation of 1930, all differentials on local business, east or west-bound, were eliminated, leaving only the differentials on export traffic.⁴⁰

This does not mean that the agreement of 1877 escaped criticism. On the contrary, the whole matter was referred to Albert Fink, one-time Commis-

³⁹ *Commercial and Financial Chronicle*, April 7, 1877.

⁴⁰ The carriers wished to retain the differential rates to Philadelphia and to Baltimore, but the Interstate Commerce Commission could see no reason why these cities should be treated in a substantially different way from other cities, merely because they were ports as well as industrial cities. The Commission said of the differentials: "[They] have certain singular and unexplained characteristics. They are not the same in both directions, and eastbound they are the same in amount on all classes, a wholly anomalous adjustment. Their continued use would result in the complete disruption of the uniform class percentages to and from the lower ports. They do not reflect distance in a degree compatible with other relations which will be produced by our findings in this proceeding" (164 I.C.C. 314, 417, 1930).

sioner of the Southern Railway and Steamship Association and at the time executive officer of the Trunk Lines Joint Executive Committee, as early as 1881 for fresh examination and report. Fink reported that the principal purpose of any adjustment was to give all competing carriers a fair share of the business, and that the differentials of 1877 did this well enough. Again, in 1882, consideration was secured from a board created for the purpose, composed of Messrs. Thurman, Washburn, and Cooley—three eminent gentlemen from legal and political circles. The opinion of this board also reaffirmed the differentials, observing that they seemed to find their reason in competitive forces.⁴¹ Still later, the differential rate adjustment was brought before the Interstate Commerce Commission, and was discussed in a number of Commission decisions. The most important of these were in 1898,⁴² in 1905,⁴³ and in 1930.⁴⁴ Rulings of the Commission were responsible for the reduction of the differentials allowed Philadelphia and Baltimore on export flour, and for the elimination of differentials on local traffic to and from the ports; but the differentials of 3 and 2 cents on export business through Baltimore and Philadelphia which represented the central principle of the arrangement of 1877 still remain. In 1933, it is true, a decision of the Supreme Court denied the authority of the Interstate Commerce Commission to prescribe export differentials between ports, but Congress subsequently amended the Interstate Commerce Act, and the Commission's power in such matters is now unquestioned.⁴⁵

What Is the Basis of the Differential Adjustment?—It is safe to say that the primary purpose of differentials is to equalize the advantages of Phila-

⁴¹ The Thurman, Washburn, and Cooley report is reprinted in the Elkins Committee Report of 1905, Vol. 2, pp. 1243 ff.

⁴² 7 I.C.C. 612, 1898.

⁴³ 11 I.C.C. 13, 1905.

⁴⁴ 164 I.C.C. 314, 1930.

⁴⁵ The point mentioned in the text was discussed in *Texas & Pacific Railway Co. v. United States* (53 Sup. Ct. Rep. 768, 1933). In this interesting case the Supreme Court considered an order of the Interstate Commerce Commission prescribing minimum differentials in favor of Galveston and against New Orleans on export and import traffic originating at or destined for points in certain southern and southwestern states. The conclusion of the Commission had been that rail rates had discriminated against Galveston. The Supreme Court decided that the Commission, in fixing differentials, had exceeded its authority. This opinion was based on the view that the clauses of the Interstate Commerce Act prohibiting discrimination between localities protected only localities where traffic originated or to which it was consigned; that is, the law did not recognize the interest of a junction, a gateway, or a port in traffic passing through it. This statement of the law would have invalidated a Commission order prescribing relationships between the export rates to Europe by way of the various North Atlantic seaboard cities, to say nothing of miscellaneous adjustments in the interior of the United States which the Commission favors. The amendment to the Interstate Commerce Act that was passed in August, 1935 (49 Stat. 607) added to the clauses in paragraph 1 of section 3 of the act prohibiting discrimination between localities the words "ports," "port district," "gateway," and "transit point." The addition of these words, in spite of the vehement opposition of Senator Long of Louisiana, made it again possible for the Interstate Commerce Commission to prescribe set differences in the rates on export traffic to competing ports.

delphia, Baltimore, and Boston with those of New York. In this respect the seaboard differentials form part of a more general structure of export rates which relate the rates from the interior to seaboard cities all the way from Boston to Galveston with the rates to New York. It has been pointed out that the allowances of a 2 and 3 cents to Philadelphia and to Baltimore also correspond reasonably well with the relations that would exist if export rates to these particular cities and to New York were fixed on the principles governing the old trunk-line rate system. This trunk-line rate system was built around an assumed 25-cent sixth-class rate from Chicago to New York which, with a 6-cent allowance for terminals, yielded a haulage rate of .02064 cents per mile. If the distance from Chicago to New York be taken, somewhat arbitrarily, as 920 miles, and the distances to Baltimore and to Philadelphia as 782 and 823 miles, then the Philadelphia rate under the trunk-line formula would be 1.998, and the Baltimore rate 2.843, cents less than the rate to New York—a difference which roughly corresponds with the differentials actually in force. The trunk-line formula was formally adopted in 1879, or at nearly the same time as the trunk lines agreed upon the differentials of 1877, and the differential adjustment may have gained in stability from its conformity with the general trunk-line scheme.

In alluding to the "stability" of the present arrangement it is not implied, however, that any of the parties concerned are satisfied with what has taken place. New York still believes that her rates should not exceed the rates to Philadelphia and Baltimore, and New York parties have twice taken the initiative in demanding that differentials be abolished. Boston is willing to see all differentials abolished because this would improve her relative position, but alternatively she asks to be put upon the Baltimore basis. Her chief objection is that exports through Boston have failed to keep pace with those through other ports. Baltimore, on the other hand, asks to have her differentials of 3 cents on general all-rail export traffic increased to 6 cents; while Jersey City, a new participant in the argument, insists at least on lower rates than those which are charged New York. If the export differential system is stable, it is so because it embodies a working compromise, and because the parties to this compromise cannot agree upon any alternative which they would prefer.

Differential Routes—Lake and Rail.—In addition to the port differentials described in the preceding paragraphs, there are established differences between all-rail rates and rates on shipments which make partial use of lake or canal or ocean transportation between the Middle West and the Atlantic seaboard. Generally speaking, all-railroad rates are higher than rail-and-lake, rail-and-canal, or rail-and-ocean rates, partly because the cost of rendering the service is less over routes which take advantage of the cheapness of water transportation. On short hauls these advantages are apt to be offset by the costs of transfer, the slowness of water carriage, and by the circuitry of the

rail-and-water lines; but on long hauls the differences in the expense of providing the service may be considerable. Thus on the Great Lakes the greatest differences between all-rail and lake-and-rail rates occurs on shipments which move from the Atlantic seaboard by rail to Lake Erie and thence by water to points on Lake Superior such as Duluth. In 1936 this differential was 66 cents. Yet it should be observed that even though the haul is long the advantage of the water line to ports on Lake Michigan is much less than it is to ports on Lake Superior because of the necessary detour around the head of the Michigan peninsula. To these destinations the differentials conform to the general rule laid down by the Interstate Commerce Commission in the Eastern Class Rate case that lake-and-rail rates should be 90 per cent of the corresponding all-rail rates, with a maximum difference of 16 cents first class. Applied to an all-rail rate of \$1.37, first class, prescribed in this litigation, the differentials on movements to Chicago became 15, 13, 10, 7, 5, and 4 cents on the first six classes.⁴⁶ This lessened allowance for the benefits of a water haul in the case of shipments to Lake Michigan may be regarded as a recognition of the roundabout character of the transportation involved and of the consequently diminished cost advantage of the water line.

Lake-and-rail differentials are not to be explained entirely, however, by the lower costs of water movement. As a matter of fact, the 90-per-cent rule which now controls the level of lake-and-rail rates between New York and Chicago was not evolved out of a comparison of transportation costs.⁴⁷ It represents, rather, a conclusion that this relationship would preserve, or possibly increase somewhat, the volume of Lake Michigan tonnage in competition with the ocean-rail routes between New York and Chicago. There is also rivalry between the different Lake ports. Duluth is 468 miles beyond Chicago by land, but the lake-and-rail route to Duluth is only 93 miles longer than the lake-and-rail route to Chicago. Duluth accordingly insists that the lake-and-rail rates from New York to Duluth should be the same as those to Chicago, although this would mean, in her case, a considerable enlargement of the difference between the all-rail and the lake-and-rail charges. In 1936 the Interstate Commerce Commission refused to permit such a parity of rates on the ground that the "value of the service" was greater when a shipment was delivered at Duluth than when it was delivered at Chicago.⁴⁸ It was the Commission's view, in general, that the differential between all-rail and lake-and-rail rates on shipments to Duluth was made to depend upon considerations of general traffic policy, just as the port differential controversy turns upon questions of general policy and not alone upon the relative costs of operating trains over the various routes which are concerned.⁴⁹

⁴⁶ 164 I.C.C. 314, 1930.

⁴⁷ 214 I.C.C. 93, I O I, 1936.

⁴⁸ See chap. xxxiii.

⁴⁹ It may be said in passing that the lake-and-rail routes are divided into two classes: standard and differential lake-and-rail routes. The differences between these two categories will not, however, be discussed.

Differential Rail Routes.—Besides the lake-and-rail differentials there are differences in rates between standard and substandard or differential rail routes. Differential rail routes are combinations of carriers offering services between the Atlantic seaboard and the Middle West that are slower or more circuitous, or otherwise inferior to standard service. Sometimes these secondary routes, though spoken of as all-rail, rely to a small extent upon water service, as in the case of the route from New York to Chicago by way of Canada, which makes use of boat lines as far north as Portland, Maine. In order to enable such lines to obtain a share of the business offering, they are permitted by other carriers to charge less than the standard rail rate. In 1935 the differentials from New York to Chicago ranged from 8 cents first class to 3 cents sixth class below the rates charged by the standard lines. During the season of navigation, from March 25 to November 30 of each year, when the differential rail routes maintain rates from New York to Chicago which are the same as those contemporaneously charged by the standard lake-rail lines this differential is considerably increased.⁵⁰

Ocean-rail Routes.—Still other differentials are allowed on traffic moving from the West to eastern destinations by rail and ocean routes. An example of such a route would be a line from Chicago to Norfolk, Virginia, and thence by steamship to New York. In 1935 the ocean-rail differentials to New York, ranged from 8 cents first class to 3 cents sixth class, or the same as the differentials over the so-called differential rail lines. Like the latter, the ocean-rail differentials are increased during the summer months.⁵¹

In order to maintain the same port relationships, the standard lake-rail, differential lake-rail, differential all-rail, and ocean-rail routes apply their respective differentials to the corresponding all-rail import and export rates from and to the various North Atlantic and Canadian ports. The result is that the import and export rates over the differential routes vary as between ports by exactly the same amounts as do the all-rail rates. Thus the port differential adjustment is preserved.

Relative Grain Rates to New Orleans and to North Atlantic Seaboard Cities.—The third type of competition which is important in the case of grain is that between routes from the Middle West to North Atlantic ports, and

⁵⁰ 211 I.C.C. 403, 410, 1935; 218 I.C.C. 611, 612-614, 1936.

⁵¹ Differentials over various types of routes operating between Chicago and New York in 1936 were as follows: (218 I.C.C. 611, 614, 1936)

Type of Route	Classes				
	1	1	3	4	6
Differential all-rail (normal basis)	8	6	5	4	
Differential all-rail (summer basis)	15	13	10	7	
Ocean-rail (normal basis)	8	6	5	4	
Ocean-rail (summer basis)		13	10	7	
Lake-and-rail	15	13	10	7	

routes from the Middle West to Gulf ports. According to the Federal Trade Commission, the railroads extending through the Mississippi Valley began to build up their traffic in grain about 1900, after the river movement had been practically abandoned. At first, in order to attract the traffic, these railroads made rates on export billing, including elevation and other terminal services, far below those in effect at Atlantic seaports. The grounds of support for lower Gulf rates were (1) the shorter haul from the grain fields; (2) the absence of heavy grades; and (3) less expensive operation. In order to protect their export grain traffic the railroads running east to the various Atlantic ports replied by adjusting their rates to meet the charges to the Gulf.⁵² Ultimately this resulted in a rate structure elaborately balanced in an attempt to equalize the advantage of the South and East. Actually, the rates in effect in August 1938, were those set forth in the following table:

PROPORTIONAL RATES' ON GRAIN FOR EXPORT, IN CARLOADS, AS OF AUGUST, 1938

To	From				
	Chicago	St. Louis	Minneapolis	Kansas City	Wichita
New York	23½	27½ 36½		39½	56½
Baltimore	11	16	35	38	55
Montreal	22½	26½	35½	38½	55½
New Orleans	14	12½	29½	23	49
Galveston	42½	27½	37	-3	42

^a See p. 387 for definition of "proportional rate." The rates from Wichita to New Orleans and to Galveston, and the rate from Chicago to Galveston are local, not proportional, rates.

It will be observed from the figures given that the proportional grain rate from Kansas City to Galveston in 1938 was 15½ cents below the corresponding rate to Montreal and 16½ cents below the rate to New York. From Minneapolis the rate to Galveston was half a cent more than the rate to New York, and from St. Louis the two rates were the same. On the other hand the rail rate from Chicago to New York was half a cent less than the rate to New Orleans and 19 cents less than the rate to Galveston.

Most exported wheat is either hard red winter wheat from the Southwest, white wheat from the Pacific Northwest, or durum from the interior Northwest. Of the other principal varieties grown in the United States hard red spring wheat is mostly bought by domestic millers to mix with other grades, and soft red winter wheat is not popular abroad. Of the exported wheat, that from the Pacific Northwest may be neglected in the present discussion, both because of the remote location and because of its generally inferior quality. Durum also presents a special situation in that this type of grain is

⁵² United States Federal Trade Commission, *Report on the Grain Trade*, Vol. II, *Terminus Grain Markets and Exchanges*, 1920, p. 50.

grown close to the Canadian boundary and characteristically moves out by way of the Great Lakes. This leaves the hard red winter wheat, grown mostly in Kansas, Oklahoma, Illinois, and Texas. It is for this wheat, except, perhaps, the portion produced in Texas, which is naturally tributary to Gulf ports, that the competition between routes leading south and routes leading east is most intense.

In practice, at the rates in force, the Gulf has a definite advantage in practically the whole area in the United States from which such wheat is exported. This is particularly true of Galveston, which controls most of the export grain trade from Texas, Oklahoma, and Kansas. New Orleans draws upon the same territory, but to a smaller extent. In fact, little or no wheat has been routed for export via the Atlantic Coast from points west of the Mississippi River since 1928. East of the Mississippi, grain grown in Illinois is divided between the eastern and southern routes in proportions determined at any time by the relation between the comparatively fixed barge rates upon the Mississippi River and the variable rates asked by Great Lakes carriers. Much southern Illinois wheat is, however, soft wheat, which is not exported in large quantities.⁵³ From Indiana, Michigan, and Wisconsin the eastern route is preferred.

As between the alternative routes from producing points in the United States to Europe, the eastern route offers the choice of lake or rail transportation to much of the grain forwarded to the Atlantic seaboard. On the average, this grain reaches its foreign destinations sooner, the climatic conditions which it encounters are somewhat more favorable, and steamship service is cheaper and more frequent from Baltimore, New York, and Montreal than is service from the Gulf. On the other hand the southern route from the competitive area enjoys the advantage of relatively low railroad rates, and the water rates do not appear to be enough higher from Gulf ports than from New York to offset the lower cost of the inland movement. During the 1937-1938 season the average charter rate on whole grain from the St. Lawrence to Liverpool was 14 cents per 100 pounds. From North Atlantic ports rates were, upon the average, 1½ cents per 100 pounds less than from the St. Lawrence. Gulf rates are said to average perhaps 4 cents per 100 pounds above rates from the St. Lawrence, but this is a rough approximation, and on July 26, 1938, the wheat rates on cargo lots were actually lower from New Orleans to Liverpool than they were from New York, Baltimore, or Montreal to the same destination.

Receipts of Grain at Seaboard Cities.—The grain receipts at the principal seaboard cities in 1936 were as follows:

⁵³ See E. A. Duddy, and D. A. Revzan, *The Grain Supply Area of the Chicago Market*, University of Chicago Press, Chicago, 1934; C. L. Stewart, L. J. Norton, and L. F. Rickey, *Market Destinations of Illinois Grain*, Publications of the Agricultural Experiment Station of the University of Illinois, Bulletin No. 315, Urbana, Illinois, 1928.

PRINCIPLES OF INLAND TRANSPORTATION

GRAIN RECEIVED AT SIX SEABOARD PORTS,^o CALENDAR YEAR 1938⁵⁴

Ports	1,000 Bushels
New York, total	
By canal via river	
Coastwise and river	577
By rail	40,067
Boston	5,120
Philadelphia	12,283
Baltimore	12,569
New Orleans	40,146
Montreal, Canada	

^o Total receipts by ports include flour and meal reduced to grain equivalent. Receipts at New York, Boston, Philadelphia, and Baltimore include shipments from the West to foreign countries through these ports on through bills of lading. Receipts at Baltimore include flour ground by city millers, and therefore duplicate an equivalent quantity of wheat received in grain.

Out of a total of 238,456,000 bushels, 76,853,000 bushels were wheat and 69,813,000 bushels represented flour and meal. These figures include both grain received for local consumption and grain received for export, and so they do not indicate exactly the relative volume of foreign trade in grain conducted by the chief seaboard cities. Moreover, the grain reported at the American Atlantic ports includes Canadian as well as American grain, just as the statistics of receipts at Montreal cover grain from both countries. It is not possible, therefore, to relate the figures in the table printed above with the text discussion of the movement of wheat from the American states of the Middle West. Defective as they are for our purposes, these figures do show, however, the volume of traffic upon the Mississippi Valley route moving to New Orleans and most of the export traffic on the eastern route. They indicate also the distribution of this traffic among the several ports.

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CHAPTER XIX

GROUP AND BASING POINT RATES



We have seen in the two preceding chapters that rates may be made upon a distance basis. We have also observed that they may be and are made to meet the exigencies of competition produced by the clash of interests of rival carriers and by the demand of producers and distributors for connection with a market upon relatively favorable terms. The first practice is expressed in the mileage scale; the second in some form of differential or balanced rate system in which the emphasis is upon relationships rather than upon the absolute amount of the carrier charge, and in which the element of distance is subordinated to that of commercial necessity. We may now consider the second practice further and discuss the group or blanket rate; and we may examine a third possibility in rate-making, namely, that a carrier may ask less to haul freight to a more distant than to a nearer point upon its line. If this last alternative seems to resemble the policy of selling two eggs for less than the price of one, which Alice found puzzling in her trip behind the looking-glass, it may nevertheless, sometimes, be defended with arguments of considerable strength.

Let us return to the question as to whether a carrier may deliberately so far yield to competition as to charge unchanging rates for hauls which vary greatly in length. This is the policy of the group rate, and it is with the character and justification of rate groups that we are first concerned. Subsequently we shall pass to the subject of greater charges for shorter hauls to illustrate the nature of what is known as basing point rate-making, and to consider the reasons which have led to the adoption of this method at certain times.

Group Rates.—It is not difficult to suppose a situation which will seem to call for some departure from a mileage system of quoting rates.

Let *A* in the accompanying diagram be a point at which shipments of goods originate; and let *B*, *C*, and *D* represent markets, connected with *A* by the carriers *ABCD* and *ADCB*. It is evident that the two carriers which have been named compete for traffic. Moreover, their competition is especially severe at *B* and at *D*; for at *B* the roundabout route *ADCB* meets the competition of the short line *AB*, while at *D* the roundabout route *ABCD* meets

the competition of the direct route *AD*. Under such conditions it will be conceivable that both railroads may quote low rates to *B* and to *D*, where competition is most intense, and higher rates to *C*; and if they do this, each will charge lower rates to a more distant than to a nearer point upon its line, in violation of Section 4 of the Act to Regulate Commerce. But neither road may adopt the policy suggested. Instead, the same rates may be quoted

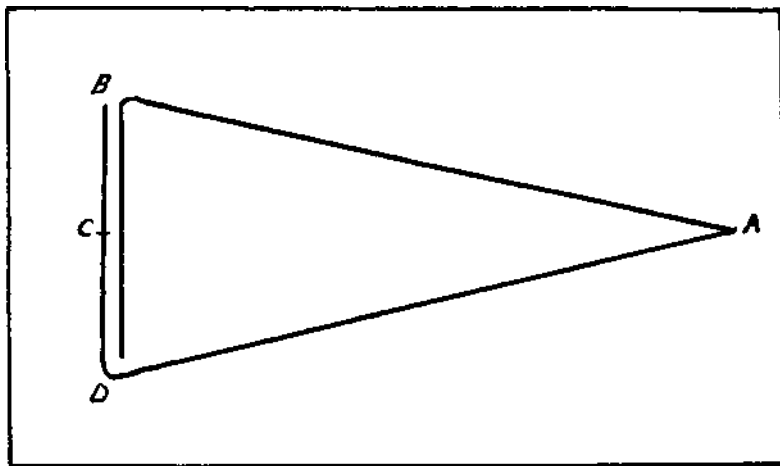


DIAGRAM ILLUSTRATING THE MAKING OF GROUP RATES

to *B*, *C*, and *D* alike. If this is done, *B*, *C*, and *D* will be within what railroad men would term a "rate group," because the charge from the common point of origin to all places in the group will be the same, although the distances traversed by different shipments may vary.

Texas Common Point System.—There are many instances of group rate-making in the United States, and there have been more, which exemplify the sort of rate structure which the diagram suggests. Perhaps the best known is the old Texas common point system. In this system a line was drawn through the western portion of Texas, roughly separating the grazing region of the extreme west from the area devoted more exclusively to agriculture. This line began just west of Acme, Texas, near the northern boundary of the state, and ran in a southeasterly direction through the state to Corpus Christi on the Gulf of Mexico.¹ Most of Texas, therefore, lay east of the line. The rates from points of origin outside of Texas to all Texas points in this eastern or common point territory were made the same, with the exception of a small group of points in the vicinity of Houston and Galveston, and another small group near Texarkana. The Texas common point territory extended a maximum distance of 500 miles north and south, and 465 miles

¹ 40 I.C.C. 619, 1916.

east and west. Under the common point arrangement a St. Louis business man might ship to Corpus Christi on the Gulf for the same rate he paid to San Antonio, 150 miles less distant, or to Denison, on the northern boundary of Texas, 375 miles closer than San Antonio. A New York business man reaching the market through Galveston might ship to Denison or to Fort Worth for the same rate which he paid to San Antonio or to Waco.²

The Texas grouping was the result of competition between routes entering Texas from Kansas City and St. Louis in the north, from Memphis and Vicksburg and Shreveport in the east, and from Galveston in the south. If there had been no group rate, the St. Louis lines would have met the competition of the water route at Galveston, so that rates from the north would have necessarily been less to Galveston than from St. Louis to interior Texas cities such as Waco. Likewise, the rail-steamship lines operating through Galveston would have met the competition of the all-rail route from St. Louis at the northern boundary of the state, so that rates from the Gulf would, in turn, have been higher to destinations near the northern boundary such as Denison than they were to Waco or to other interior Texas towns. Instances of lesser charges for longer hauls would have occurred on both movements. Rates of this sort were avoided by the establishment of the Texas group system, to the general satisfaction of shippers and carriers during a number of years.

Trunk Line Rate System.—Akin in some respects to the Texas system, though different in others, was the rate structure that prevailed in Trunk Line territory at one time. This was partly a group and partly a mileage arrangement, and might be discussed under either head.

The Trunk Line system was used in that part of the United States which lies north of the Ohio and Potomac and east of the Mississippi rivers.³ Its main principles were adopted for eastbound traffic on June 12, 1879, at a meeting of the joint executive committee of the lines in trunk line territory. Seven years later a similar system was adopted for westbound rates. Eliminating as many complications as possible, the substance of the arrangement was as follows: In calculating rates between New York and points in Central Freight Association territory,⁴ the initial operation was to determine for each destination a governing percentage of the rates from New York to Chicago. In obtaining this percentage, the following procedure was adopted: First, a rate of 25 cents per 100 pounds from New York to Chicago was assumed.

² H. B. Vanderblue and K. F. Burgess, *Railroads; Rates-Service-Management*, Macmillan, New York, 1923.

³ W. Z. Ripley, "The Trunk Line Rate System: A Distance Tariff," *Quarterly Journal of Economics*, February, 1906.

⁴ Roughly speaking, Central Freight Association territory is bounded on the east by an irregular line running from near Buffalo, New York, to Parkersburg, West Virginia. It is bounded on the south by the Ohio River; on the west by the Mississippi River from Cairo to Dubuque; and on the north by a line drawn from Dubuque to Milwaukee, and by the Great Lakes from Milwaukee to Buffalo. The territory includes a limited area also lying north of Lake Ontario.

Second, 6 cents per 100 pounds was deducted from this assumed rate to allow for terminal expenses at the two ends of the haul. Third, the remainder of 19 cents was divided by 920, representing the distance in miles from New York to Chicago, yielding a quotient of .0206. Fourth, this quotient or rate per mile was multiplied by the distance from New York to the point for which a governing percentage was desired, and 6 cents was added to the product to cover terminal expense. Lastly, the figure arrived at by means of the fourth operation was divided by 25 in order to secure a percentage relationship with the New York-Chicago rate. Having arrived at this percentage, then those interested could henceforth always obtain the actual rate from New York to point "X" by multiplying the current New York-Chicago rate, whatever it might be at any time, by the percentage which the calculation produced.

This process may, perhaps, be more easily understood if we quote illustrations of it taken from the Interstate Commerce Commission decision in the Saginaw case.⁵

The general nature of the system [said the Commission] may be illustrated by reference to one or two representative points. Springfield, in the State of Ohio, for example, is in the 82-per-cent zone. Xenia is the basing point for that group. Its distance from New York at the time this system was established was 700 miles. If, now, we multiply the factor referred to, namely 0.0206, by 700, we get 14.42 cents; and if to this we add the 6 cents representing the terminal expenses at both ends of the movement, we get 20.42 cents as an assumed rate from Xenia to New York, which is 81.7 per cent of the assumed rate of 25 cents from Chicago to New York; and under the application of a general rule for the disposition of fractions resulting from such computations, a fraction exceeding one-half of one per cent is considered a full per cent. A percentage of 82 is thus arrived at as the basis for constructing the rates from that group, and the rates from Springfield are therefore 82 per cent of the Chicago-New York rates. Again, Fort Wayne, in the state of Indiana, is in a 90-per-cent zone. In arriving at that percentage, Muncie was taken as the basing point. The distance from Muncie to Lima via the Lake Erie & Western is 85 miles, and the distance from Lima to New York via the Pennsylvania lines, before they were reconstructed east of Pittsburgh, was 713 miles, making a total distance of 798 miles by the shortest route "worked or workable." If the same factor be multiplied by 798 we get an assumed rate from Muncie to New York of 16.44 cents, exclusive of terminal charges. Adding 6 cents to cover these expenses, we arrive at an assumed rate between these points of 22.44 cents, including terminal charges, which is 89.76 per cent of the assumed rate of 25 cents from Chicago to New York. The specific rates from Fort Wayne as published by the trunk lines are therefore made up on the basis of 90 per cent of the Chicago-New York rates, the 0.76 of 1 per cent being taken as a whole per cent.

Rates from New York to Points West of Chicago.—It is not necessary, for the purposes of the present discussion, to describe the method of making

⁵17 I.c.c. 128, 131, 1909.

rates from points in New England, or from points in Trunk Line territory other than New York, to the various possible destinations in Central Freight Association territory.⁶ But in order that the system may be properly appreciated, we must mention two other features besides the method of tying the rates to intermediate points in Central Freight Association territory to the rates from New York to Chicago. The first of these additional characteristics of the trunk line system was that the method of making rates to points west of Chicago did not altogether conform to the method used in computing rates to points farther east. It is true that percentages, varying from 100 to 117, were assigned to western cities; but these particular percentages were not those which the trunk line formula would produce. In these cases, the influence which determined rates was the competition of carriers to upper Mississippi River crossings with carriers to St. Louis, and, still more generally, the competition of the cities of Chicago and St. Louis and of the carriers which served them. The distance from New York to East St. Louis was 116 per cent of the distance to Chicago, and St. Louis was originally given class rates on a 116-per-cent basis. In 1908, when the St. Louis and the East St. Louis rates were made the same, this was increased to 117 per cent, and the bridge toll to St. Louis was abolished.⁷ Competition between the lower and the upper Mississippi River crossings extended the 117-per-cent group as far north as Dubuque, and the difference between 117 per cent and the 100 per cent which expressed the Chicago rate was eliminated by degrees in the area between the river and Chicago. No allowances were made for terminal costs in these adjustments.

Trunk Line Groupings.—The second observation is that in the trunk line system rates were made by groups and not according to individual destinations. The reader may already have inferred that this was so from expressions in the Commission decision quoted on page 405. The number and location of the trunk line groups in 1925 is shown in the map on page 407.⁸

It is evident from the map that the trunk line system was not strictly a distance system, for the use of groups introduced an element which was independent of distance. Moreover, the forms of the groups were not regular, as they would have been if distance had been the controlling fact in their alignment, but they varied according to competitive conditions. Thus the 78-per-cent zone, which included the important cities of Columbus, Toledo, and Detroit, extended farther west than the 81-per-cent zone, which had no

⁶ These rates were frequently equal to percentages of a percentage. Thus the rates from Cumberland, in Trunk Line territory, to Central Freight Association points were, in 1930, 77 per cent of the rates from New York to the same destination; and the rates from Scranton, Pennsylvania, were 80 per cent. The methods of determining these rates were, however, not uniform. (See 164 I.C.C. 314, 1930.)

⁷ 33 I.C.C. 673, 1915.

⁸ The inset map is based upon a more detailed drawing in the *Atlas of Traffic Maps* prepared by W. E. Butterbaugh and C. E. Wymond for the LaSalle Extension University.

town of equivalent importance; and the 93-per-cent group, in which Indianapolis was located, extended farther west than the groups to which the percentages 94 and 95 were assigned. It is also noticeable that the percentages allotted groups in the northern Michigan peninsula rose much more rapidly than increasing distances from New York would justify; and the effect of ferry services across Lake Michigan was reflected in the extension of the Chicago, or 100-per-cent, group, far to the north on the Lake's western shore. Ripley pointed out, as early as 1906, that the zone boundary lines in the trunk line scheme lay, in general, immediately west of large cities. The ob-



TRUNK LINE RATE ZONES

vious reason was that there was competition at these cities which depressed rates. Transition from one level to another occurred only when the zone had reached so far beyond the compelling city that the force of competition had been weakened. Ripley noticed also that the zone boundaries frequently followed the lines of important transverse railways. This was because it was advantageous for such railways to remain, as far as possible, within a single group. To illustrate this point, let us suppose that two groups were involved, one taking 82 per cent of the Chicago rates, and the other 83 per cent; and that a north-and-south railroad, connecting with east-and-west lines in this area, desired to deliver freight to destinations in the groups. Such a trans-

verse carrier might have received freight from a junction in the 82-per-cent group for delivery in the 83-per-cent group; but it could hardly have accepted consignments at a station in the 83-per-cent group for delivery in the 82-per-cent group without making a greater charge for a shorter than for a longer haul. Transverse lines crossing two zones could be worked only one way unless they secured special dispensation from the Interstate Commerce Commission under the provisions of Section 4 of the Interstate Commerce Act, a clause which we shall discuss in Chapter XX. These zones are the feature of the trunk line system which allows it to serve as an illustration of group rates.

Lumber and Fruit.—Grouping of destination territories is also resorted to in commodity tariffs such as those which quote rates on lumber and fruit, and in particular adjustments such as that which governs transcontinental rates. We shall presently consider the transcontinental structure in another connection, but the reader may be referred back at this point to Chapter XI in which the rates on lumber and fruit are discussed. In examining the movements of these commodities we observed that lumber-producing sections in the Northwest were assembled into five groups and that rates from all points in each group to eastern destinations were the same; and we noticed that eastern destinations were also grouped into a limited number of areas for purposes of rate quotation, and that shipments could be made to all points in each area at equal cost. Orange destinations were still more broadly grouped, until the rate from Los Angeles to Charleston became the same as from Los Angeles to Denver, in spite of a difference in distance of 1171 miles. Examples of this sort can be multiplied, though few such extreme instances probably exist.

Grouping of Producers.—Finally, group rates also equalize competitive conditions between producers, and this is, perhaps, the most common occasion for their use. Thus it frequently happens that a number of factories, or coal mines, are located in reasonable proximity to one another, and that these establishments compete with one another in some common but distant market. When this is the case, carriers may, as in the grain and livestock adjustments, introduce a scheme of differentials or related charges, and this will be the necessary solution for the difficulty if the producing units which compete are far apart; but not infrequently it will be feasible for them to erect a group that is sufficiently extensive to include all the competing plants. While this nullifies the advantages of location which some of these establishments possess, it checks the tendency of carriers serving the more distant centers to cut rates, and it permits a scattering of production which may conform to public policy.

Among the earliest cases involving group rates which came before the Interstate Commerce Commission was an example of this type, in which car-

riers serving Jersey City charged the same rates on milk and cream from points of supply over distances which ranged as high as 200 miles. The Commission in this case refused to interfere with the practice of grouping, in spite of the complaints of producers near Jersey City.⁹ Among the later cases are the "Lake Cargo Coal Cases," in which the relative rates to Lake Erie ports from coal-producing districts in Pennsylvania and Ohio were challenged, and also the relationships between the rates from Pennsylvania, Ohio, and northern West Virginia districts on the one hand and those from southern West Virginia, Virginia, Kentucky, and Tennessee groups on the other.¹⁰ This last controversy was fought with marked bitterness; but the general principle that eastern and western mines should be grouped in some fashion for purposes of rate-making was not disputed.

Summary of American Practice—The Interstate Commerce Commission summed up American practice with respect to group rates in a report made to the Senate Committee on Interstate Commerce on March 19, 1924.¹¹

It has long been a general practice [said the Commission] throughout the United States to establish rates on a group or zone system, that is to say, by making the same rate or rates from and to all points within a certain group or zone, which usually apply over all routes. This is the system which is now employed in publishing rates between eastern points and the Pacific coast. The territory lying generally east of the Rocky Mountains is divided into a number of large groups and the rates from all points in each of such groups are generally the same to all points in California. A similar plan is followed in publishing rates between points in central territory and points in trunk-line and New England territories. This method of stating rates is simple and convenient, and in some cases is of great advantage to the public at large where it is desirable to maintain the producers of the same territory on a substantial equality in marketing their products. Thus, mines in coal fields covering a considerable area and served by different lines, or shipping points in a lumber or wheat producing section, also served by different lines, are accorded the same rate to a common consuming territory. This is true of large industrial centers such as Chicago, Pittsburgh, St. Louis, and others, which in many cases are grouped with the territory immediately surrounding them for rate-making purposes. Often the rates to and from points within the sweep of a long radius from these centers are the same, generally speaking, over all routes.¹²

Proposals for Group Rate-making on an Extended Scale.—For the most part group rates are approved by public opinion because they are simple, because they appear to open a larger area of supply to consumers or to protect them by increased producer competition in the area in which they live, and because of some implication that a precise equality of charge for trans-

⁹ 2 I.C.C. 272, 2 I.C.R. 162, 1888.

¹⁰ 46 I.C.C. 159, 1917; 101 I.C.C. 513, 1925; 126 I.C.C. 309, 1927; 139 I.C.C. 367, 1928.

¹¹ See chap. xvi.

¹² 165 I.C.C. 561, 571, 1930.

portation is essentially fair, even for different quantities of service.¹³ The rates permitted, however, have so far all been limited in scope. Proposals to extend the principle of group rate-making so that all shipments, from whatever point of origin and to whatever destination, shall be charged a single rate have not been indorsed, and wisely so, although it is interesting to speculate upon what might be the effect of so radical an innovation.

A typical suggestion for group rate-making upon an extended scale was made by Rafael Brandon, for passengers, in 1868. Doubtless inspired by the success of Rowland Hill's reforms in the postal service, Brandon suggested that a single fare of 3d per trip be charged on English railroads without reference to distance, as long, at least, as the traveler stayed in England.¹⁴

In Germany, in 1869, Perrot made a modified proposal with respect to freight. According to Perrot, freight rates should be charged as follows:¹⁵

Class	Distance		
	1-75 km.	Over 75 km.	
Fast Freight			
Irrespective of weight except that maximum weight was set at 100 kg.		60 heller	100 heller
	1-149 km.	150-375 km.	Over 375 km.
Ordinary Freight			
Miscellaneous up to 150 kg.	60 h.	100 h.	150 h.
Miscellaneous over 150 kg.	100 h.	150 h.	240 h.
Carload lots	1800 h.	3000 h.	4400 h.

Still another plan was advocated in the United States as late as 1898. In his book, *A General Freight and Passenger Post*, J. L. Cowles urged that railroads should be controlled by the United States Post Office, and that fares and rate should be introduced as follows:

Passengers	Fare per Trip
Way trains, ordinary or second-class cars	\$.05
Palace or first-class cars	.10 to .30
Baggage, per piece per trip	.05
Baggage, domicile to domicile	.10 to .30

Freight.—On open cars, coal cars and the like, loaded and unloaded by shippers and consignees, there would be a uniform standard rate of say \$6.00 per haul per car of standard capacity, and for box cars, oil cars and the like, a rate of perhaps \$8.00, in all cases regardless of the amount of the load, up to the car's capacity, and regardless of classification. The time limit for loading and unloading would be not over eight hours, the limit now in vogue in Holland.

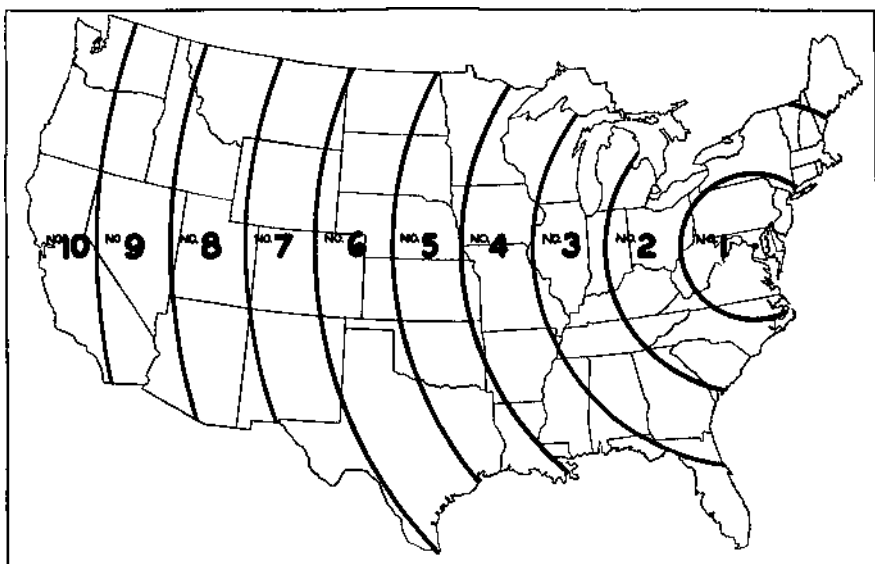
¹³ I. L. Sharfman, *The Interstate Commerce Commission*, Part III, Vol. B., pp. 670 ff.

¹⁴ Albert Pauer, *Lehrbuch des Eisenbahn-Tarifwesens*, K. K. Hof und Staatsdruckerei, Wien, 1900.

¹⁵ *Ibid.*, p. 9.

The advantages of this reform [said Cowles] ought, it seems to me, to be patent to every one. Every station, and every man at every station in the country, would be on a par with every other as to passenger and freight rates. Discriminations between individuals and between places would be forever at an end. The great cities would no longer grow at the expense of the intervening country. . . . There would be no more rebates, no more deadheads. Great armies of soliciting agents would disappear. Freight stamps (for freight taxes would be paid in advance) and baggage stamps and passenger tickets would be on sale at drug stores, hotels, and other convenient places, as ordinary postage stamps are today.¹⁶

Hastings Plan.—Most recently the so-called Hastings plan has received some attention. This last proposal was submitted to the Senate Committee on Inter-



POSTALIZED COACH FARE REGIONS UNDER THE HASTINGS PLAN

state Commerce in 1935 by John A. Hastings, formerly a state senator of the state of New York. As originally introduced, it proposed to divide all railroad passenger traffic into three general classes: namely, short distance, up to 50 miles or thereabouts; regular train service other than short distance; and express or limited train service. The fare for short distances was to be 15 or 25 cents. The regular train coach fare, other than for short distances, was to be \$1.00 for each railroad system which the haul traversed.

In the plan's later form, Mr. Hastings substituted a series of zones, each with a radius of 250 miles, for the original conception of zones each of which comprised the lines of a single railroad system. These zones, starting from

¹⁶ J. L. Cowles, *A General Freight and Passenger Post*, Putnam, New York, 1898, p. 149.

any point where transportation might begin, were bounded by concentric circles; thus for service beginning at Washington, D. C., the arrangement might be depicted as shown in the accompanying map.

The fares to be charged for purely local urban hauls were not stated in the revised version of the Hastings plan, but for suburban trips not exceeding 50 miles in length the coach fare was to be 15 cents. For interurban trips, longer than 50 but not exceeding 250 miles, the fare would be \$1.25, and for still longer hauls the fare would be a multiple of \$1.25 depending upon the number of zones traversed. Thus the coach fare from Washington, D. C., to San Francisco, traversing ten zones, would be \$12.50. Higher fares, still calculated on the zone principle but not necessarily increasing every 250 miles, were to be charged per zone for parlor cars (\$3.00), for local sleeper cars (\$5.00), for regular reserved trains (\$10.00), and for de luxe trains (\$15.00). Parlor car seats and sleeping berths were to be charged for separately. The Hastings plan as published was confined to passenger service, although an eventual extension to freight movements was foreseen.

Criticism of Plans for Extended Groupings.—The expectation of all simplified plans for group rates or fares is that a large reduction in charge and its advertisement in a simple form will so increase traffic as to make the new rate profitable. This conclusion is based upon experience in the postal service, where something of this sort seems to have taken place, at any rate for first-class mail. In the Hastings plan this expectation was supported by a calculation that the cost per railroad coach seat mile on a trip from Washington, D. C., to San Francisco was only \$8.30, or less than the fare of \$12.50 which the plan proposed. It was assumed that this cost per seat mile would become the cost per passenger mile if every seat were occupied, and it was confidently expected that such full utilization of capacity would occur when the new fares had been put in force.¹⁷

¹⁷ To save the railroads from possible revenue loss, however, the Hastings plan proposed the organization of a corporation with a capital stock of \$500,000,000, to be subscribed and paid for by the Secretary of the Treasury, who would hold the stock in the name of the United States of America. This corporation was to pay to each railroad periodically the difference between the "postalized" rate and the regular rate last fixed by the company with the approval of the Interstate Commerce Commission, and these payments were to continue until the annual passenger railroad revenue (postalized rate and subsidy combined) should equal the average annual passenger revenue received by each railroad during the calendar years 1925-1934, inclusive. Stated in this form the plan exposed the railroads to loss during a period beginning at the moment when revenue from fares and subsidy combined first equaled average passenger earnings between 1925 and 1934 and ending when the revenue from fares alone attained the average level. What was probably intended was that the subsidy should be gradually reduced so that total revenue should not exceed the 1925-1934 average, until the subsidy had been entirely eliminated. Even this did not entirely protect the railroads, because the subsidy was based upon a comparison of gross earnings, and took no account of any increase in operating expenses which an increased volume of business might entail. In April, 1940 the House Committee on Interstate and Foreign Commerce voted to postpone indefinitely a resolution directing the Interstate Commerce Commission to investigate and report on the Hastings plan.

It is probably true that any rate or fare reduction to the extent proposed by Perrot or Cowles or Hastings would increase the volume of transportation, whether prices were fixed according to a postal or according to any other system, although the amount of such an increase can only be estimated in a general way. It is also likely, however, that the increase in volume would involve a considerable addition to operating expense, and perhaps some additional capital investment. In these matters the analogy between mail service and general transportation service must not be pushed too far, as the proportion of terminal to total cost in handling first-class mail is greater than in the transportation of passengers or of freight. The imposition of any uniform rate for transportation based upon the average cost of performing service would, moreover, tend to divert short-distance traffic, upon which the rate or fare under a postal system would be relatively high, to private carriage or to types of transport to which the group system was not applied, leaving to the postalized revenues from the remaining business the task of covering the expenses of long-distance transport, which would exceed, for the typical ton, the average upon which rates were originally based. Plans for the sweeping adoption of group systems of rates and fares have been rejected for these reasons, but more limited groups have been used for the sake of simplicity in quotation and because rates made without reference to distance sometimes solve problems raised by competition in a reasonably acceptable way.

Basing Point Rates.—We now pass to the subject of basing point rate-making, or the charging of lesser rates for longer and greater rate for shorter hauls.¹⁸ Strange as it may seem, this practice results as naturally from competition as does the practice of a group rate. Let us consider again the situation presented by the diagram on page 403. Here carriers *ABCD* and *ADCB* compete for traffic at points *B*, *C*, and *D*. If rates are to be made upon a mileage basis, the first-named carrier will charge its lowest rate to *B* and its highest rate to *D*; the second carrier will charge its lowest rate to *D* and its highest rate to *B*. The former will obviously capture all the traffic consigned to *B* and the latter all that consigned to *D*. At *C* the rates of both carriers will be the same, and the business will be divided. But neither carrier may be satisfied with the indicated result, because each may believe that some profit may be obtained from an extension of its operations, even at some sacrifice in price. We have seen that a possible solution to the difficulty may be found in the establishment of a group which will provide *B*, *C*, and *D* with a single, uniform rate, presumably based upon the short-haul costs from *A* to *B* and from *A* to *D* of the respective carriers. But another possibility is

¹⁸ Basing points may be used in tariff construction in ways which do not require the collection of greater rates for shorter hauls, but the term "basing point" has become associated with rate systems which have the characteristics indicated in the text.

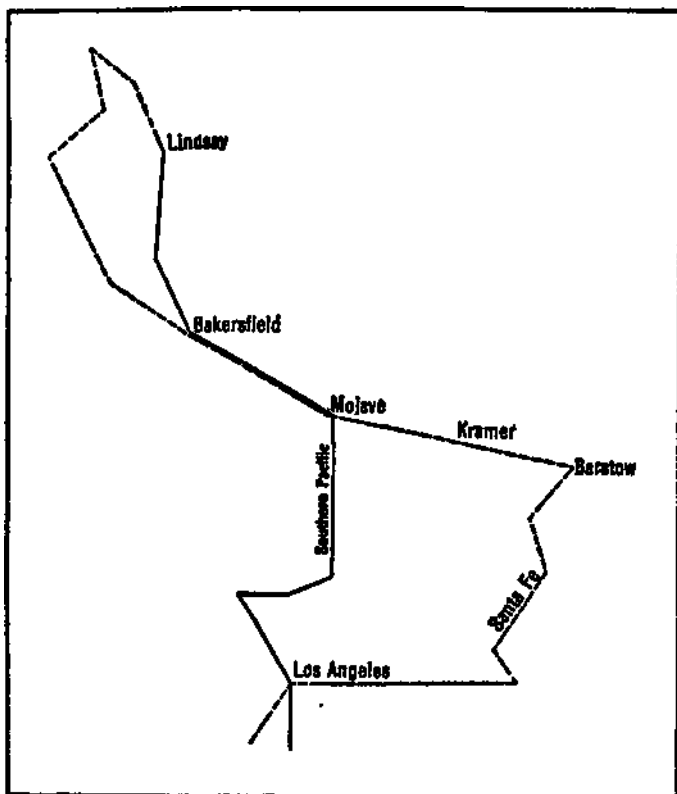
that carrier *ABCD* will meet its rival's rate at *D*, without changing its rates at *C* and *B*, and that carrier *ADCB* will similarly reduce its charge at *B* without change in the tariff to *C* and *D*. In this event each carrier will be charging a lower rate for a longer than for a shorter haul over its line. This will represent an alteration in the system of carrier charges, but at least for the moment each community concerned will pay the same rate as that collectible under a mileage system, although *B* and *D* will now be served effectively by two railroads and not, each, by only one. Whether the communities will pay less under the basing point or under the group system will depend upon the level at which group rates are fixed. If costs are averaged and rates adjusted to secure the same net return to the carriers in either case, *C* will probably pay less under a group and *B* and *D* less under a basing point method of rate-making. It may be assumed that this will be a matter of indifference to the carriers, although under some circumstances they may be affected by a change in the relative importance of the towns concerned.

In principle there is no difference between charging the same rate for varying distances, as a group system undertakes to do, and charging rates which are inversely proportionate to distance. Either policy collects a smaller charge per ton per mile for longer than for shorter hauls, and does this on the assumption that the long-haul charge, low as it is, is still sufficient to cover the additional costs which such a service requires the carrier to assume, and that no higher prices are obtainable. And either leads in the long run to some dislocation of industry, varying only in degree, in the two cases. There is, however, a considerable difference in the popular favor with which the two practices are regarded.

Kramer v. Mojave.—One of the simplest instances of a greater charge for a shorter haul, apart from those presented by the southern basing point and the transcontinental tariffs presently to be described, is offered by a certain rate structure in the state of California. The territory in which the rates are quoted lies in the southern part of the state, and the relative position of the towns affected is set out in the accompanying diagram.

In this case the distances from Los Angeles to the towns mentioned were, over the Atchison, Topeka, and Santa Fe Railroad, 174 miles to Kramer 212 miles to Mojave, and 411 miles to Lindsay. The rates, when complaint was made, were 78 cents to Kramer, 52 cents to Mojave, and 70 cents to Lindsay. The rate to Kramer was a non-competitive, local charge. The rate to Mojave over the Santa Fe, on the other hand, was depressed by the competition of the Southern Pacific Railroad. The fact that the haul to Mojave was longer than that to Kramer was not regarded as a conclusive reason against quoting a higher rate to this last-named place than to a destination 38 miles farther on.¹⁹

¹⁹ Railroad Commission of California, Vol. X, 1916, pp. 368 ff.



FREIGHT RATES BETWEEN LOS ANGELES AND POINTS NORTH AND EAST

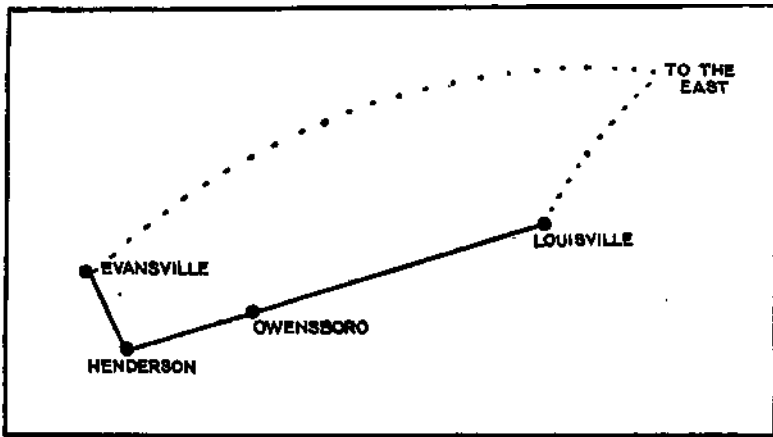
Owensboro v. Henderson, Kentucky.—A slightly more complicated case of discrimination which illustrates the practice of charging a higher rate for a shorter than for a longer haul was once reported from the state of Kentucky.

Owensboro, Kentucky, is situated a few miles south of the Ohio River, between Louisville, Kentucky, and Evansville, Indiana. That is to say, Owensboro lies between two cities, each of which may be reached at low cost by routes mostly operated through the industrial states of Indiana, Ohio, Pennsylvania, and New York, and each of which benefits from the active competition of two or more railroad lines. There is, on the other hand, but one line of railroad through Owensboro.

A not unnatural result of the presence of competition at Louisville and Evansville and its absence at Owensboro was that the railroad rates to the last-named town were relatively high. They were even high as compared with rates to Henderson, south of Evansville, but dependent upon it. From New York, for instance, the Owensboro rate in 1923 exceeded the rates to Henderson on Classes 1 to 6 in amounts of 10, 8, 5, 1.5, 2.5, and 1.5 cents,

respectively. Meanwhile, traffic passing through Louisville from the east on its way to Henderson passed through Owensboro on its voyage to ultimate destination. This was a clear case of a greater charge for a shorter than for a longer haul.

The distance from Louisville to* Owensboro was 114 miles; that to Henderson, 144 miles. Generally speaking, traffic originating at or destined to points on the Louisville-Henderson line moved via Louisville when to or from points north and east of that gateway, and via Henderson and Evansville when to or from points north and west of that gateway.



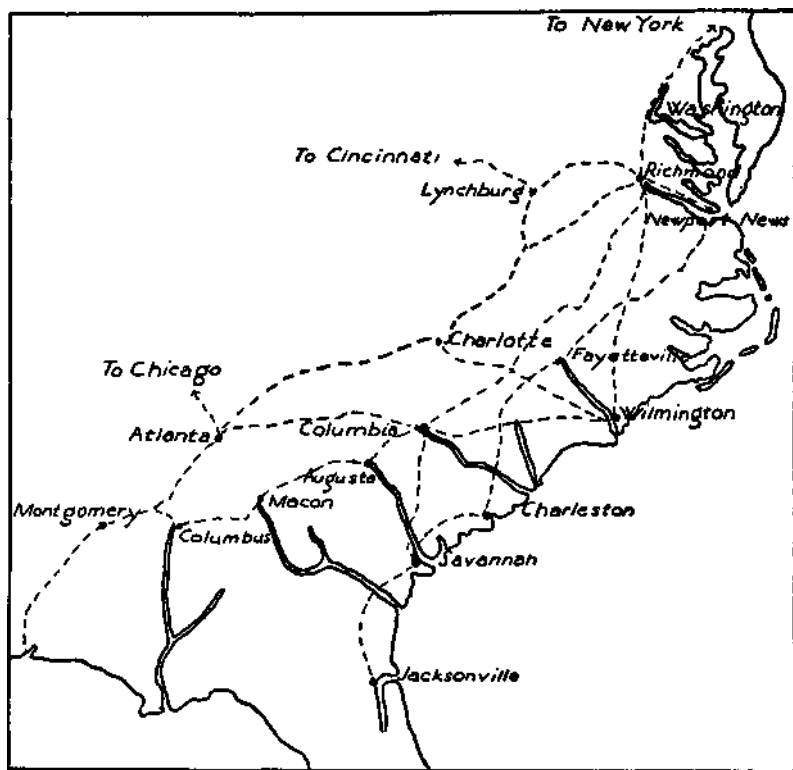
OWENSBORO V. HENDERSON

Owensboro complained, but without result. The Henderson rate proved to be upon too low a basis to be extended to all the towns on the Louisville, Henderson, and St. Louis Railroad. Yet the rate was the maximum possible to be charged at Henderson on traffic passing through Louisville, for any increase would have driven shippers to use the Evansville gateway from the east. Why increase such a rate when the change would not affect the cost of laying down supplies either at Owensboro or at Henderson, but only the routing of traffic to these places? The case came before the Interstate Commerce Commission, but the Commission refused to act.

Southern Territory.—It would be possible to illustrate varieties of basing point rate-making by citing and analyzing still other particular situations in the United States; but the policies involved are also to be understood by considering rate structures which have characterized two great territories, those of the Old South and of the Pacific coast, and references in the text will be made to these territorial arrangements because of the large significance of the relations which can be so described.

When railroads began to operate in the southern states, they found that

rail movements from New York or Washington to Atlantic seaboard cities, such as Wilmington, Charleston, or Savannah, were subject to the competition of steamship lines engaged in the coasting trade. It was necessary for the railroads to meet the low rates which the steamers charged, but these rates were effective only to the steamship ports of call, and rates to points intermediate between the seaboard towns could be, and were, made higher

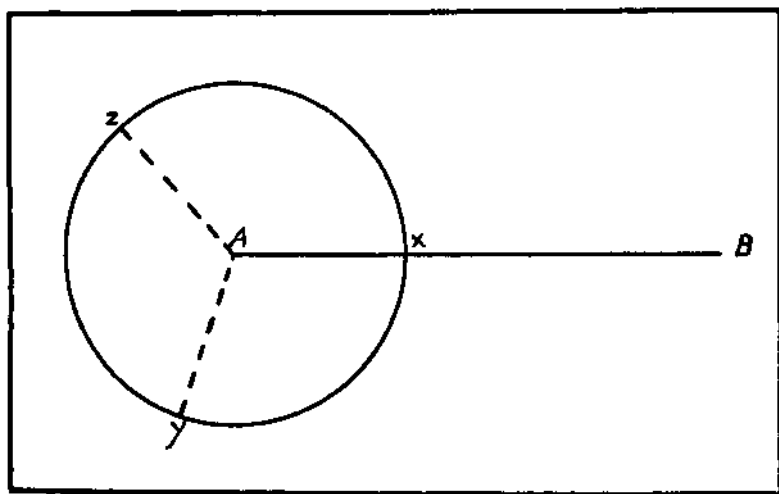


TRANSPORTATION ROUTES IN THE SOUTHEAST

than to the ports themselves. In this fashion southern railroads treated the principal cities on the South Atlantic seaboard as basing points. Normally, the rates to interior cities were made by combining the rates to seaboard basing points with a local rate beyond. But this brings us to a second characteristic of the southern system. In the development of southern rates, there emerged a second set of basing points at the head of navigation upon rivers emptying into the Atlantic Ocean or into the Gulf of Mexico. Such points were Richmond, Virginia; Columbia, South Carolina; Augusta, Macon, and Columbus, Georgia. All of these competitive river centers were in existence before the beginning of the railways, and were places at which shipments

were received from the seaboard or collected from the surrounding territory, and from which goods were distributed by wagon or pack animals. Railroad rates to the "Fall Line cities" were made something less than the combination of the rail rate to the seaboard basing points and the local rail rate inland, responding to the possibility of river carriage. Pushing farther west, still another condition was revealed. At Atlanta, Georgia, the carriers which brought goods from New England and New York into the southeastern states met the competition of other carriers connecting the Southeast with the manufacturing cities of the northern Mississippi Valley. Because of market competition, Atlanta was made a basing point. Finally, in the course of time, additional basing points were set up where intensive railway competition compelled low rates, or where some rate concession seemed desirable for reasons of railroad policy.

Characterization of the Southern Rate System.—The peculiarity of the southern basing point system was that it constructed rates to non-competitive communities by adding locals to basing point rates. The combination was generally high, and in many cases the system produced a greater charge for a shorter than for a longer haul. How this could occur is shown in the accompanying diagram.



BASING POINT RATE-MAKING

Let B in this diagram indicate the point of origin of a shipment. A is a basing point, and x , y , and z are local centers of population dependent upon A . Under the basing point scheme of rate-making, the rate from B to x , y , or z will be the rate to A plus the local rate Az , Ay , or Ax , as the case may be. It follows as an incidental result that the rate Bx will exceed the rate BA ,

although the traffic to *A* from *B* will pass through *x* on its way to destination. This condition raises difficulties which we shall have to consider.

It is evident that the old southern basing point system was a highly selective kind of rate-making in which the influence of competition was recognized, when and to the degree in which it was felt, and in which non-competitive localities received slight consideration. In the whole territory east of the Mississippi, and south of the Ohio River and the line of the Chesapeake and Ohio Railway through Lynchburg, Richmond, and Norfolk News within which this method of making rates was used, the policy produced an irregular rate landscape, with summits and depressions which reflected the absence or presence of competition, but which conformed but slightly to the distances over which freight was hauled. For instance, it was possible in the South that the rate on a given commodity might be \$1.00 for a haul of 80 miles, 90 cents if the haul were extended to 100 miles, \$1.10 for a distance of 120 miles, and 75 cents for a shipment carried 150 miles, all in one continuous line, if the goods passed through local communities and also through basing points where competition existed to a greater or less degree.

Such irregularity made the system unpopular with regulatory authorities, as well as difficult for the general public to understand. It seemed, at best, unrelated to the service which the railroads performed. On the other hand, the basing point system was defended on the following grounds: (1) it was said to diminish the costs of transportation by encouraging a certain concentration of traffic; and (2) it enabled small dealers in the basing cities to compete with wholesale merchants in the large metropolitan areas, for low rates were paid by all residents of basing point towns, and these low rates per pound were, to a considerable degree, independent of the quantities which were shipped. Since 1910 the southern system of rate-making has been the subject of a number of Interstate Commerce Commission investigations and decisions,²⁰ the effect of which has been to substitute, in the main, a mileage tariff for the basing point system long characteristic of the southern states.

Origin of the Transcontinental Rate Structure.—The other considerable example of the use of basing points in railroad rate-making is to be found in transcontinental tariffs. When the first transcontinental railroads were constructed, they found, on the Pacific coast, communities which had for some time been supplied by ships that had circled Cape Horn or which, in co-operation with the Panama Railroad, had established a rail-and-water route by way of the Isthmus of Panama. The lowest rates charged for water transportation were, naturally, those between New York and the Pacific ports, of which the most important was San Francisco. The railroad was compelled to meet the shipping rates, but it saw no reason why it should charge interior cities as little as it charged the seaboard towns. Collis P. Huntington later

²⁰ See especially 30 I.C.C. 153, 32 I.C.C. 61, 1914; 100 I.C.C. 513, 1925; 109 I.C.C. 300, 1926; 113 I.C.C. 200, 1926; 128 I.C.C. 567, 1927.

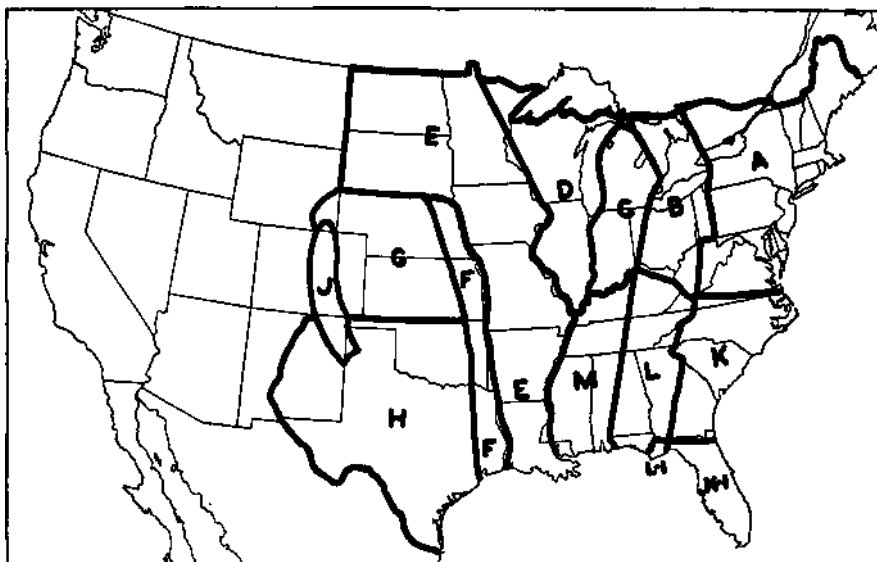
related a conversation' about this matter which took place at Carson City, Nevada, in 1861, between Stanford, Dr. Strong, Mr. Crocker, and himself, representing the railroad, and some twenty representative men of Nevada. The Nevada people observed that Huntington kept a pretty good hardware store, but that he was likely to leave it in the mountains if he started to build a railroad in Nevada. Huntington replied that he would look out for that; but, he continued, when the road was built he proposed to charge through rates which, while less than the Nevada people were paying for goods which then came to San Francisco by boat and were subsequently teamed across the mountains, would be materially greater than the rates to San Francisco. "We shall charge you for bringing back," said he, "almost as much as we shall charge from New York." After the road was built, Huntington says he met one of these same men with whom he had talked in 1861. "Said I, 'You recollect that talk we had in the Curry House in 1861?' 'Yes, oh yes.' Well, we talked about that. He said: 'You've got me there, Huntington.' 'Well,' said I, 'I said you would grumble. Now,' said I, 'you shut up.'"²¹

Blanket Rates in Eastern Territory.—Logically, the same system which the transcontinental railroads adopted in the West should have been applied in the East also. This would have meant that the rates from interior cities like Pittsburgh or Chicago to the Pacific coast would have been higher than the rates from New York to the same destinations. In the late seventies and early eighties commodity rates to the Pacific coast were actually higher from Chicago than from New York, although class rates, applying to traffic which was more likely to move by rail than by water, were higher from New York than from Chicago.²² But it was contrary to the interests of western carriers that New York should be favored against Chicago in this way, for on Pacific coast traffic originating at New York the lines west of Chicago received only a portion of the through rate as their division, while on traffic originating at Chicago they received it all. It was, therefore, to the advantage of the railroads west of Chicago to build up the Middle West against the Atlantic seaboard; and this in the course of time caused them to charge Chicago the same rates as were quoted from New York. At the present moment the relative position of Chicago is still further improved. In 1938 Eastern territory was divided by the transcontinental tariff into eighteen groups, lettered from A to M. Groups A and A-2 included points of origin and destination on or near the North Atlantic, and Group K points of origin and destination at or near the South Atlantic, seaboard. From these extremes the lettering from A to J and from K to M proceeded west. Class rates were highest to and from the seaboard groups, and became less as points of origin or destination

²¹ Stuart Daggett, *Chapters on the History of the Southern Pacific*, Ronald, New York, 1922, pp. 283-284.

²² 21 I.C.C. 329, 348, 1911. See also E. R. Jones, *Principles of Railway Transportation*, Macmillan, New York, 1924, chap. ix.

moved west, so that the Chicago rate to or from the Pacific coast was substantially less than the rate from New York or from Savannah. The progression was less regular in the case of commodity rates, as the same charge was frequently quoted to a number of adjacent groups. Even when this was done, however, the rate to or from Chicago from or to the Far West was generally less than the rate collected from shippers at New York. The blanketing of the eastern part of transcontinental territory has a history and im-



TRANSCONTINENTAL DESTINATION GROUPINGS ON TRAFFIC EASTBOUND FROM CALIFORNIA, 1932²³

portance of its own, but it is only indirectly related to the basing point system of rate-making, and we need not linger over its details.²⁴

Pacific Coast Terminals.—As in the South, attention was directed in the West to the selection of basing or terminal points. The western system differed from that in the South in that the same rates were charged to all terminals. It resembled the southern structure, however, in that rates to local points, even when intermediate, were higher than to terminals. Thus it was important to a town that it be named a terminal, and many disputes arose over the inclusion or exclusion of particular cities. The principal, though not the only, terminals on the Pacific coast were Seattle, Tacoma, Portland, San Francisco, Los Angeles, and San Diego. All of these were accessible to ships, although in the case of Los Angeles the accessibility was more formal than real. The reason for the inclusion of Los Angeles in **the**

²³185 I.C.C. 299, 347, 1932.

²⁴Recent controversies relating to the eastern "blanket" are reported in 142 I.C.C. 151, 1928; 152 I.C.C. 703, 1929; 188 I.C.C. 687, 1932; and 214 I.C.C. 561, 1936.

list of terminals was the desire of the Santa Fe Railroad to encourage the growth of a distributing center in southern California which might compete with San Francisco farther north. Some towns, like San Jose, once enjoyed but later lost terminal privileges. Others, like Santa Clara, sought them in vain. The test which determined the classification of a Pacific coast point was the presence or absence of effective water competition; and this test was applied with fair consistency.

Relation Between Terminal and Intermediate Rates.—Transcontinental rates were thus molded by competitive influences. However, the cities which ranked as non-competitive in this system included important centers east of the Pacific coast such as Reno, Nevada, and Spokane, Washington; and the protests of such towns were much more vigorous and sustained than those of local communities in southern territory. It probably never was true, unless perhaps at the very beginning, that intermountain cities were uniformly charged the terminal rate plus the local back. In the Spokane case,²⁵ which may serve as an example, the Spokane rate was said to be higher than the Seattle rate by about 70 per cent of the local from Seattle to Spokane in the majority of cases. Yet the difference was often large, and when rates were reduced to comparable units such as mills per ton per mile the relationship between terminal and intermediate rates appeared difficult to defend. Speaking of the rates on iron and steel in 1918, a representative of the Traffic Bureau of Utah called attention to the fact that the rate on iron and steel articles for export from Chicago territory to Pacific coast terminals was 40 cents per hundredweight, or 3.54 mills per ton per mile. He continued:

They take an identical carload of the same commodity, and when it is going to the Pacific coast for domestic consumption the rate is 65 cents a hundred, or 5.76 mills per ton-mile. If they were to apply that rate at the Utah common points—the same 65-cent rate—it would pay 8.65 mills per ton-mile. But they say, "We cannot afford that; you must pay 10.84. We haul it for a man in Russia for 3.54, but that is only the out-of-pocket cost. We will make you a rate of 10.84, which is a lower rate than you are entitled to."

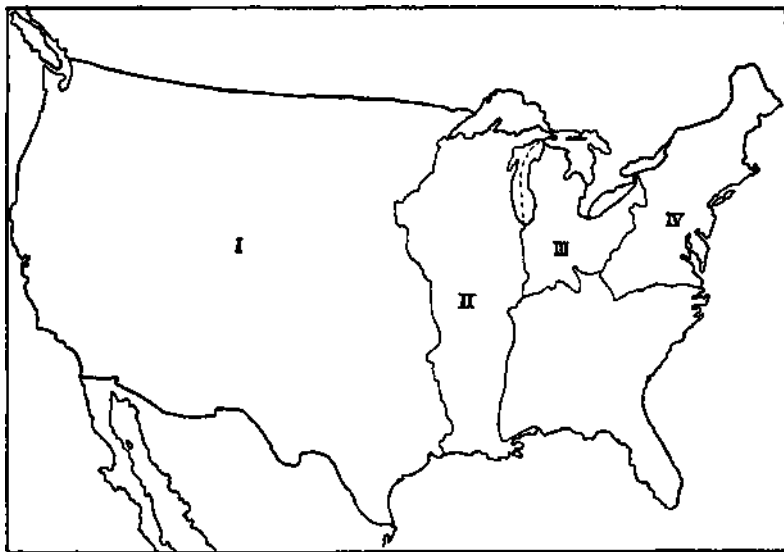
I think any article, whether it is transportation or anything else, that could be produced at some profit at a price of 3.54, when you pay 5.76 for it you are paying a handsome profit; and if you pay 8.65 for it you are paying an abnormal profit; and if you pay 10.85 for the same thing you are being outrageously imposed upon, which is what we are doing.²⁶

This apparent injustice to the plateau, or intermountain, towns led the Interstate Commerce Commission to scrutinize very carefully the presumptions upon which transcontinental rates at different times were based. One result of this examination was the conclusion, in 1911, that the difference between terminal rates and those to intermediate towns should be less on

²⁵ 15 I.C.c. 375, 1909.

²⁶ Stuart Daggett, *Chapters on the History of the Southern Pacific*, op. cit.

shipments which originated at cities in the interior of the United States than on shipments which originated at points upon the eastern seaboard. This was because the justification for any difference at all was to be found in water competition, and clearly, shippers who were distant from the ocean could not use the sea as easily as could merchants resident upon the coast. In the Nevada case²⁷ the Interstate Commerce Commission laid down a general rule. Transcontinental carriers were to apply no higher charge to any article carrying a commodity rate from Missouri River points such as



RATE GROUPS ON TRANSCONTINENTAL TRAFFIC

Omaha and Kansas City (Group I) to Reno and other points upon the main line of the Central Pacific than to coast terminal points. Traffic originating at Chicago and in Chicago territory (Group II) moving under commodity rates might have a rate 7 per cent higher than that imposed on freight originating in Chicago and Chicago territory and destined for the coast terminals. From Buffalo-Pittsburgh territory (Group III) the rates to intermediate points might rise above those demanded from the same points to the coast terminals to the extent of 15 per cent, while from New York and Trunk Line territory (Group IV) the rates charged to intermountain destinations were not to exceed terminal rates by more than 25 per cent. The location of the groups is shown on the accompanying map.

Opening of the Panama Canal.—When the Panama Canal was opened, carriers to and from the Pacific coast asked that the spread between terminal and intermediate rates be increased because of the intensified competition

²⁷ 21 I.C.C. 329, 1911.

which the Canal was sure to permit; and this was allowed on eastbound shipment* of a list of articles especially adapted to water transportation. The list was known as Schedule C. Further adjustments were allowed on certain specified commodities, eastbound, particularly on asphaltum, barley, beans, and canned goods.²⁸ The spread was not increased on other articles, and on some goods not suited to water movement no greater charge was allowed to intermountain points than was made to terminal cities. Under the transcontinental tariffs in force in 1916, commodities were thus divided into three groups, listed in Schedules A, B, and C. Schedule A included commodities which either were not adapted to water transportation or which originated in territories so far removed from the Atlantic seaboard as to make their transportation by water unlikely. Upon these items the rates to the Pacific coast were not lower than to intermediate points. Schedule B included about 350 items comprising articles which were more or less adapted to water transportation, upon which the carriers had been authorized to continue rates to intermediate points higher than those to Pacific coast terminals by the percentages previously mentioned in the text. In Schedule C were articles which originated in large volume on or near the Atlantic seaboard, were particularly adapted to water transportation, and moved at relatively low rates. The list included about ninety carload items. The difference between terminal and intermediate rates was greater on these items than in the case of articles described in Schedule B.

Effects of the World War.—Conditions during the World War were unfavorable to water competition, and this weakened the argument for especially low rates to western basing points. For this reason the Commission withdrew, in 1916, its permission for preferential rates of Schedule C commodities,²⁹ and in 1917 it declared generally that rates on shipments from the East to Pacific coast terminals should not be less than rates to intermediate points.³⁰ The railroads advanced their terminal rates, in consequence, to the level of their intermediate charges, producing a blanket which extended several hundred miles inland from the Pacific coast.

Post-war Adjustments. Transcontinental Cases of 1922.—Steamship operations were not resumed in volume until nearly two years after the close of the war. In 1921, however, the railroads applied to the Commission, in order to check a growing traffic by way of the Panama Canal, for a restoration of relief from the long- and short-haul clause. The Commission now again allowed the Southern Pacific to cut its rates on asphalt, barley, beans, canned goods, and rice from California terminals to New York City without reducing intermediate charges, but it denied the carriers' petition for relief on westbound business.³¹

²⁸ 32 I.C.C. 611, 1915; 33 I.C.C. 480, 1915.

²⁹ 40 I.C.C. 35, 1916.

³⁰ 46 I.C.C. 236, 1917.

³¹ 74 I.C.C. 48, 1922.

Two reasons were given for this rejection of the railroad's plea. The first reason was that the rail carriers would not, in the Commission's judgment, reap much profit from the granting of their request. The proposed rates were low, though probably higher than the costs of transport, but the Commission thought that the direct earnings might well be offset by the loss of revenue on traffic that would continue to move by rail, if higher rates were maintained. A second reason was that the proposed tariff, looked at as a whole, was illogical. This was because it quoted rates from Chicago, an interior point, which were the same to the Pacific coast as from New York, while in the West the rates to the Intermountain territory were not the same as to San Francisco. We have already referred to this distinction and have explained the reasons which account for the difference between eastern and western rate-making in this regard. The Commission did not accept the explanation as sufficient, and based its action in 1912 in part upon the difference in treatment accorded to interior points in the East and in the West.³²

Commodity Rates to Pacific Terminals Case, 1926.—Some months after the decision of 1922 the railroads filed a new application. Their request for relief was now limited in two respects. In the first place, exemption from the rule of Section 4 was asked only on a selected list of commodities of which iron and steel articles were the most important; and in the second, the railroads restricted their application to cover only freight which originated west of the Indiana-Illinois state line. Since the new tariffs contained no rates from New York the carriers hoped that they would not be criticized for illogicality because of their treatment of intermountain towns.

The Commission disapproved the renewed request for Section 4 relief on transcontinental traffic in 1926. The reasons it gave were the following:

1. The Commission repeated, in 1926, its view that the new rates would bring in little additional net return. Emphasis was now placed upon the probable reductions in intercoastal water rates which would follow a cut in railroad charges.

2. The new tariffs were the result of market competition. Their object was to equalize the cost of the all-rail route from Chicago to the Pacific coast with that of the rail-and-water route from Pittsburgh via the Atlantic seaboard to the Pacific. But this, the Commission said, would neutralize the natural advantage of location possessed by Atlantic seaboard towns. Mr. Eastman expressed the view in this connection that all Section 4 applications based on market competition should be denied.

3. The low rates proposed would divert substantial tonnage from the intercoastal water lines and would therefore run counter to the announced policy to Congress to foster and preserve both rail and water transportation. This

³² See Mr. Eastman's testimony in 1937. United States Congress, House of Representatives, *Hearings before the Committee on Interstate and Foreign Commerce on H.R. 1668, 75th Congress, 1st Session, January 28, 29, February 2-17, 1937.*

argument had been presented to the Commission in 1922 but had not been made a basis for the Commission's decision at that time. It was now used as a principal reason for the disposition of the pending case.³³

Southern Pacific Transcontinental Cases, 1932.³⁴—A third major application for relief from the long- and short-haul provisions of the Act to Regulate Commerce was considered by the Interstate Commerce Commission in 1932. This was a case in which the Southern Pacific Lines sought authority to establish lower rates between California and Atlantic seaboard terminals, eastbound and westbound, than applied to and from intermediate points in California, Arizona, New Mexico, and Texas. The route of the Southern Pacific consisted of a rail line to Galveston, 2160 statute miles, and a water service from Galveston to New York, 2160 nautical miles. At one time the so-called "Sunset Route" had handled a large volume of transcontinental traffic, but by 1932 practically all of this traffic had been lost to the intercoastal ships. The Southern Pacific proposed to regain at least a share of the lost business by quoting rates that were only somewhat more than 10 per cent above the charges levied by way of the Panama Canal.

In discussing the Southern Pacific application the Interstate Commerce Commission, in 1932, reached two preliminary conclusions. It held (1) that the existing rates to and from intermediate stations on the Southern Pacific route were reasonable in and of themselves. These rates it was not intended to disturb. It declared also (2) that the new terminal rates could not be condemned on the ground that they tended to destroy water transportation. The second of these conclusions was based on the observation that the Southern Pacific route was, itself, in part a water route, and so was entitled to a share in the protection which Congress desired to extend to water transport. The Commission nevertheless denied the application of the Southern Pacific on a third ground, namely, that the proposed through rates were not "reasonably compensatory." In a concurring opinion Mr. Eastman argued that the water route via the Panama Canal was the most economical route between the east and west coasts of the country, and implied that a diversion of traffic from the all-water to a rail-and-water line would be contrary to the public interest.³⁵

Characterization of the Transcontinental System.—The old transcontinental rate system shared most of the peculiarities of the southern basing point system, so that observations which fit the southern system will generally apply also to the rate structure of the Far West. However, the length of the hauls involved in transcontinental movements and the activity of the intercoastal steamship services suggest two questions which were not discussed in dealing

³³107 I.C.C. 421, 1926.

³⁴182 I.C.C. 770, 1932.

³⁵See also 209 I.C.C. 549 1935. In this case the Commission denied rail carriers permission to quote lower rates on automobiles from eastern transcontinental groups B, C, and D to California ports without observing the long- and short-haul provisions of Section 4 on the ground that the reduction would not, all things considered, increase their net receipts.

with southern rates. The first question is whether it was for the public interest to encourage traffic to move by water rather than by rail between the Atlantic and Pacific coasts. It is hard to escape the conclusion that the Interstate Commerce Commission definitely believes that between the two alternatives, the water movement should be preferred. While it bases its opinion sometimes on one consideration and sometimes on another, the net result is so consistently in favor of the intercoastal ships as to make it seem extremely unlikely, in the absence of Congressional action, that anything like the old transcontinental railroad rate system will be restored. This leaves a second question, whether it has been to the railroad's interest to charge low rates on transcontinental traffic to western termini which were accessible to ships, and higher rates to points that were not so accessible. The presumption is that the railroads profited by such a policy, because they consistently sought to pursue it. Yet the effect of this policy has been to concentrate industry in the West at the very points where it is most independent of railroad service, and this must be a disadvantage from the railroad's point of view. If the rail carriers had encouraged development farther inland by building up the interior against the coast, they might have suffered for a while, but in the long run their position might have been more secure. These matters are debatable; but it may be that the last-named policy will be the one which the western railroads will ultimately pursue. Recent proposals for a change in the law under which the Interstate Commerce Commission has decided cases involving transcontinental rates will be discussed in Chapter XX.

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CHAPTER XX

LOCAL DISCRIMINATION. THE LONG- AND SHORT-HAUL CLAUSE OF THE ACT TO REGULATE COMMERCE



Transportation rates sometimes vary with distance. Sometimes the charge is the same whatever the distance over which goods are carried, and sometimes a lower rate is collected for a longer than for a shorter haul. These alternative policies are all acceptable to the carriers, because the large percentage of constant costs, in rail operation particularly, make distance less important in calculations of the expense of transport than the uninformed observer is likely to suppose; and the carrier is willing to quote rates which reflect variations in the pressure of competition between transportation agencies and between the communities which these agencies serve. Naturally, there is difference of opinion with respect to the equity of rate adjustments and their effect on public welfare. There is, therefore, complaint, and there is litigation. The duty of considering contested cases so that the public interest, as well as the private interest of contending parties, shall be served is vested in regulatory commissions, of which the Interstate Commerce Commission is the most important; and the branch of regulatory law that is applied is known as the law of local discrimination.

Meaning of the Phrase "Local Discrimination."—There is local discrimination when carrier rates to or from competing markets are relatively unjust. The complaint is usually voiced by some city and takes the form of a charge that the rates collected from individuals in the complaining town are higher or the service rendered is poorer to some selected destination than the level of rates or the quality of service available to individuals in some other and competing locality.

Local Discrimination Not Recognized at Common Law.—Unfortunately there are no legal principles which enable the courts to decide whether the relative rates to competing producing and distributing centers are fair or whether these rates should be changed. At common law the carriers deal with individuals, not with cities, and no one but a person can complain that rates are too high. Except under a statute, no city or locality, and no citizen in general, can attack the rates which a carrier may charge. It was not until statutes, state or federal, began to prohibit what was called "undue or **unreason-**

able preference or advantage" to a locality, and until administrative commissions were set up to interpret the broad prescriptions of such laws that any real attention could be given to instances of community complaint.

Section 3 of the Act to Regulate Commerce.—In the United States the general prohibition of local discrimination is to be found in Section 3 of the federal law in the following terms:

It shall be unlawful for any common carrier subject to the provisions of this Act 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: Provided, however, that this paragraph shall not be construed to apply to discrimination, prejudice, or disadvantage to the traffic of any other carrier of whatever description.

Questions of Procedure.—At the present time cases requiring the interpretation and application of this section occupy considerable of the time of the Interstate Commerce Commission, and many rules have been enunciated in the course of settling controversies. It is not, however, always recognized that a large proportion of these rules relate to matters of procedure only. Thus the question as to whether a locality which complains of an improper adjustment of rates from two points of origin to a common market must show that it is damaged is purely a question of procedure, and the established rule that damage must appear is merely designed to protect administrative tribunals from irresponsible litigation. So also is the rule procedural that a carrier cannot be charged with discrimination on account of a rate relationship which it cannot, by its own act, terminate.¹ Whether equal rates present a case of discrimination when the services rendered are different, whether a lower rate to one town than to another constitutes discrimination when the two towns do not compete are matters which may determine the outcome of particular lawsuits but which, like the rules of evidence generally, do not illuminate the merits of contested cases.

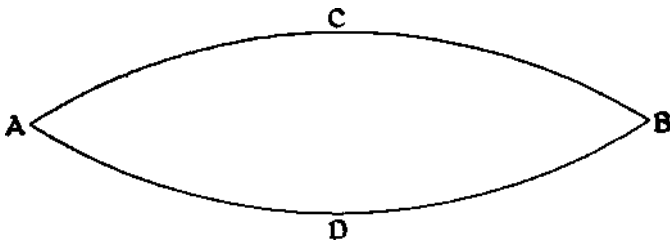
Distance, Cost, and Competition.—The essential complaint which is presented in cases alleging local discrimination is that carriers do not adjust their charges according to length of haul or according to some related element of cost. The essential defense, if the facts sustain the charge, is apt to be that the departure from a distance or cost basis in the case is justified by the presence of competition. By competition in such instances is meant the rivalry of parallel lines, the competition of directions, of locations, or, possibly of

¹ *Ashland Fire Brick case*, 22 I.C.C. 115, 1911. See on this point D. P. Locklin, *Economics of Transportation*, Business Publications, Chicago, 1938, chap. xxiii, and I. L. Sharfman, *The Interstate Commerce Commission*, Part III, Vol. B, Commonwealth Fund, New York, 1936, pp. 542 ff.

commodities also. We have said something in previous chapters **about**, the advantages and disadvantages of a scheme of rates which associates rates and distance. We have also seen in examining rates applied to lumber, fruit, sugar, and other commodities, and rates charged generally in the South and West that railroad rates, at least, have not always conformed to this criterion and do not always so conform at the present time. Are rates discriminatory in such cases and, if they are, is the discrimination unreasonable or undue?

The answer of the Interstate Commerce Commission appears to be that carriers may depart from the distance and cost rule to a considerable extent in fixing rates to and from competing places, if the necessities of competition compel them, and if they can vary the price of their services without increasing the burden which non-competitive traffic has to bear. This condition, of course, forbids carriers to quote rates which do not cover out-of-pocket costs. If, indeed, the Commission did not take this view the various forms of competition mentioned in the text, while they might still exist, would have little influence on rates.

In permitting carriers to adjust their rate systems to meet the pressure of competition, the Interstate Commerce Commission prescribes certain limita-



COMPETITION BETWEEN LINES OF EQUAL LENGTH

tions. One such limitation is that a rail line must be at a genuine disadvantage in competition before it may be allowed to quote rates which do not approximately reflect the influence of distance and costs. When, for example, two lines of equal length touch at their termini, the fact of competition at the ends should not justify a departure from the usual standard of rate-making at these points. Thus the rate from A to B in the diagram should bear a relation to the rates from A to C and from A to D which can be explained by differences in the cost of transport. The fact that there is competition at B and not at C and D is not controlling, because neither railroad is at a disadvantage as compared with the other in competition at the more distant point. This much is relatively simple. But there are other limitations, less obvious, which seem to be based upon very general conceptions of public interest. It is when carrier rates not based on distance or cost run counter to these concepts that commissions are likely to declare that undue preference exists; when, on the contrary, the attempt of the carriers to meet competitive pressure **takes a**

form consistent with the commission view of public advantage, proposed rates are likely to be approved.

Concepts of Public Interest in Local Discrimination.—The explanation of the meaning of the term "local discrimination" in the foregoing pages follows closely the analysis of Sharfman in his monograph upon the work of the Interstate Commerce Commission. Rates which discriminate unduly between localities, according to this view, have two characteristics: (1) Such rates are not based on costs but, usually, on competition. (2) In deviating from the amount of charge which a cost calculation would justify, these rates produce results which are contrary to the public interest. This formulation leaves large ground for the judgment of a regulating body and, as a matter of fact, the regulatory interpretation of the words "undue prejudice" can only be understood from the point of view of policy formation. Nor does the occasional use of a slogan alter the fundamental situation with respect to local discrimination. When the Interstate Commerce Commission refuses to allow a railroad to meet competition at a junction point with other carriers because of "undue circuitry," it merely registers the opinion that the use of excessively roundabout routes in transportation is contrary to the public good. When it insists upon the recognition of "natural advantage" it generally means that the existing distribution of productive effort should not be disturbed by the attempt of particular carriers to increase their net returns. When it approves a rate not built on distance because it offers shippers a larger choice of routes, or consumers a wider choice between sources of supply, or producers a larger variety of markets, in spite of the opposition of towns whose charges are not at the same time reduced, it sets up an objective of public policy which is not derived from transportation considerations alone. Comments such as these will not aid the student in forecasting the outcome of particular litigation in which there is complaint of local discrimination, but they will indicate the background to cases in which the rates to or from competing markets are discussed.

Section 4 of the Act to Regulate Commerce.—There is only one section in the Interstate Commerce Act which lays down a specific rule with reference to local discrimination, and that is Section 4. This paragraph, which prohibits charging more for a shorter than for a longer haul, has a long and important history.

Section 4 of the Federal Act of 1887 read, when first enacted, as follows:

That it shall be unlawful for any common carrier subject to the provisions of this act to charge or receive any greater compensation in the aggregate for the transportation of passengers or of like kind of property, under substantially similar circumstances and conditions, for a shorter than for a longer distance over the same line, in the same direction, the shorter being included within the longer distance; but this shall not be construed as authorizing any common carrier within the terms of this act to charge and receive as great compensation for a shorter as for a longer

distance: *Provided, however*, That upon application to the Commission appointed under the provisions of this act, such common carrier may, in special cases, after investigation by the Commission, be authorized 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 of this act.

Interpretation of the Law.—Under the scheme of federal regulation which will be described in later chapters of this book, the administration of the long- and short-haul clause of the Interstate Commerce Act falls to the Interstate Commerce Commission. The Commission appreciated from the beginning the fact that the exceptions in the statute made enforcement difficult. Not all charges were prohibited, that is to say, which were greater charges for shorter than for longer distances, but only greater charges (1) for the transportation of passengers or of like kind of property; (2) for a shorter than for a longer distance over the same line; (3) in the same direction; (4) the shorter being included within the longer distance; (5) under substantially similar circumstances and conditions. It was eminently proper to put these qualifications into the law. Indeed, if the legislature had not inserted them, the courts would have supplied most of them by interpretation. But it was none the less difficult to apply them to concrete cases.

In interpreting Section 4 of the original act of 1887, the Commission began by holding that the burden of proof was on the railroads to justify apparent non-compliance with the law. Without much concerning itself with the first four qualifications mentioned in the preceding paragraph, it then ruled as to the fifth, that:

1. The fact that local traffic was more expensive to handle than long-distance traffic might justify a greater proportional but not a greater absolute charge for the shorter movement.

2. The existence of established industries at the more distant point did not excuse the continuance of charges to the more distant terminal which exceeded those to intermediate points.

3. When one place enjoyed the advantage of water competition and another did not, or when one place was served by carriers not subject to the Interstate Commerce Act (i.e., Canadian carriers), conditions at the two places were dissimilar.

4. Mere railroad competition by carriers subject to the act did not make conditions dissimilar in the sense in which the words were used in Section 4, even though one city was served by several railroad lines, and another by only one.²

The Supreme Court Overrules the Interstate Commerce Commission.—These rules provided a basis for the administration of Section 4, but in 1897 the Supreme Court overruled the last one stated, and this action hampered

² 1 9.C.C. 31, 1 I.C.R. 278, 1887.

the Commission's developing program. The leading case was that of the *Interstate Commerce Commission v. Alabama Midland*,³ in which the Supreme Court decided that the provisions of the Interstate Commerce Law were not so stringent as to exclude even railroad competition from consideration in the administration of Section 4. It followed from this decision and from the Commission's views on other points that the law allowed greater charges for shorter than for longer hauls whenever there was either rail or water or foreign carrier competition at the more distant point. The Court held, moreover, that carriers need not ask the Interstate Commerce Commission in advance to determine when dissimilarity existed. They might judge for themselves, subject to appropriate penalties if they misjudged the facts; but they were not required to obtain preliminary authorization for rates which might seem to depart from the statutory rule.

For a while the Commission maintained, even after the *Alabama Midland* case, that it had authority, even when conditions at two points were dissimilar, to compare the extent of discrimination with the difference in conditions which might be found to exist. This was the substance of the *Danville*⁴ and the *Palatka*⁵ cases. In the former case the Commission held that, since competition did exist at Lynchburg, the more distant point, that did not exist at Danville, the intermediate point, the rates to Lynchburg might properly be somewhat lower than they were to Danville; but that the difference should not be as great as that established in the railroad tariffs. In the *Palatka* case, the Commission held that the rates to Palatka might be lower than they were to Hampton, the intermediate point, but that the Hampton rate should not exceed the rate to Palatka by the full amount of the local rate from Palatka to Hampton. In the *East Tennessee, Virginia, and Georgia* case,⁶ the Supreme Court held that carriers were not subject even to this restraint. This virtually suspended the operation of Section 4. Railroads were relieved from the limitations of the long- and short-haul clause when competition exerted pressure on their rates. These were, moreover, the chief instances in which carriers quoted rates which were less for longer than for shorter distances. The law damned the sins the carriers had no mind to, while compounding those they were inclined to. Whatever the logical soundness of the Supreme Court's decision, it produced a situation which the Interstate Commerce Commission heartily disliked, and of which public opinion presently disapproved.

Amendment of 1910.—Legislation in 1910 made three changes in Section 4.

The first and most important alteration was the elimination of the words "under substantially similar circumstances and conditions." The effect was to

³ 168 U. S. 144, 1897.

⁴ 8 I.C.R. 409, 1900.

⁵ 8 I.C.R. 503, 1900.

⁶ 181 U. S. 1, 1901.

allow comparisons of long- and short-haul rates, even when conditions were not similar, and to force carriers to rely upon the dispensation of the Interstate Commerce Commission as a condition of continuance of greater charges for shorter than for longer distances. Henceforth it was to be the Commission which was to decide when the law should be suspended, not the courts.

The second change was the insertion of words in the section which made the law clearly applicable to routes made up of several connecting railroad lines as well as to rate relations on a single railroad. This had not been the original intention of the framers of the act of 1887, but in the course of time the amendment came to seem both natural and desirable.

Finally, the act provided that when a railroad reduced rates to or from competitive points in competition with a water route, it should not be permitted to increase them again unless the proposed increase could be shown to rest upon changed conditions other than the elimination of water competition.

Of these changes, the widening of the concept of the law to include routes as well as single railway lines raised no questions of principle, and the clause relating to the subsequent increase of rates reduced to meet water competition has never been enforced.

The effect which the act of 1910 produced by eliminating the words "under substantially similar circumstances and conditions" from Section 4 was, however, very great. It enabled the Interstate Commerce Commission to lay down reasonable rules with reference to the administration of the long- and short-haul clause; and, in particular, it enabled the Commission to make its original view prevail, that railroad competition at a more distant point did not justify neglect of the general prohibition of the law. It was this change which permitted the Commission to revise the basing point system of rate-making in the southern states, as well as to correct a great many local situations with which it had previously been unable to interfere. The Commission does not interpret the law as conferring arbitrary authority. It takes the position that the modified language of Section 4 requires it to grant relief when, in its opinion, the resulting rates will not be unjust or unreasonable, in violation of the first section of the Interstate Commerce Act, or unduly discriminatory, in violation of the third section.⁷ Lest this may seem to imply too receptive an attitude toward applications for relief from Section 4, we may add that the Commission has also declared: (1) that it must be affirmatively shown by carriers seeking relief that injustice will not be done to intermediate points by allowing lower rates at the more distant points; and (2) that the intent of the law is to make its prohibition of the higher rate for the shorter haul a rule of well-nigh universal application, from which the Commission may deviate only in special cases, and then to meet transportation circumstances which are beyond the carriers' control. That is to say, a carrier shall **not**

⁷ *Annual Report of the Interstate Commerce Commission, 1911, pp. 19 ff.*

prefer the more distant point by giving it the lower rate because of any policy of its own initiation; but if at the more distant point it finds a condition to which it must conform under the imperious law of competition if it would participate in traffic to that point, it may discriminate against the intermediate place without violating the law, provided it establishes such necessity before the Commission. The discrimination may not be such as to offend the reasonable standards of the law, for it is said that the Commission may from time to time prescribe the extent to which such designated common carrier may be relieved from the operation of the section.⁸

Amendment of 1920.—In 1920 Section 4 was once more amended, so that this portion of the statute then read as follows:

That it shall be unlawful for any common carrier subject to the provisions of this Act to charge or receive any greater 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 subject to the provisions of this Act, but this shall not be construed as authorizing any common carrier within the terms of this Act 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 if a circuitous rail line or route is, because of such circuitry, granted authority to meet the charges of a more direct line or route to or from competitive points and to maintain higher charges to or from intermediate points on its line, the authority shall not include intermediate points as to which the haul of the petitioning line or route is not longer than that of the direct line or route between the competitive points; and no such authorization shall be granted on account of merely potential water competition not actually in existence. . . .

The reader will note the addition of the words "reasonably compensatory," and the clauses relating to charges upon a circuitous railroad line, and the comparison between through rates and the aggregate of intermediate rates. Of these provisions the last has never been of major importance. By reasonably-compensatory is apparently meant a rate which yields something more than out-of-pocket costs, although how much more is difficult to say. The phrase has evoked endless controversy. It has no clear meaning in itself, but has

⁸ 21 I.C.C. 329, 1911.

been interpreted from time to time to comply with what is believed to be the spirit of the entire act.⁹

The reference to circuitous routes in the act of 1920 can be illustrated by the diagram below. Let the line *AXB* represent the direct route between *A* and *B*, and let the line *AYB* represent the indirect route. The distance from *A* to *B* via *X* is 400 miles; the distance from *A* to *Y* is also 400 miles; and the distance *AYB* is 600 miles.

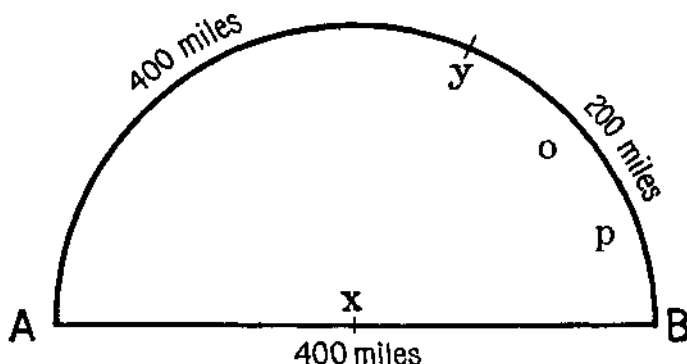


DIAGRAM ILLUSTRATING THE LONG- AND SHORT-HAUL CLAUSE OF THE TRANSPORTATION ACT OF 1920

Under these conditions the act of 1920 authorized the Commission to permit carrier *AYB* to charge the same rate over its circuitous line between *A* and *B* that carrier *AXB* charged over its direct line, and to maintain also a higher level of charges from *A* to points *O* and *P*. The rate from *A* via *Y* to *B*, for instance, might be \$1; the rate to *O*, \$1.25; and the rate to *P*, \$1.50. But the rate from *A* to *Y*, said the law, should not be greater than the rate from *A* via *X* to *B* because the distance was no greater. This so-called "circuitous rule" seemed simple, but actually it led to complications in the enforcement of Section 4. In 1940 it was repealed.

Act of 1940.—This act forbade water as well as rail carriers to charge less for shorter than for longer hauls. It did not extend the prohibition to motor carriers, nor was there a long- and short-haul clause in the Motor Carrier Act of 1935. Common carriers by motor vehicle may not, however, discrimi-

⁹ The Interstate Commerce Commission said, in 1922: "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 carrier property generally as contemplated in Section 15a of the act. It may be added that rates of this character ought, wherever possible, to bear some relation to the value of the commodity carried and the value of the service rendered in connection therewith (74 I.C.C. 48, 1922). See also United States Congress, *Hearings on H.R. 1668*, 75th Congress, 1st Session, January 28, 29, February 2-17, 1937, pp. 441 ff.

nate unduly. The Act of 1940, as has just been said, repealed the prescriptions relating to circuitous routes which the Act of 1920 contained, thus considerably simplifying the administration of the law.

Summary of Present Restrictions.—Under the law as it now stands, the Commission is subject to the following restrictions in granting exemptions from the rule of Section 4 to rail or water carriers. First, the rates to the more distant point must be reasonably compensatory. Second, permission to depart from the requirements of the long- and short-haul clause may not be granted because of potential water competition. Water competition must be actual—in existence—and not merely proposed or possible before it may be recognized. Third, railroad rates reduced by carriers to meet water competition may not be raised without Commission approval, and in giving its consent the Commission must find that the proposed increase rests upon conditions other than the elimination of water competition. Fourth, all rates must be reasonable and non-discriminatory. All of these limitations have been mentioned in previous paragraphs or are contained in the various forms of Section 4 which have been printed in the text. It may be added that Section 500 of the Transportation Act of 1920, declaring it to be the policy of Congress to promote, encourage, and develop water transportation, service, and facilities has made the Commission less liberal in dealing with departures from the long- and short-haul rule than it would have been if the act of 1920 had not been passed.¹⁰

Attempts to Secure Further Legislation.—Section 4 still does not forbid the Interstate Commerce Commission to approve departures from the long- and short-haul rule which rest upon actual and effective water competition. For this reason the law is deemed incomplete by that group of congressmen who are opposed to the traditional system of transcontinental rate-making, and who desire to force a reform, or at least to prevent a return to the basis of cross-country rates which prevailed before the war. Acting for this group, Senator Gooding of Idaho introduced a series of bills during the period from December, 1923, to his death in June, 1928; and Senator Pittman of Nevada has sponsored other legislation since the latter date. The Gooding bill of 1924, as originally proposed, limited the discretion of the Commission in passing on applications under Section 4. That is, it provided that the Commission might grant relief only where the applicant was a circuitous rail route, or where an emergency, such as drought or disaster, could be shown

¹⁰ There is some question as to the extent of the protection which water lines can expect from Section 500 since the decision of the United States Supreme Court in the Mississippi Valley Barge Line case (292 U. S. 282, 1934). In this case—not a Section 4 proceeding—the Court said of Section 500 that the most it could mean, unless, conceivably, in circumstances of wanton or malicious injury, was that there should be impartial recognition and promotion of the interests of all. Section 500, specifically, did not mean that carriers by rail should be required to maintain rates that were too high for fear that a change might cut into the profits of carriers by water.

to exist. The same bill, as reported from the Senate Committee on Interstate Commerce, added the case where export or import rates were involved. It also contemplated an exception from the rule in connection with block systems of express rates which might be established by order or with the approval of the Commission.¹¹ This bill was extensively debated, and with some changes it passed the Senate by a vote of 54 to 23, in spite of the opposition of the Interstate Commerce Commission.¹² The legislation failed to receive the approval of the House.

In the following session Senator Gooding tried to add a long- and short-haul paragraph as an amendment to a river and harbor bill. The paragraph provided specifically that the Commission should have no authority to relieve any rail carrier from the provisions of Section 4 in order to meet the competition of water transportation. Export and import and express rates were again excepted, and while the paragraph did not mention the case of circuitous rail competition, it did not forbid the Commission to grant relief upon this ground. The innovation was the direct mention of water competition. The Senate laid this proposal on the table by a vote of 40 to 36. Senator Gooding was much irritated by his defeat. Turning to the New England senators, whom he held responsible, he said: "I have not forgotten . . . the fight that I made here with New England on the tariff question, when I stood all summer long in the hot days and fought for what I believed was a proper and reasonable tariff on manufactured articles. At times I was alone in the fight, with the exception of the senior Senator from Connecticut. I want to serve notice on New England that I have felt their claws, and from now on somebody else will fight their battles if they are going to vote to destroy my section of the country."¹³

Again, in December, 1925, Senator Gooding introduced legislation to the effect that no common carrier should be granted exemption on account of water competition except in the case of import and export traffic. This bill, like its predecessors, was debated, and beaten by a vote of 33 to 46. In the hope of reducing opposition, Senator Gooding suggested in the following session that the Senate merely declare that no common carrier should be authorized to charge less for a longer than for a shorter haul because of water competition through the Panama Canal; and he further agreed that authorizations which were in effect on December 7, 1925, should not be required to be changed. However, neither this compromise nor other proposals submitted in later sessions came to a vote.

¹¹ United States Congress, Senate, 68th Congress, 1st Session, *Senate Report No. 302*, March 24, 1924. See *Congressional Record*, May 19, 1924, p. 8873, for an amendment proposed by Senator Gooding with reference to rates on traffic coming from or destined for a possession or dependency of the United States.

¹² *Congressional Record*, 68th Congress, 1st Session, May 19, 1924, pp. 8873, 8880-8888.

¹³ *Congressional Record*, 68th Congress, 2d Session, February 28, 1925, p. 4987.

Pettingell Bill.—Quite contrary in purpose to the Gooding proposals was a bill sponsored by Mr. Pettingell, of Indiana, and introduced into the House of Representatives in January, 1935. Passed in March by a vote of 215 to 41, this bill failed to receive Senate approval. It was reintroduced with some changes in January, 1937, and again passed the House, this time by a vote of 269 to 119. The Senate once more refused to act.

In the form considered by the House of Representatives in 1937, the Pettingell bill read as follows:

Be it enacted . . ., That paragraph (1) of section 4 of the Interstate Commerce Act, as amended February 28, 1920 . . . be, and it is hereby amended to read as follows:

(1) That it shall be unlawful for any common carrier subject to the provisions of this Act to charge or receive any greater compensation as a through rate than the aggregate of the intermediate rates subject to the provisions of this Act: *Provided*, That the Commission may from time to time prescribe the extent to which common carriers may be relieved from the operation of this section: *And provided further*, That rates, fares, or charges existing at the time of the passage of this amendatory Act by virtue of orders of the Commission or as to which application has theretofore been filed with the Commission and not yet acted upon shall not be required to be changed by reason of the provisions of this section until the further order of or a determination by the Commission: *And provided further*, That in any case before the Commission where there is brought in issue a lower rate or charge for the transportation of like kind of property, for a longer than for a shorter distance over the same line or route in the same direction, the shorter being included within the longer distance, the burden of proof shall be upon the carrier to justify the rate or charge for the longer distance against any claim of a violation of sections 1, 2, and 3 of the Interstate Commerce Act.

The Pettingell bill, if enacted, would have repealed the prohibitions in Section 4 which now prevent, or at least hamper, railroads in charging greater sums for shorter than for longer hauls.¹⁴ This change would not by itself have rendered lower charges for longer hauls permissible, for (1) action could still be brought under Section 1, 2, or 3 of the Interstate Commerce Act if rates were thought to be unreasonable or discriminatory, and (2) the burden of proof was placed upon the carrier to justify lower rates at more distant points; but it removed a specific prohibition and could reasonably be interpreted as a legislative direction to the Interstate Commerce Commission to deal more liberally with cases in which the selective reduction of rates at competitive points was the chief reason for complaint.¹⁵

The Gooding bill, intended to strengthen, and the Pettingell bill, designed

¹⁴ All that the proposed amendment carried over from Section 4 as passed in 1920 was the so-called "aggregate of intermediates" provision. See p. 436.

¹⁵ Under the proposed law it would no longer be necessary for carriers to make special application for relief from a statutory prohibition governing greater charges for shorter hauls. This fact, which was regarded by the railroads as unimportant, was commented upon adversely by shippers in hearings on the bill.

to eliminate the long-established rule of Section 4, invite a reappraisal of the whole policy of long- and short-haul legislation.

Railroad Arguments in Support of Pettingell Bill.—Railroad spokesmen who argued for the passage of the Pettingell bill made the following specific assertions:

1. Railroads have suffered a spectacular decline in revenue in recent years, owing partly to the diversion of traffic to other forms of transportation.

2. There is not enough non-competitive traffic in the United States today to support the railroad system.

3. Railroads are entitled to share in the traffic now handled by ships and motor vehicles. These agencies are subject to no long- and short-haul restriction.¹⁶

4. Greater flexibility in rate-making would enable railroads to regain some of the business which they have lost to their competitors in recent years without increasing the burden on non-competitive traffic.

From the railroad point of view Section 4 rate-making means primarily a system of price-fixing that enables railroads to meet competition. The railroads accept the principle that no business should be carried at a loss, but they insist that cost as a rate minimum means out-of-pocket cost, and that the burden of the general costs for which a railroad must also provide may properly be distributed among shippers on some other basis, including the basis of demand. Thus shippers, they say, who need railroad service slightly, perhaps because they have access to other transport facilities, may be asked to contribute little to cover railroad overhead, while other shippers may be asked to pay more. They contend that at least this policy is reasonable. In extreme cases, when the overhead is considerable, the out-of-pocket cost low, and the differences between shippers great, more-distant shippers may actually pay less than near-by shippers under such a system; but the railroad which quotes the rates gains some revenue, the shipper has the benefit of additional service, and the non-competitive points are charged no more than they were before.

Essentially this is a plea that railroads be allowed to adopt, in a public business, a policy which is usual in private business. For when a private merchant, in fixing prices, varies the percentage write-up which he adds to his "actual" expense in order to provide for his general costs, according to the intensity of competition which he expects to meet in disposing of the various commodities that he sells, he does, in another field, what the railroad wishes to do in the field of transport. Nor is the practice unknown in other types of carriage than railroading, nor is it denounced in all the forms of rates which railroads use. There is, for instance, no difference in kind between a tariff which applies the same rate to more distant and to less distant points and a tariff which quotes a lower rate to more distant destinations. In either

¹⁶ Since 1940 water carriers have been subject to long- and short-haul regulation.

instance the shipper to a more distant point contributes less than the shipper to a nearer point, per unit of service rendered, to the general expenses which railroads incur for the benefit of their operations as a whole. Even a mileage tariff with elongated zones comes within the same classification to some extent. It is true that this similarity between long- and short-haul tariffs and other forms of competitive rate-making is denied. Intercoastal water carriers, for instance, charge the same rate from Portland, Maine, to Los Angeles that they do to Seattle, and for competitive reasons.¹⁷ But they do not admit that the practice is analogous to the railroad policy of charging less to Seattle than to Spokane. In fact, the causes, purpose, results, and fundamental character of the two sorts of rate-making are the same.

In considering the advisability of allowing a public carrier to follow, in somewhat extreme form, practices in use in private business, it is, of course, important to examine the probable results of such an extension of competitive practice in the railroad field. While a multiplication of lower charges for longer hauls is not likely, under present circumstances, to yield an excessive profit to the railroad system it may produce other results inconsistent with the public interest.

Opposition of Water Carriers.—Carriers by water between American ports have no doubt but that one result will be to divert traffic from water lines to railroads. The railroad companies agree with this forecast. The parties disagree, however, in estimating the policy which the railroads will follow if they obtain their freedom, the extent of diversion that will take place, the effect of diversion upon the water lines, and the relative importance of railroads and water carriers to the general economy of the United States. Specifically, the term "water lines" in current discussion refers principally to coastwise agencies, to intercoastal companies engaged in transportation by sea between Pacific and Atlantic ports and to the operation of inland water carriers upon the Mississippi River and its tributaries. Shipping lines upon the Great Lakes are involved to a lesser extent. Representatives of these interests took a prominent part in opposing the Pettingell bill. While other water carriers may suffer, these were the interests most actively concerned.

Intercoastal and inland water carriers alike declare that railroads will be able to eliminate water services if they are allowed to reduce their rates selectively to competitive points. This, they say, will sterilize the investment which the United States has made in the Panama Canal and in the Mississippi River and will run counter to the expressed purpose of Congress to develop an American merchant marine. They regard the proposal to repeal the long- and short-haul clause as a threat of positive action to favor one transport agency as against another, amounting to a subsidy to the agency which is pre-

¹⁷ United States Congress, House of Representatives, *Hearings before the Committee on Interstate and Foreign Commerce, on H.R. 1668, 75th Congress, 1st Session, January 28, 29, February 2-17, 1937, PP. 89-90.*

ferred. The railroads reply that they can afford to compete with the water lines if they are not required to reduce their intermediate rates in so doing. They assert that their own solvency is at stake, and argue that the selfish interests of the water lines should not prevent the development of a policy that is sound from the railroad and the public point of view. They add that traffic originating far in the interior of the country is now being attracted to the ocean route by a combination of low motor truck or railroad rates and low proportional shipping rates. It is this traffic, plus a fair proportion of other water traffic which they desire to regain.¹⁸

Position of the Intel-mountain Territory.—Commercial interests in the western Intermountain territory believe that their rates will be increased if Section 4 of the Interstate Commerce Act is repealed. These are the groups which supported the Gooding bills and which now resist with vigor the contrary proposals which Mr. Pettingell suggests. They present two types of argument against the repeal of existing long- and short-haul legislation. One is based, as has just been said, on the fear of increases in rates to non-competitive points. They regard their area as non-competitive because it has no access to water routes. They feel that increases in rates will be objectionable because they will increase living costs. They also anticipate, and this is the basis for their second objection, that the elimination of Section 4 will increase generally the spread between competitive and non-competitive rates in the United States, and that this change will place their territory at a greater relative disadvantage in producing and in selling goods in critical markets.

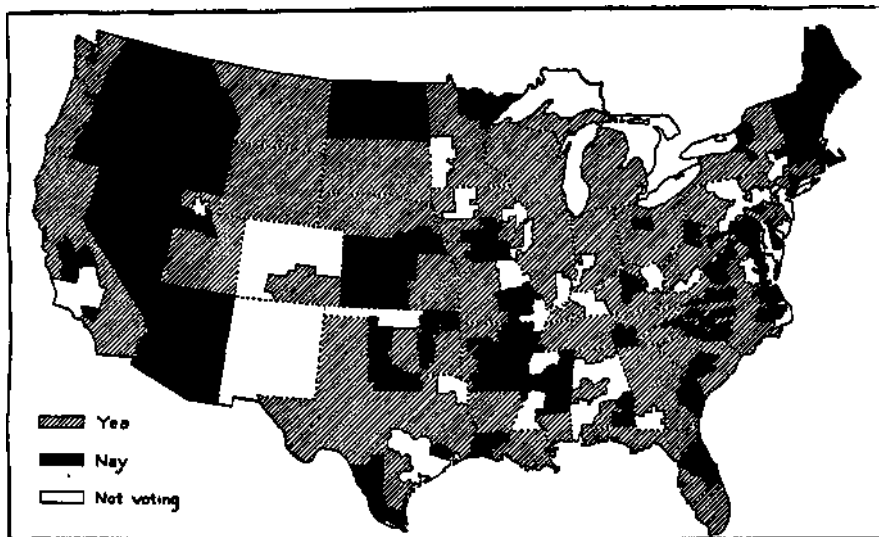
How far the intermountain interests are right in the first of these two contentions depends upon the correctness of their estimate of future railroad policy. It does not necessarily follow that a decrease in railroad rates at competitive points to the level of out-of-pocket costs will increase the charges at other places. The railroads are right in denying that this is an inevitable

¹⁸ The rates on heavy iron and steel to Pacific ports, in 1937, were as follows:

Point of Origin	Route	
	Direct All-rail	By Rail to Baltimore, Thence by Water to the Pacific Coast
Pittsburgh	\$115	\$ 63
Chicago	1.00	.67
St. Louis	.95	.83

Assuming that shippers are prepared to pay 10 cents per 100 pounds more for shipment by rail, the above table suggests that the rail and the rail-and-water routes are equalized at St. Louis. The railroads say that intercoastal water carriers sometimes reach as far west as Wisconsin, Illinois, and Iowa. To do this, they cut rates. The rate on passenger automobiles from New York to San Francisco was, in 1937, \$3.09 per 100 pounds. But the water lines were willing to accept \$2.67 as their share on a rail-and-water shipment from Detroit to the same destination. Similar reductions were made from a great many other interior points (*ibid.*, pp. 199, 542).

result. But it is not true either that the proposed policy will necessarily reduce the level of non-competitive charges, as the railroads are accustomed to contend. Thus in an exact, frictionless adjustment, the addition of new transportation service, sold at cost, will not affect the carriers' net returns, will not lighten the burden which shippers have been asked to carry, and should not be expected to affect non-competitive rates at all. If the new service is sold for more than cost it should reduce and if sold for less than cost it should increase the level of other charges. The actual result will depend upon



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practical as well as upon theoretical considerations. On this subject the railroads assert that reductions in competitive rates have never, at least as far back as their records go, been followed by increases in charges assessed against non-competitive territory. The shippers "reply that after selective reductions in rates, the carriers have sometimes appealed to the Interstate Commerce Commission for blanket advances in their tariffs. These advances, the shippers say, have been the result of the earlier reductions in which the intermediate territory has had no share. To this, in turn, it may be answered that the blanket increases in railroad rates might have been greater if the entire relief to railroad revenues had been sought from shippers at non-competitive stations than it was when some contribution could be secured from points where competition occurred. In general, the railroads expect to charge more than the additional costs incurred in handling competitive traffic, and if they

do this, the absolute level of rates at intermediate stations may well be reduced or, at least, prevented from increasing, if a freer policy in long- and short-haul rate-making is allowed.

It is likely, however, that an extended system of charging less to more distant than to less distant points in order to meet the pressure of competition will increase the relative disadvantages of intermediate towns. The contention that it will not is based upon the belief that well-situated localities already possess an advantage which the admission of new facilities for transport will not enlarge. This assertion seems plausible when a circuitous route is permitted to quote a low rate to termini located at a junction with a direct route without decreasing its intermediate rates to correspond. The so-called "normal" rate over the direct line, in such an instance, is already there, and the circuitous route meets, without changing it, the tariff which is charged. This is the argument applied to the transcontinental competition of railroads and inter-coastal ships. The same observation may be made in instances of market competition, as when the rates on oranges or sugar from the West to eastern markets are reduced to the level of rates charged to common markets from eastern sources of supply. But it is an error to suppose that the admission of a new competitor does not, in the long run, affect the rates charged to any market. It may be that, for the moment, no alterations will be proposed. But it is more difficult to advance a rate and easier to reduce a rate to a market served by two or three carriers than to a point served by only one or two. The route which is passive at the beginning becomes an active force when its position is established. Competitive rates which at first yielded a substantial margin over cost tend to fall to the strict out-of-pocket level. Whether the difference between competitive and non-competitive rates will be increased by greater liberality in long- and short-haul legislation will depend upon the balance between the tendency just described and the contrary tendency of intermediate rates to rise, without change in terminal charges, if carriers are debarred by statute from some contribution at competitive stations toward the general expenses which their operations entail.

Practically, the attitude of the Intermountain region is affected by conditions confronting particular industries in this area. While the territory as a whole is opposed to long- and short-haul rate-making, either because shippers fear that it will increase the level of the rates which they pay or because they expect that, in any event, it will increase the relative disadvantage under which they labor, there are some persons who take a contrary view. Thus the representatives from Colorado voted for the Pettingell bill in 1937 or did not vote at all, largely because of the influence of the beet sugar producers in the state and to meet the needs also of producers of iron and steel. The former hoped for lower rates on beet sugar to eastern territory and the latter for lower rates to the Pacific coast and to Texas if the bill

were passed.²⁰ In Utah the influence of large copper producers and shippers brought similar results. This development of sentiment in favor of long- and short-haul rate-making in parts of the Intermountain district is a striking fact to those who are familiar with the attitude of Colorado and Utah in earlier years.

Views of the Mississippi Valley.—The Mississippi Valley is not entirely a unit in its attitude toward long- and short-haul rates. Some portions of it join the Intermountain territory in opposition because they fear the effect of a free rate policy upon the inland waterway system which the federal government has been at such expense to develop or upon the newly emerging trucking industry, or because they anticipate new competition in important markets which they serve. Thus Memphis, Tennessee, has pointed out that abrogation of the long- and short-haul clause might enable railroads to publish lower rates on cotton from Texas points via Memphis to Boston to meet water competition than are charged Memphis shippers. Yet in the main, the Mississippi Valley, and especially the northern part of it, favored rather than opposed the Pettingell bill in 1937. This alignment reflected primarily the opinion of states such as Indiana and Illinois. The northern Mississippi Valley is dependent upon railroad rather than water service. Its steel meets competition on the Pacific coast from steel that comes by water from Baltimore. Flexible railroad rates are likely to enlarge rather than to curtail its markets. The decision of this area to support amendments to existing law provided the advocates of new legislation with a major element of strength.

Attitude of the Coastal Districts.—The coastal areas, like the Mississippi Valley, believe that the problem of long- and short-haul rate-making requires a choice between rail and water transportation. On the Pacific coast the sentiment is, on the whole, strongly in favor of a liberal policy in the matter of lesser charges for longer hauls. This is the great lumber and citrus fruit producing section of the United States. Its products move long distances and meet severe competition in eastern markets. These products rely principally on rail rather than on water transport. While there is some contrary sentiment at Sacramento, at Los Angeles, and in the San Joaquin Valley of California, based upon the wish to protect water lines from intensified water competition, and while eastern Oregon and Washington vote with the Intermountain states, the Pacific coast is definitely in favor of changes in the present law.

On the other hand, the Atlantic Coast is divided, with a majority in opposition to the Pettingell bill. Four-fifths of the representatives from the city of New York voted, in 1937, against the Pettingell bill. So did the representatives from Massachusetts, Maryland, and the coastal districts in northern Virginia. This is because the eastern coastal communities feel a more direct

²⁰ *Hearings on H.R. 1668, op. at., p. 285; Hearings on H.R. 3263, 74th Congress, 1st Session, June 5 to 26, 1935, pp. 402, 367.*

dependence upon water transport than do shippers in the Far West. On shipments to the Pacific coast, especially, the Atlantic seaboard cities desire to build up the water route against the railroads which serve Chicago. Agreeing with their opponents that the controversy is one between rail and water lines, they throw their support to the latter. This attitude is not shared, however, by those portions of the eastern seaboard states which are farther removed from the coast. Interior New York and Pennsylvania and parts of Virginia favor the repeal of Section 4. In the South, Georgia is emphatically behind the Pettingell bill, though Atlanta opposes it, protesting against the low rates which the railroads already quote to Jacksonville, Florida. In some places the influence of producing as distinguished from commercial interests is felt, as in the case of the southern cypress manufacturers, who feel that low rates to northern points might be possible if the law did not require intermediate rates to be maintained.

Conclusion.—The attitude of different sections of the United States toward recent proposals to amend Section 4 has been discussed because such analysis alone reveals the struggle of conflicting interests upon which the outcome of legislation depends. There are, however, two general observations with reference to long- and short-haul rate-making, not directly related to sectional conflict, which bear upon the general policy of quoting lower rates to more distant than to less distant stations upon a railroad line. It must be remembered, in the first place, that the whole railroad argument for selective reduction of rates at competitive points in order to increase railroad earnings rests upon the assumption that railroads have surplus, unused capacity, which this policy will enable them to utilize. The distinction between out-of-pocket and average costs requires this assumption. But as business grows and new investment is needed to take care of it the special economies in handling new business disappear. While at certain periods, of which the present is one, the fact of a surplus is evident, it must be clear that in the long run, to any particular terminus, the existence of surplus capacity is a temporary and not a permanent condition. A stable, long-time adjustment of rates can with difficulty be predicated upon a circumstance that appears and disappears.

The second observation is that all long- and short-haul rate-making, like all rate-making which is not based upon the cost of transport, increases the amount of and the aggregate expense of transport in a community which approves it, because it increases the volume of ton-miles. It may be that this increased expense will produce a compensating advantage. It may, for instance, increase competition, thereby transferring profit which would have accrued to producers or to transport agencies to the consumer in the form of lower prices or to the landlord or capitalist in the form of higher rents, but an increase in transport outlay there will be. As Locklin well says: "Long- and short-haul discrimination encourages wasteful transportation, and for

this waste the public eventually pays."²¹ And although no violent disruption of existing practice can be justified in a complicated economic structure on these grounds, such a simple fact should not be forgotten in considering the general development of regulatory law.

The Theory of Equalization in Rate-making.—Implicit in the various rate structures discussed in this and the two preceding chapters are two theories, according to either of which a transport rate system may be built up. The first of these is that rates should be so adjusted as to admit a maximum number of producing centers into any market, and so also as to give every locality a maximum number of sources from which to draw its supplies. Still another illustration of the same principle is the demand of distributing centers for rates which will place them on an equality with each other in handling trade between important sources of production and the markets in which these supplies are sold.

The contention just referred to explains a number of American rate practices which would otherwise be hard to understand. Such is, for instance, the quotation of export rates from the Middle West through the Atlantic seaboard cities of New York, Philadelphia, Baltimore, Boston, and Newport News, in inverse proportion to the cost of ocean transportation from each town to the European markets in which all of the cities named sell their wares. The purpose clearly is to give each of the towns mentioned a share of the through business. Is this fair? Is it wise? Is it in accord with public policy? Or should rates be based upon cost, distance, or some other physical fact, and business be allowed to go where it will?

The same question may be asked when a number of coal mines are assigned to a rate group in which each producer pays the same rate to market as his competitor, in spite, sometimes, of considerable differences in the distances hauled. Steel plants, fruit ranches, cotton mills, and many other types of producers as well are often treated in this way. Indeed, study will show that the equalization principle is widely recognized in American rate-making, and that it receives some, though perhaps less complete, application in the rate systems of European states. The advantage of the practice is that it decentralizes industry. Its disadvantage is that it tends to increase the volume of transportation required in the production and distribution of goods.

The Principle of Natural Advantage.—The second contention which is advanced in cases involving relative rates between different places is that rate structures should recognize natural advantages, not seek to counteract them. This theory is opposed to the principle of equalization. It tends to preserve and to emphasize inequalities, not to cover them over. Its influence is rather, therefore, to concentrate than to distribute industry.

According to the Interstate Commerce Commission, cities may possess the following natural advantages connected with transportation:

²¹ D. P. Locklin, *Economics of Transportation*, Business Publications, Chicago, 1938, p. 556.

i. Nearness. Obviously, nearness to market is a natural advantage, as is nearness to source of supply.

2. Low cost of operation. The effect of low cost is analogous to the effect of nearness. The simplest case is that of a route between two towns which is devoid of natural obstacles, such as mountains or streams. A city which reaches its markets over such a route possesses a natural advantage which may be recognized in the rate.

3. Competition. In addition to nearness and ease of access, a town which is located at the junction of a railway and a waterway or of two railways, or, indeed, of any two routes over which shipments can be made, has a natural advantage. This is essentially the argument upon which the transcontinental rate structure was built up, and also that upon which the Section 4 cases are decided. Not only direct competition should be considered under this head, but market competition also. When a town can buy from several markets, or when it can sell in several markets, although there may be but one route from or to each destination, it enjoys a bargaining advantage which is important.

The theory of natural advantages is reasonably easy to understand and to apply as long as the advantages contemplated are expressed only in terms of cost of transportation. So interpreted, it becomes a doctrine justifying relations of rates based upon relative costs, as contrasted with the equalization theory in which competition is given greater weight. The introduction of competition into the concept of natural advantage is, however, highly confusing. Probably it is better not take either theory too seriously, but to regard both the natural advantage and the equalization doctrines rather as working rules, to be used alternatively in settling practical problems, than as genuine theories to be tested by the usual canons of scientific criticism.

Relationships in Rates Determined by Economic Policy.—We may conclude this chapter by restating a view already mentioned earlier in the discussion. In the last analysis, the question of relative rates to or from competing localities is less a question of conformity between the practice of transportation companies and a rule of justice than a problem of economic statesmanship relating to the location of industry and to the selection of concentrating and distributing points for the products of factory, mine, and farm. If authority could determine a principle of rate-making, to consider only this aspect of the matter, and if such a principle could be rigidly applied, then the competition for geographical and industrial advantage might take place outside of rates and unconcerned with them, much as the competition in a game of cards is subject to the rules of the game and unconcerned with their revision. There are examples in some countries and in some transportation where this condition exists, but they are rare. As long as routes compete, and the rights of geographical or industrial units to share in a described traffic are subjects for discussion, then so long must existing or proposed relationships in transportation find their ultimate justification in their effect upon the structure of in-

dustrial society and in the efficiency with which the production and distribution of goods is carried on. This may be expressed in the doctrine that problems of local discrimination are to be resolved from the point of view of economic policy. While such a practice may seem to lack certainty and finality, it alone can assure consideration of all the factors in each situation on which a decision must depend.

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CHAPTER XXI

THEORIES OF LOCATION



We may conclude the section of this treatise which deals with railway rates and the movement of traffic with some consideration of what is called the "theory of location." Such a theory has its place in a discussion of transportation because the costs of movement of raw material and finished goods are important in determining where, in any country, the processes of industry are to be carried on. It is, perhaps, the only theory also which has been elaborately worked out in connection with transport. Doubtless the costs of carriage are not the sole factors to be considered in a theory of location. It is not possible to mine where there are no metals to extract, or to farm where there is no land which will produce crops or no water which will make crops grow; but the location of manufacturing establishments is flexible, and even agricultural and mining developments are influenced by the element of distance from the market and by the facility with which this distance can be overcome.

Location and Unit Development.—The study of location has been undertaken with several purposes in mind. Some writers have discussed it as part of a general theory of unit distribution. In its simplest form, the location of any phenomenon is a function of age. Given, at least, an area everywhere equally favorable to the development of a unit chosen for study, and assuming that the first example of the phenomenon occurs at a given point, then the spread of the unit may be expected to occur continuously and the units most distant from the point of greatest concentration will be those of most recent occurrence.¹ This observation has been of some importance in zoological studies, but the limitations in its application to industry are apparent.

Location and Economic Progress.—Other students who have considered economic progress have laid down laws according to which the location of industries has, as they believe, changed from time to time in the course of social growth, and have divided history into periods according to the variety and sequence of arrangements which have been observed. Much weight is given in such analyses to improvements in transport, although other influences are also given place. It is possible to argue that production, in comparatively un-

¹Jas. Small, "Age and Area Development," *Scientific American Supplement*, June I, 1918, P. 338.

developed societies, is primarily for the local market, and that, as the costs of transport and other impediments to movement are reduced, specialized centers for production occur which distribute over considerable areas. Production and consumption cease to be coterminous. The location of industry comes to be determined by the abundances of labor, materials, and capital, and not merely by relations to a market. Economic history can be written, if this is true, in terms of change from a world where the self-sufficing and self-centered group is successively the village, the city, the territory, and the entire world, or in terms of stages of human economy marked by whatever patterns are conceived to occur in ordered sequence. Such a history is likely to be at least more interesting than one which concerns itself primarily with the succession of kings. There is no close agreement among historians in arranging and accounting for sequences of economic types, nor always in weighing the influence of improved transport upon the forms of economic structure; but a theory of location may serve as a guide in historical analysis, and even Alfred Weber, to whom we shall presently refer, has his summary of tendencies of development couched in "location" terms.

Johann Heinrich von Thunen.—In the nineteenth century a German writer upon agricultural economics and farm practice named Thunen treated the subject of location from a different and more fruitful point of view.² He was not interested in economic history. He was, however, intensely concerned with the methods of land cultivation in the Germany of his time. Toward the end of the eighteenth century what was known as the three-field system was common German practice. A native economist, Albrecht Thaer, argued strongly at this time for the adoption of another type, which substituted for the use of fallows the alternate cultivation of grain and fodder crops. We have today little concern with the details of this controversy, except through the fact that it led Thunen to write an elaborate treatise in which he maintained, in general, that the type of cultivation which should be preferred in Germany, as well as the crops to be sown in different places, depended in each case upon the distance of any given farm from its market. Thunen's own interest was primarily in the question of type of cultivation; his reputation rests upon the careful methods which he employed in his research and upon his conclusions with reference to the distribution of crops.

Der Isolierte Staat.—In simplifying his problem, Thunen produced one of the first theoretical discussions of the effect of transportation upon location. He

² Thunen was born in Oldenburg, Germany, in 1783, and died in 1850. He received a systematic education in the theory and practice of agriculture, as well as a more liberal training at the University of Gottingen. In 1810 he bought a landed estate from his brother-in-law which he cultivated for forty years. It was here that he kept the records and conducted the experiments upon which his scientific work was based. The first volume of his monumental treatise *Der Isolierte Staat* was published in 1826; the second and third volumes appeared between 1850 and 1863. In 1830 Thunen received an honorary doctor's degree from the University of Rostock. In 1848 he was offered the position of representative in the German Parliament meeting at Frankfort a. Main, and in the same year he was made honorary citizen of the town of Teterow.

imagined, that is to say, a single city in the midst of a fertile plain without navigable rivers or canals. All the land in the plain was assumed to be equally fertile and equally workable. At a distance from the city the plain ended in an uncultivated wilderness, cutting the territory completely off from the rest of the world. All manufactured goods were produced in the city, and the city was exclusively supplied with food products coming from the plain.³ Given these assumptions, how, asked Thunen, would agriculture be carried on in the plain, and how, in particular, would greater or less distance from the city affect production?

The proposition with which Thunen started his analysis of the question at issue was that the price of grain at any point in the isolated state would be the town price less the cost of transport to the town. Since the city was assumed to be the only market and since all grain was disposed of in the city except that used locally on the farms, this was bound to be the case. Taking a city price of 1500 thaler per 1000 bushels as a base, Thunen was able to work out from his own experience of farming costs the proper price at all points outside his central city until points were reached so distant that the price of grain was zero. Similarly the price of products of the farm other than grain would be their city price less costs of transport.

Because of the effect of transport costs upon price, products would be grown near the city, Thunen said, which were heavy in proportion to their value, because transportation costs on such articles would be so high as to prevent a distant culture. Products that were easily spoiled and must be consumed fresh would also be grown near the city. Thus vegetables, fresh milk, and timber would be produced close to town, but grain and cattle farther away.

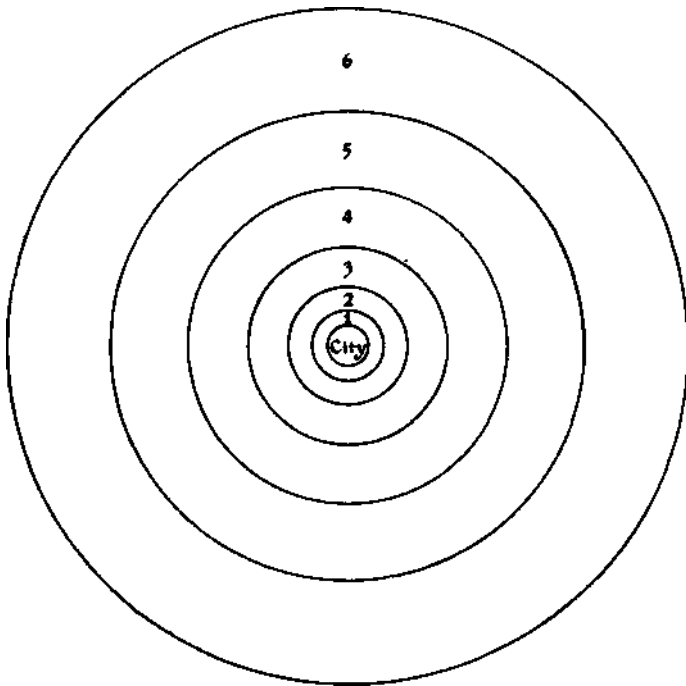
Thunen's next principle set forth a theory of rent. Since the price of farm products declined with distance from the city, the gross selling price of the products of a distant farm was less than the product of a nearer farm producing the same volume. Assuming that costs were paid in the produce of the land itself—that is to say, in grain—then the net yield of a more distant grain farm would be less than the yield of a near-by property in the same proportion that its gross yield was less. But since some farm costs would be paid in money⁴ and since these costs would be much the same on all farms, near and far, the net yield of farming land, and therefore its rent, would decrease more rapidly than its gross yield and more rapidly than its distance from the market increased. The theory underlying this treatment was similar to that of Ricardo, but with primary emphasis upon location rather than upon differing qualities of the land.

³ Still other assumptions were implicit or explicit in the Thunen illustration. These included the following: (1) All farms on the plain were of the same size. (2) The fertility was such as to yield a stated number of bushels of grain under a described system of cultivation, and was maintained without diminution. (3) Climate did not vary. (4) Operations were intelligently conducted with the object of obtaining a maximum net money income.

⁴ Thunen estimated that, in general, one-quarter of **farm costs had to be met in money**.

Lastly, distance from the city would affect the use of land. Extensive methods would become profitable at a distance and intensive methods would be more profitable in the vicinity of the city. Thunen relied largely upon his own farming experience to establish the truth of this observation, but he also made use of the law of declining price set up in the first of his generalizations to establish his point. To his own complete satisfaction he proved that there was no one single method of cultivation that was best. Thayer was wrong and the earlier German practice was wrong. Methods should vary with conditions, and the farther land was from the market, the less labor and capital per acre should be applied.

Thunen's conclusions, especially those set forth in paragraphs two and four above are illustrated in the accompanying diagram. This diagram shows



THUNEN'S "ISOLIERTE STAAT"

Thunen's "Isolated City" surrounded by concentric rings, which divide the plain into zones. Within the first zone, and nearest the city, he described cultivation as "free." A market, that is to say, was close, and fertilizers were abundant. This was the zone devoted to dairy products and fresh vegetables. In zone 2, forests were grown for firewood and building purposes. Zones 3, 4, and 5 were mostly devoted to grain, and zone 6 to cattle. Of the intermediate zones, the third—zone 3—was cultivated under a rotation system with

alternate grain and fodder crops but no fallow; zone 4 was less intensively worked with alternations of grain, pasture, and fallow;⁵ in zone 5, the least intensively cultivated of the three, one-third of the land was left continuously in meadow and one-third of the plowed land was left fallow each year.

Criticism of Thunen's Theory.—Thunen's contributions to the theory of location have been the subject of extravagant praise. The so-called "Thunen's Law"—that maximum net earnings are attained when the intensity of cultivation is proportional to the price of the gross product—has been hailed as supplying a key at once to agricultural economy, to history, and to comparative economic geography. It has been characterized as equally important in its way as Newton's law of gravitation for astronomy, the concept of the atom for chemistry, or the theories of Darwin for the biological sciences.⁶ On the other hand the formalized character of Thunen's exposition has been distasteful to some; certain gaps in his scientific equipment have been pointed out, especially in agricultural chemistry; and much of the definiteness of his theory of location has been removed by later expansion and modification.

For our present purpose we may limit ourselves to Thunen's theory of location alone, neglecting the broader aspects of the author's work. Essentially this theory was an attempt to determine the economic boundaries of producing areas by the use of data based on price and cost. And the attempt had merit. Thunen had a keen eye to observe, particularly, the influence of urban concentration upon surrounding areas, and the conditions which he noticed near Hamburg in 1803 can be duplicated in the United States today. Nor was he unaware of the distortions in his simple scheme which would be caused by variations in his basic assumptions of equal accessibility, equal fertility of land, and the like. Yet in using his concepts in the explanation or interpretation of modern patterns of distribution, the student should be forewarned of difficulties and weaknesses which will cause him trouble.

Perhaps the points at which the Thunen picture diverges farthest from present reality are the following:

1. Thunen's assumption of the equal availability of all lands for all products is almost never true to fact, and for this reason alone the actual distribution of forms of agriculture and industry seldom, if ever, resembles closely the picture which he presents. Our previous discussion of the orientation of commodities such as sugar and lumber must make us conscious of the divergence from Thunen's scheme in the case of products of this type.

2. Thunen, of course, failed to anticipate the enormous increase in the mobility of goods which has occurred during the past 100 years. This increase has been so great as to widen the zones concentric to the "Isolated City"

⁵ In Mecklenburg the so-called *Koppelwirtschaft* of the time carried a succession of crops as follows: wheat, barley, oats, pasture, pasture, pasture, fallow.

⁶ Max Buechler, *Johann Heinrich von Thunen und seine nationaloekonomischen Hauptlehren*, Bern, 1907.

until, in some instances, they embrace the entire world. Not only this but, in general, improvements in transport increase the influence of natural conditions, as against conditions arising out of the cost of carriage, and profoundly alter an adjustment predicated upon transport costs alone.

3. Our author does not sufficiently consider the interdependence of economic operations. There is such interdependence in simple agriculture, - as when groups of plants are cultivated together because they make different demands upon the soil and so permit a fuller use of the soil's fertility, or because they have different times for seeding, plowing, and harvesting, which equalize the seasonal demands upon agricultural labor and equipment. Another example is that of livestock, which may be raised, or at least fattened, in districts of intensive grain cultivation, either for the sake of fertilizer or because the livestock consumes and transforms products such as corn into goods more easily shipped to market.

4. Again, it is to be observed that the selection of products is influenced by requirements for capital and labor. If a given fruit requires much hand labor, it will tend to locate near centers of population, not only because it may be perishable but because it seeks a labor supply. Hoe crops may be found close in because of the need for tools and machines. Flax, for instance, can stand transportation very well but needs much labor; hence it is found in the middle distances.⁷ In all problems that involve industrial location the importance of available supplies of labor and capital is especially great.

5. The assumption of a single city reduces the value of the Thunen analysis for the most numerous problems of modern economy. Current discussions have most frequently to deal with the location of points, not with the characterization of areas, and the rivalry of many competing cities presents situations which Thunen was not interested in explaining.⁸

New Objectives in the Study of Location.—It is necessary to skip a great many years before we find important additions to the Thunen analysis which has been described in the previous pages. After Thunen's death his work was carried on in Germany, but without much addition to the theoretical structure which he had erected. The most notable of the contributors were agricultural economists with a technical interest in forms and conditions of agricultural production, or general students who dealt with problems of location as ex-

⁷Friedrich Aereboe, *Ursachen und Fortnen wechselnder Betriebsintensitat in der Landwirtschaft*, *Thunen Archiv*, Vol. 2, 1907-1909, pp. 362-394.

⁸Ritschl makes the interesting suggestion that if there are several cities in a "Thunen" plain, the circles around them will intersect. Assuming growth, they must intersect. But a given area cannot at the same time be in zone 3 of city I and in zone 7 of city II. Ritschl remarks that certain of Thunen's zones will be driven, in such an event, from their original position encircling special cities and will resolve themselves into zones encircling the whole group of cities taken into the calculation. This, he thinks, is the significance of the areas such as those in Russia, South Africa, Argentina, and Canada, which serve Europe as a whole (*Schmoller's lahrbuch*, Vol. 51, p. 813).

pressions of social and economic development. In America, however, the subject of location came to be considered by persons who were neither historians nor agriculturists, but who tried to collect and list what they called "factors of location," by which they meant influences causing the establishment of particular types of enterprise at particular places. These American studies were mostly related to manufacturing operations. They were provoked either by the wish to explain the rather intriguing pattern of industry which existed in the New World, or by the desire to be of practical assistance to undertakings that contemplated new investments or some change in the existing location of their plants. They dealt with a world containing multiple points rather than a single controlling city, and one in which these points or cities were keenly conscious of their competitive situation and anxious to demonstrate or to improve the advantages which they possessed over their rivals. Returning to Germany again, we observe that questions similar to those which concerned American writers were dealt with in a more systematic and abstract way by a mathematician named Launhardt in 1882, and by a university professor, Alfred Weber, whose book on the location of industry was published in 1909. Their analysis will be described in some detail in the latter portion of this chapter.

Let us now return to the Thunen plain for a start in the development of the newer treatment, and let us introduce only a few new assumptions among those which Thunen himself laid down. Let us, that is to say, suppose that several cities exist upon the plain, that each of these cities may engage in manufacturing operations for the benefit of whatever consumers may be persuaded to buy its wares, and that the raw materials for manufacturing processes as well as fuel or other sources of power are obtainable from many, though fixed, points. We are evidently still concerned with a problem of location after these changes have been made, but it is one which Thunen's principles alone will not solve. This is partly because we are now only incidentally concerned with the influence of distance upon methods of production, and partly because distance from the city changes its significance when there are a number of places from which a choice is to be made. What we now desire to know is where, under the new assumptions, production—primarily manufacturing production—will occur, and also from what portion of the plain the raw materials of industry will be drawn.

This problem of location in its altered form is entirely modern. The general answer to the question which it raises is that production will take place in those areas where conditions are most advantageous. Concerns which locate at advantageous points will be able to undersell their rivals, and the latter will disappear. But what are advantageous points? What are the conditions that will enable a city, or an industry, or a firm, to undersell its competitors? Before theoretical progress can be made it would seem necessary to examine the operations of industry until we have at least a list of factors which can be combined into a scheme. Each item in our list will be related to the produc-

tion process, or it will express the importance of nearness of one necessary production element to another or to the markets where consumption will take place. Unlike Thunen, we must study our markets because here, also, alternatives exist.

A list of "factors of location" is precisely the one thing which modern study of the subject endeavors to present. A factor is a material, force, or condition which must be present if production is to occur, and which, if relatively abundant or of relatively good quality, will make it possible to create and to place a commodity in the consumer's hands at a relatively low monetary cost. Factors can be named, their importance estimated, explanations as to past or conclusions as to future policies can be deduced, trends may be indicated, and the whole may constitute a theory, or at least a literature of location. The impulse to such work is not entirely theoretical, but the results represent an advance in the understanding of the subject with which Thunen was concerned.

Factors of Production—Sombart.—Lists of location factors are usually one of three sorts, or are arrived at in one of three ways. There are, first, what we may call "academic lists," appearing in general economic or statistical treatises, and frequently summary in character. Then there are lists obtained by questionnaire or personal call, which express the conscious opinion of producers with respect to the conditions favorable to their success. Only in recent years has it been possible to study economic questions in this way. And lastly, there are lists resulting from inquiry into specific situations—historical or analytical inquiry—through which it is attempted to explain an observed and specific result. We will consider a few examples of lists of factors of location in order to familiarize ourselves with their nature and content.

Sombart, a German economist, in his *Moderne Capitalismus*, starts his list of factors by classifying all industries into two categories, "bound industries" and "free industries." The location of the former is determined by natural conditions. Illustrations of the bound industries are the mine, bound to the ore supply; or the baking of fresh bread, which-must take place near where the consumer lives.

Free industries, according to Sombart, may also be divided into two groups, the irrational and the rational. Irrational industries, or at least irrational instances of location, are those characterized by haphazard selection or by selection of the point of production for non-economic motives. Legal or government regulation may determine selection of this sort. The principles governing irrational location cannot be discovered by economic analysis.

The location of rational industries is determined by the exercise of business judgment. It is influenced by two types of consideration, the one relating to quality and the other to cost. Sombart explains by his "quality" concept the tendency of the printing press to locate near the newspaper publisher, or of the clothing industry to settle near the consumer. Doubtless such location affects costs, but the prime object is to maximize promptness and accuracy of

service. The fact that service industries are also used to illustrate the "cost" concept confuses the classification at this point.

Cost-determined locations are, finally, divided into three groups:

i. Locations which are determined by the presence of the consumer. In this class fall all service industries.

2. Locations which are determined by the availability of fuel, power, and raw material—in short, by the availability of means of production.

3. Locations which are determined by labor. Industries in this class tend to center where the laborers live.⁹

Representative American Lists of Factors.—To be contrasted with the list of factors just given is a much-quoted summary prepared by Frederick S. Hall and printed in the United States Census for 1900. Hall summarizes the factors of production under seven heads:

1. Nearness to raw materials.
2. Nearness to markets.
3. Nearness to water power.
4. Favorable climate.
5. Supply of labor.
6. Capital available for investment in manufactures.
7. The momentum of an early start.¹⁰

A still more elaborate list of factors may be found in the report of a survey conducted in 1926 and 1927 by the Metropolitan Life Insurance Company in cooperation with the National Electric Light Association. This report was based upon returns from 2084 communities, representing 75 per cent of the total urban population of the United States and two-thirds of that of Canada. It is of value not only because of the enumeration of factors which it contains but also because it indicates by types of industry the relative importance which its correspondents attached to each factor mentioned. The final summary of the investigation published by the Metropolitan gives the following list and rating of the principal factors of location:

Factor	Industry Group					
	Food	Textiles	Lumber	Machinery	Leather	Chemicals
1. Markets	1	2	1	1	3	1
1. Materials	2	6	4	6	4	4
3. Transportation	3	4	3	3	6	
4. Labor	4	1	2		1	3
5. Living conditions	5	7	6	7	7	6
6. Available factory building	6	3	5	4		5
7. Power	7	5	7	8		7
8. Near related industries	8		8		2	
9. Financial aid		8		5		8

⁹ Werner Sombart, *Der Moderne Capitalismus*, Vol. II, Part II, chap. 54.
 12th United States Census, Manufactures, Part I, 1902, p. cxc.

Difficulties in Compiling Factor Lists.—Standardized factor lists are insufficiently detailed to meet the need of industries which contemplate relocation or the erection of new plants. For such purposes it is always necessary to draw up special enumerations for the companies concerned; indeed, business publications are full of suggestions as to how these tabulations may be prepared and how the results may be weighted to provide a guide for action. Nor is it possible from a list of factors to decide where, in the Thunen plain, cities will arise and centers of production be organized. The "list" study of location is not yet sufficiently mature to provide even a solid framework for further theoretical study, although it is interesting to consider some of the observations which it provokes.

It must be confessed also that the difficulty of fitting existing locations of industry into patterns calls for much reference to what Sombart termed instances of irrational location. From the student's point of view an irrational location now has to be defined as one which cannot be explained upon the ground of business judgment, when applying factors that appear in expert lists. Hall doubtless had many of such examples in mind when he made room in his classifications for establishments which owed their prosperity, in their present locations, to the momentum of an early start. In the same vein Whitbeck, in the *Journal of Geography*, cited a number of industries, including the manufacture of collars and cuffs at Troy, New York, and the pottery industry at Trenton, New Jersey, which he thought could be accounted for mainly by historical accident. Speaking of Troy, Whitbeck said:

This one city manufactures 85 per cent of the collars and cuffs made in the United States. Troy seems to have no advantage of location for such an industry over scores of other cities. The only explanation that I find for this remarkable case of centralization of an industry, is that a blacksmith's wife, living in Troy, was the first known person to make detached collars; that a Methodist minister believed they were practical, and some seventy-five years ago began the manufacture of detached collars and cuffs in his home town. This explanation may or may not be true.¹¹

It is not without significance in this connection that the survey of the Metropolitan Life Insurance Company concluded that nine-tenths of all industries in the United States were improperly located, either because of changed conditions or because the industries were originally placed where they are now found by rule-of-thumb methods, for personal reasons, or for other causes. If, in spite of this fact, annual relocations were few, the explanation was found in the cost of change or in the slight general appreciation of the need to study scientifically the merits of alternative industrial positions.¹²

¹¹ R. H. Whitbeck, "Specialization in Industry by Certain Cities," *Journal of Geography*, Vol. 8, October, 1909, p. 32.

¹² It is, of course, true that what amounts to relocation of industry can take place without any change in the position of existing plants. This is particularly easy when production as a whole is expanding. The geographical position of production may be changed by the establish-

Capital and Location.—There seems to be rather general agreement among economists that the principal factors of location are markets, raw materials, fuel, labor, and transportation, and this is probably a safe generalization if only because the categories are so broad as to include nearly every feature of a business enterprise. American writers, however, are inclined to assert that the supply of capital is not at the present time so localized that it is a determinant of industrial location. Capital goes where business is; business does not go where capital is. They observe that owners of capital have no insuperable objection to investing in remote places, and that it is even doubtful if rates of interest vary, in different locations, by more than a fair allowance for the differences in risk involved.¹³

Labor and Location.—There are also differences in opinion with respect to the part played by labor in influencing location. Hoover has pointed out that a particular place may have an advantage based upon any or all of three things: (1) special skill of workmen; (2) a large labor market, providing an elastic supply of all grades of labor; and (3) relative freedom from artificial restrictions imposed by labor unions or legislation.¹⁴ Large cities attract industry, in part because of the abundance of available labor, concentrated there, perhaps, for non-economic reasons, and this abundance is especially attractive to concerns whose demand for labor fluctuates throughout the year. It has been said that an industry which has a labor cost under 40 per cent of total costs can safely locate in a small town, but that those with labor costs exceeding 60 per cent should unquestionably be in the larger centers of population.¹⁵

Special skill has been and still is sometimes important. But the increasing introduction of machinery and the spread of technical education make such skill less important and more easy to obtain. The tendency has not been to substitute unskilled for skilled labor. Thus in the steel industry, where machines have eliminated practically all heavy work, perhaps less than 7 per cent of all jobs can be classified as unskilled.¹⁶ But modern methods call for more general capacity and judgment, and depend less upon specialized dexterities. Were labor perfectly mobile, neither special skill nor large numbers nor labor policy in a particular phase would influence industry location; actually labor is not perfectly mobile. This is not, as it is sometimes assumed to be the case, be-

ment of branch plants, by the organization of new local industries, or even by the unequal expansion of the capacity of old establishments almost as effectively as by the physical transfer of equipment.

¹³ There is some slight reason to suppose that rates of interest in risky occupations or risky places are too low to give the investor, in the long run, a normal return. If this is the case the uncertain enterprise enjoys an advantage which, in the long run, may produce unexpected results.

¹⁴ Edgar M. Hoover, *Location Theory and The Shoe and Leather Industries*, Harvard Economic Studies, Harvard University Press, Cambridge, 1937.

¹⁵ *System*, Vol. 51, May, 1927, pp. 641, 676.

¹⁶ E. T. Weir, Vice-President, American Iron and Steel Institute, Address delivered at the Forty-seventh General Meeting of the American Iron and Steel Institute, May 26, 1938.

cause a machine is easier to move than man. Neither a factory, a machine, nor a man can be readily "relocated," though man is probably easier to shift than an expensive piece of equipment. But when a machine wears out a new machine may be set up at the old location or at a new one. When a man's active service terminates his successor may be employed in the old place or at a new one. In this respect both are comparable, but since the length of service of the average machine is probably shorter than the working life of the average employee the opportunities for frictionless displacement occur more frequently in the case of machines than in the case of human beings. Moreover, when the question of establishing new plants in new locations is discussed, and new workmen are to be employed, the range of choice is probably less limited by the prejudices of investors than it is by the attitude of workmen who, after all, must live as well as work in the new environment to which they are to be called. Yet the freedom of movement, at least of the American laborer, is so great, the ties which bind him to particular localities are so slight, and the wish to obtain profitable employment is so strong that labor hardly more than capital exerts a compelling influence upon location.

Raw Materials and Location.—Raw materials affect the location of industry. This factor appears in all the lists, and generally in first or second place. It has been said that the location of the raw materials of an industry probably contribute more toward the ultimate location of a plant than any other factor. Flour mills are to be found near the wheat fields, cotton mills in the heart of the cotton-growing section, canning plants in Florida and California, and meat-packing establishments close to the western fields upon which the herds are raised.¹⁷ But the relation is not as simple as these illustrations would indicate. Garver has pointed out that the principal source of iron ore lies outside of the manufacturing belt of the United States,¹⁸ and that the principal supplies of wool and leather are outside of this zone also. According to Garver, the manufacturing belt is much more closely associated with the sources of power and heat than with the sources of raw material usually so called, although if we class coal, for the moment, as a raw material, his objections to attributing pulling power to raw material largely disappear.

Nevertheless the influence of raw materials upon location is much greater in some cases than in others. The clearest case is that of the industry whose materials are so perishable that they cannot be shipped at all. Manufacture in such an instance must occur at the source of supply. Cotton seed ferments, salmon rot, coke breaks into dust, and cane juice spoils, and while the obstacles to transport are not insuperable in any of these cases they are sufficient

¹⁷ H. R. Parker and R. L. Kraft, "Analyzing the Problem of Plant Location," *Industrial Management*, Vol. 70, November, 1925, p. 301.

¹⁸ F. B. Garver, F. M. Boddy, and A. J. Nixon, *The Location of Manufactures in the United States, 1899-1929*, University of Minnesota, Employment Stabilization Research Institute, Vol. II, Bulletin No. 6, University of Minnesota Press, Minneapolis, 1933.

to encourage processing near the place where the material is found. At the other extreme are materials so widely distributed as to be available in any location without the necessity of importation. Doubtless there are few articles which are entirely ubiquitous, but there are some which can be had, at the same price, over so wide a range of territory that their effect upon location must be small. In between these two categories are materials which can be secured only at designated places but which can be shipped considerable distances without deterioration. Such items determine location sometimes to a greater and sometimes to a lesser degree, and it is necessary to distinguish in considering the pull which they exert.

There is much lack of precision in current discussion relative to the influence of raw material location upon the place where manufacturing operations will be carried on. Let us suppose a simple case in which the material is to be procured at a point which we may term *A*, and that the only market for the finished product is at *B*. Will processing occur at *A* or at *B* or at some point in between? We shall return to similar situations later on when we treat of the attempt of Alfred Weber to systematize the theory of industrial location, but we may discuss at this point some suggestions that are found in literature upon the subject.

A German writer, Schumacher, asserts that raw materials have great pulling power in the United States because the distances there are so great.¹⁹ This implies that a mere extension of the distance from *A* to *B* would provide a reason for manufacturing at *A*. Yet since the product will ultimately, under our assumptions, find its way to *B*, because *B* is its only market, whether the distance be short or long, it is not clear why a change in the length of haul will change the place at which it is most advantageous to prepare it for the consumer.

Another writer declares, "If a manufacturing industry involves the use of some bulky material which is costly to transport, the places in which it is established will tend to be so chosen that the distance to be travelled by this material from its place of production to its ultimate destination will be kept as nearly as may be to a minimum."²⁰ If this means that bulky raw materials, because of their bulk, tend to be processed near their point of origin we may reply as before, that the materials must get from *A* to *B* eventually, and neither their bulk nor their weight should determine the place of their manufacture, supposing, of course, that it is desirable to ship them at all.

Still another opinion is that raw materials are manufactured near the point of origin when they "are bulky and heavy relative to their value."²¹ Weight and value are not comparable ideas. The phrase used doubtless refers to a case

¹⁹ H. A. Schumacher, *Die Wanderungen der Grossindustrie in Deutschland und in den Vereinigten Staaten*, in *Weltwirtschaftliche Studien*, Veit, Leipzig, 1911.

²⁰ R. G. Hawtrey, *The Economic Problem*, Longmans, New York, 1925, p. 96.

²¹ E. A. Ross, "The Location of Industries," *Quarterly Journal of Economics*, April, 1896.

in which cost of shipment is high relative to the original cost of the material or to one in which the original cost of the material is high when compared with the selling price of the finished product. Neither of these comparisons by itself defines the place where manufacture will occur.

Effect of Loss of Weight During the Manufacturing Process.—It should be clear that if manufacturing costs at different locations are equal, the point chosen for manufacture will be that which makes shipping costs the least. This point will tend to be near the source of the raw material if, all things considered, the cost of shipping the material is greater than that of shipping the finished product which the material is used to produce, and it will be near the market when the cost of shipping material is less. Material shipping costs will be relatively high when there is much loss of weight in the process of manufacture and when the charges for transporting materials, pound for pound, approximate those for carrying the product. Material shipping costs will be relatively low when there is little loss of weight in manufacturing and when the rates on the product are higher, pound for pound, than on material, either because of the larger value of the product or by reason of the greater risk of damage to which it is exposed. In no instance will processing occur at a location between *A* and *B* in our simple illustration if we assume that manufacturing costs are the same at all points, because stopping a through shipment and unloading it costs money; if manufacturing costs are unusually low at some intermediate place, however, production will occur there if the advantage in production is sufficient to offset the disadvantage of deviating from the location which, from the transport point of view, is best.

Among the changes which lessen the influence of raw materials upon industry location we may mention three. First, there are improvements which increase the range of shipment of perishable goods. Refrigeration and pre-cooling are of this sort. Second, there are discoveries which multiply sources of material supply, either by finding goods of the old sort in hitherto unknown places, or by developing substitutes and equivalents. And third, there are ways of concentrating materials to lessen their bulk or weight or both, and there are changes in technique which help to lessen the amount of material which it is necessary to ship per ton of finished product. On the other hand the course of change sometimes works the other way, as when the use of poorer ores requires the handling of greater weights.

Markets and Location.—The final markets are consuming points. Ultimately, people consume goods, and the last sales are made where people live. Generally, people live where they work, so that producing areas and consuming areas are the same. It follows that the places best fitted for production should be those where most of the population is to be found and that the presence of markets should not alter the distribution of industry which is arrived at by considering production alone. But in practice the problem is not quite so simple. For one reason or another, for example, the natural resources of a dis-

district may yield incomes which are consumed elsewhere, while part of the incomes in other districts are consumed in this district. This may be because of conditions of ownership. It may be because of the existence of other rights and obligations than those connected with property—such, for instance, as the obligation to pay taxes, and the right to receive salaries or pensions or grants derived from the taxes which have been paid in. Relations of any of these sorts separate the location of final markets from the location of the producing population, although, of course, any concentration of population must induce a certain amount of production for its local needs.²²

All factor lists include a reference to markets, and most of them assign it a prominent, often a prior, place. All three of the illustrative lists in the text emphasize the importance of the market. For many industries, indeed, the pulling power of the market is obvious and dominant. Ice cream and bread are types of perishable goods which must be made near where they are to be used. Daily newspapers are published where the readers dwell, to secure promptitude. Tailors, milliners, photographers, and pharmacists settle near their customers.²³ And if, in considering the influence of aggregations of people, it is permissible to regard them not only as groups of individuals but as such groups plus a complex of local industries conducted by and for the resident population, then the attraction which the market exerts upon undertakings which are free to locate near to or far from the consumers to whom their goods are sold will be considerably increased.

We have already mentioned, in discussing raw materials, reasons that may lead industries to locate near their markets. Close touch with buyers makes it easier to estimate demand, as well as to provide a prompt and regular supply. In some instances the total costs of transport are less when raw materials are imported and processed close at hand than when manufacturing operations are conducted elsewhere. In the automobile industry, although the principal manufacturing establishments are to be found in a few places only, it appears advantageous to erect assembling plants of considerable size near the centers of consumption. A market which is also a large center of population furnishes a varied labor supply, and the location of industry that is at first provoked by the wish to process near the consumer may benefit from the presence of allied and subsidiary enterprises which provide it sometimes with raw materials and sometimes with service that the industry might find it expensive to organize for itself. In short, the advantages of a market location merge into the advantages of concentrated production. These last-named advantages might be realized in locations determined, say, by the presence of fuel or by the proximity of a raw material; but by and large, industries differ more with respect to their need for equipment and material than they do in their rela-

²² Cf. B. G. Ohlin, *Interregional and International Trade*, Harvard University Press, Cambridge, 1933.
²³ Ross, *op. at.*

tion to the consumer, so that the market is more likely to provide a meeting point for diverse enterprise than a location selected upon any other ground.

Attempts to Express the Influence of "Factors" in Schematic Form.—This description of "factor lists" will serve to characterize the greater part of the discussion of the theory of location which fills economic and especially business publications at the present time. It is more significant for present conditions than the Thunen analysis because it raises questions with which more people are vitally concerned. It has led to the collection of a large body of factual material. It is defective from the theoretical point of view because it deals with more variables than it can control, and because the concepts with which it works are imperfectly defined. Because of these weaknesses it has developed no laws of general application. Its greatest achievements have been to suggest explanations for a few observed trends in industrial history and to supply inexperienced business men with a technique that helps them avoid gross errors in locating new plants.

Attempts to schematize the complex relations with which factor lists deal in a descriptive way have taken two forms. One of these has led to what is termed the "law of market areas," and the other has produced an abstract and diagrammatic statement of the relationships between sources of raw material, markets, and processing points with which we have already been concerned.

To understand the latter let us again return to the question with which we closed the discussion of Thunen's theory and with which we began the treatment of "factor lists." Let us suppose a plain over which are scattered many possible sources of supply of raw materials, and let us ask where upon this plain production—primarily manufacturing production—will occur, and also from what portion of the plain the raw materials of industry will be drawn. The best-known attempt to supply a formula which will provide or help to provide an answer to this inquiry is that elaborated by Alfred Weber.

Terms and Assumptions Used by Alfred Weber.—Weber was a German economist, born at Erfurt in 1868. He taught at the University of Prague from 1904 to 1907 and at the University of Heidelberg from 1907 to 1933. In 1909 he published a treatise upon the location of industry which is still the standard reference for certain aspects of the subject.²⁴

In order to understand Weber's analysis we need to familiarize ourselves first with the assumptions upon which his argument is based and second with the meaning of certain terms which he employs. The assumptions are as follows:

1. Weber postulates a single country, with uniform climate and technique, inhabited by a population of a single race.

²⁴ Alfred Weber, *über den Standort der Industrien*, Erster Teil, Reine Theorie des Standorts, Mohr, Tübingen, 1909. An English translation was published by the University of Chicago in 1929. Prior to Weber a German mathematician named Launhardt had anticipated some of the conclusions at which Weber arrived.

2. He proposes to deal with a single product, or at least to consider a single product at a time. Goods of different quality, though of similar type, are treated as different products.

3. The position of sources of raw material is stated, and is assumed to be known.

4. The position of points of consumption is stated, and is assumed to be known.

5. Labor is geographically fixed. Weber assumes that there exist a number of places where labor at definite, predetermined wages can be had in unlimited quantities.²⁵

6. Transportation costs are a function of weight and distance. Differences in topography are allowed for by appropriate additions to distance and differences in transportability by additions to actual weight.

Among the terms which Weber uses are the following:

1. Ubiquities. These are materials available practically everywhere, and presumably at the same price everywhere.

2. Localized materials. These are materials obtainable only in geographically well-defined localities.

3. Pure materials. These are localized materials which enter to the extent of their full weight into the finished product. Thread to be woven into cloth is perhaps an example of this category.

4. Gross materials. Under this head are assembled localized materials which impart only a portion or none of their weight to the finished product. Fuel is the extreme type of gross material, for none of its weight enters into the product.

5. Material index. Such an index indicates the proportion-which the weight of localized materials bears to the weight of the finished product. A productive process which uses pure material has an index of 1.

6. Locational weight. This is the total weight to be moved per unit of product. An article made out of ubiquities would have a locational weight of 1 because only the product itself would be moved; if it were made from pure material the locational weight would be 2 because transportation of both the product and an equivalent weight of materials would be required.

7. Isodapane. This is the locus of points of equal transportation cost. The meaning of the term will appear more clearly in the discussion.

Working with these assumptions, employing these terms, and seeking in the first instance to measure the effect of transportation upon location, Weber now imagines certain cases and announces the conclusions at which he arrives.

Case I. One Market and One Source of Raw Materials.—The first case supposes a raw material to be produced at A and the finished product made out of the material to be consumed at B. The problem is to determine where the

²⁵Tord Palander, *Beitrage zur Standortstheorie*, Almquist and Wiksells, Uppsala, 1935, p. 173.

manufacture or processing is to take place. Weber states that four possibilities exist:

1. If ubiquities only are used, the processing will occur at point of consumption, *B*, because this will make unnecessary any transportation at all.

2. If one pure material is used, processing may occur at *A*, at *S*, or at any point between *A* and *B*. This conclusion is based upon the fact that the weight to be transported and the distance to be covered is the same in all instances. It has been pointed out in criticism of Weber's statement that manufacture at an intermediate point will require an extra handling of the goods, and that the through rate from *A* to *B* may be less than the sum of the rail or motor rate from *A* to the intermediate point and from that point to *B*. The first of these difficulties Weber disregards, and the second is probably eliminated by the sixth of the assumptions that we have earlier set down.²⁶



WEBER—CASE I

3. If pure material plus ubiquities is used the processing will occur at the point of consumption, *B*, because the pure material will be without influence, and the ubiquities will govern.

4. If one weight-losing material is used, processing will occur at point of production, because if this decision is made the weight which is lost will not have to be transported.

Case II. One Market and Two Sources of Raw Materials.—Weber's second case supposes raw materials which are available at two places, *A* and *B*, at equal prices. The finished product is to be consumed at *C* and the problem as before is to determine where manufacture or processing is to take place. Three possibilities are now considered:

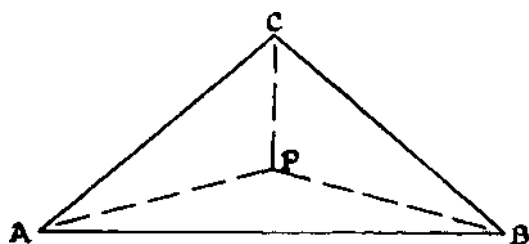
1. If ubiquities alone are used, manufacture will occur at the point of consumption for the same reasons which governed when only two points were involved.

2. If several pure materials are employed, manufacture will also take place at point of consumption. In this event the weight of materials exactly equals the weight of the product. All weights, whether in the form of materials or in the form of product, have to be moved from their deposits to the place of consumption. They should not deviate unnecessarily; therefore each material will proceed along the straight line which leads from the place of its origin to the point of its consumption. Unless the way of one should lead by chance through the deposit of another, all these ways will meet for the first time in

²⁶ Ohlin says that if the product which may be processed at *A* is also shipped to other places than *B*, then *B* cannot be as favorable a point for its manufacture as *A*. But (1) this suggestion is contrary to Weber's hypothesis that the entire product is consumed at *B*; and (2) it assumes advantages of large-scale production which are outside the field of discussion at this point.

the place of consumption. Since the assembly of all materials at one spot is the necessary first condition of manufacture, the place of consumption is the location where manufacturing will be carried on; a productive enterprise, using several pure materials alone, will always locate at the place where its products are consumed.

3. The conclusion is different if several localized weight-losing materials are used. In analyzing this case Weber sets up what he calls a "locational figure," which is a triangle in the simpler illustrations with which we are concerned. Let us suppose a process which uses two weight-losing materials produced at A and at B, and let us suppose that the product is to be consumed at C. Manufacture will not take place at C because it is undesirable to transport from A and B to C the material weight which does not enter into the weight of the finished product. It will not, according to Weber, occur at A or at B unless



WEBER—CASE II

the importance of one material happens to be so great as to overcome the influence of all other elements. It will, usually, be found somewhere within the triangle—as at point P. To this point the raw material will be brought, there it will be manufactured, and from P the finished product will be sent on. Let us imagine, says Weber, a process of production which uses two localized materials, three-fourths of a ton of one and one-half ton of another being necessary in order to produce one ton of the product. These weights will represent the force by which the corners of the locational figure will draw the location toward themselves. Suppose a frame to be set up, with corners placed at the corners of the locational figure. Over these corners run threads, the threads being loaded with weights proportional to the amounts indicated. In the inner part of the figure these threads are connected at some point. Where this connecting point comes to a rest, there will be the location.²⁷ It will be the place which, if selected, will cause the industry to be burdened with the smallest number of ton-miles.²⁸

²⁷ Alfred Weber, *Theory of the Location of Industries*, University of Chicago Press, Chicago, 1929 (English ed., transl. by C. J. Friedrich).

²⁸ Weber considers the possibilities of using localized pure materials with ubiquities, localized weight-losing materials with ubiquities, and localized weight-losing materials with pure materials, but these combinations introduce no new principles.

Introduction of the Labor Factor. Use of Isodapanes.—Although Weber did not invent the locational triangle, it forms the basis of much of his exposition and by the use of this device, along with concepts of pure materials, weight-losing materials, and ubiquities, he has thrown light on questions of location which some authors of factor lists apparently have never understood. Before considering his general contributions further, however, we have to refer to Weber's treatment of the factor "labor," and to his discussion of what he conceived to be the influence of "agglomeration." Our earlier conclusion was that the freedom of movement, at least of the American laborer, was so great that labor exerted little compelling influence upon location. Weber does not share this view. He assumes that labor supply is geographically fixed, that its cost varies from place to place, and that the desire to take advantage of favorable labor conditions may induce an entrepreneur to locate at a point which he would otherwise avoid.

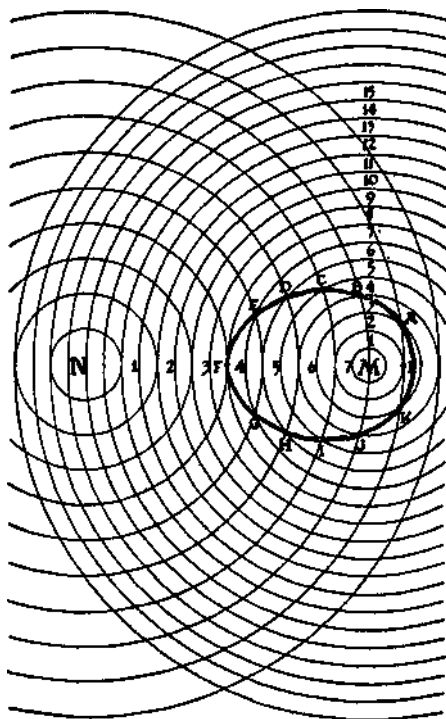
Now the essential result of the part of Weber's location theory which we have so far described is that it indicates where, upon a plain, intelligent business men will manufacture an article whose market and sources of raw material have been stated, when they are influenced only by conditions of transportation. For any commodity at any time the decision will fix upon a point. Manufacture at any other location than this point will involve an increase in total transportation costs. How much this increase will be will depend upon the position of the alternative location. It should be possible to list all points at which aggregate transportation costs in connection with a given volume of output will exceed aggregate transportation costs incurred at the ideal location by i ; in another list may be placed all points at which the excess is 2; in still another the points at which the excess is 3, and so on. If all the plus-1 points are indicated upon a map and there joined together by a line, the line will unite points of equal transportation costs. It will be called an isodapane. A second isodapane may unite the plus-2 points, and a third the plus-3 points. Every point of optimum location from the point of transportation alone may be surrounded by a series of isodapanes by which the increase of manufacturing cost may be measured which deviation from the optimum will produce.

The accompanying illustration, adapted from Palander²⁹ will show the method of constructing an isodapane. Let us suppose a raw material to be available at a point in the above diagram indicated by the letter M . The product made from this raw material is to be consumed at N . The circles surrounding N measure the cost of shipping a single unit of the finished product. It is assumed that the necessary raw material weighs twice as much as the product, and to show this fact upon the diagram the successive circles concentric to M are drawn close together and those concentric to N are drawn relatively far apart. According to Weber's rule (4) on p. 469, the optimum point for manufacture under these circumstances—transportation conditions alone being taken

²⁹ T. Palander, *Beitrage zur Standortstheorie*, Almquist and Wiksells, Uppsala, 1935, p. 312.

into account, and rates for material and finished product being the same per pound—is M , and the truth of this principle under the assumptions with which we work can be demonstrated by a little calculation.

It is, however, possible to manufacture at other places. If the processing is done at M , the finished product can be shipped to N at a cost of 8 and there will be no cost for shipment of material. If the point B is selected, the cost of forwarding the finished product will be the same, but there will be an expense



CONSTRUCTION OF AN ISODAPANE

of 4 incurred in the course of assembling material at B . The total transportation expense will be 12. If the point D is chosen, the cost of forwarding the finished product will be 6 and the cost of assembling raw material also 6, or again a total of 12. The same total will result if manufacture occurs at A , B , C , E , or F . A line drawn through these various points—an isodapane—will connect points of like shipping costs, in all cases in excess of the minimum possible by the amount of 4.

So long as transportation conditions alone determine the location of manufacturing activity isodapanes supply no useful information. But if labor costs are different in different locations the entrepreneur may sometimes find it advisable to abandon the spot which is most suitable from the point of view of

transport in favor of a site where labor is less expensive. Whether he will do so will depend upon the amount which he will lose by such action and upon the amount which he will gain. If the labor advantage at a given site is to be measured by the figure 4 he will profit by a shift if the new point lies within the area bounded by the isodapane which indicates a transportation disadvantage of 4. If it lies without this area he will lose. The isodapane of 4 in this case will be called the "critical isodapane." Weber's use of isodapanes adds nothing to our knowledge of the effect of labor upon industrial location. The material assembled in the course of the discussion of "factor lists" is much more informative in this regard. But it provides a technique for the systematic introduction of a new variable into a theoretic scheme which the extreme complexity of the data considered seems to demand.

Agglomeration.—The same technique is, finally, applied in the treatment of the factor "agglomeration." Weber's concept of agglomeration covers two and possibly three distinct situations. There is, first, the case of simple enlargement of plant, bringing into existence the advantages of large-scale production. There is, second, the local association of several plants, presumably in the same industry, which encourages the development of technical equipment and facilitates the sale of the finished product. And there is, third, the case in which the mere aggregation of manufacturing activities, of unrelated as well as of related types, leads to conditions which are on the whole more favorable than any single plant or group of related plants could develop for itself.

Points for agglomeration differ from locations where sources of raw material or supplies of capable labor are to be found in that they depend for their existence upon the decision of the undertakings which agree to create them. A competent prior survey will reveal deposits of coal and iron. Proper inquiry will bring to light efficient groups of laborers. Weber assumes, it will be remembered, that labor is geographically fixed. But an agglomeration point is merely a place to which a number of persons engaged in industry decide to resort. Without the decision, it does not exist; after the decision, it is there. Looked at from another point of view, a point for agglomeration is not one to which it is to the advantage of any single producer to transfer his plant. While it may be to the advantage of two producers to come together, neither will gain unless the other also acts. It is in spite of these peculiarities that the location of industry is influenced by advantages arising out of the association of manufacturing enterprises.

Weber takes four steps in absorbing the factor "agglomeration" into his conceptual scheme. In the first place he puts aside, for the moment, variations resulting from geographical differences in the supply of labor. We start again from locations determined by transportation conditions alone. Secondly, he assumes a gain which is to result from agglomeration. This gain may be progressive, increasing with the extent of agglomeration, or it may be fixed, emerg-

ing when a definite amount of concentration has been attained. In our explanation of Weber's theory we shall restrict ourselves to the latter, more simple case. A third assumption is that an enterprise which shifts from the best available location, from the point of view of transportation, incurs a loss which has to be balanced by gains from agglomeration. And lastly, there is recognition of the fact that there can be no gain from concentration unless the opportunity for association is presented to several enterprises at once.

The accompanying diagram shows how these suppositions are applied.

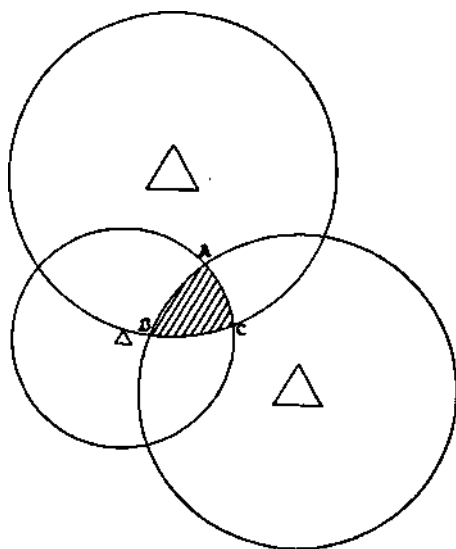


DIAGRAM ILLUSTRATING "AGGLOMERATION"

Let us suppose three locational triangles within each of which there is a manufacturing point. We are already familiar with the method by which such points are selected. Around the optimum points in each triangle let us draw isodapanes. Let us imagine a fixed gain from agglomeration measured by the figure 5, and let the isodapanes upon the chart, on the other hand, connect the points where manufacture is more costly than at the optimum, in terms of transportation expense, by the amount of 5. On these assumptions it will be profitable to move an enterprise, in order to obtain the advantages connected with agglomeration, from any optimum location within a triangle to any other location within the area bounded by the encircling critical isodapane. Actually to induce movement there must be an area which is within the critical isodapanes encircling two or more producing points, for the advantages of agglomeration appear only when two or more points are involved. Such an area is the shaded figure ABC. Industries will locate within this space, rather

than at points within the various locational triangles, if their directors are alert to seek the most favorable positions for their enterprises.

Out of his abstract discussion Weber draws a number of conclusions, also abstract. These include the following:

- i. The orientation of industry is independent of the general level of transport costs. This conclusion properly emphasizes the relative character of problems of location. Critics have pointed out, however, that changes in the general level of transport costs may cause new sources of material to be employed and old ones to be abandoned; these changes may also affect location by altering the relative effect of labor and transport and of transport and agglomeration.

2. Pure materials can never bind production to the place where the pure materials are produced.

3. Weight-losing materials draw production toward the sources of production of the material. Production will be located at any source if the weight of a given material is equal to or greater than the sum of other materials plus the weight of the product.

4. Industries with a high material index are drawn toward the source of supply of raw material; those with low material index are drawn toward the place of consumption.

5. The location of the place of production within the locational figures depends upon the relation of the weight components to each other. It will be near a given corner if the weight component of that corner is relatively high.

6. Differences in labor costs exert more influence upon location when locational weights are small.

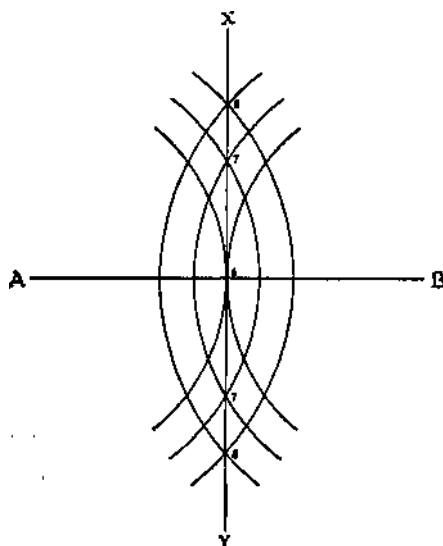
Most of these conclusions have been challenged, and it would seem likely that the announced rules have not the universality which their author imagined them to possess. Nor do they, of course, explain cases of "irrational" location, or cases in which the underlying conditions, such as transport costs, are shaped so as to produce a predetermined result. We have considered instances of this kind in our discussion of traffic movements in the United States. The Weberian analysis nevertheless constitutes an important addition to the literature on location, and one which has produced highly stimulating results.

Law of Market Areas.—We are now in a position to notice the last development of the theory of location which an elementary treatment of the subject may, perhaps, find it desirable to examine. For this purpose let us once again return to the Thunen plain, but let us now enlarge our concept of a market to include, not a single assumed point, but an area. Let us, moreover, assume that the points of production which are to serve this area are determined, and let us inquire, not why the production points are located where they are found to exist, but how the market area is to be divided among the producers serving it. There are many situations in which the answer to this question is more immediately important than a theory which explains **the** dis-

tribution of producing points themselves. This would always be true if points of production were irrationally selected and not susceptible to change. Thunen and Weber correctly believed that the distribution of production was in the main rational and that it could be changed; but at least in the short run it is as logical to assume that production is fixed and that the market to be served by any product is the thing to be delimited, as it is to proceed upon the basis that the market is fixed and that the location of producing points is the fact to be ascertained.

, Now the simplest form of the market area problem is the one in which two producing points only are concerned. Let us assume two such places and consider the division of the area between them.

Case I. Assumption of Equal Manufacturing Cost.—In the accompanying diagram the two manufacturing points in the illustration are indicated by the

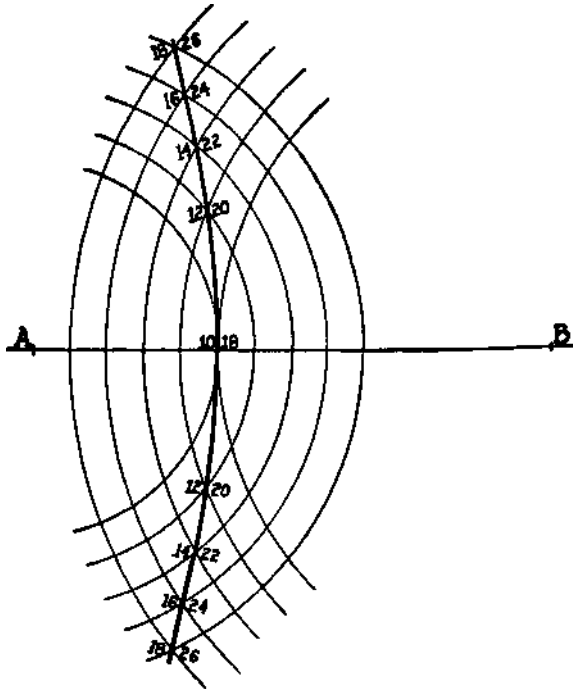


LAW OF MARKET AREAS—CASE I

letters A and B. We may suppose that the cost of producing a unit of product at A is the same as that of producing it at B. Transportation rates, based upon weight and distance, are the same per ton and per mile from each point of origin, in whatever direction the goods may move. Each arc in the diagram indicates a given distance from the point about which it is described. The intersection of any two arcs of the same order—the seventh arc, for example, of those encircling A and the seventh arc of those encircling B—fixes the location of a point equally distant from A and from B. On our assumptions all such intersections will occur upon the line XY. The general conclusion which we reach is, therefore, that under the specified conditions the boundary between the area in which A has a selling advantage and that in which B has an ad-

vantage is a straight line at right angles with the shortest line connecting the two markets.³⁰

Case II. Assumption of Unequal Manufacturing Cost.—Let us now alter the hypothesis by supposing that costs of production at A are higher than those at B. If costs at A are X and those at B are $X-8$ the line of equal total costs will pass through points that are nearer to A than to B so that the disadvantage



LAW OF MARKET AREAS—CASE II

in manufacture under which A labors may be offset by a saving in transportation expense; It remains, then, to find the locus of all points which are 8 units nearer A than B. This also may be illustrated in a diagram.

In the diagram A and B are assumed to be separated by 28 units of distance or of transportation expense. A has, then, a transportation advantage of 28 in all markets located upon an extension of the straight line which leads from B through A to points beyond A. These markets will therefore be assured to A because the transport differential of 28 exceeds the production disadvantage of 8 under which A labors. But A can compete in other markets also, and will do so wherever its transport advantage is at least 8. The points where its advantage is exactly 8 are those connected by the curved lines in

³⁰ F. A. Fetter, "The Economic Law of Market Areas," *Quarterly Journal of Economics*, May, 1924.

the diagram. Here the transportation advantage enjoyed by *A* just offsets the production advantage which *B* possesses, and so at these points *A* and *B* meet on equal terms. It is to be especially observed that in this case, where production costs or base prices at *A* are higher than at *B*, the boundary between the territories respectively tributary to *A* and *B* is not a straight line, but a curve bent around the center with the higher production cost.

Unlike the conclusions associated with factor lists, the law of market areas may be stated in highly abstract terms and is susceptible of considerable theoretical elaboration. It may be assumed, for instance, that rates and costs of transport are not proportional to distance. We have seen in earlier chapters that commodity rates are frequently to be so described. If costs of production at *A* are the same as those at *B* and if the rates from *A* for any given distance are the same as the rates from *B* for the same distance, then the boundary between the territory tributary to *A* and that tributary to *B* will be a straight line. If, however, the transport rates from *A* are higher than those from *B* for equal distances, the boundary will be a curve bending around *A* as in the case where production costs are different; and this result will occur whether transport costs out of *A* and *B* are proportional to distance or whether they increase less rapidly than distance in each or either case. It may also be assumed that more than two producing points are involved; and this assumption, while not changing the principles upon which the analysis proceeds, will considerably complicate the required calculations. Finally, we may assume that costs of production are not proportional to the amounts produced, and that increased output is possible at lower unit prices because of the presence of unused capacity and the operation of the law of increasing returns. Such an assumption is objectionable because it disturbs the neatness of our boundary lines, but it cannot be avoided in discussing the law of market areas any more than in the consideration of other theoretical questions which involve cost and price. If increased output means lower costs a manufacturer may prefer to cut mill prices or to absorb freight rates in order to make a sale rather than to accept the boundaries which the simpler forms of the market area theory would prescribe. When and how and to what extent he will be likely to take such action is a theoretical question associated with the law of market area which this theory may in time attempt to resolve.

Conclusion.—We leave the theory of location at this point, incomplete as the treatment is bound to appear, with three general and concluding remarks. The truth of the first is, doubtless, evident: namely, that theories of location are the subject of a considerable literature that discusses and elaborates upon propositions which have been briefly treated in the text. This literature is well worth consulting, although its conclusions are still controversial. The second is that the locational analysis is one which, with the help of mathematics, can be extended to great length. And we may add as a third observa-

tion that it is by no means impossible that the types of inquiry with which Thunen, Weber, Fetter, and others have been concerned may ultimately be helpful in interpreting and directing economic activity, in spite of the instability of freight rate structures in the United States, and in spite of differences of opinion with respect to ultimate objectives by which we are at present perplexed. Something is being done with "location" in the field of marketing by writers at the present time. And the systematic study of locational relationships is peculiarly, also, an activity in which the serious student of transportation can be encouraged to indulge.

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PART VII

RELATIONS OF CARRIERS WITH EACH OTHER



CHAPTER XXII

COOPERATION BETWEEN RAILROAD COMPANIES



Problems of Administration.—There are two characteristics of a transportation system such as that in the United States which impress even the casual observer. One is that this system is geographically diffuse; the other is that it is administered by a large number of separate companies without centralized control or direction except that supplied by government authority under the provisions of regulative law. If, as is the case with street railway companies, the unit of the system had only local functions to perform, the decentralization of executive authority might seem natural; but since waterways, railroads, pipe lines, and, to a less degree, automobile carriers engage in interstate and foreign traffic and necessarily have relations with one another, it would be unfortunate if somehow or other these agencies did not manage to cooperate in national service.

Internal Organization.—The fact that transportation companies operate in space and under conditions which make detailed supervision of personnel difficult has caused them to pay more than usual attention to questions of internal organization. This is, at least, true of railroads, which have had the most experience and the longest history among the operative units in the transportation field. While railroads have not engaged in time studies or applied the so-called principles of scientific management as fully as industrial plants, they have worked out in detail alternative relationships of authority between their various officers and they have experimented in the field of employee organization, particularly in recent years. We shall discuss neither railroad internal organization nor the relations of transportation companies to their employees in this chapter, but the reader is reminded that common carriers have something to contribute in the field of industrial relations.

Relations of Different Types of Carriers with One Another.—When it comes to external organization, the public faces two kinds of problems. One kind concerns the relations between two or more types of carriers, as railroads and inland waterways, or railroads and motor bus lines. The other has to do with relations between two carriers of the same type, as between two railroads or two automobile companies.

Generally speaking, the relationships of pipe line, waterway, bus, truck, and railroad in most parts of the world have been competitive, not cooperative. Students of the history of American railroads will recall that it was the construction of pipe lines which led to the railroad rate discrimination applied to oil traffic of the seventies; and the competitive relations of motor and steam railroad companies are matters of common knowledge. As for inland waterways, it can be said that the trend of public discussion at the time railroads were first built in Europe was to differentiate traffic and to assign to the waterway the carriage of low-grade commodities moving long distances, while railroads were expected to provide for passengers and for the carriage of valuable freight at relatively high rates of speed. But this hypothetical division broke down as rail carriers developed their facilities for mass transportation; and railroad companies and inland navigation companies have for many years competed for the carriage of the bulky commodities of commerce by direct rate-cutting, by purchases of control, and by endeavors to secure governmental financial support.

Danger in Restricting Competition Between Different Types of Service.—

The danger in enforcing cooperation between different types of carriers lies in the fact that restriction of competition may prevent the occupation of the field by the technically competent, as against the technically incompetent, device. This is particularly true at times when new facilities are being developed in competition with the old, or when two or more forms of new facilities present themselves to the public at one time, as did the steam railroad and the steam-driven road vehicle, which competed in England about 1830 upon not altogether even terms. The public interest in such cases demands that each type shall find its level unaffected by sentiment. There are no sound arguments to support a multiplication of transport facilities for the sake of variety alone, and, in the long run, there is no admissible public policy save one of equal treatment to all forms of transportation and refusal to support those kinds of enterprise which cannot stand upon their own feet.

Advantages of Cooperation.—On the other hand, competition between types of carriers must be competition in service to the public, if it is to determine survival, not a struggle based upon financial resource or destructive ability. The public can afford to support a transport undertaking when it is new and comparatively unknown, or when its weakness is inherent in a smallness that is both inevitable and temporary, even if for a time there is some loss involved. But at all times the public may properly insist upon the cooperation of different kinds of carriers in the rendering of services which none is able to render alone, apart from any question of survival or of the selfish interests of the parties concerned. This is the basis of the demand, for instance, that railroad companies quote through rates with firms which operate upon canals and improved rivers, and that facilities for the transfer of freight from one to the other be established when a combination of two carriers can handle traffic

more directly and cheaply than can either one alone. Like most questions of this sort, the problem of cooperation or competition between carriers of different types is easier to discuss in the abstract than to solve in special cases. The decision as to the character of transport to be preferred in any country involves to a certain extent the question of where production is to take place; and so southern and northern Germany, or central and eastern United States, find themselves divided, because one kind of transport will stimulate industrial development at one place, and another kind industrial development at another place, and each enlists its partisans with slight regard to the effect upon the country as a whole.

How far it is possible to coordinate the activities of different types of transportation facilities is a subject with which we shall deal at some length in later pages of this book. For the moment we shall limit ourselves to a simpler, though important, topic and consider the relations which have grown up among the units of the existing railroad system, principally in the United States—relations which contribute significantly to the smooth working of our principal agency for the carriage of freight, under conditions of multiple and decentralized control.

American Railroad Pools.—Early types of agreements between railroad companies included many and various arrangements looking toward the abatement of competition. The more important of these contracts were known as railroad pools. As used in railroad discussion, the term "pool" implies an agreement to divide business of a described kind, moving between specified termini, between parties who subscribe to the agreement, on terms which have been agreed upon. The methods of dividing the business vary. Sometimes two railroads agree each to confine its operations to a certain geographically defined territory. This automatically produces a division of the business from the territory. Sometimes the railroads agree that each will handle only a certain percentage of all the tonnage; and sometimes a similar percentage distribution is settled in advance, not of the tonnage itself, but of the revenue from that tonnage. The difference between these two last forms is unimportant.

Prohibition of Pools in the Act of 1887.—The railroad pool originally provoked public opposition because this sort of undertaking seemed likely to raise rates. Accordingly, the federal act of 1887, which first set up machinery for the national regulation of railroad companies, forbade pooling. The provisions of the act relating to pools were as follows:

Section 5: That it shall be unlawful for any common carrier subject to the provisions of this act to enter into any contract, agreement, or combination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement

for the pooling of freights as aforesaid, each day of its continuance shall be deemed a separate offense.

Sherman Act of 1890.—The act of 1887 made illegal the apportionment clauses of existing pools, but was not understood to prevent the continuance of associations for the maintenance of rates. In 1890, however, Congress passed additional legislation which, as interpreted by the courts, affected traffic agreements between railroads even when these agreements contained no clauses looking toward the apportionment of freight. The new law was known as the Sherman Anti-Trust Act. Sections 1 and 2 of the Sherman Act read as follows:

Section 1: Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal. Every person who shall make any such contract or engage in any such combination or conspiracy shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

Section 2: Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

It was not supposed, at the beginning, that the Sherman Act applied to railroads. True, the opinion had been expressed during the course of the debates leading to the enactment of the bill that transportation was covered by the terms of the proposed law. But, on the other hand, Congress had rejected amendments applying the act to transportation in express terms, and it was well known that the primary reason for the passage of the Sherman Law had been the desire to prevent industrial, not railroad, monopoly.

Trans-Missouri Freight Association Case.—In 1897, however, in the Trans-Missouri Freight Association case,¹ the United States Supreme Court applied the Sherman Act to railroads. The freight association which was here attacked was one of the new western organizations which had replaced, in 1889, the pooling arrangements common before 1887. It had a chairman, and a committee to consider changes in rates, rules, and regulations. Proposed changes were to be voted upon at monthly meetings of the association, and all parties were to be bound by the vote unless members proposing a modification which was disapproved should give written notice that in ten days thereafter they would make such modification notwithstanding the vote of the association. Violations of the agreement, including presumably the cutting

¹166 U. S. 290, 1897.

of rates, were to be reported to the managers, who were to impose **fines** not exceeding \$100.

Evidently this was a less rigid arrangement than the old pool, yet one which did exercise some restraint upon its members. The Supreme Court held that the agreement, though legal when made, became illegal on the passage of the act of 1890. The following year a similar conclusion was reached with regard to the Joint Traffic Association.²

These decisions showed that binding agreements to maintain rates were no less illegal under existing law than agreements for the apportionment of traffic. Once more the system of traffic arrangements between competing carriers had to be revised.

Clauses in the **Transportation Act of 1920 Relating to Railroad Pools.**—Section 407 of the Transportation Act amended the Interstate Commerce Act to read, with regard to pools, as follows:

That, except upon specific approval by order of the Commission [Interstate Commerce Commission] as in this section provided, and except as provided in paragraph (16) of section 1 of this Act, it shall be unlawful for any common carrier subject to this Act to enter into any contract, agreement, or combination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement for the pooling of freights as aforesaid each day of its continuance shall be deemed a separate offense: *Provided*, That whenever the Commission is of opinion, after hearing upon application of any carrier or carriers engaged in the transportation of passengers or property subject to this Act, or upon its own initiative, that the division of their traffic or earnings, to the extent indicated by the Commission, will be in the interest of better service to the public, or economy in operation, and will not unduly restrain competition, the Commission shall have authority by order to approve and authorize, if assented to by all the carriers involved, such division of traffic or earnings, under such rules and regulations, and for such consideration as between such carriers and upon such terms and conditions, as shall be found by the Commission to be just and reasonable in the premises.

As is sometimes the case in legislation, the exceptions in the act of 1920 with respect to pooling were more important than the mandatory provisions. In brief, the act gave to the carriers once more the right to apportion traffic, subject to the approval of the Interstate Commerce Commission and upon terms which the Commission should pronounce reasonable.

Paragraph 16 of Section 1, which seemed to create a still further exception, merely gave to the Commission authority to issue instructions with regard to the routing of traffic when a carrier might be for any reason unable to transport the traffic offered to it so as properly to serve the public. This routing and accompanying handling sometimes required a kind of division

² 171 U. s. 505, 1898.

of traffic between normally competing carriers, but it had little importance for the general pooling problem, and will not be again referred to.

Reasons for Change of Policy in 1920.—Evidently the policy of the act of 1920 regarding pools was contrary to that of the act of 1887. The reason for a change in the law was probably that during the thirty-three years since 1887 the level of railroad rates had been brought under government control. While competition was still important, Congress felt that it could trust the Interstate Commerce Commission to protect the public from obvious extortion.

Moreover, the emphasis in later discussions had come to be rather upon railroad cooperation than upon railroad competition. This was partly due to an appreciation of the importance of stability and equality in rates, but still more to the fact of a shortage in transportation facilities which made the need for effective use of railroads more pressing than the need for lower rates.

As a result of the act of 1920, pooling agreements are once more legal if they receive the prior approval of the Interstate Commerce Commission. Whether the authority of the Commission also extends to the legitimation of agreements for the maintenance of rates, apart from contracts for the apportionment of traffic, depends upon whether such arrangements may be properly termed "agreements for the pooling of freight." If they come within a fair definition of pools, as they probably do, they may be relieved from the prohibitions of the Anti-Trust Act as well as from those of the act of 1887, and probably also from the restraints of state legislation.

Pooling Arrangements under the Act of 1920.—The principal pooling contracts which the Interstate Commerce Commission has been asked to approve since 1920 may be grouped as follows:

1. Passenger pooling agreements. These include (a) a joint service and division-of-earnings agreement between the Northern Pacific, Great Northern, and Oregon-Washington Railroad and Navigation Companies covering passenger service between Seattle and Tacoma, Washington, and Portland, Oregon;³ (b) a similar agreement between the Chicago and North Western, the Chicago, St. Paul, Minneapolis, and Omaha, the Wisconsin Central and the Minneapolis, St. Paul and Sault Ste. Marie Railway Companies relating to passenger business between Duluth, Minnesota, Superior, Wisconsin, and Lake region points on the one hand, and Chicago, Illinois, and Milwaukee, Wisconsin, on the other;⁴ and (c) an arrangement between the Boston and Maine, Canadian Pacific, and Canadian National railways dividing net earnings from the operation of night passenger-train service between Montreal,

³ 96 I.C.C. 116, 1925; 128 I.C.C. 149, 1927; 167 I.C.C. 308, 1930; 169 I.C.C. 244, 1930; 194 I.C.C. 426, 1933; 218 I.C.C. 239, 1936.

⁴ 194 I.C.C. 430, 1933; 220 I.C.C. 659, 1937; 223 I.C.C. 343, 1937.

Canada, and Kennebec and Portland, Maine.⁵ These pools all contemplated readjustments of service which would utilize the facilities of the contracting carriers to better advantage without impairing accommodations available to the public. The Interstate Commerce Commission approved the applications without hesitation.

2. Freight pooling agreements. The most important proposals for freight pooling have involved shipments between iron mines in Minnesota, Wisconsin, and Michigan and Lake ports such as Duluth, Minnesota, Superior, Wisconsin, Escanaba, Michigan, and Ashland, Wisconsin. Outbound movements are mostly of iron ore; inbound movements include coal and other traffic. These pools, like the arrangements relating to passenger traffic, have provided for the joint or more efficient use of facilities possessed by the participating carriers and for the division of revenues upon agreed bases. The Interstate Commerce Commission has eventually approved all of the freight proposals which have been mentioned.⁶ In addition to the foregoing pools, mention may be made of the unified operation of railroad facilities at Los Angeles harbor,⁷ and of agreements setting up the Railway Express Agency,⁸ which were made possible by the enlarged powers of the Interstate Commerce Commission under the act of 1920.

As a matter of fact little use has been made of the liberalized clauses of Section 5 of the Interstate Commerce Act. Railroad conditions are now relatively stable, discriminations or departures from the published rates are subject to severe penalties, and organizations have been built up within the law sufficient to provide the indispensable minimum of business cooperation between railroad companies without recourse to pooling. Not much more is to be expected from the initiative of the railroads. Meanwhile, however, some sentiment has developed in government circles which favors pooling for reasons unconnected with economy in operation or the control of competition. This sentiment is the result of study of quite a different set of problems. It has matured as a consequence of repeated railroad applications for general, horizontal increases in freight rates. Such increases cannot always be denied, but it is evident that they always enable particular companies, when they are granted, to secure additional revenues which they may not greatly need. The question raised is whether some kind of pooling mechanism may not prevent this undesirable result. The Interstate Commerce Commission attempted an experiment in the field when, in 1931, it coupled its approval of an emergency advance in railroad charges with the requirement that the proceeds of the advance be placed in a pool from which participating carriers

⁵ 201 I.C.C. 699, 1934.

⁶ 154 I.C.C. 279, 1929; 187 I.C.C. 800, 1932; 201 I.C.C. 13, 1934; 210 I.C.C. 599, 1935; 219 I.C.C. 285, 1936. See also *Escanaba and Lake Superior Railroad Company v. United States*, 303 U. S. 315, 1938.

⁷ 199 I.C.C. 427, 1934.

⁸ 150 I.C.C. 423, 1929; 227 I.C.C. 517, 1938.

were to draw in proportion to their inability to meet their interest charges.⁹ The requirement of a pool in this case was later withdrawn on the ground that the Commission had no authority to compel carriers to pool their earnings,¹⁰ but in the general commodity rate increases case in 1937 the Commission declared that the use of pooling arrangements in such cases must be given further attention.¹¹

Traffic Associations.—After the prohibition of pools in the Interstate Commerce Act of 1887 and the Supreme Court decision in the Trans-Missouri Freight Association case under the Anti-Trust Act of 1890, rail carriers relied upon so-called "traffic associations" to implement whatever degree of common action with respect to rates and tariffs was then permitted by law. Such associations are still numerous and active. A list of associations and a brief description of their work has been already presented in Chapter XVII.

Operating Agreements Between Transportation Companies.—Operating arrangements between transportation companies are easier to enforce than agreements regarding price or the division of business because there is less difference in interest between the parties, and also because they are less likely to arouse public opposition. On the continent of Europe, a number of governments had reached a general agreement upon such matters before the current war. No government action has been needed in the United States. Cooperation in this country has been accomplished by private initiative, but it has been none the less widespread and important.

The most striking instances of operating cooperation in the United States are in the field of accounting, in the establishment of through rates and routes, in the common use of cars, and in the development of standard practice through the activity of committees of the Association of American Railroads (formerly the American Railway Association) and of the International Railway Association. There is nothing comparable to these achievements in the activity of other transportation agencies. Taken in connection with the extension of the liability of the initial carrier to the shipper for loss or damage occurring anywhere en route, they have done much to transform the variously owned railway properties of the country into a single operating system. This is a decidedly fortunate outcome, for the reason that traffic in this country constantly tends to pass beyond the lines of the transportation system upon which it originates, and cooperation between carriers both improves service and relieves the shipper of expensive responsibility for the distant handling of his goods.

Let us examine some of the forms of operating cooperation which contribute to the functioning of American railroads as a single transportation system.

⁹ 178 I.C.C. 539, 579, 1931.

¹⁰ 179 I.C.C. 215, 1931.

¹¹ 223 I.C.C. 657, 745, 1937. See also 226 I.C.C. 41, 134, 1938.

Through Billing.—One simple method by which railroads cooperate in interline hauls is by the use of through or interline waybills. A waybill, in American practice, is a document representing the freight and traveling with it. The form below is in common use.

CODE NO;- NORTH & SOUTH R. R. CO. CODE NO.
LESS THAN CAR LOAD FREIGHT WAYBILL

Car Initials and Number	Loading Number	I Date	Waybill No.
To	Station	State	I From No. (
ROUTE (Show each Junction and Carrier in Route Order to Destination of Waybill)		Show "A" if Agent's Routine Or "S" if Shipper's Routing	(5th) Transfer
(1st) Transfer	(2nd) Transfer	(3rd) Transfer	(4th) Transfer

Indicate by symbol in Tested Weights.	column provided * how weights were obtained.	R—Railroad Scale.	S—Shipper's Scale.			
E—Estimated-Weight	Correct.	T—Tariff Classification	Minimum			
FULL NAME OF SHIPPER, and for C O D Shipments, the Street Address, Origin and Date, Original or Transfer Freight Bill and Previous Waybill Reference and Routing When Rebilled.	CONSIGNEE, ADDRESS, Final Destination, Additional Routing, Description of Articles, Marks	Weight	Rate	Freight	Advances	Prepaid

Outbound Junction Agent Will Show Junction Stamps in Space and Order Provided				Destination Agent Will
First Junction	Second Junction	Third Junction	Fourth Junction	Stamp Herein Station Name and Date Reported.

Additional Junction Stamps and all Yard Stamps to be Placed on Back of Waybill,
coDe NO. - NORTH & SOUTH R. R. CO.-CODE NO.

FREIGHT WAYBILL

Examination of this waybill will show that it contains spaces for the insertion of the names of shipper and consignee, description of goods, weight, rate (per 100 pounds), freight charges (weight multiplied by rate), advances, and amount prepaid. The meaning of these terms is obvious except, perhaps, that of the term "advances," which refers to expenses incurred by the billing carrier in connection with shipments, that are to be collected, in addition to freight charges, from the consignee. The waybill also has place for routing instructions, for the identification of the car in which the shipment moves, for the name of the station where the bill is made out, and for a billing date and number. It is an operating paper, which accompanies freight from the

beginning of its journey to the end. The waybill serves the freight train conductor as a memorandum of freight which is on his train; it informs the station agent of the charges which must be collected from the consignee; and it supplies the general auditor with a record and a basis for records which enable him to check the accounts of station agents, to divide revenues among all companies that are interested, and to prepare statistical reports descriptive of the business done.

Advantages of Through Billing.—Before the practice of through billing was introduced, a carrier customarily "billed" only to a junction point with a connecting road. That is to say, the point of destination indicated on the waybill was the end of the first carrier's line. At the junction point, the connecting carrier made out a new waybill, showing the junction point as place of origin and the place to which the freight was going as the destination; unless, indeed, more than two carriers were involved, when the arrangements became still more complicated.

Local billing of this type was and is expensive. It requires a multiplication of clerical work. Moreover, it increases the chances of mistake. Still again, the tendency of local billing is to break up a through shipment into a series of local hauls. It is evidence that a carrier seeks to limit its responsibility for loss or damage to accidents occurring upon its own line, and refuses to employ connecting carriers for delivery at a point beyond its own terminus, thus endeavoring to place the shipper in direct contractual relation with each carrier over whose lines his goods may pass.

It needs no argument to prove the convenience, in an interline transaction, of using a single waybill from point of origin to final destination on whatever railroad line that destination may be. Although through billing cannot be said to be universal, in the majority of cases railroads recognize the advantage of acting as a unit in the matter of billing, and operate in this respect with little attention to the dividing lines created by the diversity of ownership of separate railroad systems.

Through Rates and Through Routes.—Another species of cooperation in interline shipments is in through rate-making. Instead of quoting rates only to the terminus of their own lines, and leaving it to the shipper to obtain an official statement from the connecting carrier of the rate which will apply "beyond," carriers agree upon, and file with the Interstate Commerce Commission, rates which apply from a station on one road to stations on other roads. These rates are usually and properly less than the sum of the local rates; we are interested at the moment, however, less in their absolute amount than in the fact that they represent cooperative action by two or more railroads with respect to traffic which passes over more than one line on its way to destination. Inasmuch as through rates result from agreement between particular carriers, the route to be followed by traffic seeking the advantage of the through rates is specified at the time the rates are estab-

lished. We have, therefore, through routes as well as through rates. Naturally, on through routes, schedules and facilities receive joint attention as well as rates.

Division of Revenue on Interline Business.—Still another form of co-operation between connecting carriers has to do with accounting in interline business. The efficiency of the methods employed by American railroads in making quick and accurate division of the revenues derived from through business, and the extent to which these methods require cooperative action between interested carriers, are seldom appreciated by the general public.

The initiative in interline accounting is usually taken by the destination railroad, because the original waybill, upon which the accounting depends, is in the hands of the agent of the destination railroad at the time when the act of transportation is completed.

Abstracts of Interline Waybills.—The process of interline settlement begins with the forwarding of waybills by an agent to the auditor of his railroad.

CODE NO. NORTH AND SOUTH RAILROAD

NO_____

ABSTRACT OF INTERLINE WAYBILLS RECEIVED

[illegible]

CODE NO. NORTH AND SOUTH RAILROAD

NOTE—**Number** of lines for Roads and Routes, Station From or To and Commodity **may be increased or decreased** and space for particulars of waybills correspondingly decreased or increased as considered **advisable**.

ABSTRACT OF INTERLINE WAYBILLS RECEIVED

Correction Account.—For purposes of monthly settlements between carriers, the division statement rendered by the receiving road is accepted as accurate.

CORRECTION ACCOUNT

It should be added, to make the description of the process of interline settlements complete, that when a railroad has a balance to pay to another rail-

road on received business and a balance to receive on forwarded business, or vice versa, only the difference between the two amounts is remitted or collected. This fact, as well as the circumstance that every carrier is a receiver as well as a forwarder of freight, and so initiates part of the settlements in which it is interested, has done much to convince American railroads of the fairness and economy of the interline accounting methods which they pursue.¹²

Railway Clearing Houses.—Before the introduction of the plan of audit office settlement between railroads on a "received" basis, most railroads followed what was known as the "junction settlement" plan—a system which called for an accounting at each junction point between railroads at the time when freight passed from one to the other. This was an altogether clumsier and less effective method than the one now in force. In many places in Europe still another manner of settlement is in force, more or less following the analogy of the clearing house universal in banking practice. This last-named system has received the attention of railways in the United States and formed the subject of a memorandum released by the Federal Coordinator of Transportation in March, 1934.¹³

A railway clearing house would replace the system of interline accounting which we have described to a greater or less degree according (1) as the clearing house undertook to calculate the divisions due each member railroad on interline business, or (2) as it served merely as a facility for the clearing of claims separately and independently ascertained by the carriers party to the plan. Examples can be found of both types of organization. Perhaps the most successful Railway Clearinghouse in the world, that of Great Britain, is of the former sort. The British clearing house receives monthly reports from station agents of all traffic interchanged between British railway lines. It audits these accounts to determine their correctness,

¹² It is not to be understood from the explanation in the text that railroad interline accounting methods are beyond criticism. Proposals for the erection of a clearing house will be presently discussed. Even accountants who oppose clearing houses are anxious to consider improvement in the present system. An obvious existing difficulty is caused by the complexity of railroad agreements for the division of revenue derived from interline transactions. This complexity causes loss of time in computation, errors, and disputes. (See *Report, Joint Committee of Traffic and Accounting Officers in the 50th report of the Railway Accounting Officers' Association, 1934, p. 78.*) Another defect is in the detailed treatment accorded small shipments. A committee of the Association of Railway Accounting Officers has recommended, and American railroads are likely presently to approve, the setting up of what it calls "road-to-road percentages and the division of all revenues accruing on l.c.l. interline shipments by the use of these percentages without attention to the actual points of origin and destination of the freight upon the lines of the forwarding and receiving carriers." (51st report of the Railway Accounting Officers' Association, 1936, p. 131.) The question of the proper arrangement of accounting forms, the possibility of using additional mechanical aids, and, in general, the efficiency of accounting and auditing methods now employed are subjects continuously debated by appropriate railway departments.

¹³ United States, Federal Coordinator of Transportation, *Memorandum on the Application of the Clearinghouse Principle to the Business of the American Railways*, March, 1934.

calculates divisions, and collects from or pays to individual lines the sums which each should pay out or receive.¹⁴

In contrast to the British organization, the American Railway Clearinghouse, set up in 1907 to handle per-diem accounts, was a system of the second kind. This clearing house received statements from member railroads showing amounts for which these railroads acknowledged liability to each company whose cars had operated upon a reporting railroad's line. These statements enabled the clearing house to set up for each member an account showing the gross sums which that railroad was obligated to pay or to receive to or from all carriers party to the plan. Carriers with a debit balance paid the appropriate amount to the clearing house; carriers with a credit balance received a payment from the clearing house. One single payment in each case was substituted for the multiplicity of drafts required before the clearing house mechanism was in use. The American Railway Clearinghouse was discontinued in 1912.¹⁵

Mr. Eastman believes that there are large possibilities of economy and efficiency in the adaptation of the clearing house plan to the railroads, and there is reason to think that some saving in the accounting cost of handling interline transactions could be secured even if the proposed organization were limited to clearing balances between carriers. To make the economy really significant, however, it would be necessary to intrust the calculation of balances also to the central accounting agency, as in England; and carriers will be slow to do this, or, if they consent, they will insist upon such checking as will offset any saving that centralization may produce. Further reduction in the cost of interline accounting is more likely to occur through the simplification of the bases for the division of rates between carriers and from a shrinkage in the volume of interline business as a result of railroad consolidation than from a general adoption of the clearing house device.¹⁶ Whether

¹⁴ Whatever is declared due by the British clearing house is, by statute, legally due and must be paid. The text reference to the work of the British clearing system is phrased with the accounting for freight traffic in mind. This clearing house also attends to the calculation and clearing of passenger balances, parcel, parcel post, car mileage and demurrage obligations. The details of handling these accounts vary, and short cuts in calculation are permitted in some instances, but the clearing house in all cases decides what is due and provides a machinery for payment. In calculating divisions, of course, the British clearing house works with percentages previously agreed upon by the carriers—its activity is administrative rather than legislative in character.

¹⁵ Mr. Castle, member of the Coordinator's staff in 1934 and associated with Arthur Hale in the management of the American Railway Clearinghouse, attributed the ultimate failure of this institution to the reluctance of some debtor roads to commit themselves to definite dates for the settlement of per-diem accounts and to the fact that some accounting and financial officers resented the introduction of innovations in their particular field by an outside organization. There have been other experiments in clearing house practice by railroads in the United States, but all of them have been temporary or highly restricted in scope.

¹⁶ The report of a joint committee appointed by the Advisory Committee of the Association of Railway Executives on the subject of simplification of the division of railway interline rates was printed in the *Railway Age* for June 16, 1934, pp. 869-870. Director Wylie of the Bureau of Accounts of the Interstate Commerce Commission characterized this report as "one of the most progressive steps taken in railway accounting since the **Hepburn amendment**"

by clearing house operation, however, or by the efficient system at present in use, interline accounting provides an example of the cooperation of carriers in transportation within the United States.

Free Interchange of Cars Between American Railroads.—There is still another form of operating cooperation between railroads which is even more important than through billing or through rate-making or well-devised methods of interline revenue settlement. This consists of the free circulation of freight cars, with little or no regard for ownership.

It is very important that freight cars move readily from one railroad system to another because if they did not the expense and delay incident to a shipment from a point on the line of one carrier to a point on the line of another carrier would become intolerable. All freight would necessarily be transferred from car to car at every junction. There would be labor costs to pay, there would be loss and damage as a result of handling, and consignments would have to wait whenever the supply of cars to receive them at a junction happened to be too small to accommodate the volume of goods accumulated there for transportation. At the same time the efficiency in utilization of rolling stock would be less than it is now, as there would be many instances in which empty cars would stand idle at junction points while waiting for a load.

If we except narrow-gauge equipment, all freight cars in the United States are built to conform to general specifications which make it certain that any car can be used upon any railroad in the country, in conjunction with any other freight car or locomotive. The same is true, one may add, of passenger cars and of locomotives, passenger or freight. On this physical basis, two sorts of operating arrangements have grown up.

Private Cars.—The first has to do with what is known as the privately owned car. We have already described, in Chapter XI, the introduction of the private refrigerator car for the carriage of fresh meat and fruit. In December, 1938, there were 285,069 freight cars in the United States owned by private interests, which was in the neighborhood of 14 per cent of all freight car equipment then in use. These private cars included not only refrigerator equipment but also other special types such as tank, stock, and coal cars.¹⁷

¹⁷ On or about December 31, 1938, according to the Interstate Commerce Commission, (*Statistics of Railways in the United States*, 1938), the number of freight-carrying cars operated but not directly owned or leased by steam railways in the United States was as follows:

Class of Car	Number
Box cars	1,655
Flat cars	272
Stock and poultry cars	7,604
Gondola and hopper cars	11,701
Tank cars	139,573
Refrigerator cars	123,955
Other freight train cars	309
Total	185,069

The origin and development of the use of private cars is succinctly described by the Interstate Commerce Commission as follows:

In the development of freight traffic in the different sections of the country it became evident that many commodities might be transported to much greater advantage in certain kinds of cars especially adapted to the character and peculiar qualities of the particular articles, than in the ordinary cars furnished by carriers. The latter were slow to respond to the demand for improved cars of special pattern, and frequently failed to provide them. Hence, by agreement between shipper and carrier, the former undertook to provide his own cars for the transportation of his particular articles. In analogy to the custom that prevailed between connecting carriers in respect to the use of each other's cars, the railway company became the hirer of the shipper's cars, paying for their use on the basis of a certain amount per mile on the loaded, or loaded and empty, movements. Initiated in a small way with respect to a few articles, the development has been in the direction of rapidly expanding use of private cars. It became necessary that some industries should have a constant and adequate supply of cars in order to conduct business on a large and economical basis. Articles of a perishable nature required prompt movement; some of such articles moved during short periods of each year; and there were demands for cars of special type from many different sections of the country which the carriers could not, or did not, supply. It has also come about that private cars now in use are not owned by shippers alone. They are owned in large numbers by separate corporations, who make their arrangements for the use of the cars with shippers, and procure from the railroads the payment of mileage. Many of these companies lease cars to railroad companies, receiving only the mileage allowance for their use; others lease their cars to carriers for an agreed monthly rental, the latter to keep the cars in repair; still others lease to shippers at an agreed rental per month, and credit the mileage earnings to the latter. Many of these concerns are car builders, who supply cars of special design to shippers on order. They have facilities for repairing their cars located at convenient points in different parts of the country.¹⁸

Inasmuch as private cars are not owned by railroad companies, there is no reason why any railroad should wish to prevent the passage of such cars from its own to the lines of a connecting carrier. Private cars, therefore, move with complete freedom over the railroads of the country without regard to system boundaries. Indeed, because of the excellent organization of some of the large car-owning corporations and the close supervision which the operation of private cars receives, these cars probably move more rapidly and on the average with lighter loads than the equipment owned by the railroads themselves.

Cars Owned by Railroad Companies.—In addition to their arrangements concerning private cars, railroads have adopted what they call car-service and per-diem rules relating to the interline use of cars in railroad ownership, as well as rules relating to repair of such equipment while on foreign lines.

¹⁸ In the Matter of Private Cars, 50 I.C.C. 652, 657, 1918.

Railroad-owned cars are sent off their owners' tracks, when the lading justifies such handling, almost as freely as privately owned cars. As a matter of fact, cars from California may be found any day in New England, and cars owned in New York may travel to Texas and back before they again reach the railroad to which they belong. A yard clerk in a busy eastern terminal is likely to see, in the course of a month's experience, specimens of the freight equipment of every large railroad in the United States.

Distribution of Cars Between Carriers.—The following table shows the average number of home cars and foreign cars upon the lines of forty-eight large steam railroads (railroads with an annual operating revenue above \$25,000,000) for the month of November, 1939, classified by regions:

OPERATING STATISTICS OF LARGE STEAM RAILROADS, NOVEMBER, 1939¹

District	Home	Foreign	Total
New England region	11,731	25,160	36,891
Great Lakes region	157,50	154,739	311,889
Central eastern region	160,636	144,928	405,564
Pocahontas region	81,066	18,916	99,981
Southern region	121,136	67,860	179,996
Northwestern region	153,950	74,336	118,186
Central western region	192,951	96,188	189,139
Southwestern region	48,307	47,218	95,525
Total	1,017,927	629,345	1,647,171

The proportion of railroad cars located upon the line of the road which owns them varies considerably from time to time. During the period of federal operation of American railroads (December 28, 1917, to March 1, 1920), the percentage fell very low. Indeed, on November 1, 1920, nine months after the relinquishment of federal control, only 31.3 per cent of railroad cars were "at home." Under restored private management the percentage rose rapidly, until by July 15, 1921, 74 per cent of the cars were to be found upon the line of the company which owned them. At the present writing 62 per cent of railroad cars are on the owning company's line.

Under conditions of perfect equilibrium, every carrier should have upon its line at all times the same number of cars as it owns, in spite of the fact that a substantial portion of its equipment can always be expected to be on the lines of other carriers. While some of its own cars will be away, this number will be balanced by the foreign cars on hand. Unfortunately this

¹⁹ Interstate Commerce Commission, Bureau of Statistics, Statement No. **M.** 200, *Operating Statistics for Roads with Annual Operating Revenues above \$25,000,000, Number of Freight Cars on Line.*

state of perfect equilibrium does not always exist, and constant effort **is required** to maintain a distribution of equipment which corresponds, even roughly, to the relative investment of different carriers in equipment for the transportation of freight.

Carriers properly insist upon three things in connection with the use of their cars. The first condition attached to the free interchange of equipment is that reasonable attention shall be paid to the repair of railroad cars while in foreign service. A second condition is that cars shall be returned to the home road as rapidly as is consistent with the economical handling of through freight and with the restriction of empty car mileage to a reasonable figure. The third condition is that a fair rental shall be paid to the road which owns equipment by each other carrier which uses that equipment. These three conditions are expressed respectively in what are known as the master car builders' rules, the car-service rules, and the per-diem rules.

Interchange Rules of the Master Car Builders' Association.—The code of rules governing repairs to freight cars interchanged between railroad companies is published by the Master Car Builders' Association. It defines the conditions under which railroads may refuse to receive cars from their connections, locates the responsibility for repairs as between owning and using companies, and contains a detailed list of prices at which different sorts of repairs may be charged.

In general, owners of cars are responsible for repairs made necessary by ordinary wear and tear. This includes, for instance, the repair of defects due to excessive wear of couplers and to worn flanges or treads of wheels. It also includes the repair, of air hose burst from air pressure, the replacement of missing or worn-out parts of brakes which have failed under fair treatment, and the cleaning of triple valves that have not been cleaned within the previous fifteen months.

The using road, on the other hand, is responsible for damages of any kind to body, truck, brake apparatus, etc., of the car due to unfair usage, derailment, or accident; for damaged sills, flat wheels caused by sliding; for material missing from trucks offered in interchange except journal-box lids and nuts; and for other repairs and replacements of this general class.

It is evidently desirable for carriers to agree upon the allocation and cost of repairs, as well as upon procedure for the settlement of disputes regarding repairs. This is, indeed, an essential part of a policy looking to the free interchange of equipment between connecting carriers.

Code of Per-diem Rules.—The code of per-diem rules is published by the Car Service Division of the American Railway Association. The rules are based on the principle that a road which uses a railroad freight car shall pay a rental to the owner of the car, and that this rental shall be a certain amount

per day (now \$1), not a certain amount per mile run, as is still the practice in the case of private cars and of passenger cars.²⁰

There is no objection today to the payment of a rental by a using to an owning road for the service which the latter's cars supply. The advantage of calculating the rental upon a time basis is that it lessens the temptation to use cars as warehouses. If required to pay upon a mileage basis only, a railroad might retain foreign cars indefinitely without cost so long as the cars stood motionless upon its tracks. This would be undesirable from the point of view of general railroad policy, although particular shippers might favor the practice in the hope of storing goods free in foreign equipment or at low demurrage rates. The great merit of the per-diem system is that it tends to keep cars moving. The criticism directed against the system is based on two charges: first, that the rate is inequitable, and second, that a rental based upon time induces using roads to return foreign cars empty instead of holding them for loads. We may consider the first objection at this point, and postpone discussion of the second until railroad car-service rules shall have been explained.

The Per-diem Rate.—There are three difficulties with the per-diem rate of one dollar per car per day. The first is that it has not changed since 1920, in spite of admitted changes in the conditions under which railroads operate. This defect could easily be remedied by a considered increase. The second difficulty, real or alleged, is that the rate does not compensate equally eastern and western carriers. In part, the controversy on this point concerns an old difference with respect to the level of per-diem charges between eastern railroads like those in New England, which regularly have more cars upon their lines than they own and so have always more money to pay in per-diem settlements than they have to receive, and western roads such as the grain carriers, which are regularly short of equipment. The former group wishes per-diem rates to be low; the latter desires them to be high.

²⁰ A tabulation of the per-diem rates in force as between American railroads from 1902 to the present day gives the following result (*Proceedings of the American Railway Association*; see also *In the Matter of Private Cars*, 50 I.C.C. 652, 665, 1918):

Date When the Rate Became Effective	Rate
1902	10 cents per car per day, regular 80 cents penalty
1906 (July 1)	25 cents per day, regular 75 cents penalty
1907 (July 1)	50 cents per car per day
1908 (March 1)	25 cents per car per day
1910 (March 1)	
March to July-	30 cents per car per day
August to February	35 cents per car per day
1913 (January 1)	45 cents per car per day
1917 (January 1)	75 cents per car per day
1917 (March 31)	60 cents per car per day
1920 (March 1)	90 cents per car per day
1920 (November 1)	100 cents per car per day

But in part, it turns about a more recent contention, namely, that western cars are more severely treated in the East than are eastern cars in the West. There is more switching and more "road-haul stress" in the East than in the West, car repair bills are greater and the net rental secured by western car owners from the uniform rate is said to be unreasonably low. The last, and probably the most fundamental objection to the present rate is that a daily payment is said to be inequitable because it measures neither the advantage to the using nor the cost to the owning road of a particular location of a car. Using roads, after all, obtain their principal revenue from foreign cars by hauling them under load and by collecting an appropriate transportation charge for the delivery of their contents. The measure of this is distance traveled, not time consumed. As for cost, owning roads support two types of cost in connection with their equipment. One kind of cost is fixed (investment), and can be charged out upon a time basis. But the other kind (repairs) is at least partially responsive to use. The office of the Federal Coordinator calculated, in 1936, that the fixed cost of an average freight car was then 31.4 cents per day, and that the cost of repairs was 1.52 cents per mile. A simple calculation with these factors shows that a per-diem rate of \$1.00 will cover owner costs only when the mileage of a car does not exceed 50 miles per day. With this or a lesser mileage the owner will make money; with a higher mileage he will lose.²¹ These objections, and especially the last, would seem to call for some revision of the system of car rental payments by which the payment for the use of foreign cars may be made to depend upon time and mileage instead of upon time alone.

Code of Car-service Rules.—In addition to the per-diem rules, railroads have agreed upon what is known as a code of car-service rules. These rules relate to the handling of cars and include the following provisions:

1. Home cars shall not be used for the movement of traffic beyond the limits of the home road when the use of other suitable cars under these rules is practicable.
2. Foreign cars at home on a direct connection must be forwarded to the home road loaded or empty.

If empty at junction with the home road and loading at that point via the home road is not available, they must, subject to Rule 6,²² be delivered to it at that junction, unless an exception to the requirement be agreed to by roads involved. When holding road has no physical connection with the home road and is obliged to use an intermediate road or roads to place the car on home rails under the provisions of this paragraph and the car has record rights to such intermediate road or roads, it may be so delivered.

²¹ United States, Office of the Federal Coordinator, Section of Car Pooling, *Study of Freight Car Ownership Costs as Related to Car Hire*, 1935.

²² Rule 6. If a movement of traffic requires return of empty cars to home road via the junction at which cars were delivered in interchange under load, the home road may demand return of empty cars at such junction, except that cars offered a home road for repairs, in accordance with Division V—Mechanical (M.C.B.) Rules, must be accepted by owners at any junction point.

If empty at other than junction points with the home road, cars under this rule may be—

(a) Loaded via any route so that the home road will participate in the freight rate, or

(b) Moved locally in the direction of the home road, or

(c) Moved locally in an opposite direction from the home road, or delivered to a short line or a switching road, if to be loaded for delivery on or movement via the home road, or

(d) Delivered empty to home road at any junction point, subject to Rule 6, or

(e) Delivered empty to road from which originally received under load at the junction where received if such road is also a direct connection of the home road, or

(f) Returned empty to the delivery road when handled in switching service.

3. Foreign cars at home on other than direct connections must be forwarded to the home road loaded or empty. Under this rule cars may be—

(a) Loaded via any route so that the home road will participate in the freight rate, or

(b) Loaded in the direction of the home road, or

(c) Moved locally in an opposite direction from the home road, or delivered to a short line or a switching road if to be loaded for delivery on or movement via the home road, or to a point in the direction of the home road beyond the road on which the cars are located, or

(d) Delivered empty to road from which originally received, at the junction where received, if impracticable to dispose of them under paragraphs (a), (b) or (c) of this rule.

4. Cars of railroad ownership must not be delivered to a steamship, ferry, or barge line for water transportation without permission of the owners, filed with the Car Service Division.

5. Empty cars of indirect ownership (Rule 3) to the road requesting the service may be short-routed at a reciprocal rate of five cents (5¢) per mile, plus bridge and terminal arbitraries, with a minimum of one hundred (100) miles for each road handling the car, the road requesting the services to pay the charges.²³

The code of car-service rules has only incidental and indirect connection with the payment for the use of cars. Its purpose is to secure the return of cars to the owning road by direct regulation, as contrasted with the indirect pressure provided by the per-diem rate. The per-diem rules are good enough as far as they go, but the use of a railroad freight car in a time of active business is worth more than the per-diem rate of one dollar a day, and as long as this is true, a charge of one dollar will fail to bring equipment home unless supplemented by more positive direction. The intent of the car-service rules is to supply this direction by requiring railroads to keep freight

²³ Apparently car-service rules are not rigidly enforced. A check covering 27 months ending with March, 1934, showed that 10.8 per cent of cars loaded at freight houses and transfer platforms, and 32.6 per cent of industry loads, were in violation of the rules (Federal Coordinator of Transportation of Section Car Pooling, *Analysis of Report . . . Relating to Empty Box-Car Mileage*, August, 1934, p. 25).

cars moving in the general direction of the home road after the original transportation for which they have been employed is accomplished.

Car-service, Per-diem Rules and Empty Car Mileage.—A disadvantage inherent in this principle that cars shall be returned to the home road, upon which the car-service and, in part, the per-diem rules are based, is that attempts to force prompt return tend to increase the mileage which cars travel without load. Some empty car mileage there must be, so long as freight movements are unbalanced, no matter what rules may be in force, but the movement of empty cars in the same direction as the prevailing loaded haul is not so obviously unavoidable. Apparently there is such empty car mileage, amounting perhaps to 100,000,000 car-miles per year,²⁴ and the Federal Coordinator believed in 1934 that this mileage was increasing. It is not demonstrable that the present extent of empty car mileage is due to per-diem or to car-service rules, but the possibility has provoked suggestions in alteration or in substitution for present practice. These suggestions may be briefly considered under the heads of "frozen per-diem" and "car pooling."

Frozen per-Diem.—The so-called "frozen per-diem" or "average per-diem" system is a modification of the per-diem arrangements which have already been described. Its peculiarity is that each railroad under such a scheme pays for the use of the box cars of any other railroad, each month, a sum based upon the average detention of such cars during the same month of a selected previous period, not upon the actual detention in the month for which the payment is made. As adopted in 1935, the test period comprised the years 1932, 1933, and 1934. To illustrate its working we may assume that railroad A had detained the cars of railroad B during the month of June in 1932, 1933, and 1934 an average of three days each. It would follow that railroad A would pay railroad B as per-diem for the month of June, 1936, a sum calculated by multiplying the number of B's cars on the lines of A during June, 1936, by the factor three, irrespective of the actual detention in the latter month.²⁵

This departure from the strict per-diem rule was expected to have two beneficial results. In the first place, it somewhat simplified the accounting between railroads. Second, and more important, was the fact that it reduced the penalty for failure to return cars promptly. In practice it amounted to a selective reduction of the per-diem charge, at the expense of car-owning roads, in the belief that this reduction would decrease the forced movement of empty freight cars and so redound to the advantage of the railroad system as a whole.

The "frozen per-diem" plan was put into general effect on May 1, 1935. Records subsequently kept by the Association of American Railroads indi-

²⁴*Ibid.*, p. 19.

²⁵ Report of General Committee, Transportation Division, American Railway Association, on Empty Freight Car Mileage, 1934.

cated that a reduction in empty car mileage occurred during 1935 of nearly 443,000,000 and during 1936 of nearly 808,000,000 empty car miles, representing a saving of \$12,000,000 in 1935 and of \$22,222,850 in 1936.²⁶ Whether the saving was or was not due to the new system was, of course, a matter of opinion. Difficulties, however, arose because of the alleged excessive detention of cars away from home and of failure to obtain a general observance of the car-service rules. There was also some feeling that "frozen per-diem" reduced the incentive to acquire new cars or to make replacements,²⁷ and the plan was suspended on July 1, 1937.²⁸

Car Pooling.—Plans for car pooling differ fundamentally from amendments to per-diem regulations because they abandon the principle that freight cars shall be returned to their owners. The pool suggested by the Federal Coordinator proposed, in place of this, that a corporation be set up to which railroads should assign all their freight cars of types and classes which were to be pooled. The corporation was thenceforth to allocate these cars among five districts—New England, Eastern, Southeastern, Western, and Southwestern—according to need, and district managers appointed by the corporation were to distribute the allocations among the railroads in each district. Each railroad which enjoyed the use of a pool car in any district was to be charged a rental based partly on time held and partly on the mileage which the car should run. The corporation was to care for repairs to pooled equipment out of the proceeds of the rental charge, and from the same source was to compensate owners for the so-called fixed costs of ownership, made up of interest, taxes, insurance, and depreciation. The corporation was to be managed by a board of control consisting of two members from each district and one representative designated by the Federal Coordinator or by the Interstate Commerce Commission.²⁹

In pressing the car-pooling plan the Federal Coordinator criticized the existing per-diem system, both on the ground that it failed to distribute cars efficiently in times of industrial activity, and because it occasioned an abnormal amount of empty car mileage when traffic slackened. He believed that

²⁶ *Traffic World*, June 5, 1937, p. 1239. This alleged reduction is a number of times the total empty car mileage of the country according to the estimate of the Federal Coordinator in 1934. The difference is presumably due to the fact that the Coordinator was interested only in the movement of empty cars in the same direction as the prevailing haul, while the Association of American Railroads included also empty car mileage resulting from unbalanced traffic. It is hard to see why a change in per-diem regulations would decrease empty car movement of the latter sort. If the Coordinator's estimate was correct, the saving which the Association attributed to the "frozen per-diem" plan would seem to have been exaggerated.

²⁷ *Traffic World*, November 28, 1936, p. 1066.

²⁸ The most active critics of "frozen per-diem" were the western carriers, who historically were advocates of high per-diem rates.

²⁹ United States, Office of the Federal Coordinator of Transportation, *Report on Freight Car Pooling with Plan for Proposed Box Car Pool*, 1934. A plan for car pooling was suggested by Mr. Warfield, President of the National Association of Owners of Railroad Securities as early as 1903, but nothing came of his proposals at this time.

carrier attempts to shift the burden of car hire by hauling cars empty tended to increase the operating cost of the American railroad plant; and he felt that inefficient distribution of equipment not only resulted in unnecessary local shortages and surpluses of equipment, but on the whole caused the production of a mass of equipment larger than was necessary to do the work. Such conditions, the Coordinator thought, could be cured by a central administration of the use of railroad cars.

Railroads objected to car pooling, on the other hand, because they thought that efficient maintenance of cars required that equipment be owned by individual carriers and brought back to these carriers from time to time for inspection and repair. It seemed to them that cars owned by an organization representing all railroads might be in the position of the children in Plato's *Republic* who called every citizen "father," but who had no effective claim on the interest of anyone. Common control would discourage the construction of cars suitable to special needs. It would, in particular, deprive a well-run railroad of the advantage in traffic solicitation which might come from the assurance that patrons would be supplied with cars. Carriers said that the possibilities of saving in empty car mileage under pool administration was exaggerated, and that any savings which occurred would be offset by the slowing down of car movements and by the overhead expenses of pool management. Objections of this type were offered by a general committee of the Association of American Railroads in 1934 and called forth a sharp reply from Mr. Castle of the Coordinator's staff. It is evident that carriers are not now willing to adopt the car pool idea in spite of the very considerable possibilities which it seems to present. Their inflexibility in this respect should not, however, cause us to forget their achievement in perfecting the system of car management and interchange which it is now desired to improve.

Summary of Forms of Operating Cooperation Between Carriers.—We have now mentioned through billing, through rate-making, current practices in interline revenue settlements, the use of private cars, regulations regarding the repair of railroad equipment upon foreign lines, and per-diem and car-service rules. These practices all imply extensive cooperation between independent American railroads; and while the list of instances might be extended, enough examples have probably been presented to justify the statement made at the beginning of the chapter that the railroads of the country function, to a noteworthy extent, as a single railroad system in spite of the diversity of ownership of the different parts. There is, of course, something to be said on the other side. Thus there is much wasteful cross and round-about hauling which might be avoided if railroads were actually under a single ownership, and there is frequently uneconomic use of terminals. There is, again, costly duplication of service by competing companies, involving the running of two or more trains between identical termini when only **one** is needed. Yet in spite of such qualifying facts, railroad operation

in the United States is characterized, in general, by a smooth and willing cooperation between railroad lines which is a distinct achievement for American practice.

Association of American Railroads.—The largest formal operating organization of railroads is the Association of American Railroads. This society includes in its active membership 225 railroads (in July, 1938), operating 291,628 miles. Most of the participating lines lie in the United States, but five Canadian and five Mexican railways are members, and the list of 194 associate members includes railroads in Puerto Rico, Cuba, Colombia, Argentina, Mexico, Canada, and India as well as American steamship, Pullman, fast freight, street railway, terminal, and power companies. The present name of the association dates from 1934. The organization itself goes back to the so-called "time conventions" which met at least as early as May, 1872. Time conventions were conferences of connecting or competing railroads to consider changes in train schedules that affected more than one line, or to regulate "speed wars." There were changes and consolidations among these conventions, resulting finally in the combination, in 1886, of the two largest conventions, the General Time Convention of the northern roads, and the Southern Time Convention operating south of the Ohio and Potomac, into an inclusive "General Time Convention," comprising roads both north and south. In 1891 this became the American Railway Association. In 1934 the Railway Association combined with the Association of Railway Executives, the Presidents' Conference Committee, the Railway Accounting Officers' Association, the Railway Treasurers' Association, and the Bureau of Railway Economics under its present name.

Among the most important accomplishments of the Association of American Railroads and of its predecessors have been the following:

1. The adoption of a standard time. As a result of the initiative of the association, the railroads of the United States and Canada, on November 18, 1883, put into practical operation a detailed system of standard time. Prior to that date every railway ran its trains by the local time of the city in which its headquarters were located or by some other arbitrary standard. There were over fifty standards of time in use, differing from each other by odd numbers of minytes. On the day named, these were resolved into four standard times, based upon Greenwich meridian time, with differences of an even hour between them. This system has since been widely adopted outside of the railroad field.

2. The formulation of standard codes of train signals, train rules, block-signal and interlocking rules; car-service, per-diem, and demurrage rules; track-storage rules; rules governing the receipt, stowing, etc., of less-than-carload freight; switching-reclaim rules, etc., etc.

3. The enforcement of car-service rules and the adoption of mechanical standards enabling the free interchange of cars among railroads. The Asso-

ciation has worked successfully toward a standard gauge of tracks for all railroads, for the use of standard replaceable parts in freight car construction, including standard axles, couplers, brake shoes, wheels, etc., and for the general use of automatic couplers and of automatic signals.

Departments of the Association of American Railroads.—The work of the present association is carried on through five major departments assisted by or functioning through a number of divisions, bureaus, and committees. These departments are as follows:

Law Department. Deals with questions of legislation, governmental action and policies, and matters of a legal nature which, in the opinion of the Board of Directors or of the Executive Committee, will affect members of the Association.

Operating and Maintenance Department. Considers matters pertaining to operation, transportation, engineering, construction, maintenance, equipment, safety, telephone and telegraph, station operation, medical and surgical service, police protection, purchases and stores, freight claims, motor transport, car distribution, etc. This department alone has eight divisions, eight sections, and around 170 working committees. Findings and recommendations are reported to the annual meetings of the Association.

Traffic Department. This is largely a coordinating agency. The Traffic Advisory Committee in this department is the medium through which the principal problems are considered and projects are initiated and developed. This Committee is composed of nineteen chief railway traffic officers who are elected by the traffic executive associations of the Eastern, Southern, and Western districts. As its name implies, the Traffic Advisory Committee acts solely in an advisory capacity. It does not issue executive orders, but offers advice and recommendations to regional traffic associations. The Traffic Department has taken steps toward the simplification of tariffs. It keeps in close touch with the Interstate Commerce Commission and participates in hearings before that body.

Finance Department. Deals with matters of common interest in the fields of finance, accounting, taxation, and valuation. It is this department which prepared comments upon a number of the suggestions of the Federal Coordinator of Transportation. It has been active in considering proposed additions to the operating statistics collected and published by the carriers. It has been concerned with problems growing out of the accounting for the division of interline freight revenue.

Planning and Research Department. Is charged with the coordination of technical research activities of individual railroads and with all research activities of the Association looking toward increased efficiency and economy in railway operations. The Public Relations Division and the Bureau of Railway Economics is associated with this department.

Summary of the Activities of the Association of American Railroads.—

The present activities of the Association may be summarized as follows:

1. It provides machinery through which problems of general interest to the railroad industry may be discussed.

2. Through its executive committee and its board of directors it recommends to its members such constructive policies as will promote efficiency and economical operation, sometimes accompanying its recommendations with suggested rules and regulations.

3. It supplies facilities for the arbitration of disputes between its members. No use, however, has yet been made of the arbitration procedure which it has organized.

4. It collates and publishes general information and statistics relating to railroads in the United States.

5. It represents the railroad industry:

a. In conference with the Interstate Commerce Commission or with members of the Commission's staff.

b. Before committees of Congress in connection with proposed legislation.

c. To the public at large through an active publicity service devoted to what may be called "institutional advertising." In its own language the Association seeks to show that "the railroads are an essential part of American life, that they are progressive and enterprising, and that they are doing an astonishingly good transportation job in the face of difficulties."

International Railway Congress Association.—The only international association in which American railways are members, except in so far as the Association of American Railroads itself is international, is the International Railway Congress Association. This organization was established in 1885, with the general purpose of promoting railway progress and development. Its activities were interrupted by the war, and the publication of its valuable bulletin was suspended. In 1918 the original association was terminated, its place being immediately taken by the present body, acting with substantially the same powers and purposes.

The membership of the International Railway Congress Association in 1937 was made up of railway administrations from forty-five countries including Germany, Great Britain, France, Italy, Spain, Portugal, Sweden, Norway, Switzerland, Greece, Czechoslovakia, Yugoslavia, Rumania, Turkey, and Luxembourg in Europe; China and Japan in Asia; Argentina, Brazil, and Chile in South America; the United States and Mexico in North America; and a number of small states in Central America and elsewhere. Before the World War Russia also was a member.

The headquarters of the association in 1939 were at Brussels. The last meeting (1937) was in Paris, France; the previous one (1933) in Cairo, Egypt.

The association exercises no authority, but through its meetings and bulletins a good deal was done before the war to acquaint members with railway practice in other countries than their own, and the very considerable attendance at the sessions was evidence of their success.³⁰

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³⁰ The rules and regulations of the International Railway Congress Association were published in its monthly bulletin for January, 1938.

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CHAPTER XXIII

TERMINALS



General Character of the Terminal Problem.—The terminal problem is dealt with at this point because of the close relations which carriers have with each other at terminal points and the desirability of some understanding between the transportation lines which serve a terminal if maximum efficiency in operation is to be obtained. The terminal problem has, however, many aspects, and we shall permit ourselves some freedom in discussion.

Generally speaking, the peculiarities of the terminal situation arise first, out of the difficulty and expense incurred in conducting traffic into, through, and around great cities, and second, in the monopoly power which the possession of a unique and non-reproducible location gives to the common carrier which is so fortunate as to enjoy it.

In the large city, the service of transportation competes for space with other uses of land in two ways: first, it must displace other facilities in order to maintain the station and the yard, storage, or industrial tracks requisite for rail service, or the garages, hangars, warehouses, and stations required for bus, truck, and airplane operation; and second, it must occupy the city streets in seeking access to and egress from the points where the road haul begins. It is a common error to assume that transportation is finished when the "terminal" is reached. This is true only when the word is understood to mean place of utilization; the point usually called "terminal" marks rather a change in the character of the conveyance than a cessation of movement.

Competition for space is difficult for the transportation agency because, on the whole, the carrier requires facilities which are at the level of the ground and, except for office and warehouse space, can less readily utilize construction built high into the air than can banks, stores, and factories. The airplane, requiring large level tracts of ground for landing—tracts which are extensively rather than intensively employed—is the most obvious example of an agency which needs terminal land but cannot afford to bid for centralized city accommodation. The airport, accordingly, even when financed from city funds, is apt to be located at some distance from the center of population and must rely upon the motor vehicle to bring air passengers to their homes. Bus, auto, and truck services still largely use the city streets but railroads, only less* than

airplanes, spread out in city territory to find storage space for their cars, tracks, stations where freight may be handled, and facilities to attract and to protect passengers. Rail passengers need to complete their journeys on foot or by some other means of transport, and rail freight also, though to a less degree, is handled by some form of local transport other than the rail.

Airports and Landing Fields.—On May 1, 1939, there were 2371 airports and landing fields in the United States. Of these, however, only 1222 were classed as airports, and of the latter, only 391 were of sufficient importance to be provided with night lighting equipment. Three hundred and one of the fields with night lighting equipment were municipal, and 90 were operated by private commercial organizations.¹ This is the general framework with which the discussion of air terminals is concerned.

Area Required for Airports.—In the air industry the competition for terminal space is more than usually acute because of the large area required for terminal operations. In 1938 the average airport in the United States which served scheduled air carriers devoted 315 acres to terminal use, with even more space than this in the case of airports located near the larger cities.² This large average area results from the need for long take-off runs in order to launch flying craft into the air. These long runs are necessary for technical reasons, and the tendency is to increase them. The first Department of Commerce airplane performance regulations in 1926 required planes to take off with full load after a run of not more than 1000 feet; actually most planes left the ground in substantially less distance. Modern air carriers, weighing up to 24,000 pounds and with engines designed for maximum efficiency at high altitudes are crowding the 1000-foot mark, and the most recent planes will require a run of 1500 feet if they are to be commercially successful. It is desirable, moreover, to provide still additional space to guard against the effects of possible failure of an airplane engine before the multi-engine boat has attained sufficient speed to maintain itself in the air with one engine silent.³ Long take-offs are possible only on large fields, especially if planes are to be enabled to face winds from different compass points.

Airport Location.—Because of the large area required, airports are generally located at some distance from the center of the towns which they service, the distance becoming greater on the average as the size of the city increases. Two recent studies have given this matter some attention. The first,

¹ *Air Commerce Bulletin*, May 15, 1939, p. 293. See United States Civil Aeronautics Authority, Bulletin No. 11, for further details. The term "airport" means any locality, either on water or on land, which is adapted for the landing and taking off of aircraft and which provides facilities for shelter, supply, and repair of aircraft; or a place used regularly for receiving or discharging passengers or cargo by air (Air Commerce Act, 1926, Sec. 9, par. g).

² United States Civil Aeronautic Authority, *Recommendations as to the Desirability of Federal Participation in the Construction, Improvement, Development, Operation, and Maintenance of a National System of Airports*, 76th Congress, 1st Session, House Doc. No. 245, Ser. 10,337, 1939.

³ Fred D. Fagg, Jr., "The Problem of Airport Size," *Journal of Air Law*, Vol. VIII, October, 1937, p. 560.

published in 1930, was conducted by the School of City Planning of Harvard University.⁴ It collected information from 81 airports. Forty-five of these were located more than 5 miles and 10 additional were located more than 3 miles from the business centers of the communities to which they were attached. The transportation time from the business center to the airport, for distances of 5 miles and over, ranged from 11 to 90 minutes.

The second inquiry was directed by the Civil Aeronautics Authority in 1938 and 1939. Out of 206 airports used by scheduled air carriers in 1938, 95 were found to be located from 3 to 6 miles from the centers of the towns served, 50 from 6 to 10 miles, 13 from 10 to 15 miles, and one was over 15 miles away. Only 47 were as near as 3 miles from the city center. Transit time was not reported in this inquiry.

Airport Finance.—Of course the need for area alone will not keep the air terminal from the center of a town, but, as has been already said, the airplane cannot utilize land so intensively as to compete with other businesses in its use. Indeed, there is a pessimistic assumption that air terminals, even at a distance from population centers, cannot be made to pay. As a matter of fact, they do not pay, although it is a question whether this is a necessary condition of their operation. In 1937, out of 1675 airports, 278 reported a profit to the Civil Aeronautics Authority, 914 a loss, and 483, by what was possibly wishful accounting, an exact balance of income and outgo. Amortization, interest, and depreciation were excluded from these figures. The average net loss was \$1012 annually for all of the airports counted, and \$16,148 for airports near cities of over 500,000 population.⁵ Rates for the use of airports are not raised because there is a public sentiment in favor of subsidizing airplane operation, and because the practice of municipal airports in keeping charges low prevents terminal companies which might like to experiment from making such attempts.

Under the conditions which have been described, most of the investment in airports has come from public authorities. Up to 1933, it is true, funds were derived in approximate equality from municipalities and from private investors, with small contributions from state and federal governments. Since 1933 private investment in airports has been negligible, and federal contributions, principally from the Works Progress Administration, have been the principal resource. Municipal expenditures have continued, but city payments have mounted to less than federal aid.

Position of the Municipalities.—From the point of view of the municipalities, the situation has difficulties. Local government units have a sense of disillusionment which is not much different in kind from that experienced by

⁴ Henry V. Hubbard, Miller McClintock, and Frank B. Williams, *Airports. Their Location, Administration and Legal Basis*, Harvard University Press, Cambridge, 1930.

⁵ See also *Proceedings of the National Airport Conference*, December 6 and 7, 1937, for similar results.

western communities who invested their resources many years ago in railroad stocks and bonds. City monies have gone, once more, to improve transportation, without too much in the way of tangible return. It is true that communities are still told that exceptional transportation facilities always balance a city budget by increasing taxable values,⁶ but as the number of airports increases it is less certain that the facilities of any particular city are exceptional or will remain so. Moreover, as the use of large planes becomes common, investments in airports may lose most of their value in individual cases unless a city is prepared to make very considerable additional expenditures to expand and equip its airport as new transport needs may require. The penalty for refusal to do this may be exclusion from a location on major routes. Fear of this has led municipalities to advocate a limitation upon the size of airplanes,⁷ and still more recently to urge the federal government to accept a continued responsibility for the development and maintenance of an adequate system of airports and seaplane bases, to persist even after the present emergency public works program may have ceased. Such federal participation is recommended by the Civil Aeronautics Authority.⁸

Advantages of Independent Management of Air Terminals.—From the point of view of the users of airports, nevertheless, the present plan has the advantage that terminal air facilities at the principal cities are organized in the common interest, and that they are open to all upon equal terms. It is not quite accurate to say that entire equity is done, for disputes arise between different classes of users when airports become congested which are not always settled upon generally acceptable terms.⁹ If airport revenues were sufficient to cover costs these conflicts of interest might be removed by an enlargement of facilities, but this solution is more difficult when additional funds must be sought from taxpayers. Yet in spite of this problem, present arrangements probably occasion less expense and achieve more equality for each class than would be likely if each user were required, as in railroad service, to provide a terminal for himself. Most airports in cities of 50,000 inhabitants or over are municipally owned and operated in the United States today, and even where this is not the case, one port most frequently accommodates all regular air lines which desire to serve a given town. This avoids many of the perplexities which harass railroad operators, as will presently appear.

⁶ William E. Arthur, "Airports and Landing Fields," *Annals of the American Academy of Political and Social Science*, Vol. 131, No. 220, May, 1927, p. 56.

⁷ *Proceedings of the National Airport Conference*, December 6 and 7, 1937.

⁸ Attempts have been made to console cities for the deficits which they incur by emphasizing indirect benefits to be derived from airport locations. Thus it has been estimated that the receipt of an air mail letter is worth 10 cents to a town, that of an express package five times as much, and that a passenger ride is worth \$100 (E. P. Goodrich, "The Economics of Municipal Airports," *Journal of Land and Public Utility Economics*, November, 1931). On this calculation the conclusion has been based that a \$10,000 operating deficit, incident to the operation of a good airport contiguous to a town of 10,000 population, would be just about offset by the intangible benefits which would be received. But estimates of this kind have little value.

⁹ *Air Commerce Bulletin*, November 15, 1937, p. 105, address of Col. Johnson.

Railroad Terminals.—The other type of transport agency for which the terminal problem is of prime importance is the railroad. A rail terminal consists of four parts. There is a building or buildings and a complex of tracks used for the receipt and delivery of passengers. There are inbound and outbound freight houses, and specially placed tracks, accessible to shippers, where goods in carload quantities can be loaded into and unloaded from railroad cars by consignor or consignee. There are side and spur tracks running to private warehouses and factories. Cars are placed upon these private tracks to be loaded or unloaded at the convenience of the shipper. There is, finally, a multitude of tracks used for switching operations and for the storage of cars. This aggregate of buildings, tracks, and appurtenances is known as a railroad terminal, and for many purposes it is not necessary to distinguish between its parts.¹⁰

Character and Importance of Terminal Operations.—All railroad traffic has to pass to, from, or through some terminal, more or less of the character just described. The process constitutes a substantial portion of the total haul from the point of view of time and expense, though not, of course, from the point of view of the distance over which goods or passengers are carried. The office of the Federal Coordinator estimated, in 1935, that as much as 53.67 per cent of the cost of freight transport was due to terminal operation, including the costs of intermediate yardings and interchange as well as the costs at origin and destination terminals.¹¹ With respect to time consumed, it is said that loaded freight cars spend three hours in terminals for each hour which they use in moving toward their destination upon the road.¹² Terminal time is spent in loading and unloading cars, in arranging cars into trains, in fitting locomotives to the loads, in inspecting equipment, and in other similar operations. Freight is not only delayed in cars, but it may remain in freight houses, coming or going, for additional and still longer periods. There are no estimates for passenger traffic comparable to those just mentioned, but passenger terminals are responsible for a large part of the cost of passenger transport, although they may not retard passenger movements to an equivalent degree. Terminal time is unproductive in the sense that it brings in no important revenue; indeed, if it were cut in half the service would be more popular, the shipper would be better pleased, and railroad net earnings would be increased. The general public interest would also be better served, for a smaller investment could then accommodate a larger volume of transportation.

¹⁰The *Manual of the American Railway Engineering Association* (1932) defines a terminal as follows: "An assemblage of facilities provided by a railway at a terminus or at an intermediate point for the handling of passengers or freight and the receiving, classifying, assembling and dispatching of trains."

¹¹United States, Office of the Federal Coordinator of Transportation, *Report on Economy Possibilities of Regional Coordination Projects*, 1935. Prepared by the Section of Regional Coordination.

¹²*Railway Age*, October 28, 1933, p. 616.

Passenger Terminals.—The simplest form of rail terminal service is that provided for passengers—a statement which holds true in spite of the elaborate structures erected for advertising purposes in some cities or to gratify the aesthetic sense or the civic pride of the communities in which the terminals are placed. Passenger terminal service is simplified by the fact that passengers load and unload themselves, and also by the circumstance that intramural systems of local transportation are more fully developed for the carriage of people than for the carriage of goods.

In the case of passenger movements, the fact that the terminal of the line-haul carrier is not the final destination of the traffic which flows into it is more than ordinarily obvious, and this, perhaps, is the matter of most importance in determining the location and administration of such facilities.

The so-called passenger terminal marks a change in method of conveyance, as from rail to electric car, or from motor bus to pedestrian locomotion. The point at which this change takes place should be chosen so as to produce the greatest speed and economy for the passenger with respect to the total transit. In large cities it is generally impossible for the machine which accomplishes the line haul to deposit the individual within, say, a quarter of a mile of his destination. Rather than attempt this, it is desirable to carry suburban passengers into the regular channels or arteries of the intramural scheme of transportation. It has been suggested in Chicago that all suburban trains should pass through a subway loop instead of stopping at any passenger terminal, or, which would accomplish the same purpose, that suburban steam trains be transferred to city elevated tracks at the circumference of the elevated system. It is to be doubted whether either of these suggestions offers a practical solution to the Chicago problem; but the fact that they are made, as well as the present success of the elevated, motor bus, and some rail lines which bring passengers into the city and deposit them at a great variety of unpretentious but convenient stations, indicates the character of the suburban service which gives best satisfaction in a congested district.

Through passenger transportation differs from suburban in that the transfer involved is, ultimately at least, a change from one system of long-distance carriage to another system of the same type. Moreover, the convenience of outgoing passengers appears to demand a longer time to board the train and to get settled therein with baggage than is required for suburban traffic. The ideal here is probably the union terminal, used by all through lines, with ample accommodation for the making up of trains some time before the announced hour of departure.¹³ In weighing the advantages of such a terminal,

¹³ A good example of a union passenger terminal is the union station opened in Cincinnati in 1933. This terminal is jointly owned and used by all seven of the railways serving the city; it permitted the carriers to abandon five existing passenger stations (*Railway Age*, April 22, 1933, P- 575)- The so-called "Union Terminal" at Chicago is not used by all the railroads which serve that town.

it must, nevertheless, be remembered that very many passengers leaving through trains at cities like Chicago or St. Louis or New York do not go beyond the city immediately, but make use, before they leave, of surface, elevated, or subway cars, cabs, busses, automobiles, or other conveyances. The through passenger station or stations should be convenient to these facilities and to the business or hotel or theater district to which the passengers resort, and need not be located with regard to the center of population of the city as a whole.

Recent Changes in the Design and Use of Passenger Terminals.—In comparing different passenger terminals adequacy of installation, accessibility of the station from all portions of the city and its suburbs by private vehicles, busses, and interurban lines, and the consonance of the development with the civic plans of the community should be regarded, as well as the question of expense of construction and operation.¹⁴ These tests are standard and have been applied for many years. During the last decade and a half, however, certain changes in utilization of passenger terminal facilities have taken place which have had interesting results upon terminal location, design, and management. A recent study by a committee of the American Engineering Association discussed these changes under the following heads:

1. Increase in the importance of terminals in large urban centers. Relative reduction in local and increase in long-distance travel has produced a tendency to reduce and to consolidate facilities in the small stations and to place increased demands on many of the more important terminals located in the larger cities.

2. Increased use of automobiles by patrons arriving at and departing from the station. This has intensified the need for ample parking space for busses, taxicabs, and private autos, with convenient auto approaches to the station and "short-cut" exits from platforms to auto-loading sections.

3. The tendency to replace trunk baggage with hand baggage. This has led to an increase in parcel-checking facilities and to a decrease in the provision for heavy baggage. Central parcel windows are being supplemented with coin-operated lockers distributed throughout the station.

4. Increased length of trains. Longer trains require longer station platforms and better arrangements for the quick ingress and egress of passengers.

There have also been changes in terminal administration policy which are less to be attributed to alterations in the character of use than to the desire to attract clients and at the same time to derive revenue from facilities which are provided. In the first category one may place all those improvements and enlargements which make passenger stations more attractive, such as more elaborate furnishing and decoration, moving stairways, and use of the electric eye to open and close doors. To the latter may be assigned the greater use of "concessions." Thus, in an apparent attempt to increase their earnings, carriers have sold to "concessionaires" the right to operate station facilities such

¹⁴ Sec Los Angeles Passenger Terminal cases, 100 I.C.C. 421, 435, 1925.

as restaurants, lunchrooms, parcel-checking locations, and toilet rooms which the railroads formerly provided free or directly managed. The use of pay toilets has become general, and in the larger stations there are more pay than free toilets. This enumeration may suggest matters to which attention is currently directed in the construction and operation of passenger terminal railroad plants.

Analysis of Freight Traffic.—Freight terminals are called upon to handle:

1. Through traffic;
2. Carload local traffic;
3. Less-than-carload local traffic.

In June, 1939, the carloads of freight handled by the Terminal Railroad Association at St. Louis were as follows:

NUMBER OF CARLOADS OF FREIGHT HANDLED BY THE TERMINAL RAILROAD ASSOCIATION
AT ST. LOUIS IN JUNE, 1939

	East Side	West Side	Total
Through carloads		25,781	60,497
Cars loaded at freight houses	0	4,980	4,980
Cars unloaded at freight houses	0	3,570	3,570
Cars loaded at industries and team tracks	5,254	5,718	10,972
Cars unloaded at industries and team tracks	3,341	7,583	10,914
Total	43,311	47,632.	90,943

About 66 per cent of the traffic of the Terminal Railroad Association, during the month of June, 1939, consisted of through traffic. The balance either originated on or was destined to freight houses or industries on the rails of the Terminal Association.¹⁵

A similar but less recent analysis of traffic at Chicago reveals the following movement:

CAR MOVEMENTS IN CHICAGO TERMINAL DISTRICT, 1915¹⁶

1. Loaded local car movements to and from industries

	Cars
Inbound	6000
Intramural to Chicago	3000
Outbound	3000
Total	12,000

¹⁵ During the year 1938 the Terminal Railroad Association handled 904,081 carloads, of which 587,653, or 65 per cent, were through cars.

¹⁶ *Railway Age*, March 7, 1925, p. 561. Through transfer movements are counted twice, once inbound and once outbound. In order to determine their relative importance they should be counted only once, and therefore the total is divided by two.

CAR MOVEMENTS IN CHICAGO TERMINAL DISTRICT, 1925—(Continued)

1. Loaded local car movements to and from freight houses and team tracks

	Cars
Inbound	1000
Intramural to Chicago	1000
Outbound	1000
Total	5,000

3. Loaded through car movements transferred between railroads

Inbound	4000
Outbound	4000
Total	4,000

In the Chicago area in 1925, only 19 per cent of the car movements neither originated at nor were destined to points in the district.

Through Traffic.—The data just presented suggest that the through freight traffic of our large cities constitutes a substantial, and sometimes a major proportion of the whole which they receive. Of the three types of traffic mentioned, it is the one which presents in principle the least difficulty. This is for the reason that through traffic makes no characteristic use of the facilities of an intermediate terminal, although, of course, it may sometimes be the subject of some manufacturing or commercial operation which has to be regarded. Through traffic comes to a terminal because lines of communication lead through that terminal, not because the latter has any drawing power in so far as through traffic is concerned. The best way to treat it is to keep it out of the terminal altogether, which is, perhaps, best accomplished by the belt line, a railroad that encircles the town at some distance from the center, intersecting the converging main routes and making it possible to transfer freight from one route to another without entering the area of greatest congestion. The sorting of incoming and outgoing freight under such a system is accomplished at one or more "clearing yards," where trains are broken up and cars are regrouped according to the railroads to which they are to be delivered. Unfortunately, freight is not always kept out of the congested area even when belt lines exist. In Chicago, a two-day test showed, in 1934, that 40 per cent of the through traffic was taken into the downtown district instead of passing over switching lines around the city; this through traffic was then moved back through different switching lines to the outer belts where it was delivered to outbound lines. The congestion which results where this practice is pursued is increased by the manner in which the freight is usually handled. It is the preponderant custom throughout the country for each carrier to deliver its through cars to the yards or facilities of other carriers. The delivering engine then returns with a light load or with no load at all. This further obstructs

the terminal with a multiplicity of movements which would be avoided if the traffic were better organized.¹⁷

Carload Local Traffic.—Local traffic cannot be kept out of the terminals. A main function of the terminal is, indeed, to enable shippers to receive and forward traffic which has destination or origin in the terminal town. At a city such as Chicago or St. Louis, where many lines enter the switching district, each has a train yard for receiving and dispatching trains. These yards are usually some distance from the downtown business district. Incoming cars are switched in the outlying yard, and from this point they move to freight houses, team tracks, warehouses, grain elevators and the like, where they are delivered to consignees. The volume of movement in a large terminal is very great. Thus in Chicago, the office of the Federal Coordinator observed a daily operation from the train yards to the stockyards district alone of 239 separate trains or switching cuts, and corresponding moves from the stockyards district to the train yards. These trains or yard cuts consisted of from one to thirty-five or forty cars. More or less similar movements took place to and from produce terminals, potato marts, and other downtown destinations.¹⁸

Railroad freight cars originating at or destined to a terminal in carload quantities may be placed upon a public track accessible to trucks where they are loaded or unloaded by shipper or consignee. This is, however, a clumsy method. In the greater number of cases, the cars containing freight are placed upon private tracks built at the industries' expense and operated sometimes by the carrier and sometimes by locomotives owned by the industry.

Switch Connections with Private Side Tracks.—Paragraph 9 of Section 1 of the Interstate Commerce Act reads as follows:

Any common carrier subject to the provisions of this Act, upon application of any lateral, branch line of railroad, or of any shipper tendering interstate traffic for transportation, shall construct, maintain, and operate upon reasonable terms a switch connection with any such lateral, branch line of railroad, or private side track which may be constructed to connect with its railroad, where such connection is reasonably practicable and can be put in with safety and will furnish sufficient business to justify the construction and maintenance of the same; and shall furnish cars for the movement of such traffic to the best of its ability without discrimination in favor of or against any such shipper. If any common carrier shall fail to install and operate any such switch or connection as aforesaid, on application therefor in writing by any shipper or owner of such lateral, branch line of railroad, such shipper or owner of such lateral, branch line of railroad may make complaint to the Commission, as provided in section thirteen of this Act, and the Commission shall hear and investigate the same and shall determine as to the safety and practicability thereof and justification and reasonable compensation therefor, and the Commission may make an order, as provided in section fifteen of the Act, directing the common

¹⁷ Federal Coordinator of Transportation, *Report on Economy Possibilities of Regional Coordination Projects*, pp. 3, 4.

¹⁸ *Ibid.*, p. 3.

carrier to comply with the provisions of this section in accordance with such order, and such order shall be enforced as hereinafter provided for the enforcement of all other orders by the Commission, other than orders for the payment of money.

This paragraph of the Interstate Commission Law gives to the Commission power to require a rail carrier to install a switch track connection under certain circumstances and subject to certain limitations. It does not enable the Commission to force a carrier to build a side track upon private land, even when the shipper is prepared to share in the expense,¹⁹ but it does make it possible for an industry which builds a spur track up to the railroad right of way to demand a connection with the main track and a reasonable operating service.²⁰ In most cases, however, no compulsion is needed, for the carrier which uses a spur thereby enlarges its terminals at slight expense, while at the same time it attaches the industry to itself in such a way as to give it a great advantage in soliciting the industry's traffic, both inbound and outbound.

Car Demurrage and Other Minor Problems.—Traffic delivered at an industry spur or siding makes no use of the city streets and does not, therefore, give rise to the peculiar problems which characterize team track or less-than-carload railroad service. This does not mean, of course, that such traffic is not subject to terminal delay, occasioned either by slowness of shipper or consignee in loading or unloading cars, or by inadequate trackage or poor facilities of the carrier for the sorting and placement of cars. Nor is the question of the rates to be charged on such traffic free from difficulty. Car demurrage tariffs filed with the Interstate Commerce Commission and with state railroad commissions provide penalties for shippers' or consignees' delay in excess of a period of free time, usually forty-eight hours. These tariffs are of long standing and are accepted as correct in principle by all concerned. The Interstate Commerce Commission has ruled, also, that delivery at an industry spur within city switching limits is of the same nature as delivery at a team track or freight house²¹ and is covered by the published rate, a rule which disposes of another aspect of the case. Questions of discriminating treatment still occur, such as those referred to in Chapter XIV; and when industrial tracks are extensive, or special service is needed, there is sometimes difficulty in determining just where the carrier's obligations of service end and where additional charges may properly be imposed. These matters lead to a more detailed consideration of traffic and regulatory practice than it is the purpose of this chapter to supply, and they will be, accordingly, passed by.

¹⁹ *Ralston Townsite Company v. Missouri Pacific Railway*, 22 I.C.C. 354, 1912.

²⁰ The "lateral" or "branch" line which is authorized to apply for a connection must be a genuine branch or feeder, not a competing company masquerading as a branch in order to gain access to points on a carrier's main line. *United States v. Baltimore and Ohio Southwestern Ry.*, 226 U. S. 14, 1912.

²¹ 18 I.C.C. 310, 1910.

Less-than-carload Local Traffic.—Cars used for less-than-carload traffic, like full carloads, must be sorted into trains; and in so far as possible all freight consigned to a given destination must be loaded into a single car. In this case also handling is easier if the operations can be accomplished outside of the congested area. It was with this in mind that the Chicago and North Western established a yard at Proviso, 13 miles west of Chicago, a few years ago. Before this yard was placed in service, cars were received and dispatched at each of 26 stations in the Chicago district. The building of a less-than-carload freight transfer at Proviso made it possible for the North Western to consolidate the loading and classification of outbound cars for the entire system at one point. All outbound less-than-carload freight from the 26 stations mentioned were sent by freight car or by motor truck directly to Proviso for loading into outbound cars. The results are said to have been: (1) a substantial acceleration in the movement of freight from Chicago and adjacent territory; (2) the saving of between 100 and 150 cars out of the equipment required to handle traffic, due to concentrated and heavier loading of outbound equipment; (3) a reduction in loss and damage claims; and (4) a diminution in the amount of overtime payments.²²

Generally speaking, the appliances for the intramural transportation of less-than-carload freight include the belt line, the subway, and the motor truck. In New York, the presence of considerable bodies of water between Manhattan Island and the New Jersey and Brooklyn shores permits the use of barges or lighters for a portion of the intramural haul, thus relieving the city streets. In Chicago, some use is made of the Chicago River, but more of the tunnel property of the Chicago Warehouse and Terminal Company. This independent company operates a narrow-gauge railroad system through a tunnel, seven and one-half feet high and six feet wide, which extends under nearly all of the streets of the downtown district, and is connected by elevators with the freight floors of the railroad stations, as well as with a number of commercial houses and industries, and with surface stations maintained by the tunnel company. The subway has never been profitable, but it performs a notable service in carrying freight in the most congested areas of the city.

Trap Cars.—The name "trap" or "ferry" is applied to a car placed at an industry or commercial house having a private siding and then loaded by a shipper with less-than-carload shipments and hauled by a carrier to a local freight or transfer station for the handling and forwarding of contents. It is also applied to a car loaded with less-than-carload shipments which is hauled to and placed upon the private track of an industry or commercial house by the carrier from a local freight or transfer station. Service of this type is usually rendered free of charge if a prescribed minimum is loaded into the car; if the stipulated minimum is not loaded, charges are named, usually on a per-car basis.

²² *Railway Age*, October 28, 1933, pp. 616, 618.

Trap-car-service was originally instituted in order to enable carriers to compete for the less-than-carload business of firms which were at a distance from their freight houses in a city, although near to the freight house of some competing line. It has been continued partly because of the indirect advantage of relieving congested main freight stations, and the practice has been extended in certain instances. Such an extension occurs, for example, when carriers establish freight substations at convenient points within their switching limits, from which less-than-carload shipments are transported to main freight stations, or transfer stations, for the rehandling and forwarding of contents, thus multiplying the points at which railroad service ends and other forms of transportation begin.²³

Truck Service in City Streets.—The greater part of local less-than-carload freight makes use of city streets, and it is there that carriers create most congestion. The crowding occurs, in the first place, because city thoroughfares are not planned to accommodate an extensive vehicular traffic and cannot be easily widened as such traffic grows. It occurs also because the business of city freight transportation is usually directed by a large number of independent and uncoordinated trucking companies. This leads to duplication of facilities and overoccupation of street space, and also to irregular and unplanned arrival of trucks at the rail freight houses. Railroad freight terminals must be larger under such a system than they would need to be if the rail carriers were not required to find storage space for a portion of their inbound freight, although this disadvantage is partially offset by the reduction in warehouse space which consignees might otherwise be forced to provide. There is no question but that motor truck service is immensely more efficient than the service that the old horse-drawn vehicles could supply for the handling of traffic to and from the rail; and the efficiency of modern service has grown with the adoption of special types of trucks, such as those equipped with demountable bodies, or trucks fitted to handle so-called "unit containers" to be transferred directly between motor vehicle and railroad car without rehandling of the contents, or trucks with cranes for hoisting, or other special operating machinery.²⁴ It is highly doubtful, nevertheless, whether the most efficient

²³ Trap or Ferry Car Service Charges, 34 I.C.C. 516, 1915.

²⁴ What is known as a "container" is a steel box, approximately as wide and about one-fifth as long as the platform of a railroad flat car. Containers used by the Pennsylvania Railroad, which may serve as illustrations, are 7 feet wide, 9 feet long, and 8 feet high. Their capacity is 440 cubic feet, the average weight is 3000 pounds, and the load capacity is 10,000 pounds. Five such containers, clamped on a flat car, will completely occupy the floor. One container will provide a complete load for a truck of reasonable dimensions. The advantage to the railroad from the use of such equipment is that it reduces the amount of station handling. Empty containers are brought to the shipper's door by motor truck. They are loaded by the shipper, sealed, and then hauled by truck to the rail terminal. The railroad has only to swing the container from truck to flat car and then make it fast. There is no checking, no record is made of the container's contents, and the packages in the container are not separately handled. From the shipper's point of view, the first advantage is that the necessity for crating or boxing small pieces of freight is reduced. Losses from pilferage become almost impossible. The shipper loads

appliances that can be devised, within the limits of reasonable expenditure, will serve to meet the physical requirements of less-than-carload terminal handling in our largest cities, without an improved organization of intramural freight transportation. Fortunately, some steps have already been taken toward this end, and more may be expected.

Off-track and Constructive Stations.—Among the devices for accomplishing a better control of city movement is what is known as the "off-track station."

The best-known instance of the use of "off-track stations" for the terminal delivery of freight is found in the city of St. Louis. The practice in St. Louis originated in 1906, when, for the first time, the rates to St. Louis, on the west bank of the Mississippi River, were made the same as the rates to East St. Louis, on the east bank, to and from points in the territory east of the Mississippi and north of the Ohio River and outside a radius of one hundred miles from St. Louis. This rate adjustment increased the volume of traffic moving into St. Louis to such an extent that the terminal facilities of the city became unable to take care of it. Under these circumstances, the railroads connecting eastern points with East St. Louis arranged with transfer companies to open St. Louis stations in buildings not reached by the rails of any carrier, and to truck to and deliver at these stations less-than-carload freight which had reached East St. Louis by rail. Subsequently, the western lines which had rail terminals of their own in St. Louis made similar arrangements with the same transfer companies. The St. Louis rate was applied to the off-track freight station, as well as to the rail terminal in St. Louis, leaving only the drayage costs to and from the stations to be borne by consignees or shippers. The transfer companies quoted rates, and they collected charges on shipments and

at his convenience, because the container is left at his place of business. And beyond all this, the cartage and railroad rates on less-than-carload shipments in containers may be expected to be less than the rates on the contents of containers when presented to the railroad as separate consignments. In a measure the container makes it possible to secure the advantages connected with the use of a small freight car, such as may be found in European countries, without sacrificing those of the large freight car characteristic of the United States. More recently, the underlying idea expressed by the container has been applied to the use of demountable bodies for furniture vans which can be lifted from truck chassis to rail car, to highway trailers which are run upon and fastened to the rail car, and to the transportation of loaded trucks. It is possible in all this that certain disadvantages in container service have been overlooked. Containers, for instance, cost money; and their use lessens the utilization of existing rail equipment such as station and platform space. Containers may also increase empty-car mileage. This is because the ordinary box car can be used both for carload and for less-than-carload freight, while the container is specialized for less-than-carload traffic. If carload traffic preponderates in one direction and less-than-carload traffic in the other, as in New England, the use of merchandise container cars may increase empty mileage for both types of equipment (L. C. Sorrell, "The Container Car," *Traffic World*, October 12, 1929, p. 895). Containers at present in use in this country have been criticized as too large. Finally, the proper basis for the rates to be charged for freight shipped in containers is by no means determined (173 I.C.C. 377, 1931). A valuable study of freight transport equipment, including a section on containers and demountable bodies, was completed for the Federal Coordinator of Transportation in 1935. See *Report of Mechanical Advisory Committee to the Federal Coordinator of Transportation*, December 27, 1935.

remitted the amounts to the rail carriers. They did not, however, make out bills of lading, but issued, instead, dray tickets which shippers could surrender to the carriers in exchange for bills of lading.²⁵

In addition to the carriage of less-than-carload freight to stations not on the railroad lines, the transfer companies established what were known as "constructive" stations. These so-called constructive stations were points in St. Louis up to which the rail carrier was willing to absorb the trucking charge. Under the arrangement made, a recognized transfer company might receive freight from the railroad at East St. Louis and haul it direct to the consignee's place of business. The truck would act as the railroad's agent from the moment the freight was received at East St. Louis until it passed a constructive point at the west end of the Eads bridge across the Mississippi River. Payment by the railroads to the truckers under these arrangements were known as "direct delivery allowances." In 1932 they were at the rate of 5 cents per 100 pounds.²⁶ Beyond the constructive point the truck would act as the agent of the consignee, and the latter would be responsible for its charges.²⁷

In 1923 the Columbia Transfer Company handled approximately 50 per cent of the less-than-carload freight originating in or terminating at St. Louis and passing through the East St. Louis freight houses. It also handled a considerable tonnage of St. Louis business through its houses on the west side of the river, and practically all of the less-than-carload freight interchanged between railroads entering the St. Louis districts, the larger part of which crosses the river.²⁸ The rail carriers, except the Chicago and Alton, contracted in 1929 with the Columbia Company to take care of their entire less-than-carload business in St. Louis and the off-track stations in St. Louis. The volume of its business, therefore, has presumably increased since 1923. Freight handled through constructive stations is not so monopolized by contract, although the Columbia Transfer handles most of it.

Method of Handling St. Louis Traffic.—A representative of the Columbia Transfer Company, described its methods of operation in 1926 as follows:

We have [the representative testified] 370 semi-trailers and 97 tractors, as well as some trucks.

There are almost four trailers to each tractor. These trailers are backed into the railroad platforms, and the freight is trucked direct from car onto the trailers, the trailers in that manner increasing the platform capacity of the railroad platform. . . .

As soon as a trailer is loaded a tractor engages same and it is taken at once in the case of interchange [traffic] to the outgoing line where the freight is unloaded, checked, and receipted for.

In the case of city freight, it is taken to the off-track station nearest to which the consignees are located having freight with which that trailer is loaded. At each one

²⁵ 34 I.C.C. 453, 456, 1915.

²⁶ 188 I.C.C. 153, 1932.

²⁷ 155 I.C.C. 129, 151, 1929; 177 I.C.C. 316, 1931.

²⁸ *Railway Age*, June 20, 1923, p. 1690.

there is filed routing instructions by the different consignees who receive any quantity of freight at all, indicating at what depot they desire to receive their freight. . . . The trailers are moved under a dispatching system handled from offices in St. Louis and East St. Louis.

In the case of the outbound freight from the St. Louis shippers, it is brought to the off-track freight station by the shippers. . . .

Under the same dispatching system previously mentioned the freight is transferred from these outbound stations to the outgoing rail lines. The different freight depots, rail freight depots, at East St. Louis and St. Louis are from one to three miles apart. The running time of the tractor-trailer equipment between these stations is on an average fifteen minutes. It will therefore be seen with what dispatch this freight is handled.²⁹

A system somewhat similar to that in use in St. Louis was operated for a few years by the Erie Railroad in New York. The rail terminal of the Erie was in New Jersey, and its ordinary delivery to Manhattan Island was by lighter to New York piers. The Erie, however, established three inland stations located at various points in New York, in conjunction with warehouses operated by the United States Trucking Corporation, or its subsidiary, the Independent Warehouses, Inc. Under prior arrangement made between the trucking company and the consignee, freight which was unloaded onto the trucks of the transfer company was delivered either direct to the warehouse of the consignee or, at his option, to one of the inland station warehouses to which New York rates applied, just as the St. Louis rates applied to and from designated off-line warehouses in the city of St. Louis. The same system was put in force for movements in the opposite direction. Goods might be stored indefinitely in the inland warehouses at the usual warehouse rates and at consignee's expense and liability. The cost of trucking to the off-line warehouses under this plan was absorbed by the railroad, which thus, in effect, decentralized its terminals without the necessity of large construction expenditures, while the cost of trucking between the warehouse and the consignee's place of business remained, as before, with the consignee.³⁰

Constructive Delivery in New York City.—When the consignee received direct delivery at his place of business without delivery to any warehouse, the railroad in New York, as in St. Louis, arranged for truck delivery and absorbed part of the trucking charge. The constructive station in this plan was the point beyond which the cost of local transport fell upon the consignee. It might be a ferry building or a street; there was no necessity that it, should be a location where goods received terminal handling. This precedent, set by the Erie in 1921, was followed by the Lehigh Valley in 1924, and later by the Delaware, Lackawanna and Western, the New York, New Haven and Hartford, the Baltimore and Ohio, the Pennsylvania, and the Central Railroad of

²⁹ *Motor Bus and Trucks Investigation*, I.C.C. Docket No. 18,300, Vol. 8, testimony Keene, pp. 4565-4567.

³⁰ T. C. Powell, in *Municipal and County Engineering*, August, 1925.

New Jersey during the years between 1925 and 1927. Most of the railroads mentioned handled a comparatively small volume of freight through their constructive stations, but in 1927 the New Haven moved nearly a quarter as much tonnage through constructive or off-track termini as through its regular stations in New York. Unfortunately, the operation of constructive stations on Manhattan Island appeared to the Interstate Commerce Commission to involve rate difficulties which had not characterized the practice in St. Louis, largely because of competition between carriers serving New York and because the system did not apply equally to shippers in Manhattan and to those in other parts of the New York rate district. The Commission therefore required the system to be abandoned. This ruling, however, was not to be interpreted, it said, as questioning the propriety of constructive stations at St. Louis, where the same abuses did not exist.³¹

In accordance with the Commission's view, the New York railroads gave up constructive delivery in the New York area. The Pennsylvania and the Lehigh Valley also abandoned the inland stations which they had maintained. As a partial substitute the Port of New York Authority then agreed to build, and the principal railroads entering New York City agreed to use, an inland station in the block bounded by Eighth and Ninth Avenues and West Fifteenth and West Sixteenth Streets. This inland station is now operated by eight New York railroads as a receiving and delivery point for less-than-carload freight. It was conceived of as the first of several such termini, for the Port Authority undertook to commence the construction of two other Union Inland Freight stations and to rent them to the carriers on reasonable notice.³² These two additional stations have not yet been built.

Store-door Delivery.—Under both the trap-car and the "off-station" systems, the rail carrier accepts and assumes responsibility for delivery of freight at points considerably removed from freight houses where the line haul ends. The system of store-door delivery is a logical extension of this practice.

Store-door delivery has been standard in England for all except the heavier classes of goods—coal, iron, cement, etc.—for many years. Inbound freight is checked from car to platform, trucked to dray loading section, loaded and checked into railway drays or motor trucks, and then sent out, over scales, into the town for delivery. Outbound freight is collected at consignee's door and follows a reverse procedure until loaded into the railway car. The railway companies' cartage vehicles collect and deliver most of the miscellaneous goods traffic passing through their terminals.

In Canada, a similar service is operated by the rail carriers under contracts or agreements with teaming companies acting as their agents. This service applies to traffic rated in the Canadian classification as fifth class or higher,

³¹156 I.C.C. 205, 1929.

³²*Railway Age*, January 10, 1931, p. 160.

less-than-carload and carload, with the exception of bulk freight or articles weighing 2000 pounds or over per piece or per package.³³

In the United States, store-door delivery has long been standard for parcel post and for express traffic; and store-door collection has been available to shippers of a limited number of commodities, through the activity of "forwarding companies" which collect less-than-carload shipments, consolidate them into carloads, and present them to the line-haul carriers at the railroad terminals for carriage at the carload rate. In at least two cases, moreover, railroads undertook store-door delivery on their own account some years ago. One of these cases was that of the service established in Baltimore in 1867 by the old Philadelphia, Wilmington, and Baltimore Railroad, and continued when that company was absorbed by the Pennsylvania Railroad in 1881. Similar facilities were also afforded at Baltimore, at one time or another, by the Baltimore and Ohio and competing water lines.⁸⁴

A second instance on record was that at Washington, D. C., established by the Pennsylvania Railroad in 1883. In each case the purpose of providing store-door delivery was to relieve congestion at the railroad terminal. In 1913 the Pennsylvania attempted to withdraw the service at Washington, owing to increased expenses in connection with it, and to insistent agitation for its extension to other communities,³⁵ but was refused permission in view of the continuance of store-door delivery at Baltimore. The result was the elimination of the service at both places.³⁶

Extension of Store-door Delivery.—Ten or fifteen years ago the attitude of both shippers and carriers with respect to store-door delivery was friendly but cautious. Shippers were inclined to stipulate that the service must be optional, the charge reasonable, and the transition from station to store-door delivery gradually accomplished. Carriers, on the other hand, stressed the desirability of setting distance limits to the delivery zones and the necessity for careful calculation of costs. They also expressed the view that the development of cartage service should not be allowed to alter the competitive situation as it applied to different roads.³⁷

After 1925, however, the practice of pick-up and delivery progressed much more rapidly than was at that time expected. Between 1925 and 1932 a number of railroads introduced a store-door delivery on selected portions of their lines. In December, 1933, the Pennsylvania, the Erie, and a number of other eastern railroads published tariffs providing for free pick-up and delivery at substantially all their stations for less-than-carload freight moving 260 miles or less. The limit for free service was removed in 1936. The tariff provided

³³ *Railway Age*, July 5, 1924, p. 30.

³⁴ 30 I.C.C. 388, 1914.

³⁵ 27 I.C.C. 347, 1913.

³⁶ 30 I.C.C. 388, 1914; 30 I.C.C. 455, 1914.

³⁷ *Railway Age*, October 17, 1925, p. 701.

that a minimum rate of 30 cents (changed to 45 cents in 1936) should be observed in computing charges, and that the classification rules concerning minima should apply. Unless otherwise specifically indicated, the service was made available only in areas within the corporate limits of cities or towns, or, in the case of points not having corporate limits, within a radius of one mile from the carrier's freight station.³⁸ In January, 1936, the western and southern railroads established similar service throughout their territories at existing station-to-station rates.

Sorrell remarks that the motives for this adoption of store-door delivery in the United States have mainly been the following: (1) some inadequacy in less-than-carload terminals that, at the time, could be relieved more economically by adopting a new operating system than by expanding the terminals; (2) competition, which forced other carriers, placed at some disadvantage, to adopt the store-door system themselves. In the case of the Pacific Electric, adoption of store-door collection and delivery was designed to attract additional traffic which would provide greater and more efficient use of railroad facilities and forces and of local drayage equipment in the towns served—equipment and facilities which were already available, but which were being used only to a part of their potential capacity.³⁹

It seems clear enough that the sudden extension of the practice of store-door delivery after 1925 was the result of the rail carriers' desire to recover traffic from an expanding trucking industry, and that it was not a considered effort to reduce the costs of terminal operation.⁴⁰ Collection and delivery by railroads will not, indeed, much affect total terminal costs if the system merely substitutes several railroad trucking organizations in each town for several companies of independent truckers, and if the freight formerly stored in railroad freight houses is merely shifted to the premises of the shippers. For real economy some kind of unified control of truck movements in each city is essential; store-door collection and delivery by rail carriers will not alone suffice.

Advantages of Store-door Delivery.—The advantages of store-door delivery, from the point of view of terminal operation, are two: first, it enables the

³⁸ Exceptions to these general boundaries were shown in the tariff as to some 700 points. Collection and delivery was not offered to shippers of the following articles: Articles or packages of unusual size; explosives; freight in bond; live animals; live game, pigeons, or poultry; shipments which the owner was required to load or unload under classification rules; "order-notify" consignments, except those for which the local agent had received the bill of lading or assurance of its surrender on tender of shipment; and some other articles. To this list the carriers later added other items, including automobiles, container-car freight, exhibits, milk and certain other dairy products, peddler-car traffic, and plate glass in packages of specified dimensions (218 I.C.C. 441, 445, 446, 1936). Shippers who elected to carry their own freight to or from terminals were allowed 5 cents per 100 pounds out of the freight rate in either case.

³⁹*Traffic World*, September 28, 1929, pp. 761, 762.

⁴⁰ This was certainly the opinion of the Interstate Commerce Commission, which remarked in 1936 that the service must be supplied if the railroads were to retain their present shrunken volume of less-than-carload tonnage (218 I.C.C. 441, 475, 1936).

railroad to clear its freight houses promptly of incoming freight, and possibly to reduce the provision of yard storage tracks; and second, it may make it possible to obtain a higher load efficiency in road vehicles by scientific loading and routing, with the result that traffic congestion upon the streets is likely to be reduced. A third advantage sometimes mentioned is that store-door delivery will permit the railroad to distribute less-than-carload freight by truck from inexpensive locations on the outskirts of the congested area instead of bringing freight of this description to freight houses in the heart of town. The shipper who furnishes his own cartage naturally wishes his freight accepted or delivered at the station which is nearest to his industry. With store-door delivery, the shipper cares little where his traffic leaves the rail. This third advantage, however, is a somewhat doubtful one from the community standpoint, as the traffic formerly moving to the center of the city by rail is now thrown upon the city streets. The balance of gain or loss can be determined only by careful study of each individual case.⁴¹

Disadvantages of Store-door Delivery.—The most obvious disadvantages of store-door delivery are that it brings the railroad into direct conflict with influential trucking interests in the great cities and that it deprives the shipper of the period of forty-eight hours' free storage which he now enjoys at the railroad freight house in the case of incoming goods. Since the consignee is required to construct storage space which the carrier formerly provided, he expects a concession in the rate, or at least some equivalent advantage to offset his loss. For the most part railroads do not operate their own motor vehicles in pick-up and delivery service, but employ trucking concerns to perform this duty for them in accordance with written contracts. Sometimes the trucking companies are controlled by the railroad or are affiliated with it through common control; sometimes contracts are made with independent operators. It is the policy of the Erie and of the Boston and Maine to use one trucking organization at each point except in the larger cities, where two or three may be employed. On the other hand, the western carriers at Chicago and St. Louis enter into contracts with any truck operator who conforms to certain qualifications set up by a committee composed of representatives of the railroads, so that seventy or eighty operators at St. Louis and nearly three hundred at Chicago participate in store-door delivery service. The former policy provokes the greatest opposition, and doubtless explains why the local trucking interests so strongly opposed liberalization of rail pick-up

⁴¹ It has been suggested that, in the future, only freight in large bulk should be handled entirely by rail from shipper to consignee. All other freight might be carried by rail, but only between stations lying outside of the congested areas of the cities of origin and destination. Between the door of the shipper and the platform of the outlying station at the point of origin, and between the station platform and the door of the consignee at the point of destination, all freight should move by motor truck (*Railway Age*, October 28, 1933, p. 621). This assumes, however, that the use of trucks reduces congestion in city areas, a conclusion which has been questioned in the text.

tariffs in the East when the proposal was made in 1936.⁴² The Interstate Commerce Commission, however, has been disposed to approve either method, and has permitted collection and delivery tariffs to become effective both in the East and in the West.⁴³

Specialized Terminals.—Some rail carriers have devoted thought and money to the construction of special facilities for particular kinds of freight, hoping in this way to attract traffic to their lines for reasons other than those connected with a purely transportation service. There is considerable variety in these special facilities which railroads supply to patrons. Some carriers, for instance, which handle large quantities of express provide vaults for the protection of money and valuables, bonded rooms for imported articles, and frost-proof and refrigerator space for perishable commodities.⁴⁴ At Port Reading, New Jersey, the Philadelphia and Reading Railway operates a terminal with special reference to the needs of jobbers who supply New York City with coal. For this purpose it provides facilities for the prompt handling of incoming cars, when this is desired, and also facilities for storage in cars or in barges when movement to the market has to be delayed to protect the shippers' profits.⁴⁵

Most common of all are what are known as "produce terminals." The object of a produce terminal is to facilitate the sale and delivery of perishable farm products such as fruits, vegetables, and, in some cases, butter, eggs, and poultry. For this purpose railroads provide the usual yard trackage, and in addition erect buildings for the display of produce, for its sale privately or by auction, and for the storage of such supplies as are not at once disposed of. According to a report by a committee of the American Railway Engineering Association, terminals now in operation provide for the following methods of handling produce:

1. Direct carload delivery from cars on team tracks after inspection.
2. Sales of parts of carloads, either directly from the car or after unloading

⁴² In New York City alone there are said to be over 6000 truckmen operating about 17,000 pieces of equipment, and giving employment to some 50,000 men. The testimony of individual truckers is to the effect that their business to and from railroad stations represents from 20 to 75 per cent of their total business, and that few if any can afford to lose this traffic. It is estimated that 20 per cent of the total revenue of New York City truckmen is received from business to and from railroad terminals (218 I.C.C. 441, 462, 1936).

⁴³ There is still some difference of opinion with respect to the costs incident to store-door delivery. The railroads argue that the cost to them is represented by the payments to their trucking agents. Their rail plant is believed to be sufficient to handle, without additional expense, any new business which the offer to pick up and deliver may attract. The validity of this reasoning is disputed. There is also question as to whether allowances from the published rate should be made to shippers who collect their own consignments. Local truckers support this practice because they hope that it will enable them to retain some business. Most carriers make such allowances, and the Interstate Commerce Commission has refused to hold that they are illegal.

⁴⁴ *World Ports*, June, 1930, pp. 554-558.

⁴⁵ *Railway Age*, February 18, 1928, p. 399.

on a platform. This method is usually employed in handling juice grapes, watermelons, etc.

3. Sales of parts of carloads directly from the car after inspection of samples.

4. Carload delivery to a store or stores with direct track service.

5. Carload delivery to auction and private sales buildings.⁴⁶

The fact that the produce terminal helps the shipper to sell his goods is one of its chief attractions; and special attention is therefore paid to this side of produce terminal operation. At the Pennsylvania terminal in Philadelphia, the railroad agent at the terminal receives each day telegraphic reports of all produce shipments en route to Philadelphia. His office immediately advises consignees of the time when their consignments are to arrive and learns from them whether they wish the shipments assigned to a sales dock in the terminal or to the delivery yard, held for assignment, or reconsigned to some other market. Goods intended for display and sale in the terminal are brought in, as far as possible, in the night, and are unloaded and placed ready for inspection by 6 A.M. Auction sales begin about 7.45 A.M. and continue from one to three hours, depending upon the amount of business to be done.⁴⁷

Another example of the same sort of service is supplied by the elaborate produce terminal which the Pennsylvania, the Wabash, and the Pere Marquette railroads operate at Detroit.⁴⁸ This terminal occupies a fully developed area of about twenty-six acres. Essentially its facilities consist of two long auction sales and office buildings, a large banana building, bulk delivery platforms, produce inspection platforms, icing platforms, a boiler plant, a well-equipped stevedore building, about 70,000 square yards of concrete paving, and approximately ten miles of railroad tracks. Buyers and sellers in Detroit assemble in their respective rooms early in the morning. At a signal given by means of electric gongs, the sellers take their stations by their various lots of produce. The buyers pass through the building in which the produce is displayed and then through a tunnel beneath a driveway over to a second building where the auction is held. On another signal the buyers assemble for the auction sale held in the auction auditorium. At the end of the sale the gates of the fence surrounding the terminal are thrown open, and the buyers rush a list of the items they have bought to their trucks which, in the meantime, have been parked outside. Each list of purchases carries the number of the door at which the truck is to receive the load. Such operations promote rapid transfer from wholesaler to retailer at a minimum of expense and

⁴⁶ American Railway and Engineering Association, *Proceedings of the 33d Annual Convention*, Vol. XXXIII, 1932, p. 117. A team track, in the enumeration printed in the text, means a railway track accessible to trucks and teams. A store with direct service is one located on a spur or private track so that railroad cars may be placed or "spotted" at the store for loading or unloading.

⁴⁷ *Railway Age*, January 12, 1929, p. 137.

⁴⁸ *Ibid.*, December 28, 1929, p. 1463.

with some approach to a standardization of price. They are so efficient that they give a carrier which makes them possible a traffic advantage over other carriers which do not provide selling facilities. It should be said, however, that a series of separate and competing terminals for the handling of produce in any city is less desirable from the point of view of the dealer than a single terminal, designed and organized for the same purpose. Dealers prefer that carriers should cooperate in the erection of one fruit and produce terminal in each large city, open to all carriers serving that market.⁴⁹ As a matter of fact, when two or more produce terminals are located in a city of moderate size, one terminal does practically all the work. Even from the railroad's standpoint, a joint produce terminal has the advantage of cheapness, not only because the first investment is less for each participating carrier but also because the peaks of traffic come at different times on different railroads, and the capacity of a joint terminal is better utilized than is the capacity of a terminal serving a single railroad line.⁵⁰

Air Rights.—When special terminals can be erected above railway-yard or main-line tracks there is an important saving in space, and a more intensive utilization of the most expensive part of the railway's real estate. The thought that what are known as "air rights" can be so developed is recent, and the practice is still limited to a few large cities. An example of successful air rights development is the large terminal warehouse which the Reading has recently built at Philadelphia, using space formerly entirely occupied by two railroad freight houses and their appurtenant tracks.⁵¹ Another illustration may be found in the "Merchandise Mart" erected above the Chicago and North Western Railway in Chicago. The building in which the Mart is located is eighteen stories high and is said to be the largest building in the world, measured by floor area. It is constructed on property formerly occupied by the North Western's Wells Street passenger station. When the railroad's new Madison Street passenger station was built, the North Western sold the air rights over its tracks to Marshall Field & Co. On the lower level, which it retained, the railroad built a modern freight terminal. Above, and spanning this terminal, Marshall Field constructed a wholesale mercantile center. It occupied part of this structure itself and leased space to many other firms as well. The location was convenient to wholesalers, and especially to the mail order house, because of its convenient access to rail transportation. On the other hand, the railroad benefited, because the revenue derived from the sale of the air space was almost a net addition to its income.⁵²

⁴⁹ 188 I.C.C. 323, 1932. See also *World Ports*, June, 1928, pp. 695-696. *Railway Age*, April 7, 1928, p. 801, prints a description of the New York produce terminals of the Pennsylvania Railroad. The particular terminals mentioned in the text are not, of course, the only examples of their kind.

⁶⁰ American Railway and Engineering Association, *op. cit.*, p. 116.

⁶¹ *Railway Age*, July 19, 1930, p. 103.

⁵² *Ibid.*, September 26, 1931, p. 471. In Chicago, also, a twelve-story post office has been erected over the tracks and platforms of the Chicago Union Station (*ibid.*, January 21, 1933).

More important than any of these illustrations has been the development of the New York Central terminals in New York City. Extensive construction in the Grand Central terminal zone in the neighborhood of 42d Street and Fifth Avenue was first made possible by the substitution of electricity for steam as motive power in the New York terminal district. When this had been done, the railway tracks were depressed; and over the space once entirely devoted to tracks the railway built revenue-producing structures, including apartment houses and luxurious hotels. The Grand Central Station was also enlarged, and store space was rented in the building. The result was a large increase in income to the railway; and in this case the city also benefited by the restoration of streets across the railway property and by the enlargement of the space in the restricted Manhattan district which could be used for business and residential purposes.⁵³ Part of the gain accrued to the city government by virtue of the enhancement of realty values in the district and the consequent increase in tax revenues.

Open v. Closed Terminal.—The pressing problem of general policy with reference to freight terminals and carload traffic is one of administration. The question is whether freight terminals in our large cities shall be operated as a unit or whether, in each city, the individual and competitive advantages of each rail carrier shall be preserved.

The shipper insists upon what he calls an "open terminal." That is to say, he wishes to ship across country by whatever railroad line he cares to choose, and to secure terminal delivery at a reasonable rate at any point with which his chosen route has a physical connection. The railroad's point of view is different from this; while the carriers which possess poorly located terminals or lack access by their own rails to traffic-producing industries advocate reciprocity, the better-placed systems regard their advantages in terminal location as legitimate weapons to be used in the solicitation of traffic. To put the matter concretely, the railroad which operates an advantageous terminal desires to secure for itself the longest possible line haul of all consignments which originate upon or are destined to locations upon its tracks.⁵⁴

Reciprocal Switching.—There are two ways by which a terminal may be "opened." One way is to establish a practice of reciprocal switching. Under this plan, the railroads entering a city retain, each in general, the ownership of their terminal properties but undertake to accept any cars tendered to them at junction points and place them upon any of their team tracks or industry spurs which may be designated by shipper or consignee. A policy of reciprocal switching is most effective when a city is surrounded by a "belt

⁵³ W. D. Pence, "Railway Terminal Air Rights Developments and Movements of Local Land Values," *Journal of Land and Public Utility Economics*, May, 1929. It has been suggested that railroad air rights might be used in the development of terminal facilities for airplanes.

⁵⁴ See the two Interstate Commerce Commission reports on railway consolidation: 63 I.C.C. 455, 483-484, 1921; and 159 I.C.C. 522, 1929.

line" which touches the rails of all incoming carriers, although it is not entirely dependent upon such facilities.

The most developed use of belt-line railroads in connection with reciprocal switching in the United States is at Chicago, where the Chicago and Western Indiana, the Belt Railway of Chicago, the Baltimore and Ohio Chicago Terminal, the Chicago Junction, the Indiana Harbor Belt, the Elgin, Joliet, and Eastern, and the Illinois Northern Railroad operate trackage connecting the Chicago main-line railroads that makes it possible to reach any rail location in the city from any point on any railroad either within or without the city limits. Certain of these roads also operate "universal freight stations" which extend, to a limited extent, the advantages of the open terminal to less-than-carload freight.

A "universal" station is one at which freight is accepted for delivery upon the line of any connecting carrier. At Chicago, the Chicago and Western Indiana and the Belt Railway of Chicago operate two universal less-than-carload freight stations, one at Cragin and one at Clearing, which handle both inbound and outbound freight for all railroads; the Baltimore and Ohio Chicago Terminal operates the Sears station, which handles outbound less-than-carload freight only, for all roads; the Chicago Junction Railway and its operating company, the Chicago River and Indiana, operate four universal stations which handle outbound less-than-carload freight for all railroads, and one of these also handles inbound less-than-carload freight for eastern railroads; the Manufacturers' Junction Railway operates a universal freight station at Hawthorne, which handles both inbound and outbound freight for all railways; and the Illinois Northern Railway operates what is called the McCormick station, which handles both inbound and outbound freight for all railroads. These facilities are in addition to the lighters of the Merchants' Lighterage Company and to the tunnel system of the Chicago Warehouse and Terminal Company referred to in earlier pages of this chapter.

Unified Terminals.—A second way to open a terminal is to place the operation and, perhaps, also the ownership of terminal properties in the hands of a separate company⁵⁵ which may be municipally controlled, as in the case

⁵⁵ The Interstate Commerce Commission's consolidated plan of 1929 listed 183 terminal railways (159 I.C.C. 522, 547, 1929). These were not, under the plan, assigned to any of the main-line systems. On this matter, the Commission said:

"Our plan does not at present contain a complete allocation of terminal properties to individual trunk lines. Generally speaking, the terminal railroad properties, wherever located, automatically fall into the aggregation of terminal properties of which they are a part. We think that consolidations should be accompanied by the unification of all terminal lines in the respective terminals. All terminal properties 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. As our reports show, for years access to terminals has raised questions associated with such terms as reciprocal switching, absorption of switching charges, switching of competitive traffic, favored zones, and switching of noncompetitive traffic, and with unjust discriminations and undue preferences. The unification of terminal properties

of **the** belt railroads at San Francisco and New Orleans, or controlled jointly by all the rail carriers which enter the city, as at St. Louis and Kansas City. The best-known organization of this sort is probably the Terminal Railroad Association of St. Louis, which serves and has connections with twenty-five railroads operating within the metropolitan area of Greater St. Louis, and renders service to more than 1400 industries located on both sides of the Mississippi River. The Terminal Railroad Association of St. Louis operates a passenger station used by the seventeen railroads operating passenger service, together with extensive interchange freight yards, less-than-carload freight facilities, and ample team yards for carload freight, which supplement the terminal yards and facilities of the individual roads.

Operation and Ownership of St. Louis Terminal.—At the present time the railroads break up their inbound trains after arrival at East St. Louis and St. Louis and classify freight traffic in their own yards for delivery: (1) on their own rails; (2) to other railroads with which they have direct connections; (3) to the Terminal Railroad Association; or (4) to other transfer agencies located within the St. Louis-East St. Louis switching district. Only a few railroads have direct connection with each other, so the Terminal Railroad Association handles most of the intermediate and trans-river movements between the various lines.

Except in the case of freight interchanged in St. Louis and East St. Louis proper, that does not cross the river, the Terminal Railroad Association takes the cars from its connections on the west side of the river to its principal clearing or classification yards on the east side, or vice versa, where the cars are again classified for delivery to other roads and to industries located upon Terminal rails. Cars are then handled in direct transfer movement between the yards and the interchange tracks of the individual railroads, where they are again classified for movement beyond in road trains and for local delivery. The Terminal Railroad Association of St. Louis is owned and controlled by the fifteen trunk-line railroads entering at St. Louis.⁵⁶ These companies

everywhere should put an end to disputes of this character to the advantage alike of all railroads and all users of railroads. In the interest of efficient and economical operation and the free movement of traffic, restrictions in service and discriminations in charges which have arisen from differences in local terminal situations should cease to be a feature of railroad operation."

⁵⁶ One railroad, the Missouri Pacific, owns two shares and fourteen other railroads own one share each of non-transferable stock in the St. Louis Terminal. The double holding of the Missouri Pacific arises out of the fact that this company is the successor in interest to the St. Louis, Iron Mountain and Southern Railway Company, which was a proprietary line of the Terminal Company before the Missouri Pacific took it over. Profits are not distributed to the proprietary companies but are held by the Terminal for additions and betterments or for other purposes in connection with terminal operation. The proprietary lines have contractual trackage rights to operate their trains over the bridges and tracks owned, leased, or controlled by the Terminal, but none of them exercise such rights for freight service, except the Wabash, over the Merchants' Bridge. The Wabash handles substantially all of its business moving across the river between its eastern and western divisions (172 I.C.C. 554, 560, 1931). See the Kansas City Terminal Railway Company and **the** Norfolk **Belt** Line for other instances of **terminal proper-**

agree under contract to pay sufficient tolls to cover interest, taxes, rentals, and other charges, each company contributing its proportion in the event of deficiency. The Association has two bridges across the Mississippi River at St. Louis, and provides facilities for switching, interchanging, receipt, and delivery of railroad cars within the metropolitan area of Greater St. Louis. It has been estimated that about half of the carloads originating at or destined to St. Louis or East St. Louis are loaded or unloaded on the tracks of the Terminal Railroad Association, and the balance on tracks of the other carriers.⁵⁷

Legality of Unified Terminals.—There is, of course, some question as to the legality of terminal unification of the St. Louis type, but after consideration this consolidation has been approved by the courts. The first case was in 1904, when the Supreme Court of Missouri ruled that the consolidation of the Terminal Railroad Association of St. Louis with the Merchants' Terminal Company—a merger which consummated the control over St. Louis terminal facilities which the former now enjoys—was not contrary to the constitution or statutes of the state of Missouri.⁵⁸

In 1912, the Supreme Court of the United States held that the unification of the terminal facilities of railroads centering at St. Louis was in violation of the Sherman Anti-Trust Act of 1890, but it took pains to say that this decision was based upon certain peculiarities in the terms upon which the St. Louis terminal properties were held together, not upon the inherent illegality of the whole arrangement; and it prescribed only a reorganization, and not a dissolution, to satisfy the law. According to the Supreme Court, the reorganization should provide:

1. For the admission of any existing or future railroad to joint ownership and control of the combined terminal properties, on just and reasonable terms.

2. For the use of the terminal facilities by any other railroad not electing to become a joint owner.

3. For the elimination of any provision in the agreement between the Terminal and its proprietary companies which should restrict any of the latter to the use of the facilities of the Terminal Company.

4. For the removal of certain specified abuses in the administration of the St. Louis Terminal and the judicial settlement of future disputes between the Terminal and proprietary companies and new applicants who desired terminal privileges.⁵⁹

tics controlled by a number of interested railroads. The arrangements at Kansas City are described in 211 I.C.C. 291, 1935, and in cases cited in this decision.

⁵⁷ The president of the Terminal Railroad Association of St. Louis has courteously supplied information with respect to its activities.

⁵⁸ 81 Southwestern 395, 1904.

⁵⁹ *United States v. Terminal Railroad Association of St. Louis*, 224 U. S. 383, 1912; *ibid.*, 236 U. S. 194, 1915.

The specifications of the highest court were met by a reorganization agreement dated September 21, 1914, so that the useful life of the Terminal Association was continued.

Disadvantages of Unified Terminals.—The arguments against the establishment of unified terminals are the following:

1. A single terminal will not, as is sometimes assumed, enable any shipper to deliver his freight at the nearest freight station, no matter what its final destination may be, as he is able, for instance, to drop a letter into the nearest mail box. The cost of switching and of handling and rehandling freight would be so great under such a system as to compel some classification of receiving stations according to the destination of freight which leaves the terminal.

2. Joint operation may be inefficient operation. It is argued that railroads which now own terminal facilities cannot transfer title to a new company because such properties are usually covered by a variety of long-term mortgages. The most that can be accomplished, according to this point of view, will be a series of long-term leases, and the joint selection by the interested parties of a manager to operate as an agent for all the railroads entering a given city. This, it is said, will make for extravagance, because of the relative indifference of each participating road to economies, the results of which are divided among a number of carriers.

3. Unification of terminals deprives companies which have acquired ample and well-placed terminal properties of the advantage due to their foresight.

4. The merger of terminals will reduce competition because a large portion of this competition takes the form of rivalry between carriers in offering good terminal facilities and in prompt handling of traffic through terminals.

Advantages of Consolidated Terminals.—The advocates of unified terminals argue that they are not a device for restraining competition, but a most effective method of promoting competition, as well as of minimizing the expense of handling city freight business. Speaking of the St. Louis situation, the Supreme Court of Missouri observed:

We gather from the information that all along the lines of the terminal tracks intersecting the city from north to south, from east to west, and belting it on the west, there are manufacturing and other business concerns with switch tracks or spurs into their premises which enable the shipper to load the cars on the switch tracks on his premises, and have them delivered to any railroad that reaches the city. A more effectual means of keeping competition up to the highest point between parallel or competing lines could not be devised. The destruction of the system would result in compelling the shipper to employ the railroad with which he has switch connection, or else cart his product to a distant part of the city at a cost possibly as great as the railroad tariff.

St. Louis is a city of great magnitude, in the extent of its area, its population, and its manufacturing and other business. A very large number of trunk-line rail-

roads converge in this city. In the brief of one of the well-informed counsel in this case it is said that St. Louis is one of the largest railroad centers in the world. Suppose it were required of every railroad company to effect its entrance to the city as best it could, and establish its own terminal facilities; we would have a large number of passenger stations, freight depots, and switch yards scattered all over the vast area, and innumerable vehicles employed in hauling passengers and freight to and from those stations and depots. Or suppose it became necessary, in the exigency of commerce, that all incoming trains should reach a common focus, but every railroad company provide its own track; then not only would the expense of obtaining the necessary rights of way be so enormous as to amount to the exclusion of all but a few of the strongest roads, but, if it could be accomplished, the city would be cut to pieces with the many lines of railroad intersecting it in every direction, and thus the greatest agency Of commerce would become the greatest burden.⁶⁰

The arguments for the unified terminal are clearly expressed in the quotation given above, as far as the economics of terminal location and operation are concerned. It may be added that the large accumulation of cars on the Terminal rails makes a car supply available for outbound loading that is greater than any individual line could hope to furnish.⁶¹ Still another advantage is that a unified terminal prevents the discrimination which exists when the interchange of cars between industries on the same switching road is made at a single service charge, while the charge is higher for industries on separate switching roads for the reason that the cars pass over two or more railroads and the rates reflect what is alleged to be a higher cost.

Authority of the Interstate Commerce Commission to Require the Opening of Terminals.—The Interstate Commerce Commission has been asked in a number of cases to compel carriers with advantageously located city trackage to accept carload freight from their connections at or near their terminals. Complainants who desire "open terminals" point to the carriers' statutory duty to furnish transportation upon reasonable request, and to afford facilities for the interchange of traffic. They invoke, in particular, the power of the Interstate Commerce Commission to establish through routes and rates, and its general authority over terminals as part of the transportation plant subject to the Act to Regulate Commerce. Prior to 1920, however, the Commission's authority was limited in two ways.

Authority of Interstate Commerce Commission to Establish Through Rates.—In the first place, Section 15 of the Interstate Commerce Act, which authorizes the Commission to require the establishment of through routes, also provides that the Commission shall not require any carrier by railroad, except temporarily in case of emergency, without its consent to embrace in such route substantially less than the entire length of its railroad which lies

⁶⁰ *State v. Terminal Association*, 81 *Southwestern* 395, 398, 1904.

⁶¹ H. J. Pfeifer, "Improvements of St. Louis Terminals," *Proceedings of the St. Louis Railway Club*, May 10, 1929. See also Th. M. Pierce, "The St Louis Plan of Unified Terminals," *ibid.*, February 10, 1928.

between the termini of the proposed through route, unless such inclusion of lines would make the through route unreasonably long as compared with another practicable through route which might be established. This limitation may be illustrated by a diagram.

Let us suppose two railroads, of which Railroad No. 1 operates two lines, from *A* to *X* and from *A* to *Y*, and Railroad No. 2 operates one line, from *Y* to *B*. Ordinarily, a railroad will accept cars from its connections and deliver them to any desired point that it reaches—in this case to any point between *X* and *B*. Road No. 2 will, then, accept freight from Road No. 1 and deliver it at points between *X* and *B*. But there will be a difference in

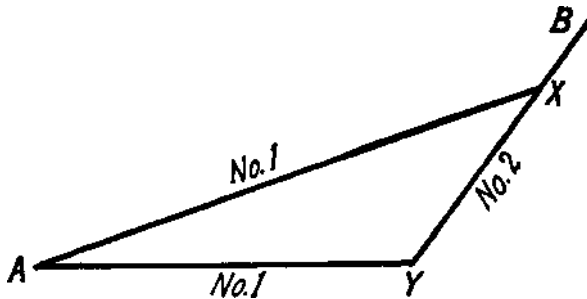


DIAGRAM ILLUSTRATING THE AUTHORITY OF THE INTERSTATE COMMERCE COMMISSION
OVER TERMINALS

interest between Road No. 1 and Road No. 2 concerning the point at which incoming cars are to be transferred from one line to the other. Road No. 1 will desire to bring these cars into the terminal by route *AX* and to deliver them to Road No. 2 at *X*, because this routing will keep the cars upon the tracks of Road No. 1 as long as possible. But Road No. 2, while willing to accept the cars, will insist that they be tendered at *Y*, because the use of *Y* as a point of interchange will enable Road No. 2 to earn revenue by hauling cars from *Y* to *X* as well as by delivering them at destinations between *X* and *B*. This is the possible state of facts to which Section 15 refers, when it says that a carrier shall not be compelled to embrace in its route "substantially less than the entire length of its road . . . etc." Road No. 2, in other words, must accept freight from Road No. 1 for delivery between *X* and *B*, but it may demand that the freight be turned over to it at *Y* and not at *X*. Such facts were, for instance, actually present in the leading *Waverly Oil* case,⁶² a hotly contested bit of litigation before the Commission in which complainant, a shipper located upon the Pennsylvania Railroad in Pittsburgh, desired to move his consignments to and from Pittsburgh on other lines, but to make use of Pennsylvania facilities at the terminal itself. In the *Waverly* case the Interstate Commerce Commission ruled that the interests of the origi-

⁶² 28 I.C.C. 6ax, 1913. See also *Manufacturers' Railway Co. v. A. & W.*, 172 I.C.C. 554, 1931.

nating carrier should prevail. Railroad No. 1 might deliver a shipment originating at *A* and consigned to *B* to Railroad No. 2 at *X*; but Railroad No. 2 had equally the right to deliver a shipment originating at *B* and consigned to *A* to Railroad No. 1 at *Y*. In a later case, however, brought to the Supreme Court of the United States, a Commission order based upon this generalization was overruled,⁶³ so that the consent of the receiving carrier, Railroad No. 2, is now also required if freight originating at *A* is to be delivered at *X* rather than at *Y*.

Joint Use of Terminals.—A second limitation to the power of the Commission over the terminal situation in the United States before 1920 lay in a proviso to the very section of the Interstate Commerce Law which required all carriers subject to its provisions to afford all reasonable, proper, and equal facilities for the interchange of traffic between their respective lines. This explicit mandate, which apparently left wide discretion to the Commission and to the courts in enforcing reasonable practices of interchange at terminals, was itself, prior to 1920, qualified by a proviso to the effect that the law should not be construed as requiring any common carrier to give the use of its tracks or terminal facilities to another carrier engaged in like business.

It is possible that the proviso just quoted should have been interpreted to apply only to the physical use of one carrier's tracks or terminal facilities by the power, equipment, or employees of another carrier. Commissioner Hall argued at one time for such an interpretation,⁶⁴ and there was some judicial support for his position,⁶⁵ but he was unable to convince his colleagues.

Interpretation of the Law.—What the Interstate Commerce Commission did say was that there was nothing sacred about a railroad terminal. The terminal tracks of a railroad might be put to the purpose of legitimate transportation for the benefit of the public just as its main line was so employed.⁶⁶ A belt railroad might not close its line on the theory that it was private property,⁶⁷ nor might a railroad interchange traffic with one connection and refuse to do so with another when conditions were substantially the same.⁶⁸ The Supreme Court also distinguished between the case in which a railroad insists upon its statutory immunity and that in which it voluntarily throws its terminal open to many branches of traffic. When the railroad follows the latter policy, it must avoid discrimination between its patrons.⁶⁹

Yet these are general phrases; and when the Commission was confronted

⁶³ 278 U. S. 269, 1929.

⁶⁴ *Louisville Board of Trade v. Louisville and Nashville R.R. Co.*, 40 I.C.C. 679, 693, 1916.

⁶⁵ *Grand Trunk Ry. v. Michigan Ry. Commission*, 231 U. S. 457, 1913; *Pennsylvania Co. v. United States*, 236 U. S. 351, 1915. See, *contra*, *Louisville and Nashville R.R. Co. v. Central Stock Yards Co.*, 212 U. S. 132, 1909.

⁶⁶ *Waverly Oil Works*, 28 I.C.C. 621, 1913.

⁶⁷ *Peoria and Pekin Union Case*, 26 I.C.C. 226, 1913.

⁶⁸ *City of Nashville v. Louisville and Nashville R.R. Co.*, 33 I.C.C. 76, 85, 1915.

⁶⁹ *Louisville and Nashville R.R. Co. v. United States*, 238 U. S. 1, 1915.

in 1916 with a refusal of the Louisville and Nashville Railroad to switch traffic, originating at or destined to points on the Louisville and Nashville, which was offered by connecting lines at Louisville, Kentucky, or was intended for delivery to connecting lines at Louisville, it declined to interfere. "We cannot believe," said the Commission, "that the law was intended to mean that a competing rail line may now be built between important commercial centers, served by a railroad long established and possessing adequate and valuable terminals at both points, and 'by making a physical connection . . . at an arbitrary point near its terminus' be accorded the right of access to those terminals for originating and delivering freight hauled by it and which the carrier owning the terminals is not only prepared but anxious to carry at rates and under rules and regulations that are subject to all of the requirements and restrictions of the act."⁷⁰

Amendment of 1920.—It is only since 1920 that the power of the Interstate Commerce Commission over railroad terminals has been enlarged by the elimination of the qualifying proviso to Section 3 and by the addition to the act of the following explicit grant of authority:

If the Commission finds it to be in the public interest and to be practicable, without substantially impairing the ability of a carrier owning or entitled to the enjoyment of terminal facilities to handle its own business, it shall have power to require the use of any such terminal facilities, including main-line track or tracks for a reasonable distance outside of such terminal, of any carrier, by another carrier or other carriers, on such terms and for such compensation as the carriers affected may agree upon, or in the event of a failure to agree, as the Commission may fix as just and reasonable for the use so required, to be ascertained on the principle controlling compensation in condemnation proceedings. Such compensation shall be paid or adequately secured before the enjoyment of the use may be commenced. If under this paragraph the use of such terminal facilities of any carrier is required to be given to another carrier or other carriers, and the carrier whose terminal facilities are required to be so used is not satisfied with the terms fixed for such use, or if the amount of compensation so fixed is not duly and promptly paid, the carrier whose terminal facilities have thus been required to be given to another carrier or other carriers shall be entitled to recover, by suit or action against such other carrier or carriers, proper damages for any injuries sustained by it as the result of compliance with such requirement, or just compensation for such use, or both, as the case may be.

Under the Transportation Act of 1920, the Commission may require a common carrier subject to the act to grant the use of its track or terminal facilities to another carrier subject only to two requirements: (1) that **the** use is in the public interest, and (2) that it is practicable without substantially impairing the ability of the first carrier to handle its own business. **The** Commission has considered the exercise of its new powers on several oc-

⁷⁰ Louisville Board of Trade v. Louisville and Nashville R.R. Co., 40 I.C.C. 679, 690, 1916

cations, so far of secondary importance. It holds that it has no authority to require carriers to construct a union station.⁷¹ It has declined to compel a carrier to turn a warehouse into a freight station and operate it jointly with a competitor when both carriers already operated stations and the request for Commission action was intended to remove handicaps suffered by the inferior line.⁷² It has three times refused to direct a railroad to enter into reciprocal switching agreements,⁷³ and twice it has required a carrier to switch a competitor's cars into its terminals against its will.⁷⁴ The Commission has said that if carriers enter into reciprocal switching arrangements in one zone within a city they must do so in other zones where conditions are the same.⁷⁵ It has ordered a carrier to grant to a competitor the use of a terminal connecting track, holding the record open for 60 days to enable the parties to agree upon the compensation to be paid.⁷⁶ On one occasion, the Commission allowed a carrier whose main line terminated 12 miles away from a certain city to use the main-line track of a second carrier into that city in order to reach the property operated by a union terminal. In this case the carrier which owned the 12-mile stretch offered to enter into through-rate and routing arrangements with the petitioner, but this was not enough.⁷⁷ At another time, when carrier A owned a track connecting two terminal segments of carrier B, and was willing to allow carrier B to operate over this track as a bridge line, the Commission did not force A to permit B to serve shippers located upon the connecting track.⁷⁸

There has been, as yet, no general appeal to the Commission's powers under the amended section, possibly because complainants are restrained by the prospect of compensation determined upon the principles which control in condemnation proceedings. On this point the nearest thing to a rule which the Interstate Commerce Commission has announced is that in determining just compensation, the decisive fact is the loss which the opening of a terminal causes to the owning railroad, and not merely the use value to the non-proprietary carrier. In computing this loss, the Commission will include damages from all actual and direct injuries resulting from the entry of an additional carrier, a share of maintenance costs, and interest charges on the value of the facilities which the new railroad uses; for the new use will occupy a part of the premises which the proprietor himself might otherwise have employed.⁷⁹ The sum of these allowances is likely to be

⁷¹ 100 I.C.C. 421, 1925.

⁷² 195 I.C.C. 289, 1933-

⁷³ 80 I.C.C. 314, 1923; 73 I.C.C. 361, 1922; 73 I.C.C. 40, 1922. But see 107 I.C.C. 219, 1926.

⁷⁴ 69 I.C.C. 489, 1922; 112 I.C.C. 125, 1926.

⁷⁵ 107 I.C.C. 219, 226, 1926.

⁷⁶ 161 I.C.C. 699, 1930.

⁷⁷ 146 I.C.C. 171, 1928; 93 I.C.C. 3, 1924.

⁷⁸ 148 I.C.C. 653, 1928.

⁷⁹ 107 I.C.C. 208, 1926. In determining the price which one of the number of railroads at

substantial. Some doubt has been expressed as to the constitutionality of the law. The language of the Transportation Act of 1920 with respect to terminals has not yet, however, been judicially construed, and comments upon this aspect of the matter must be reserved.⁸⁰

Emergency Transportation Act of 1933.—The Emergency Transportation Act of 1933 declared it to be the purpose of the law, *inter alia*, "to avoid unnecessary duplication of services and facilities of whatsoever nature and permit the joint use of terminals and trackage incident thereto or requisite to such joint use." Regional coordinating committees created by the act were enjoined to carry out these purposes in so far as the carriers had legal powers to accomplish such results. If carriers were unable to proceed because of legal or other difficulties, they were to recommend to the Federal Coordinator that he issue appropriate orders, and the Coordinator was authorized to give these orders and to enforce them. If the regional committees did not recommend, the Coordinator might proceed on his own responsibility. He was hampered, however, by the coincident requirement that his action should not reduce the employment nor impair the compensation of railroad employees.⁸¹

Armed with these powers, the Coordinator undertook studies of terminal operation at a number of selected cities and published estimates of savings which, in the judgment of his staff, terminal unifications could produce at these selected points. In all, nearly 5000 projects were considered, including suggested changes at Chicago, St. Louis, and New York, and a number of drastic proposals for reorganization were advanced. Thus at Chicago the Coordinator indicated that the number of major yards might be reduced from 21 to 8, the number of industrial yards from 60 to 18, the number of freight stations from 72 to 12 and the number of passenger stations from 6 to 4. The net saving was set at \$10,502,245.⁸² Total annual economies of \$50,000,000 were believed by the Coordinator's staff to be possible if a thorough policy of terminal unification were put in force.⁸³

On the whole, these estimates and suggestions were coldly received by both the railroad management and the labor groups, and they failed to attract

Kansas City should pay for the right to participate in the use of existing terminals the Commission followed much the same procedure as that outlined in the text, although the complaining carrier in this case had enjoyed its privileges from the beginning. What was really desired at Kansas City was a redistribution of burdens between cooperating carriers and not the admission of a new participant (211 I.C.C. 291, 1935; 198 I.C.C. 4, 1933; 104 I.C.C. 203, 1925). On these matters see I. L. Sharfman, *The Interstate Commerce Commission*, Part III, Vol. A., Commonwealth Fund, New York, 1935, pp. 411-421.

⁸⁰ But see 41 F. (2d) 806, 1929; 238 U. S. 1, 1915; 242 U. S. 60, 1916; 266 U. S. 191, 1924. The policy of the Interstate Commerce Commission has been well discussed by H. L. Fair in the *Quarterly Journal of Economics* for May, 1930.

⁸¹ See chap. xxx.

⁸² *Traffic World*, February 15, 1936.

⁸³ United States, Office of the Federal Coordinator of Transportation, *Report on Economy Possibilities of Regional Coordination Projects*, 1935, Prepared by Section of Regional Coordination. See also reports on terminal grain elevators made public in 1934 and in 1936.

much popular interest, probably because of the technical character of the problems with which the Coordinator's reports were concerned. Railroad executives objected to terminal unification in the hands of separate operating companies in general and to the changes which the Coordinator proposed in particular because they feared that simplification might slow down operation and lead to loss of revenue. They objected also to interference with the direct contacts which had been built up between carriers and shippers over many years; and carriers with advantageously located termini were unwilling to surrender the competitive advantages which they enjoyed because of their position. The fundamental advantages of competition were emphasized in contrast to the disadvantages incident to common control. If rail termini were to be consolidated, why not combine also liquor taverns, drug stores, beauty parlors, and churches?⁸⁴

Even more emphatic was the reaction of railroad labor, inspired by the fear that unification would reduce the number of available jobs.⁸⁵ This led to public criticism of the activity of the Coordinator and to public defense upon his part. Mr. Eastman argued that normal attrition of the railroad working force would provide a margin that would permit economies without damage to the employees at work at any time, and that reasonable negotiations between labor and management might provide for any additional safeguards that public policy might require,⁸⁶ but without effect. The fact that he could secure little voluntary cooperation from either management or labor and the limitations which the law placed upon his initiative prevented the Coordinator from achieving tangible results.

Conclusion.—There is reason to believe that the terminal problem will assume even greater importance in the future than it has in the past, with the increasing concentration of population in our great cities, the growth in volume of traffic which must be handled, and the ever keener competition for the occupation and use of city land. It is by no means clear what the final solution will be, or even what immediate steps should be taken to maintain an equilibrium which threatens to be generally disturbed. The fundamental division at present, in so far as carload traffic is concerned, is between those who advocate the continuance of multiple ownership of terminal facilities with cooperation only with respect to non-competitive business, and those who demand unified terminals, either controlled by an agent of the main-line carriers as at St. Louis, or entirely independent, or operated by the state. A compromise suggestion is that freight houses and industry spurs be

⁸⁴ *Traffic World*, February 23, 1935, p. 326.

⁸⁵ In Birmingham, Alabama, for instance, 21 railroad labor organizations formed a central organization to oppose the unification of rail terminals in that city. The unions estimated that unification would throw 820 men out of jobs in the Birmingham terminals and that it would cause an annual payroll loss to Birmingham of \$750,000 (*Traffic World*, September 7, 1935, P. 390)-

⁸⁶ *Ibid.*, December 14, 1935, p. 1025.

left to individual control, but that belt lines be constructed at each large city and operated either by the municipality itself or by an independent "system," recognized as such in a consolidation program, and disassociated from any standard railroad control.

Perhaps no single plan will prove everywhere the best, but instead, a variety of remedies may be applied to a highly complicated and varying complaint.

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CHAPTER XXIV

RAILROAD CONSOLIDATION



Meaning of the term "Consolidation."—The discussion of terminal unification leads naturally to the subject of consolidation. We understand by this term the grouping under common control of different units in the railroad or waterway or motor vehicle or air transport fields to form larger aggregations, not the establishment of relations between different types of transport which are associated with the word "coordination." This limits the subject to be covered when we talk of consolidation, and we may restrict our topic still further in the present chapter by confining ourselves to railroads. For railroads provide so much of our experience and have provoked so much of our planning, both in the matter of terminal unification and in that of consolidation, that we sacrifice little at the moment by neglecting the record of other agencies.

State Railroad Systems.—In most modern countries the state owns a considerable railroad mileage. The largest state systems are those of Russia (52,853 miles), Germany (33,687 miles), British India (29,732 miles), Australia (27,094 miles), France (26,427 miles), Canada (23,803 miles), Union of South Africa (12,806 miles), Italy (10,540 miles), and Mexico (7,105 miles).

The fact that these systems exist, and function with a fair degree of efficiency, is evidence that a single railroad administration can control a mileage ranging from ten thousand to thirty thousand miles or more. On the other hand, financial, political, and social motives, as well as economic ones, explain the size of government railroads, so that it is by no means certain that private railroads can afford to follow their policies even with respect to size. Moreover, ownership of a large government railroad mileage is consistent with a decentralization for purposes of operation which may approximate in some cases the creation of separate railroads, although naturally with strong central and unifying control. In addition to creating state systems, governments have sometimes deliberately brought about the concentration of their railroads in the hands of a limited number of private companies; and this, too, supplies evidence that large accumulations of mileage can be successfully administered. The railroads of France were an example of this before the French National Railway Company took them all over in 1938. The railroads in England are

still managed in groups established by government direction, and their experience is similar, in some ways, to that of the United States.

English Legislation of 1921.—We shall treat, in the following pages, of the consolidation problem in England and in the United States. The discussion of the situation in England will be brief; we shall consider more elaborately, however, American policies and conditions.

The government of Great Britain has never controlled railroad building by any comprehensive plan. Private enterprise has created an excellent railway system under these conditions of freedom, but it has done so under a great variety of ownership and with appreciable waste of effort. In 1921, the English railways were operated by no less than 129 separate companies. Since general conditions made economy in operation imperative at this time, the government decided to try the experiment of reducing the number of operating companies, in the hope that some slack might be taken up and some check imposed on the tendency to increase railroad rates.

In 1921, the British Parliament, after full discussion, took the important step of combining the railroads of the country into four great groups, instead of the 129 previously existing. The location of these groups is indicated upon the map on page 551.

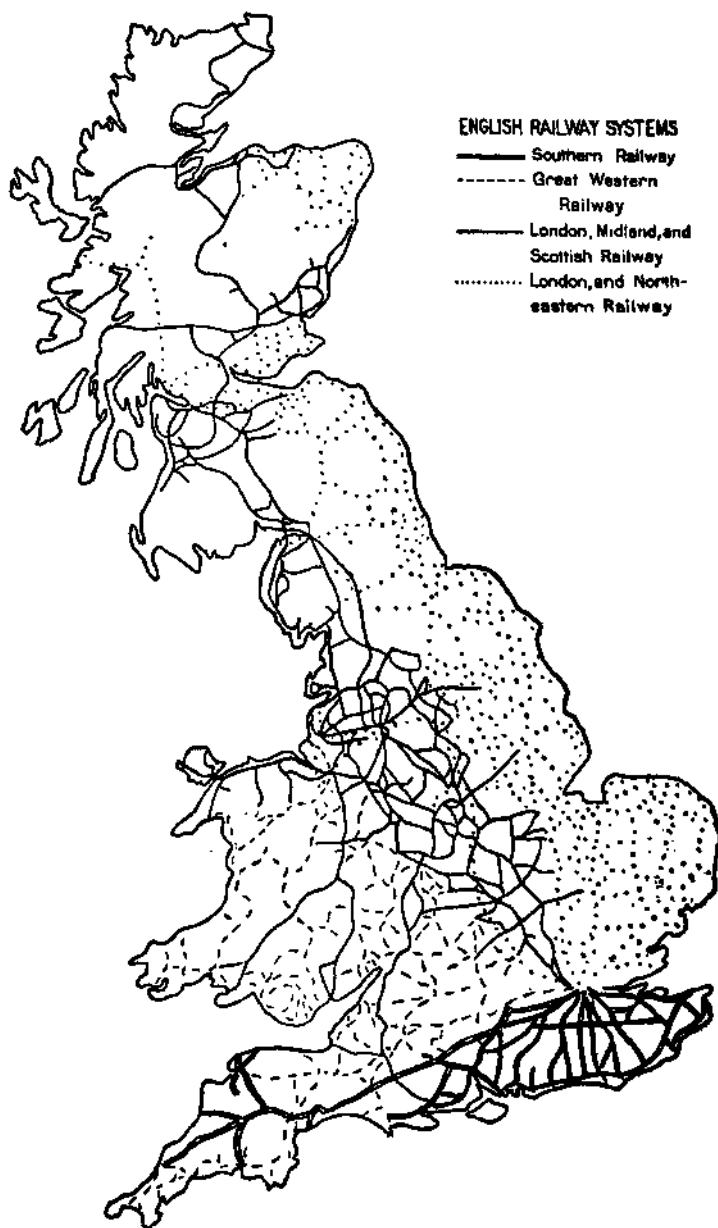
Content of English Railway Systems.—The four groups provided in the English Act of 1921 were as follows:

1. The Southern Railway Group, including the London and South Western Railway Company; the London, Brighton, South Coast Railway Company; the South Eastern Railway Company; the London, Chatham, and Dover Railway Company; the South Eastern and Chatham Railway Companies Managing Committee, and 14 subsidiary companies.

2. The Great Western Railway Group, including the Great Western Railway Company, the Barry Railway Company, the Cambrian Railway Company, the Cardiff Railway Company, the Rhymney Railway Company, the Taff Vale Railway Company, the Alexander Docks and Railway Company, and 25 subsidiary companies.

3. The London, Midland, and Scottish Railway Group, including the London and North Western Railway Company, the Midland Railway Company, the Lancashire and Yorkshire Railway Company, the North Staffordshire Railway Company, the Furness Railway Company, the Caledonian Railway Company, the Glasgow and South Western Railway Company, the Highland Railway Company, and 27 subsidiary companies.

4. The London and North Eastern Railway Group, including the North Eastern Railway Company, the Great Central Railway Company, the Great Eastern Railway Company, the Great Northern Railway Company, the Hull and Barnsley Railway Company, the North British Railway Company, the Great North of Scotland Railway Company, and 26 subsidiary companies.



THE FOUR ENGLISH RAILWAY SYSTEMS

Railway Mileage and Revenue in England.—The mileage and gross revenues of these four English systems were, in 1938, as follows:

RAILWAY COMPANIES IN ENGLAND, 1938

Name of Company	Mileage	Gross Operating Revenue
Southern	2,156	£25,468,465
Great Western	3,782	31,039,727
London, Midland, and Scottish	6,845.	72,452,794
London and North Eastern	6,349	53,565,814
Total	19,132	£182,526,800

Purpose of Consolidation.—Parliament intended, by consolidation, to eliminate duplicate services in Great Britain, to standardize plant and equipment, and to reduce overhead expenses by consolidating the supervisory staff—the English Minister of Transport estimated in 1921 that 25,000,000 could be saved annually after a few years' trial by the combinations contemplated in his bill.

Nor were these operating economies the only advantages which the Ministry hoped to secure. Speaking of future development under his bill, Sir Eric Geddes said:

If you are cultivating your garden you do it much better if you know you are going to get the whole profit and advantage of it than if you knew that your next door neighbour would come in the middle of the night and take away a portion of the produce. That is exactly what we have been doing in relation to the railway companies. We have asked them to develop the traffic of the country, and then subsequently have allowed an outside company to come in, or to run a line alongside, or have given them running powers, thus practically taking away, or stealing, the traffic of the original company. I would hope that the House [of Commons] will see that a railway company will develop and endeavor to promote the prosperity of the communities through which it runs if it knows that when it succeeds it will have the advantage of it.¹

This expression of official English views shows that the British government had in mind the advantages of territorial monopoly, as well as those of large-scale production, when it asked the adoption of its reorganization plan.

Objections to Territorial Grouping.—In the case of the English legislation, opposition came from two sources. One class of opponents to the grouping plan consisted of representatives of towns which desired to retain some specific element of competition. These included the coal ports of South Wales, such

¹142 House of Commons Debates, 5th series, col. 353. Speech of Minister of Transport on order for second reading of Railways Bill, 26 May, 1921.

as Cardiff, which feared the results of placing their whole **district** in the hands of the Great Western Railway.² Likewise, the port of Hull on the eastern coast of England insisted that the Hull and Barnsley Railway should not be placed in the same group as the North Eastern Railway, although in the same geographical area, because this would place the only two lines serving Hull under control of the same corporation.³

Another and still more vigorous protest was voiced by the Scottish companies. The original proposal of the English government was that the Scottish railroads should be formed into one separate group, and the second that they should be formed into two groups, but always separate and distinct from the English lines to the south. The Scottish companies preferred to be combined with the adjacent English railroad systems—railways in east Scotland with railways in northeastern England, and railways in west Scotland with railways in northwestern England. The reason was that the Scottish lines desired the financial assistance which they could derive from association with their wealthier neighbors to the south, and felt that they were entitled to it because their expenses would necessarily be affected by the wage agreements which English lines concluded with national trade unions, while their rates would be limited by the competition of coastwise steamers to a degree which would imperil their financial standing.⁴

Local Railroad Monopoly Not Complete under English Act of 1921.—In the course of the English debates the original ministerial plan was altered to meet the wishes of the Scottish companies, but the representations of complaining towns were disregarded. It would be a mistake, nevertheless, to insist too strongly upon the monopolistic character of the present British arrangements. In the first place, British railways are peculiarly exposed to the influence of water competition. Not only this, but the distribution of lines to the four great groups is such that competition of substantially parallel railroads still persists. This is true, for example, of traffic from London to Bristol, London to Liverpool, and London to Glasgow. Finally, the continuance of running rights or trackage agreements under recent English legislation gives the large companies access to cities which they do not reach over their own rails. Because of these facts, the system of territorial monopolies cannot be said to be yet complete in Great Britain, in spite of the progress which was made in 1921.⁵

Classification of Railroad Mileage in the United States.—In the United States, as in most countries, the first short local lines early combined into longer routes connecting, in Trunk Line territory, the Atlantic seaboard with Chicago and St. Louis, and in the South, the eastern coast line with the

² 142 H.C. Deb., 5th series, cols. 381-383, Sir D. Maclean.

³ 145 H.C. Deb., 5th series, cols. 526-530, Major Entwistle.

⁴ 142 H.C. Deb., 5th series, cols. 417-429, Sir H. Mackinder.

⁵ Pooling arrangements in England, however, limit competition between railroad companies.

Mississippi River. A certain minimum size for a standard railroad system may be taken for granted in a country of such an extended geographical area. How far expansion and consolidation actually occurred can, however, be better understood by the examination of recent figures than by a historical account of railroad development.

The distribution of railway mileage among operating companies in the United States in 1938 is shown in the following table:

RAILROAD MILEAGE IN THE UNITED STATES, 1938, CLASSIFIED ACCORDING TO MILEAGE OPERATED BY COMPANIES REPORTING TO THE INTERSTATE COMMERCE COMMISSION

Class	Number of Companies and Mileage		Cumulative Percentages	
	Number	Mileage	Number	Mileage
Over 10,000	4	45,750	.65	18.36
9,000.1 to 10,000	1	9,904	.81	11.34
8,000.1 to 9,000	4	34,060	1.47	36.01
7,000.1 to 8,000	2	14,520	1.80	41.84
6,000.1 to 7,000	3	19,724	1.19	49.76
5,000.1 to 6,000	1	5,108	1.46	51.81
4,000.1 to 5,000	6	27,739	3.44	61.94
3,000.1 to 4,000	1	6,404	3.77	65.51
2,000.1 to 3,000	5	11,711	4.58	70.21
1,000.1 to 1,000	18	26,752	7.53	80.95
500.1 to 1,000	23	16,698	11.29	87.65
150.1 to 500	57	15,153	10.61	93.74
30.1 to 150	179	11,501	49.91	98.35
30 or less	306	4,102	100.00	100.00
Total	611	149,126		

Persistence of the Short-line Railroad.—There are two facts which stand out prominently from the statistics presented in the preceding table. One is the persistence of the short-line railroad. Half of all the companies that operate railroads in this country control less than 30 miles of line, and 80 per cent operate not more than 150 miles apiece. Carriers of this type, of course, do a strictly local business. Some of them are private lines; others are logging roads, mountain roads, industrial roads, roads serving hotels or other resorts, or enterprises of like sort. The average length of the companies classed as 30 miles or under is 14 miles, and of those classed as 150 miles or less, it is 33 miles. Both during and since the World War the problems of the short-line railroads have received more than usual attention. Carriers of this type are intimately associated with the public which they serve. Their costs are high, their revenues are frequently not large, and yet many of them **perform a service** which it would be inconvenient to replace.

Large Operating Units.—The other fact which the table presents with striking force is the concentration of mileage in the hands of a relatively small group of companies. The short-line railroads control very little track, numerous as they are and important as they may be from some points of view. On the other hand, 15 companies with systems ranging from 5000 miles to a little under 14,000 miles operate more than half of the mileage of the country. These are the great systems most heard of in the railroad world. Fourteen of them are larger than were any of the companies in France before 1938, and eleven of them exceed in mileage any of the consolidated companies in either France or England. Such systems are the Atchison, Topeka, and Santa Fe (13,452 miles); the Chicago, Milwaukee, St. Paul and Pacific (10,942 miles); the New York Central (11,070 miles); the Pennsylvania (10,286 miles); the Union Pacific (9904 miles); the Chicago, Burlington and Quincy (8948 miles); the Southern Pacific (8657 miles); the Chicago and North Western (8393 miles); and a number of other companies. The average mileage operated by these fifteen companies is 8604 miles, and few of them depart widely from this norm.

Stock Control of Subsidiary Companies.—If we take into account conditions of control, the concentration of railroads in the United States becomes still more striking. In the first place, many of the large American railroads own a controlling interest in subsidiary lines. The Southern Pacific Company, to take a well-known example, operates only 8657 miles, but it controls other companies by lease and stock ownership which raise the total of its system to 15,299 miles. The corresponding figures for the Atlantic Coast Line are 5108 and 13,062; for the Missouri Pacific, 7179 and 12,430; and for the Illinois Central, 4948 and 8831. Besides these cases of controlling interest there are relations of stock ownership amounting to less than majority control which produce still further unity of action in broad questions of system policy. Evidence of this was gathered for the Committee on Interstate and Foreign Commerce of the House of Representatives in 1931, and a list of fourteen major railroad systems was then compiled as follows:⁶

Name of System	Mileage
Van Sweringen companies	19,484.01
Great Northern-Northern Pacific	28,277.93
Pennsylvania	24,183.75
Southern Pacific	14,495.43
St. Louis-San Francisco	14,354.18
Atlantic Coast Line	14,388.52
Atchison, Topeka, and Santa Fe	13,182.16
New York Central	13,448.46

⁶ United States Congress, House of Representatives, *Regulation of Stock Ownership in Railroads*, 71st Congress, 3d Session, House Report No. 2789, Ser. 9328, 1931, pp. lii-liiii. The figures in the table do not include 676.38 miles of Class II and III railroads held jointly between systems.

Name of System	Mileage
Baltimore and Ohio	11,355.93
Chicago, Milwaukee, St. Paul and Pacific	11,376.06
Chicago and North Western	10,205.05
Union Pacific	10,201.89
Southern	10,435.89
Illinois Central	9,321.66
Total, eliminating duplications	2,12,469.38

Banking and Personal Connections.—Finally, there are associations which do rely not upon intercorporate ownership but upon personal holdings and friendships and prestige of business men. Wealthy persons may be able to make their influence count in a number of railroads, either individually or in agreement with their friends; or banking firms that act for several companies may induce a certain harmony of policy between their clients, if these banks have a record of success. The old Vanderbilt, Hill, Morgan, and Harri-man groupings were instances of this sort. More recently the Van Sweringen brothers, and Mr. Arthur Curtiss James, provide examples on a smaller scale of personal influence upon which systems can be built; but the study of these activities leads us into the field of holding company control and generally into problems of finance. The discussion of railroad finance will be, for the moment, postponed.

Comparison of Consolidations in Europe and in the United States.—The principal differences between the railroad consolidations in the United States and those in England are, first, that the American groups are larger than the English ones; second, that the American groups are voluntary, not the result of compulsion; third, that they are not nearly so inclusive; and lastly, that railroad combinations in this country have been competitive rather than monopolistic.

Minimum and Maximum Limits to the Size of Systems.—From the point of view of operation, a railroad system should be large enough to permit of proper division of labor, as most railroads over 1000 miles in length probably are, and it should connect, if possible, economic areas of differing characteristics. For instance, it should join agricultural and manufacturing, or lumber and fruit, or steel- and cotton-producing districts, and should not allow itself to be confined within an area where economic products and conditions are uniform.

The maximum advisable size of a railroad from this same point of view is less easy to define, but the limiting factor of permissible growth is probably the capacity of the supervising personnel. A railroad system should not be too large for one man to direct. Still more concretely, it should not be so great that the controlling officer is unable to inspect it at reasonable intervals **and** to establish personal contact with divisional chiefs and officers in charge of construction projects, if not with men still further down in the line of

authority. Sir Henry Thornton, president of the Canadian Government Railways, has said that one man cannot effectively manage a railroad which is more than 20,000 miles in length. Capacities and conditions, of course, differ, but this limit is not at present exceeded in the United States, or, with private railroads, in any other country in the world.

Unevenness of Railroad Units in the United States.—It is the unevenness of railroad aggregations, rather than the fact that American railroads are too small for effective operation, that has provoked discussion of railroad consolidation in the United States during the past nineteen years. Railroads of different lengths, especially when they operate at different costs, find it difficult to work together on a common basis of rates. Either railroad charges are fixed by the most competent, in which case the poorer lines are likely to be forced out of business, to the detriment of the localities which they serve, or rates are fixed by less competent carriers, and the better-located lines enjoy unreasonable profits. When, in 1920, the Congress of the United States proposed to relieve railroad credit by directing the Interstate Commerce Commission to establish rates calculated to produce a fair return on the value of railroad property in selected districts, it found the unevenness of railroad units the chief obstacle to the success of its plans. Congress therefore devised a program of consolidation which we must now consider.

Programs of Consolidation.—The process of consolidation in the United States since 1920 can be discussed under four heads:

1. The formulation of comprehensive plans by the Interstate Commerce Commission and by private individuals between 1920 and 1933.
2. The accomplishment of mergers and consolidations under appropriate sections of the act of 1920.
3. The merits and defects of railroad consolidation.
4. Legislation and proposals for legislation subsequent to 1920.

Congress Directs the Interstate Commerce Commission to Prepare a Comprehensive Plan for Railroad Consolidation.—Paragraphs 4 and 6 of Section 5 of the Interstate Commerce Act, as enacted in 1920, read in part as follows:

(4) The Commission shall as soon as practicable prepare and adopt a plan for the consolidation of the railway properties of the continental United States into a limited number of systems. In the division of such railways into such systems under such plan, competition shall be preserved as fully as possible and wherever practicable the existing routes and channels of trade and commerce shall be maintained. Subject to the foregoing requirements, the several systems shall be so arranged that the cost of transportation as between competitive systems and as related to the values of the properties through which the service is rendered shall be the same, so far as practicable, so that these systems can employ uniform rates in the movement of competitive traffic and under efficient management earn substantially the **same rate of** return upon the value of their respective railway properties.

(6) It shall be lawful for two or more carriers by railroad, subject to this Act, to consolidate their properties or any part thereof, into one corporation for the ownership, management, and operation of the properties theretofore in separate ownership, management, and operation, under the following conditions:

(a) The proposed consolidation must be in harmony with and in furtherance of the complete plan of consolidation mentioned in paragraph (5) and must be approved by the Commission.

Formulation of a Plan.—In order to comply with the direction of Congress to prepare a "plan of consolidation," the Interstate Commerce Commission employed, in 1920, William Z. Ripley of Harvard University as expert. Mr. Ripley, who was a university teacher of transportation and well qualified for the task, formulated a plan in great detail. The Commission modified the plan slightly, published it in 1921,⁷ and proceeded to hold hearings. These hearings were completed in December, 1923, by which time they had filled fifty-four volumes of testimony and exhibits.

In spite of the elaborate inquiry conducted between 1921 and 1923, or perhaps even because of the painstaking character of this investigation, the Commission reached no final conclusion on the Ripley outline. In fact, in 1925 and in each succeeding annual report to and including that for 1928, the Commission suggested to Congress that it be relieved from the duty of formulating a plan for the consolidation of the railway properties of the United States into a limited number of systems. The Commission desired to retain power to approve or to disapprove proposals for particular mergers, but it doubted its ability to set up, in advance, any satisfactory scheme to which all subsequent consolidations should be required to conform. Failing action by Congress, the Commission was ultimately compelled to act; and in 1929 it announced a consolidation plan.⁸ The plan of 1929 was formally adopted, not merely published as in the case of the proposals of 1921; on the other hand, it was accompanied by no such elaborate description and analysis as had characterized the Ripley report. The Commission recognized that changes in the make-up of systems might be necessary after 1929, and stated that proceedings might be re-opened to make such modifications as the Commission's judgment should approve.

Reasons for Slow Progress.—Nine years' delay in the formulation of a plan for consolidation of American railways is some evidence of the complexity of the problems which the law ordered the Commission to resolve. These complexities were exaggerated, moreover, by the form in which the question was presented for decision. While the statute laid down certain principles to guide the Commission in its work, these directions were to some extent conflicting. The law required the Commission, for example, (1) to preserve competition; (2) to maintain existing channels of trade and com-

⁷ 63 I.C.C. 455, 1921.

⁸ 159 I.C.C. 522, 1929.

merce; and (3) to create systems which under efficient management could earn substantially the same rate of return upon the value of their respective railway properties. Not only were the first two instructions potentially contradictory, but the third might easily call for a different distribution than that suited to the other two. To equalize the earning power of railroad companies made it necessary to combine the weak with the strong; and such a policy was as likely to disrupt established channels of trade and, perhaps, to discourage competition as it was to have a contrary effect. Finally, the Commission possessed no power to enforce its findings. This weakness in the law compelled it to seek adjustments that would arouse a minimum of antagonism; and so the Commission was forced to consider the policies and ambitions of private railroad systems in the United States as well as the physical characteristics of the carriers and the character of the traffic which they were suited to convey.

Plans of 1921 and 1929.—The key systems proposed in the Commission's plans of 1921 and 1929, were, respectively, as follows:

Commission Plan of 1921

1. New York Central
Pennsylvania
Baltimore and Ohio
Erie
Nickel Plate—Lehigh Valley
Pere Marquette
7. Chesapeake and Ohio
8. New England
9. Norfolk and Western
10. Southern
11. Atlantic Coast Line—Louisville and
Nashville
12. Illinois Central—Seaboard Air Line

Union Pacific—North Western
14. Burlington—Northern Pacific
15. Milwaukee -Great Northern
16. Santa Fe
17. Southern Pacific—Rock Island
18. Frisco—Katy—Cotton Belt
19. Chicago and Eastern Illinois-
Missouri Pacific

Commission Plan of 1929

1. New York Central
2. Pennsylvania
3. Baltimore and Ohio
4. Chesapeake and Ohio—Nickel Plate
5. Boston and Maine
6. New Haven
7. Southern
8. Atlantic Coast Line
9. Illinois Central
10. Wa bash-Sea board Air Line
11. Union Pacific
- 12.. Chicago and North Western
13. Great Northern—Northern Pacific
14. Burlington
Milwaukee
16. Santa Fe
17. Southern Pacific
18. Rock Island—Frisco
19. Missouri Pacific
10. Canadian National
21. Canadian Pacific

It is interesting to observe that both plans contemplated nineteen groups (excluding the two Canadian systems in the plan of 1929) into which the railroads of the country were to be divided. The operated mileage of the

United States in 1938, divided by this figure, would give an average of 12,317 miles, as compared with the average of 1721 that prevailed for Class I carriers in the calendar year 1938.⁹ There was no difference between the earlier and the later Commission plans with respect to the number of systems to be created by consolidation. The two plans, nevertheless, were different in many important respects, and some variations may be mentioned.

Trunk Line Territory.—One contrast between the Commission plan of 1921 and the plan of 1929 was to be found in the provisions of the plans relating to Trunk Line territory. For our present purpose, this territory may be understood to include the part of the United States east of the Mississippi, north of the Ohio and Potomac rivers, and south of the Great Lakes. There are many important railroads in this section, and the problem before the architects of consolidated systems in Trunk Line territory is to decide which companies operate key railroads on which large systems should be based, and which companies may be regarded as subordinate. Both the plans of 1921 and of 1929 agreed that three railroads—the New York Central, the Pennsylvania, and the Baltimore and Ohio—were key systems. In addition to these three, the plan of 1921 named separately the Erie; the New York, Chicago and St. Louis; the Pere Marquette; and the Chesapeake and Ohio. The student should consult some standard manual in order to determine the locations of these lines; but the suggestion that trunk-line railroads be grouped in seven systems is sufficiently apparent. Between 1921 and 1929, however, four of these seven groups had come together under the leadership of two Cleveland men, the Van Sweringen brothers, to form a new system—one of the few new major groupings that have been accomplished in eastern territory in recent years. This was a development which could not be ignored, so the plan of 1929 suggested four groups in trunk-line territory to replace the seven earlier proposed. The Commission added at the same time a fifth group, made up of the Wabash and the Seaboard Air Line, for reasons which have never been satisfactorily explained. In 1932 the Commission modified its plan of 1929 by eliminating the Wabash-Seaboard Air Line group, assigning the Wabash to the Pennsylvania, and leaving the Seaboard Air Line, then in receivers' hands, to shift for itself.¹⁰

The Pacific Northwest.—Another difference between the Commission's plans of 1921 and 1929 related to conditions in the Northwest. This part of the United States is served principally by five large railway systems: the Great Northern; the Northern Pacific; the Chicago, Milwaukee and St. Paul; the Union Pacific; and the Chicago, Burlington and Quincy. The Burlington is included in the list because it provides a Chicago connection for transcontinental lines that reach as far east as St. Paul, but the Burlington does not,

⁹ The figure of 1721 is obtained by dividing the mileage operated by Class I companies in 1938 by the number of these companies. Low as the quotient is, it would be still lower if lesser companies and companies of Classes II and III were taken into the account.

¹⁰ 185 I.C.C. 403, 1932.

itself, reach to the Pacific coast. Of these five companies, three—the Great Northern, the Northern Pacific, and the Burlington—have for many years been controlled by the same financial interests, while the St. Paul has been an active competitor of what are known as the Hill lines. The Union Pacific, though it reaches the Northwest, may be neglected in explaining the recent aspects of this especial controversy. It was the view of Professor Ripley in 1921 that the Great Northern should be separated from the Northern Pacific. He proposed to join the Great Northern with the St. Paul, and the Northern Pacific with the Burlington, in the hope of creating two balanced systems which could compete with each other on equal terms. The plan of 1929, however, had a different solution. Like Professor Ripley, the Commission disapproved, in 1929, of the actual alignment in the Northwest. It differed from Ripley in thinking that the St. Paul might hold its own without outside support if the Hill companies were somewhat weakened; and it proposed three separate systems instead of two: the St. Paul; an independent Chicago, Burlington and Quincy; and a third system made up of the Great Northern and the Northern Pacific. It may be added that the actual present arrangement differs from that in either plan, for the Great Northern, the Northern Pacific, and the Burlington are still together, while the St. Paul remains alone.

Other Differences.—The contrasts mentioned in preceding sections do not, of course, exhaust the list of differences between the plan of 1921 and that of 1929. Thus, the 1929 plan was distinguished from its predecessor by the attempt which it made to list and to allocate all the short lines of railroad in the United States, in addition to the properties of some substantial importance. The latter plan was also distinctive in proposing, in several instances, systems which extended across the traditional barriers interposed by the Mississippi, the Missouri, and the Ohio rivers, instead of confining each system within the limits of a single classification district. At the same time it avoided the dismemberment of existing systems in ways proposed in 1921. The Commission retained full power to modify the current scheme, and it did, later, change the plan of 1929 in some respects. The outline was not, therefore, intended to be a final statement of Commission policy but only the best proposal which the Commission could make at the time to carry out the instructions of the law.

Oldham Plan.—In addition to the Commission plans of 1921 and 1929, two other comprehensive suggestions for the redistribution of the mileage of American railroads have received attention and deserve to be briefly discussed. One of these was described in an outline submitted by a Boston banker, Mr. John E. Oldham, in 1921. This plan contemplated thirteen systems, as follows:

1. New York Central system.
2. Buffalo system.
3. Pennsylvania system.
4. Baltimore-Reading system.

5. Norfolk and Western-Chesapeake and Ohio system.
6. Atlantic Coast Line-Louisville and Nashville system.
7. Southern system.
8. Great Northern-St. Paul system.
9. Northern Pacific-Burlington system.
10. Union Pacific-North Western system.
11. Atchison system.
12. Southern Pacific system.
13. Illinois Central-Sault Ste. Marie system.

There was to be a New England system, but this was to be jointly controlled by four of the trunk-line systems.¹¹

The Oldham plan, like that of the Interstate Commerce Commission in 1921, called for trunk-line organizations built around the New York Central, the Pennsylvania, and the Baltimore and Ohio railroads. But it grouped the Erie, the Nickel Plate, and the Pere Marquette into one single system and the Chesapeake and Ohio and the Norfolk and Western into another, instead of keeping these companies apart in five separate groups. In the West, Mr. Oldham recognized the Great Northern-St. Paul, the Burlington-Northern Pacific, the Union Pacific-North Western, the Southern Pacific-Rock Island and the Santa Fe as entities; but it divided the railroads which the Commission had assigned to its systems number 17 and 18 among the other groups. In the South, the Southern and the Atlantic Coast Line systems were retained, but the Seaboard Air Line was given to the Southern Railway instead of to the Illinois Central and the latter was linked with the Minneapolis, St. Paul and Sault Ste. Marie Railway in the Northwest. The significance of variations of these kinds can be appreciated only after detailed study. The Oldham plan of 1921 is now chiefly interesting because it showed that the American network could be reorganized according to the principles specified by Congress in 1920 in ways which differed from those that the Interstate Commerce Commission had proposed.

Prince Plan.—Still another elaborate plan for railroad consolidation appeared in 1933. This was the Prince plan, prepared at the expense of Frederick H. Prince. Mr. Prince, like Mr. Oldham, was a Boston banker. His proposal was simpler than those which had preceded it and more drastic, for he desired to rearrange American railroad properties into seven instead of into thirteen or nineteen groups. The railroad systems that Prince proposed were the following:

1. Eastern region, North system,
2. Eastern region, South system.
3. Southern region, Southeast system.
4. Southern region, Mississippi Valley system.
5. Northwestern region, Northwest system.
6. Central Western region, Central system.
7. Southwestern region, Southwest system.

¹¹ *Railway Age*, November 5, 1921.

All railroads in the United States were allocated to these seven systems, except some Canadian lines and Class I switching and terminal companies which were unassigned, and several important terminal properties, such as those at Chicago and St. Louis, which were to be owned jointly by several systems. Essentially the purpose was to create regional groupings of the French or English type rather than competitive Combinations such as those in the Ripley plan or in the Interstate Commerce Commission plan of 1929. This was especially marked in the West, where the area beyond the Mississippi River was divided into three groups, but the same general principle was followed in the East and South. Doubtless the regional divisions under the Prince plan were not complete, because the scheme dealt with railroads as units and some companies served more than one region; moreover, competing systems built around the New York Central and the Pennsylvania railroads were consciously preserved in the East; but even in the East the degree of combination which Mr. Prince desired exceeded anything that the Interstate Commerce Commission had ever cared to recommend.

The Federal Coordinator assigned the Prince suggestion, with its accompanying details, to a special representative for study and report, and discussed the subject in his communication to the Interstate Commerce Commission in 1934 on the general topic of railroad regulation. The merit of the Prince idea was that it promised economy in operation to a greater degree than had either the Commission or the Oldham plans. This responded to a shift in emphasis that had occurred in merger discussions between 1920 and 1933, which caused the importance of reducing costs to appear greater in the later years, and the advantages of preserving competition and the liquidity of traffic to be less regarded. Mr. Prince was willing to sacrifice something in competition in order to reduce operating costs. The Coordinator thought—and it is interesting to observe the comment—that he did not go far enough. His plan perpetuated, for one thing, regional differences between rates and services because it was built along regional lines. And it restricted competition unevenly, for cities within the borders of any of the proposed systems would be compelled by the plan to rely upon one railroad only, while cities upon the edges of the groups might have access to two or more.¹² This, the Coordinator said, might cause population and business to concentrate at favored points, endangering the proper development of the country. But these objections apply, and they were intended to apply, to any consolidation plan which contemplates more than a single railroad system in the United States. They did not distinguish the Prince plan from other multiple-merger alternatives.

¹² Under the Prince plan Philadelphia and Baltimore would have had only one railroad. On the other hand, all seven systems would have served St. Louis, and all but one would have served Chicago. Cincinnati and New Orleans would each have had four railroads; New York and Boston would each have had two (United States, Office of the Federal Coordinator, *Report on Regulation of Railroads*, 73d Congress, 2d Session, Sen. Doc. 119, 1934).

Statutory Authority for the Approval of Consolidation Between 1920 and 1929.—Between 1920 and 1929 the discussion of consolidation was active, but no general plan was officially approved. In spite of this lack of the comprehensive plan contemplated in Section 5 of the Interstate Commerce Act the Commission found authority which permitted it to approve specific suggestions for the merger of railroad companies without reference to a general plan. In doing this, it relied upon the two statutory provisions which follow:

1. Section 1, paragraph 18, of the Interstate Commerce Act, as amended in 1920, gave to the Commission power to grant or to deny certificates of convenience and necessity to cover the extension, new construction, or acquisition and operation of lines of railroad. Literally interpreted, the language of this paragraph covered the case of consolidation or merger, and in a few instances the Commission relied upon its power to grant certificates in authorizing a consolidation.¹³

2. Section 5, paragraph 2, of the Interstate Commerce Act as amended in 1920, read as follows:

Whenever the Commission is of opinion, after hearing, upon application of any carrier or carriers engaged in the transportation of passengers or property subject to this Act, that the acquisition, to the extent indicated by the Commission, by one of such carriers of the control of any other such carrier or carriers either under a lease or by the purchase of stock or in any other manner not involving the consolidation of such carriers into a single system for ownership and operation, will be in the public interest, the Commission shall have authority by order to approve and authorize such acquisition, under such rules and regulations and for such consideration and on such terms and conditions as shall be found by the Commission to be just and reasonable in the premises.

Most mergers between 1920 and 1929 were actually approved under the paragraph which has just been quoted. The essential difference between the language in paragraph 2 and that in paragraph 4 of the Interstate Commerce law was that the latter did and the former did not require conformity to any general plan when two railroads desired to come together. Such conformity was, of course, impossible until a general plan had been announced, and this was not done until 1929. Approval under Section 2 was admissible, however, only when the proposal did not involve consolidation. Generally speaking, plans for the merger of two or more railroad properties take one or the other of the following forms: (1) purchase of all or of a majority of stock; (2) lease; (3) operating agreement; (4) purchase of properties and franchises,

¹³ Commissioner Eastman objected to these proceedings under Section I. He argued that the specific language relating to rail mergers and consolidations in Section 5 of the Interstate Commerce Act superseded the more general reference in Section 1. This was a reasonable opinion from the point of view of statutory construction, and it was the more plausible because Section 1 contained none of the directions which Congress had been careful to insert in Section 5 to guide the Commission in acting upon merger applications. The Commission persisted in its policy, however, in spite of Mr. Eastman's objections.

except the franchise to be a corporation of the selling company; (5) surrender of franchise by the seller, dissolution of the selling corporation, and acquisition of title to all assets by the purchasing company. Frequently two or more of these methods are employed at the same time, such as lease and purchase of stock; and within each category there is, of course, a considerable variety as to terms. From the point of view of effective control, all five of the methods indicated are alike in that they vest in the acquiring corporation power to dictate the policies of the corporation that is acquired. The legal difference between the first three and the last two is that in the first cases the corporate identity and the legal title to property of the vendor corporations are both preserved, while in the latter cases corporate identity and legal title to property of the vendor are not both preserved. Cases one to three do not, and cases four and five do, constitute "consolidations." Such distinctions are technical and narrow, especially where leases run for several hundred years and stock purchases cover virtually all outstanding shares; moreover, there is an advantage in dealing with all five types of merger under a single set of rules. This the act of 1920 did not do.

Amendment of 1933.—By 1933 the Commission had published its general plan and this fact, together with a realization of the defects of existing practice, caused the law to be amended so as to bring all types of merger under a single rule. Hence the act of 1933, which repealed Section 5, paragraph 2, of the Interstate Commerce Act as it stood in 1920. This amendment now authorized the Commission to approve any consolidations, mergers, purchases, leases, operating contracts, or acquisitions of control which it found (1) to be in harmony with and in furtherance of its general plan for the consolidation of railway properties and (2) to be promotive of the public interest. Congress at the same time subjected holding companies to control in so far as they served as agencies for railroad consolidation by the insertion of carefully selected phrases in the law.

Amendment of 1940.—Finally, in 1940, the statute was once more changed. These last alterations continued the authority of the Interstate Commerce Commission over consolidations, mergers, and the like, but simplified procedure by permitting the Commission to act when it believed that the consolidation would be in the public interest without reference to any predetermined plan. To these provisions the act of 1940 added three interesting paragraphs:

1. The Commission shall have authority in the case of a proposed transaction . . . involving a railroad or railroads, as a prerequisite to its approval of the proposed transaction, to require, upon equitable terms, the inclusion of another railroad or other railroads in the territory involved, upon petition by such railroad or railroads requesting such inclusion, and upon a finding that such inclusion is consistent with the public interest.

The authority conveyed by the preceding paragraph had been, in fact, ex-

erased by the Commission, but it was now for the first time embodied in the law.

2. No transaction which contemplates a guaranty or assumption of payment of dividends or of fixed charges, shall be approved by the Commission . . . except upon a specific finding by the Commission that such guaranty or assumption is not inconsistent with the public interest. No transaction shall be approved . . . which will result in an increase of total fixed charges, except upon a specific finding by the Commission that such increase would not be contrary to public interest.

Reasons for the inclusion of these specifications may be found in the chapter on finance.

3. As a condition of its approval . . . of any transaction involving a carrier or carriers by railroad . . . the Commission shall require a fair and equitable arrangement to protect the interests of the railroad employees affected. In its order of approval the Commission shall include terms and conditions providing that during the period of four years from the effective date of such order such transaction will not result in employees of the carrier or carriers by railroad affected by such order being in a worse position with respect to their employment, except that the protection afforded to any employee pursuant to this sentence shall not be required to continue for a longer period, following the effective date of such order, than the period during which such employee was in the employ of such carrier or carriers prior to the effective date of such order. Notwithstanding any other provisions of this Act, an agreement pertaining to the protection of the interests of said employees may hereafter be entered into by any carrier or carriers by railroad and the duly authorized representative or representatives of its or their employees.

These labor clauses were the result of a compromise which the railroad brotherhoods finally accepted as sufficient to induce them to support the new law. Advocates of the act of 1940 agreed to the compromise because the pending bill could not be passed without the labor vote. It is probable that the quoted paragraph will slow down railroad consolidation, and that it may even prevent unification upon an important scale.

The act of 1940 extended the pooling provisions of the Interstate Commerce Act to motor carriers and to waterways. The Commission already had authority to supervise motor vehicle consolidation; the act now subjected water carriers to the same rules in this field that were applied to rail and motor carriers. The provisions of the act of 1933 which empowered the Commission to regulate control by holding companies were continued and expanded in the later law.

Compulsory Consolidation.—There is some sentiment in favor of compulsory consolidation, but the prevailing view is probably opposed to the use of compulsion. It is disposed to rely for further progress upon the initiative of the carriers, subject to regulation by the Interstate Commerce Commission. The other opinion is that the policy of encouraging and guiding voluntary consolidations should be replaced by authoritative direction. In this view, the

power to direct should be conferred by Congress and exercised by an administrative body such as the Interstate Commerce Commission. The chief advocate of such a process of compulsion is Mr. Eastman, one-time Federal Coordinator. Mr. Craven, of the Coordinator's staff, argued that Congress might require compulsory unification under its power to regulate commerce, and that it could forbid existing companies to operate in interstate commerce unless consolidated as provided in the law. Mr. Eastman is convinced himself that railroads urgently need to reduce their costs of operation by merger, and that they will not combine with reasonable promptness unless compelled to do so by statute.¹⁴

Consolidations Under the Legislation of 1920.—Nearly twenty years have now gone by since Congress first invited railroad companies to consolidate, under certain conditions, and we may profitably examine the results of this departure from the general rule condemning combinations in restraint of trade. It is to be repeated that railroad consolidations in the United States are voluntary, not directed as they were in England in 1921. Doubtless this difference can be too much emphasized. The Interstate Commerce Commission is in a position to exert pressure upon private railway companies in the United States because of its authority over their rates and their finance, and because of the loans that the federal government is prepared to make to needy carriers whose application the Commission may approve. Nevertheless, this influence falls far short of a power to command, so that carriers may, and do, refuse to entertain projects that are inconsistent with their corporate ambitions. It is all the more interesting to observe that considerable progress has occurred under the law of 1920.

Simplification of System Organization Through Consolidation.—The voluntary amalgamations which the Interstate Commerce Commission has approved since 1920 are the following types:

A number of large carriers have seized the opportunity presented by the law to unify and simplify the organization by which their systems are held together. Among the companies which are prominently represented in this class of applications are the Pennsylvania Railroad; the New York Central Railroad; the Atchison, Topeka, and Santa Fe Railroad; the Missouri-Kansas-

¹⁴ The recommendations of the Coordinator were as follows:

1. Congress should create the office of permanent Coordinator of Transportation.
2. The Coordinator should have authority to promulgate consolidation plans, and to prescribe the groups, constituent lines, and terms of merger, subject to the approval of an Amalgamation Tribunal.
3. In consolidating, the railroads in each group should be acquired by a single federal corporation. The government should be represented on the boards of directors of these corporations, but should not control them. Perhaps 70 per cent of the voting power in each corporation should be exercised by stockholders and 30 per cent by the government; bondholders should have representatives on the boards but these representatives should not have voting privileges (United States, Office of the Federal Coordinator, 73d Congress, 2d Session, 1934, Sen. Doc. No. 119, *A Plan for New Railroad Legislation*, by Leslie Craven, p. 84).

Texas Railroad; the Chesapeake and Ohio Railway; the Boston and Maine; the Missouri Pacific; the Union Pacific; and the Southern Pacific.¹⁵

In the majority of cases of this type the applicant has desired to lease the mileage of subsidiary companies of which it already owns all or most of the capital stock. In some the operation has involved the transfer of stock ownership from one company in a system to another, as where the Pennsylvania Railroad acquired the stock of the Pittsburgh, Fort Wayne, and Chicago Railroad from the Pennsylvania Company, a subsidiary organization. None of these applications have occasioned any change in control, but they have tended to cut down overhead expense and occasionally to produce operating economies.

Minor Extensions.—A second type of consolidation may be classified as a minor extension. In many instances of this sort a large company acquires part or the whole of a small independently financed railroad which has passed through a period of unprofitable operation or which the owners desire to sell in order to release their capital for other purposes. Sometimes the road to be acquired consists of a coal spur which the main-line railroad originally refused to build; sometimes it is a logging road which has engaged in common carriage with inadequate resources; sometimes it is a railroad in mountainous or sparsely settled territory, which cannot pay by itself but possibly can earn a profit under the management of a larger line. Consolidation usually means economy in such cases, and no far-reaching questions of policy are involved.

There is one sort of minor extension which differs from that discussed in that it consists of new construction, in behalf of a major company, through some subsidiary organization. The Santa Fe Railway has organized extension work in this manner several times during the past few years. The Illinois Central has also built through subsidiary companies in order to avoid limitations of local law,¹⁶ and there are other examples which might be given. This practice is by no means a new one, but it now requires approval under Section 5, paragraph 2, of the Act to Regulate Commerce, because the parent company usually wishes to lease the property of its subsidiary and to own its stock. There is no operating saving involved, the controlling consideration being financial.

Major Enlargements of Railroad Systems.—Major system extensions have also occurred under the consolidation law. These include in the West a somewhat notable reconstruction of the Missouri Pacific. This company now again controls the Texas and Pacific, the New Orleans, Texas, and Mexico, and the International and Great Northern; and, with the Western Pacific, it divides control of the Denver and Rio Grande. While still head of a relatively weak

¹⁵ The Boston and Maine application was denied on the ground that it proposed a complete merger and not merely a lease or stock ownership arrangement, and so could not be considered until the Interstate Commerce Commission had adopted a general consolidation plan (*Merger of Subsidiary Companies with Boston and Maine*, 76 I.C.C. 797, 1923).

¹⁶ Construction of cut-off for Illinois Central R.R., 82 I.C.C. 100, 1923.

group of carriers, the Missouri Pacific has regained a position of some influence. Another important extension in the Far West has been that of the Southern Pacific. This company, by the acquisition of the St. Louis Southwestern, now enters St. Louis.¹⁷ The merger of the Southern Pacific and the Southwestern has been criticized because of the price paid when the former acquired control and because the consolidation seemed likely to lead to a more indirect routing of freight; but the Commission has approved the transaction. Still again, the transfer of the Fort Worth and Rio Grande from the St. Louis and San Francisco to the Atchison, Topeka, and Santa Fe deserves mention. In 1936 the Atchison, Topeka, and Santa Fe took over the Fort Worth and Rio Grande by purchase of its capital stock and first-mortgage bonds. This company had proved of little value to the St. Louis and San Francisco, but the Santa Fe expected to use it as a cut-off line and so to shorten the distance traveled by its trains between Fort Worth and certain other points in Texas, New Mexico, Arizona, and California. The financial condition of the Fort Worth and Rio Grande was so precarious at the time of transfer that the Interstate Commerce Commission interposed no objection, although originally the company had been allocated to the Frisco and not to the Santa Fe.¹⁸

In the East, Mr. Eastman has remarked that the impetus given by the act of 1920 resulted in a scramble for properties thought to be of strategic importance. We have already pointed out that the Commission in 1920 substituted a single system—Chesapeake and Ohio-Nickel Plate—for the groups numbered 4, 5, 6, and 7 in the plan of 1921, and that in 1932 it broke up the Wabash-Seaboard Air Line group. In accordance with these new ideas the Commission approved the acquisition of the Pere Marquette, the Erie, and the Nickel Plate by the Chesapeake and Ohio,¹⁹ so that approximately 72 per cent of the mileage embraced in the Commission System No. 4 (plan of 1929) is now actually under common control. Meanwhile the Baltimore and Ohio has bought the Western Maryland, the Reading, and the Central of New Jersey; and the Pennsylvania, since 1920, has secured control over the Wabash, the Lehigh Valley, the Detroit, Toledo, and Ironton, and the Pittsburgh and West Virginia, and has acquired substantial interests in the New Haven, the Boston and Maine, and the Seaboard Air Line.²⁰

Relative Size of Rail Operating Companies, 1920 and 1938.—The following table, repeating in part information already printed on p. 554, compares the distribution of the rail mileage of operating companies in the United States in 1938, near the end of the period of permissive consolidation, with that in 1920 at the beginning of the period.

¹⁷ 183 I.C.C. 663, 1932.

¹⁸ 217 I.C.C. 659, 1936.

¹⁹ 138 I.C.C. 517, 1928; 224 I.C.C. 259, 1937.

²⁰ United States, Office of the Federal Coordinator, *Report on the Regulation of Railroads*, 73d Congress, 2d Session, 1934, Sen. Doc. No. 119, pp. 22-23.

RELATIVE SIZE OF RAIL OPERATING COMPANIES, 1910 AND 1938

Class (Miles operated)	Cumulative Percentages			
	Number of Companies		Mileage	
	1910	1938	1910	1938
Over 10,000	.09	.65	4.01	18.36
9,000.1 to 10,000	.18	.81	7.61	11.34
8,000.1 to 9,000	.46	1.47	17.18	36.01
7,000.1 to 8,000	.82	1.80	28.31	41.84
6,000.1 to 7,000	1.10	1.19	35.81	49.76
5,000.1 to 6,000	1.28	1.46	39.68	51.81
4,000.1 to 5,000	1.65	3.44	46.75	61.94
3,000.1 to 4,000	1.83	3.77	49.47	65.51
1,000.1 to 3,000	2.75	4.58	58.45	70.21
1,000.1 to 2,000	503	7.53	71.19	80.95
500.1 to 1,000	7 59	11.29	79.75	87.65
150.1 to 500	15.65	10.61	88.97	93.74
30.1 to 150	44.91	49.92	96.90	98.35
30 or less	100.00	100.00	100.00	100.00

In 1938 36 per cent of the total rail mileage of the United States was organized in units of more than 8000 miles; in 1920 the percentage was only 17. More than half of the railroad mileage in 1938 was operated by companies that managed more than 5000 miles; in 1920 only 40 per cent was so directed. In the former year 63 per cent was operated in units of over 4000 miles; in the latter year only 47 per cent of the companies were of this size. Although this is not stated in the table, it is also a fact that between 1920 and 1938 the number of companies operating railroads in the United States declined from 1093 in 1920 to 611 in 1938, or 44 per cent, while the mileage operated fell off by only 15,162 miles, or 6 per cent. This decline was mainly in the category of companies operating 150 miles or less, for of these there were only 485 in 1938 as compared with 922 in 1920. Certainly these figures indicate a definite trend in the direction of concentration. The change is not to be attributed solely to the legislation of 1920, for much of it resulted from abandonment and changes in the character of new construction or from other operations which required no Commission approval under Section 5 and were not accelerated by the Act to Regulate Commerce.²¹ But the consolidation program administered by the Interstate Commerce Commission harmonized with the more general tendency, and increased the extent with which concentration occurred.

²¹ Between 1923, when the Commission first published the statistics in its annual report, and 1938, consolidation applications affecting 78,444 miles were approved. The largest number of approvals was in 1924, when 10,928 miles were authorized to be merged, and the smallest number was in 1936, when there were authorizations for only 787 miles. By 1938, however, the annual total had risen to 4344 miles.

Consolidation and Monopoly.—Congress did not indorse a consolidation policy in 1920 primarily in order to reduce the costs of railroad operation or because the legislature desired to substitute a regime of territorial monopolies for the carrier competition which had characterized rail history in the past. How remote, indeed, was the idea of monopoly from the legislative mind in 1920 was shown by the injunctions which the statute laid upon the Commission to guide the latter in the formulation of a comprehensive plan. These injunctions required that competition should be preserved as fully as possible, and that wherever practicable the existing routes and channels of trade and commerce should be maintained. The same conclusion would follow from a detailed examination of Commission practice under the consolidation law. It may seem paradoxical to require consolidation and to expect competition to be maintained, but the opposition is more apparent than real, and both policies may be enforced.

The Support of Railroad Credit.—The real reason why consolidation clauses were inserted in the Transportation Act of 1920 was that consolidation was expected to aid in the administration of sections of the law which had nothing directly to do with monopoly, or, it may be added, with economies in operation that consolidated systems might secure. Senator Cummins, who was the most influential man in the Senate in his time, as far as rail legislation was concerned, started with two assumptions relating to government policy in railroad markets. The first was that the federal government should take positive action in support of railroad credit. The second was that this action should take the form of rate increases in territories where railroad earnings were too low to yield the companies a fair return. We cannot now enlarge upon these assumptions, but it was because of the Senator's position that the Transportation Act directed the Interstate Commerce Commission to establish rates so that carriers as a whole, or as a whole in each of such rate groups or territories as the Commission might designate, would earn a fair return upon the value of their property used in the service of transportation. Under this law the Commission has frequently been asked, and sometimes has consented, to advance rates to suit carriers' needs. Now it is no doubt true that railroad earnings may be increased by raising rates, but it is also true that an increase in the rate level which will enable a group of railroads on the average to earn a fair return will permit some to earn more than a fair return while others will still fail to collect a reasonable amount. The statute therefore resorted to two expedients in order not to heap high the table of the fully fed. One was to recapture for the government a part of the earnings of any single railroad that might exceed 6 per cent. The other was to provide for the consolidation of systems in such a way that all railroads would be of equal strength, and all would earn the same net return upon a given level of rates. It was because he believed in the second expedient that Senator Cummins became interested in consolidation. From his point of view, consolidation of

strong with weak railroads became desirable because it seemed to make possible a certain type of government support.

Speaking in the Senate during the debate on the railroad bill, Senator Cummins declared:

It seems to me it must be obvious to any thinking man who has studied this subject that there is but one way to meet the problem which is created by the disparity in the earning power of our several railroads. . . .

We are agreed that we cannot raise the rates upon the weaker properties so that they will be self-sustaining, because that would give to the stronger properties, which move 70 per cent of the business of the United States, an income so excessive that it would not be tolerated for a single month. . . . We cannot give to the stronger properties the rates which would return for them no more than a fair interest upon the value of their property . . . because that means death to the weaker properties. . . .

You may inquire as you will . . . but you will finally reach the conclusion that it can only be done by consolidation.²²

Criticism of the Cummins Theory of Railroad Consolidation.—It is curious that so intelligent a man as Senator Cummins did not see that consolidation does not remove the injustice inherent in applying a single rate schedule to a variety of carriers, but only conceals it. Let us suppose, for example, that four railroad corporations exist, each with an investment of \$50,000,000, all charging the same rates, with earnings as follows:

Corporation A	\$5,000,000
Corporation B	4,000,000
Corporation C	2, 000,000
Corporation D	1,000,000

Let us further suppose that \$3,500,000 constitutes a fair return upon a capital of \$50,000,000. If there are 1000 stockholders in each corporation, and if every stockholder holds the same number of shares as every other, then each stockholder in Corporation A will receive \$5000, in Corporation B \$4000, in Corporation C \$2000, and in Corporation D \$1000. Since a fair return is assumed to be \$3,500,000, or \$3500 per stockholder, we may suppose that the facts justify Corporation C and D in requesting an advance in rates. Senator Cummins delighted to argue that an advance under the conditions given would be denied, for the advance would benefit Corporations A and B as well as Corporations C and D, and would cause the dividends to stockholders of A and B to increase as well as dividends to stockholders of C and D. What the corporations should do, he said, was to consolidate, A with D and B with C, thus producing two corporations, each with an investment of \$100,000,000, and with earnings of \$6,000,000, or \$1,000,000 less than a fair return. This income could then be raised to \$7,000,000 by an advance in rates without impropriety, for there would be neither weak nor strong roads, and no one would be over-; ²² *Congressional Record*, Vol. LIX, December 4, 1919, p. 131.

paid. But it is clear enough that if the terms of merger have been controlled by the relative earning power of the corporations concerned—and this would be a reasonable basis in a voluntary negotiation²³—the proceeds of an advance in rates after consolidation would be distributed to the same persons and in the same proportions as before. For on such a basis the old stockholders of Corporation A will hold 5/6 of the stock of Corporation AD, and the former stockholders of Corporation B will hold 4/6 of the stock of Corporation BC. The effect of a 16-per-cent increase in rates before consolidation would have been to give the stockholders of Corporation A an advance of \$800,000, or 16 per cent of \$5,000,000. The effect of the same advance after consolidation will be to give them 5/6 of an advance of \$960,000, which is the same amount. Mere consolidation conceals the effect of a rate increase, but it does not alter the results which follow. Whether it equalizes or not depends upon quite another matter, namely, on the terms of the merger, as distinguished from the simple fact that a consolidation takes place. The weak may get more and the strong less from an advance in rates after a merger only if they have secured, through voluntary negotiation, an interest in the combined assets of the consolidated company which the past earnings of the weak company do not justify. Senator Cummins may have anticipated this result, but he never told the Senate the reasons for his faith.²⁴

Diffusion of the Resources of Strong Railroad Companies.—Is it ever desirable to unite two railroad properties, one weak, one strong, when the union only conceals and does not remove the fact of weakness? Putting the Cummins argument aside we see that the answer to the question depends on whether it is legitimate to draw upon the resources of strong railroads to improve service or to lower rates in territories which weak railroads formerly supplied. This is the one possibility that grows out of such a consolidation. If it is realized, shippers in one section will be called upon to contribute for the benefit of

²³ The Interstate Commerce Commission said in a consolidation case in 1931: "In determining whether the consideration being paid by the Baltimore and Ohio to acquire control of the Chicago and Alton properties is just and reasonable we must consider the commercial value of the properties. The best measure of this value is to be found in the present and prospective earnings of the properties" (175 I.C.C. 301, 311, 1931).

²⁴ It may be interesting to consider the case in which some members of a group of companies earn a fair return without consolidation and others do not, but in which the group as a whole earns a fair return upon the entire investment. In this case consolidation appears to make an advance in rates unnecessary. It may actually prevent an increase, but shippers will gain only because the stockholders of the more necessitous railroads have put themselves in a position in which they cannot enforce their rights. The figures used in the text will supply an illustration of this assumed situation, if we suppose \$3,000,000 to be a fair return, instead of a larger sum. Before consolidation the stockholders of Corporation D can press for an advance in rates because they have an investment of \$50,000,000 on which only \$1,000,000 is being earned. After they have merged their investment with the assets of Corporation A and have taken 1/6 of the stock of Corporation AD in return, these same stockholders will still receive only \$1,000,000 revenue, although they will form part of an organization which, on the whole, is earning a fair return. This illustration still assumes, of course, that the properties turned into a consolidation are valued according to their earning power.

shippers in another section. Evidently some persons will gain, but, on the other hand, some persons will lose. Certainly it will be easier for New England to secure fresh capital for rail construction if the Pennsylvania Railroad owns her railroad lines than if she is served by an independent company, for the Pennsylvania can draw upon the resources of the states of Pennsylvania and Ohio, while the New Haven relies upon the industries of New England alone. On the other hand, the Pennsylvania may have less left for Ohio if she puts her credit at the service of the New England states. If it is the duty of government to promote a certain equality in the rate of development of all parts of its domain, or even if a government desires results which will not flow from the uncontrolled processes of industry, then mergers may be encouraged by the very reason of the shifts in funds which they permit. This is one advantage of government ownership of all a country's railroad lines, for in such a system the resources drawn from rail operations constitute a disposable surplus to be applied wherever government policy directs. The danger is that the processes of politics may prove to be as uncontrolled as those of industry, and as little promotive of the general good.

Operating Advantages of Consolidation.—While Congress was inclined to stress other matters in 1920, the principal public support for unification comes today from persons who seek economy in railroad operation. We have, therefore, to examine the effects of consolidation upon costs. In doing this, it will be well to deal both with proposed mergers which preserve competition, as did those contemplated by the act of 1920, and with unifications like those of the Prince plan which are intended to reduce competition, permitting inter-system rivalries only because railroad companies cannot conveniently be broken up.

A list of economies from the first type of consolidation can be compiled from applications made to the Interstate Commerce Commission during a period of nineteen years. The principal items on this list are as follows:

1. Reduction in overhead expenses. Consolidation lessens clerical work in railroad offices because it cuts down the number of intercompany transactions and makes it possible to combine tax returns as well as statistical reports required by state and federal governments. Frequently, also, the supervisory personnel which a single consolidated company employs will be smaller than the personnel needed by two or more separate organizations; indeed, the general offices of a small railroad are sometimes entirely closed when the road is taken over by a large connecting line.

2. Saving in operating costs. The Chicago, Milwaukee and St. Paul bought ~~the~~ Chicago, Terre Haute and Southeastern in order to obtain coal on more favorable terms. Another sort of saving may be secured by simplification of procedure at junction points of the consolidating systems. It may be possible, also, to close some shops on a system or, if all shops are continued in use, the carriers may be able to confine certain shops to particular types of work.

Again, division points may be changed and terminals may be consolidated. It is true that operating savings may lead to the discharge of employees, and that rearrangements of methods of operation may cause other workmen to shift their residences and so impose upon them a considerable expense, but this is, perhaps, inevitable, and the gain may outweigh the loss. Another saving may result from the fact that freight cars of a consolidated system will be "at home" on all parts of it, so that they can be put at the public service without limitation and when in need of repair can be fully repaired where they are, instead of being sent back to the home line.

3. More effective use of plant. This is a matter which can be discussed from many points of view, some of which bear upon subjects mentioned in the preceding paragraph. The operating advantages which may result when several railroads combine in the ownership or operation of a terminal are well known. It is also true that two companies may supplement each other's terminal facilities, as when one railroad has well-placed terminals in one city, while another railroad has special terminal advantages in another town. Passing from the question of terminals, we find instances where the acquisition of a particular piece of line may be of considerable importance to an acquiring system. Thus a railroad may be able to use a well-placed track for detour purposes in the event of a break in its own line. Or a subsidiary may be used regularly as double track. The Southern Pacific, to cite an example, expected in 1924 to secure the advantage of double-track operation between Tucson and El Paso by acquiring the line of the El Paso and Southwestern. If the purchased mileage is well located, the advantages are, of course, increased. The purchase of the Chicago, Milwaukee and Gary by the St. Paul enabled the latter company to handle through traffic between its eastern connections and all points on its system in the Northwest without passing it through the congested switching district of Chicago; the value of the Gary for this purpose alone was thought to justify the responsibilities incident to its acquisition.

It sometimes happens that two systems may be described as "complementary"; and where this is true, consolidation may lead to very great improvements in the effective use of plant. In general, if freight produced upon the lines of one railroad is marketed upon the lines of another or customarily passes over the tracks of another on its way to market, the companies participating in the haul regard themselves as complementary; but it does not necessarily follow that such is the case. Two railroads may, however, be specially fitted to work together, either because one possesses certain facilities such as refrigerator cars or stock cars or special types of locomotives that the other needs, or because the lines of one company afford more direct routes than lines of other carriers for interline movements to and from the territory served, or because the peak loads of the two systems do not coincide in time or in space.

Estimated Amount of Economy by Consolidation.—Some carriers which applied to the Interstate Commerce Commission under the act of 1920 endeavored to state in dollars and cents the economy which they hoped to secure. The Santa Fe was industrious in this kind of computation, and we may count up more than two million dollars that it promised to save through merger if we accumulate all the expected economies in mergers in which the Santa Fe has been engaged. Among other companies which made numerical estimates were the Southern Pacific and the Hill lines. When the Interstate Commerce Commission was asked to approve the organization of the Great Northern Pacific Railway Company, it was told that a saving of \$10,142,811 would result. The operating expenses of the Great Northern and of the Northern Pacific together amounted at the time to about \$153,000,000, so that the expected saving was between 6 and 7 per cent. The Southern Pacific reported expected savings of \$2,803,142 in the aggregate from its mergers with the Dayton-Goose Creek, the Texas and New Orleans, the El Paso and Southwestern, the Arizona Eastern, the San Antonio and Arkansas Pass, and the Nevada California Oregon. These companies had operating expenses amounting in all to almost \$66,000,000, so that the percentage of economy was between 4 and 5 per cent.²⁵

Estimates under the Prince Plan.—Unification proposals which are intended to reduce competition are illustrated by the Prince plan. We have no background of contested cases under the Prince plan, but we have certain reports and estimates of another type. This is because the Secretary of Commerce received a preliminary report in March, 1933, from a committee which he had appointed to examine the plan, and because the Federal Coordinator of Transportation later gave the matter his attention, as we have already pointed out. In July, 1933, the Coordinator assigned William B. Poland the task of conducting a study; some time later advisory committees of railroad executives and operating men were set up in the East, South, and West to cooperate and assist. These committees discussed the Prince plan, made suggestions for its improvement, and calculated economies on the basis of what they considered possible. The conclusions of these committees, based on informed judgment, deserve respect, although allowance must be made for the opposition which men engaged in any occupation are likely to offer to radical reorganization plans emanating from the outside.

According to representatives of Mr. Prince, the adoption of his plan would have produced operating economies of \$743,489,000 annually. This would have nearly doubled net revenue from railway operation, would have transformed a deficit into a net income of \$420,000,000 on the basis of figures for 1932, and would have provided a return on railroad property investment of 4.1 per cent. These estimates the railroad committees reduced to a probable

²⁵ Stuart Daggett, *Railroad Consolidation West of the Mississippi River*, University of California Press, Berkeley, 1933.

saving in operating costs of \$215,200,325, to be derived from abandonment of track, consolidation of organization, elimination of overlapping solicitation, avoidance of competitive duplication in freight and passenger train service, simplified terminal yard operation, saving in equipment maintenance, and similar economies, Mr. Poland himself, after comparing the committee estimates with those submitted by Mr. Prince, concluded that the total gains would, probably, not exceed those mentioned in the committees' reports by more than 50 to 75 million dollars. The total expenses of railway operation in 1932 had been \$2,367,361,419. The estimates of savings from consolidation which the committees and the Coordinator's investigator approved ranged, therefore, from 9 to 12 per cent of current operating outlay—a fraction which was larger than the estimates of economy submitted in proceedings under the act of 1920, but perhaps not more so than the more sweeping character of the later proposed unifications would justify. Against this was to be weighed the anticipated release of 76,040 employees (7.5 per cent of the total roll), and a possible decrease in efficiency in management due to the great size of operating units under the proposed consolidation scheme.²⁶

Other Estimates of Saving.—In addition to the estimates of saving referred to in the preceding sections, mention may be made of additional calculations by the Federal Coordinator of Transportation and of certain general statements by persons in a position to be informed. Three of these last statements—one by Mark Potter, once an Interstate Commerce Commissioner, in 1932; one by Commissioners Miller and Caskie of the Interstate Commerce Commission in 1938; and still another by L. A. Jenny, a consulting engineer and proponent of a special plan for regional consolidation, in 1938—agreed upon an overall estimate of \$500,000,000, or 15.48 per cent of railroad operating expenses in 1937, to measure possible savings by general railroad consolidation. No detailed basis for the conclusions reached were given in these cases, and no great weight can be attached to the figures offered. The Federal Coordinator did, however, express opinions at one time which rested upon the detailed consideration of proposals for unification described in his various reports. Thus he expected that \$100,000,000 might be saved by the pooling of all railroad-owned freight cars, \$100,000,000 by the integrated handling of rail merchandise traffic, \$50,000,000 by terminal unifications, and \$366,000,000 by a complete modernization and relocation of railroad repair shops throughout the country. This last saving, however, presupposed the investment of \$1,000,000,000 of new money as well as consolidation. In addition to such economies the Coordinator described other improvements which might reduce costs by unspecified amounts. There were doubtless duplications in these various proposals; we may nevertheless assume that the Coordinator believed in the possibility of savings by consolidation which would aggregate

²⁶ United States, Office of the Federal Coordinator, *Report on the Regulation of Railroads** 73d Congress, 2d Session, 1934, Sen. Doc. No. 119, pp. 22-23.

\$500,000,000 or more. On the other hand, the Coordinator's estimates were tentative, and their correctness was disputed by managers of the railroads to which his policy of coordination was to be applied.²⁷

Summary of Arguments in Favor of Consolidation.—The general character of the arguments for consolidation will already be apparent from the discussion in this chapter. They are, in brief, that mergers will simplify the task of regulation by reducing the number of companies with which the government has to deal. This will be administratively convenient, and it will be of particular advantage when the government addresses itself to the regulation of railroad rates. For while the considerations which appealed to Senator Cummins have little force at the present time, it remains true that diversification of railroad ownership is an obstacle to sweeping rate revision. Mr. Hoover, as Secretary of Commerce, recognized this fact when he observed that our railroad rate structure is a most amazing complex of local and commodity compromises. "It would be theoretically possible," he said, "to reorganize the rate structure in such fashion that, without disturbing even the present earning levels for the country as a whole, some relief could be given to the more primary products, such as agriculture and coal, by imposing a more equitable burden upon the highly finished goods. But it is impossible to secure the best results from rate reorganization without consolidation and the consequent securing of a much wider diversification of traffic, for many of our railways are in a major way dependent on one class of traffic, such as either coal or grain, and with the present wage levels, present taxes, and present commodity prices, it is impossible to expect great rate relief without consolidation itself."²⁸

Not only would regulation be made easier, say the advocates of consolidation, but the operating economies to be expected from unification would be of the first significance. Railroad earnings are admittedly too low to support the rail transportation plant that is now in use. Advances in rates or reductions in wages are politically undesirable and, perhaps, economically unwise. But a saving in operating costs of even \$200,000,000 would afford relief which the public might be induced to approve, and one which would assist the railroad system toward recovery in a material degree.

Still another argument is derived from the thorough study of intercorporate relationships which has characterized the past few years. This may be summed up by saying that the strength or weakness of a railroad system depends upon its ability to secure a fair division of the revenue on the traffic which it handles, as well as upon the importance of the service that it renders to the public and the general level of rates. Some strategically located systems use their exclusive control over certain terminal facilities or their ability to divert traffic from one

²⁷ Interstate Commerce Commission, Bureau of Statistics, *Railroad Coordination and Consolidation, A Review of Expected Economies*, prepared by B. N. Behling, Statistical Analyst, Statement No. 4023, File 53-C-3, 1940.

²⁸ United States Senate, Committee on Interstate Commerce, *Hearings on S. 2224*, a bill to provide for the consolidation of railway properties, May 21, 1924.

to the other of their connections to extort a species of monopoly profit, which enriches them while keeping other railroads poor. This practice has a twofold effect upon the public. That is to say, it tends to hamper railroad development in the territory of the less favorably situated carriers, and it causes deflections of traffic and consequent wastes of transportation that are disadvantageous to shippers and consumers as a whole. The underlying purpose of the Ripley plan was to minimize these practices by giving to each of the great systems of the country easy access both to sources of traffic and to destination points in large selected territories, a result which would be of undoubted advantage to railroad transportation as a whole. The Prince plan has not this purpose as a principal objective, but it might have produced the same effect.²⁹

Arguments Against Consolidation.—Opponents of consolidation believe that the policy, rightly understood, is of no help in supporting railroad credit. They take occasion, moreover, to object to the philosophy implicit in much consolidation discussion, by asserting bluntly that prosperous railroads have no more reason to take over embarrassed railroads than prosperous bankers or farmers or manufacturers have to contribute to the support of businesses which do not pay. It is denied that consolidation will produce economies, or, at least, if economies are admitted it is contended that they will be offset by the decreased efficiency inherent in the operation of large properties, widely scattered, by a small number of centralized organizations.³⁰

The policy of establishing large systems is further criticized on the ground that it will retard the abandonment of ill-judged enterprises; that it will make for rigidity, prematurely forcing traffic into channels which may not suit the industrial development of future years; that it will lessen competition; that it will reduce employment; that it will require expensive financial and corporate reorganization; and that it will be highly difficult of accomplishment in a country where dissatisfied minorities can resort to judicial process to enforce their real or supposed constitutional rights.

Generally speaking, railroad executives oppose compulsory railroad consolidation because it systematizes the industry and limits the field for imagination and initiative. The exercise of these qualities, they believe, is essential to efficiency in transportation service. Rail labor opposes consolidation also,

²⁹ Mr. Budd, President of the Chicago, Baltimore and Quincy, summarized the **advantages** of consolidation as follows: "Reducing the number of railways from eight hundred and sixty-six operating companies to about twenty would eliminate a tremendous amount of overhead organization, would enable the traffic to be concentrated on the most favorable routes, using the best parts of the several lines as they now exist, and would automatically bring about the most desirable type of coordination of terminals—namely, coordination under a few strong owner-ships. Competition would be preserved and, indeed, the desirable features of competition from the public point of view would be enhanced, because the lesser number of strong roads, **able** as well as willing to give good service, would insure a higher quality of competition than **can** be obtained from too many lines competing with each other and weakening each other by the excessive competition." (*Traffic World*, November 16, 1935, p. 846.)

³⁰ C. A. Morse, "Consolidation of Railroads," *Transactions of the American Society of Civil Engineers*, Vol. LXXXVII, 1924, p. 716.

but principally upon the ground that it will reduce employment. As Mr. Willard of the Baltimore and Ohio once said, it is not human nature for a man to want to consolidate himself out of a job. Of the two types of opposition, that of the labor group is the more effective. It can be allayed in one of two ways, if at all. The first is to attach to the approval of each specific consolidation the condition that the employees of consolidating railroads shall continue to be employed in the same or in equivalent jobs. This condition would not destroy all possibility for economy through unification but it would seriously reduce the saving which might otherwise be secured. With such a rule the payroll of any railroad system might still gradually be cut down after consolidation as employees died or voluntarily left their employment, but the process would be slow. Moreover, the remedy has the defect that it fails to distinguish between employees long associated with the railroad industry and less permanent workers who are not committed to a railroad career.⁸¹ The other solution is the perfection of some form of dismissal wage. This is the policy agreed to by the railroad labor organizations and the greater part of the rail managements of the United States in 1936. These arrangements have imposed considerable expense upon the railroads, but not more than public policy would seem to require.

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⁸¹ In a recent case (Finance No. 11,847, Chicago, Rock Island, and Gulf Railway Trustees Lease, 1939) the Commission attracted some attention by entering an order of approval of a lease by the Chicago, Rock Island, and Pacific Railway Company of the properties of the Chicago, Rock Island, and Gulf which was subject to conditions intended to protect employees who would be adversely affected by the change. Three members of the Commission dissented, in part, because they believed that the Commission lacked jurisdiction to regulate carrier employment or the compensation and expenses of carrier employees (*Traffic World*, April 29, 1939, p. 944

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CHAPTER XXV

COORDINATION. AMERICAN INLAND WATERWAY EXPANSION PROGRAMS



Meaning of Coordination.—"Coordination," like "appeasement," is a word of inclusive meaning. Mostly, however, it refers to the complementary and harmonious use of different tools or different techniques in rendering a given service or in producing a given good. These tools or techniques may be under a common administrative control, which determines the kind and the amount of each which shall be employed and the spatial and other relations which shall exist between the various units, or they may be under different controls. The work of coordination in this first instance becomes a rather common form of business or of military or government activity. It presents a certain novelty in the field of transport only because the coordinator is handling some tools that are relatively new. Or, in the second place, different tools and techniques may be under different administrative directions. Here there is clash of contending interest and the setting up, perhaps, of competing tests of merit. Tools and techniques are now represented by spokesmen, and we hear of railroad interests and motor vehicle interests and water interests. Governments which attempt to mediate set up on their part indirect controls, and coordination becomes the name attached to a somewhat confused attempt to prevent unnecessary waste when several rivals each insist upon the superior facility with which either can perform a given job.

Waste Through Failure to Coordinate Connecting Services.—Now there are two kinds of waste in transport when different agencies carry passengers or goods from one place to another. One of these is likely to attract attention when two or more carriers participate in a single haul between given points or origin and destination, each carrying the people or the freight over a portion of the entire route. If carriers work together in this way without properly integrating their operations, costs are sure to be increased or the quality of the service will be impaired. Poorly adjusted passenger train schedules provide a common example of faulty integration—schedules which delay passengers when they transfer from one carrier to another. This is a simple case, but there are instances of all degrees of importance which illustrate the same defect in organization. Freight, as well as passengers, may be de-

laid if there is no convenient facility with which to carry it from the railroad terminal to the ultimate destination at the place of business of the consignee. This may be also a neglect in timing, but space is important as well as time. Peterson has pointed out that the minimum requirement for coordination in the sense in which we now use the term is the provision of a place for transfer. Air landing fields must be designed to improve the service of taxicabs; freight houses should provide easy access to trucks, and unloading facilities should be adequate where rail and waterway come together.¹

Again, equipment has to be regarded. We have referred in earlier chapters to the use of steel boxes called "containers" in the handling of consignments of less-than-carload freight. One merit of the container is the ease with which it can be shifted from rail to truck. Boxes are built of sizes which fit equally well on motor vehicles or on railroad cars, and these are rolled or lifted from one place to another with slight delay and little expense. Motor vehicles themselves can be constructed to run either on roads or on rails, and we have at least one example in American history—the Pennsylvania State Works—in which boats were at times carried upon railroad underbodies and at times floated upon the waters of a canal. Failure to coordinate connecting services with respect either to time, to space, or to equipment employed will make the services less satisfactory or will increase the cost of rendering them, and either result is, socially, a disadvantage.²

How Far Complementary and Successive Services Should Be Combined Under One Direction.—Enterprises which labor jointly in moving people and goods will not consciously refuse to perform this task in the most efficient and satisfactory way, so long as the problem is stated in these terms, although they may operate badly because they are bound by habit, because they lack capital, labor, or imagination, or because they are poorly endowed with brains. In these matters they are subject to the limitations which affect all human activity. As strange managements come to know each other better and particularly as the characteristics of new types of transport become better

¹ G. Shorey Peterson, "Transport Co-ordination: Meaning and Purpose," *Journal of Political Economy*, December, 1930.

² It may be observed in passing that refusal to quote a through rate for the carriage of goods over routes which are served by several successive carriers does not necessarily result in a community loss, although the absence of through rates is frequently discussed along with the physical inadequacies in handling shipments which we have described in the text. It is true that regulatory boards often and rightly require the establishment of through rates; but when they do this it is generally to protect the public against unreasonable charges or to maintain established relations between competing centers, not because high rates interfere with the smooth and cooperative effort of the carriers which are concerned. Coordination is a concept to be discussed in terms of the effort required to perform a given service, not in terms of the price collected for that service, which is a different thing. Price enters into considerations only when it causes a less efficient method or route to be preferred to a more efficient one; and when this occurs the measure of the social loss is to be found in the difference between the actual and the possible costs incurred in rendering the service, not in the difference between the price charged before and the price charged after the through rate is installed.

known they will operate more easily together. The principal question of public policy related to coordination of this sort is, perhaps, whether complementary services shall remain separate or whether they can best be made subject to a common administrative control. Within limits it is, of course, easier to coordinate through ordinary business routine in a single organization with relations of confidence, interest, and authority than by diplomatic negotiations with foreign powers—the foreign powers in this case being separate business units—but there are offsetting considerations which raise questions that the chapter on consolidation has already considered.

Public policy in the United States has not been much opposed to the consolidation of connecting lines of the same type in order to achieve coordination. The question has not even been raised with respect to road and water transport, and when railroads have joined, end to end, the official view has generally been that this should be approved unless large-scale problems of railroad strategy should appear to be involved. A principal complaint in the railroad field, indeed, is that the carriers have not gone far enough in combinations of this type. Thus eastern railroads have confined themselves to the East, western railroads to the West, and southern railroads to the South and as a result, regional differences have been accentuated and difficulties of interregional transfer have been increased.

Nor has there been much deliberate opposition to the combination of connecting services even when they have been of different types. Until recently the debate upon this subject has been pretty much confined to the relations between rail and water carriers, for American railroads were slow in undertaking road service, and they have not yet begun to assume responsibility for transportation by air. Canadian railroads have long owned transoceanic steamship companies, and American railroads have controlled steamships on the lakes, the rivers, and the seas which border the United States. Where there has been objection to the union of rail and water lines this has been because combination threatened to eliminate competition, and not because the outcome of the merger, in so far as it related to coordination, was not approved. A similar attitude today is taken toward the use of trucks by railroads to establish store-door delivery,³ and even the operation of bus lines between railroad stations that parallel the railroad route has been accepted as a means of coordinating through and local service to a degree that use of trains alone would not permit.

Waste Through Use of Less Effective Means of Transport.—The really contentious questions with respect to coordination center around the second waste which a refusal to coordinate will produce—a dissipation of energy for reasons which have not yet been considered. Waste occurs when an inferior rather than a superior instrument is employed to accomplish a task which either can perform. Inferiority may, for the moment, be measured in **terms**

³ See chap. xxiii.

of cost, although for some purposes another unit might be appropriate. Using the language of transportation we may observe that if freight or passengers can be hauled at least expense by railroad from point A to point B, and they are carried between these points instead by truck, or canal boat, or airplane, or wheelbarrow, then there is a loss which needs justification if it is not to be condemned as socially unwise. And if the problem is not quite so simple, but each vehicle—the railroad, the truck, and even the wheelbarrow—is most economical for the carriage of certain goods or certain passengers under certain conditions, then the ideal adjustment will be that in which each instrument is devoted to the tasks which it is best fitted to perform. To bring this about is to "coordinate," and perfect coordination means perfect adjustment of task to capacity.

The reader will probably observe that there is nothing particularly new or striking about this coordinating job. It exists in backward countries, where the head of the household must decide whether his wife or his young children shall collect the fuel for the cooking fire. It is at the basis of the division of labor and of the displacement of workmen by machines in more advanced communities. Only more or less by accident has the word "coordination" in this sense assumed so prominent a place in the current literature of transportation. This does not mean, however, that such coordination, here or elsewhere, is unimportant, or that its neglect will not occasion waste.

How the Problem Presents Itself.—In current transportation practice there are two situations in which the possibility of waste by the use of less effective means of transportation deserves to be carefully discussed. One of these emerges when large government projects for addition to transportation equipment are proposed. This is a very practical matter. Actually in the United States one segment of national policy looks to the enlargement of the inland waterway and highway facilities of the country upon a major scale. This project includes the improvement of the Mississippi and the St. Lawrence rivers and the further extension of the existing network of through and local roads. Obviously such a program calls for the consideration of the comparative merits of different forms of transport, including the merits of railroads which are likely to be partially displaced. Advocates of waterway and highway extension argue that waterways and highways are more efficient means of transport than are railroads. Railroads deny that this is true. Opponents of the government program, in general, call for "coordination" in the hope that government activities in thus increasing the supply of transportation may be circumscribed.

The second type of coordination requiring a choice between methods appears when two kinds of private carriers request permission to perform a service which either is able to undertake alone. In the United States, state and federal commissions discuss the public aspects of such construction and operation and guide it either by the issue or refusal of permits or by rate rulings

of various sorts. Several European governments do this also, but some of these, in addition, have made serious attempts to redistribute existing traffic between rail and motor carriers. This has involved the control of new enterprises and often the fixing of rates; and it has sometimes required also the voluntary or forced withdrawal of rail or motor enterprises from services which they can perform less efficiently than can their rivals. A principal, though not the only, objective of coordination policy in Europe is, indeed, the protection of the railroads in each country from further traffic loss, from motor vehicle competition. Coordination is not extended to the relations between railroads and waterways to the same extent in European countries because the problems in this field are less acute and the need for relief less pressing.

American Programs for Inland Waterway Developments.—We shall discuss proposals for the improvement of the Mississippi and the St. Lawrence rivers in the present chapter because they are large government projects for addition to transportation equipment of the sort referred to in the preceding list. In the following chapter we shall consider attempts to coordinate the activity of private parties, mainly in connection with motor vehicle operations upon the public roads. This sequence of treatment will show us the coordination problem from two points of view; it will also familiarize us with the type of controversy which government interference in these matters provokes.

On the question of the Mississippi, the reader is requested to refer to Chapter III, so that he may have information relating to American waterways conveniently in mind. We are not now interested in further description of the Mississippi River. We have to inquire, however, whether the establishment of the nine-foot channel from the Gulf of Chicago and Minneapolis and of a six-foot channel from the mouth of the Missouri River to Sioux City, Iowa, is part of a properly coordinated plan for the extension of the transportation system of the United States.

Arguments in Favor of Mississippi River Improvement.—The full utilization of the resources of the Mississippi River is a policy which commands sectional and political support. This support is based upon the belief that the expenditure of public monies upon the Mississippi River and its tributaries will enable cities in Illinois, Missouri, and near-by states to compete on the Gulf and Pacific seaboard of the United States, as well as in Mississippi Valley markets, on more favorable terms than they have enjoyed in former years. Such an improvement in the position of the Middle West is regarded as a reasonable offset to the advantages which the distributing centers of the Atlantic seaboard secured through the construction, at government expense, of the Panama Canal. It is also thought of as neutralizing the effect of the post-war increases in railroad rates which, in a business sense, moved the center of the country farther from its coasts. Hoover used as a measuring

rod, in 1926, the number of cents which were required to carry a ton of staple goods one mile, and argued that New York had moved 224 cents closer to the Pacific coast between 1913 and 1926, while Chicago had moved 336 cents away. The necessarily large advance in railroad rates, he said, as a result of realignment of values from the war, served to put a row of toll gates around the Middle West which, together with the completion of the Panama Canal, and with ocean rates maintained at the low pre-war basis, all combined to distort the economic setting of the interior section.

In addition to the sectional and political aspects of Mississippi River improvement, it is argued generally that waterways are capable of moving bulky, low-rate commodities which constitute the basic material in many important industries at lower costs than are possible by rail. This is said to be in part because the tractive force required to haul a ton of freight floating upon a water surface is less than that required to draw an equal weight rolling over rails and in part because the railroads have suffered from advances in the costs of labor and materials in recent years which have affected water carriers to a lesser degree because they use less labor and material in transporting each ton of freight.⁴ Regarded from this point of view, the streams of the Mississippi River basin represent a great natural resource which engineering skill can make available for the purpose of transportation and which, in the long run, will produce advantages for the country as a whole.

A third argument in favor of waterway development is that railway facilities are not expanding rapidly enough to take care of increasing traffic. According to Mr. Hoover, we shall have 40,000,000 more people in the United States in 1950 than we have today. Our railways and their terminals will need to be enormously increased to care for these future Americans, and we can secure added facilities by water improvement at less capital outlay than if railroads were to be sufficiently enlarged.

Arguments Opposed to Mississippi River Improvement.—The opponents of a Greater Mississippi River system, like its advocates, sometimes are influenced by sectional considerations. In so far as the author has observed, the representatives of seaboard cities, whether east or west, have not complained because their relative advantage over the Middle West was threatened to be reduced. But two sectional arguments have, nevertheless, been made. One is that an undue diversion of water from the Great Lakes to the Mississippi River system will reduce the depth in harbors and inner channels in the Lakes to a damaging degree and the other is that an extensive development of the Lakes-to-the-Gulf waterway may delay or prevent the improvement of the St. Lawrence.⁵

⁴ L. C. Sorrell, *Traffic World*, September 7, 1929, pp. 575, 578.

⁵ The most persistent controversy with respect to the diversion of water from the **Great** Lakes to **the** Mississippi River system concerns the disposal of sewage of the city of Chicago rather

The main opposition to Mississippi River improvement comes, however, from the railroads of the country rather than from the seaboard towns. The railroads contend that they have, in use and operation, a transportation ma-

than the needs of navigation. The sewage of Chicago has, for many years, been conveyed into the Chicago River. This stream once emptied into Lake Michigan. Acting under a state statute of 1889, however, the State of Illinois deepened the channel of the river and turned its flow south by cutting across the divide, so that its waters passed into the Des Plaines River, thence to the Illinois River, and thence to the Mississippi. This construction was begun in 1892 and was completed in 1900. The change in direction caused water to be withdrawn from the Great Lakes basin, and threatened to lower the level of the Great Lakes. The question arose, therefore, as to how much water could properly be taken from the Lakes in order to carry off Chicago sewage. On this point the Illinois statute of 1889 contemplated an ultimate flow of not less than 600,000 cubic feet of water per minute. The Secretary of War, in 1899, granted permission to open the newly constructed channel, which was then assumed to have a flow of 300,000 cubic feet per minute. In 1901 the Secretary, Mr. Root, directed the flow to be cut down to 200,000 cubic feet, and other orders followed in subsequent years, first increasing and then reducing the permitted flow, and setting a limit of 250,000 cubic feet per minute to prevail after March 31, 1903. Chicago refused to comply with the directions of the Secretary of War with respect to maximum flow, and the United States government obtained an injunction. In view, however, of the unfortunate effects which might follow if the city were compelled suddenly to change its established system of sewage disposal, the Secretary of War authorized the city of Chicago, in 1925, to take 510,000 cubic feet per minute from the Lakes until 1929, on condition that it take immediate steps to treat sewage by artificial processes in amounts sufficient to care for the needs of 1,200,000 people, or one-third of the city's population. In 1927 the States of Wisconsin, Minnesota, Michigan, Ohio, and New York brought suit in the United States Supreme Court praying for an injunction against the State of Illinois and the Sanitary District of Chicago to check the continued withdrawal of 510,000 cubic feet of water from Lake Michigan. The Supreme Court held for the complainants, but referred the matter to a master to determine the practical measures needed. The master recommended that the city be limited to a diversion of 390,000 cubic feet per minute by July 1, 1930, and that the authorized diversion be decreased to 300,000 cubic feet per minute by December 31, 1935, and to 90,000 cubic feet per minute on or before December 31, 1938. These recommendations were approved. (See 45 Sup. Ct. Rep. 176, 1925; 49 Sup. Ct. Rep. 163, 1929; 50 Sup. Ct. Rep. 266, 1930.) In 1932 the States of Wisconsin, Minnesota, Michigan, Ohio, and Michigan complained of delay in the construction of works at Chicago for the treatment of sewage which were necessary to protect the health of Chicago's inhabitants when the diversion of water from Lake Michigan should be reduced. A master appointed by the Supreme Court reported that the beginning of these works had been inexcusably delayed, that the Chicago Sanitary District was then unable to raise money with which to proceed, and that the State of Illinois must provide the money if the Court's decree of 1930 was to be enforced. The United States Supreme Court thereupon directed the State of Illinois to take all necessary steps, including the raising of money, for the disposition of sewage within the Sanitary District of Chicago, "so as to preclude any ground of objection on the part of the state or of any of its municipalities to the reduction of the diversion of the waters of the Great Lakes-St. Lawrence system or watershed to the extent, and at the times and in the manner provided in this decree" (53 Sup. Ct. Rep. 671, 1933).

Throughout the controversy the defendants stressed the point that the diversion of water from Lake Michigan improved the navigation of the Mississippi River and was an aid to the commerce of the Mississippi Valley; but the court was of the opinion that the amount needed for this purpose was negligible as compared with the amount that it was sought to divert. To make clear the issues at stake in the litigation, it may be said that a diversion of 510,000 cubic feet per minute at Chicago was expected to lower the mean level of Lakes Michigan and Huron approximately 6 inches, and the level of Lakes Erie and Ontario approximately 5 inches. The Supreme Court decree has been embodied in the St. Lawrence Deep Waterway Treaty of 1932, and if this treaty is finally ratified it will have the status of an international agreement. Meanwhile diversion at Chicago is being steadily reduced toward the maximum permitted by the Court order.

chine capable of handling the entire freight traffic of the United States,⁶ and **they** characterize a policy of waterway development as wantonly destructive **of their** investment. This is, of course, a selfish argument; but the rail carriers **insist also that** the public interest in the matter coincides with theirs, because water transport on an improved river requires capital investment, and carriage by boats upon the Mississippi is more expensive than carriage by rail when interest, taxes, maintenance, and all other costs are taken into account.

Cost of Transportation upon the Mississippi River.—In 1938 the Inland Waterways Corporation transported the equivalent of 2,224,018,631 tons of freight one mile upon the Mississippi River. If we divide the operating expenses of the Corporation upon the Mississippi and its tributaries, or \$6,943,409, by this ton-mileage, we have an average of 3.122 mills per ton per mile. The corporation carries no passengers, so that we need make no allowance for this type of business. Such a computation gives a first approximation of the cost of government transport by federal barge line, but it does not supply a correct final result because there are other outlays which should be added to the operating expenses which the Inland Waterways Corporation reports. It is generally impossible to state their amount exactly, but they must be calculated or estimated when we attempt to measure the entire expense that government operation entails.

One expense which the Inland Waterways Corporation omits from its account is that of taxes. The Corporation pays taxes on real estate and on its railroad subsidiary, but it is not required to pay corporation income taxes, and General Ashburn, President of the Corporation, denies that they are a proper charge. Speaking of taxes along with other matters, he has said: "Certainly the people have been taxed to create and maintain our navigable streams, our harbors, our lighthouses, and so forth, to accomplish a certain definite purpose; and since they have been taxed once to create them, why, in order to bolster up a case of 'hidden costs,' should they be charged again with 'tax exemption,' 'maintenance of waterways,' 'interest and sinking fund on waterways,' 'interest on the corporation' (their own) property?"⁷

This objection to the consideration of taxes does not, however, fairly meet the issue. It is not, of course, proposed to tax the public a second time. If anything, it is proposed to shift the burden of waterway operation from the general taxpayer to the users of the Mississippi. The contention also is that

⁶ President Loomis of the Lehigh Valley Railroad declared a few years ago that the carrying capacity of the railroads of the United States could be increased from 20 to 25 per cent without additional capital expenditures, presumably by better coordination of facilities, heavier loading of cars, and similar measures; and that the percentage of increase that is possible through the enlargement of terminals, construction of additional tracks, and some new equipment at a comparatively small outlay of capital is much greater (*Traffic World*, May 21, 1927). Whether or not this is true, there is not much doubt but that the railroads have had surplus capacity since the advent of the motor vehicle, to say nothing of the effects of the decline in business activity since 1929.

⁷ *Annual Report of the Inland Waterways Corporation*, 1930. p. 21.

statements which exclude taxes do not represent costs. A government which collects capital from the taxpayer and invests it in business enterprise sacrifices the revenue that it would periodically collect from the owner of the capital if the capital remained in private hands. This sacrifice is a cost which must be recovered from the enterprise before the undertaking can be pronounced a financial success. Moreover, if the government adventure is to be transferred back to private hands, the purchasers will pay taxes on the property which they acquire after the transfer has taken place. One purpose of government operation upon the Mississippi River is to make evident "not only the practicability of water transportation, but . . . the profitable results that will reward private capital invested in transportation facilities on our rivers."⁸ But no statement can forecast profitable results unless it takes account of all expenses which private capital will be obliged to meet. A financial statement which makes no reference to taxes may mislead the potential investor, and it must be corrected before the costs which it reports can serve as a basis for estimates of future outlays.

There should be no difference of opinion with respect to the principle involved, although it is difficult to determine the amount of taxes that should be imputed to the government services on the Mississippi River. If the Inland Waterways Corporation is charged with the same percentage of its revenues that Class I railroads of the United States paid in taxes in 1938, or 9.9 per cent, the amount will be \$688,930,032, or .310 mills per ton per mile. If it is charged with the percentage paid by the Illinois Central Railroad, the amount will be \$617,210,006, or .278 mills per ton per mile. We may, perhaps, be conservative and accept the second figure as sufficiently correct.

Maintenance.—Another item of expense which Inland Waterways Corporation reports do not include is that of maintenance of the channel through which barges operate. During the fiscal year ending June 30, 1939, the Chief of Engineers of the United States Army spent \$24,497,722 for the maintenance of rivers, harbors, and canals forming part of the Mississippi River system.

The Inland Waterways Corporation should not be charged with the entire cost of maintaining a navigable channel in the Mississippi, because it is not the only carrier upon the river. General Ashburn has suggested that the corporation be charged with not more than 10.66 per cent of the sums which the government spends for maintenance, on the ground that the corporation's investment in 1928 was this proportion of the total value of the property of all carriers operating upon the Mississippi. This percentage does not, however, fairly reflect the relative use of the facilities which the government provides. In 1938 the total ton-mileage moved upon the Mississippi River and its tributaries was 10,977,155,638 ton-miles, and of this sum the total moved by the Inland Waterways Corporation was 2,224,018,631, or 20.3 per cent. Relative ton-mileage rather than the relative value of property used would seem to

⁸ *House Report No. 375, 68th Congress, 1st Session, March 26, 1924, Ser. 8227.*

be the fairer basis of division; and if we adopt this factor, then the share of the Inland Waterways Corporation in Mississippi River maintenance expenses will be \$4*973,037, or 2.236 mills per ton per mile.

Interest.—Still another hidden cost is that of interest upon capital. The Inland Waterways Corporation has no bonds outstanding, but it employed, in 1938, property valued on its books at \$20,684,837. It would seem to be fair to impute to the corporation a charge of 4 per cent upon this sum, and the managers of the federal barge lines make no serious objection to the charge. The interest entry which would result is \$827,393, or .372 mills per ton per mile. Opinions differ, however, concerning the propriety of taking also into account interest, or interest and sinking funds, upon the investment which the United States has made in the Mississippi River in order to facilitate navigation. An official statement by the Inland Waterways Corporation characterizes this suggestion as ridiculous, and adds that one might as well expect the government to sell the river itself as to expect the boat operators to pay for its improvement.⁹

There seems to be no sufficient reason why interest upon government investment in the Mississippi should not be treated as part of the cost of using the river for purposes of navigation, but there are important qualifications to remember in making up the account. It is, for instance, always difficult to separate expenditures for flood control from those intended to facilitate navigation. Apart from this, the Inland Waterways Corporation is not the only user of the river and should not be called upon to meet the entire interest charge upon the government investment. We have considered an analogous problem in discussing the question of maintenance, and the conclusions reached with regard to maintenance apply in this respect to interest on river improvements. A second qualification is that interest should be figured only on capital now used or useful in river service. The total accumulated capital cost of work done upon the Mississippi River is given as \$789,192,833 as of June 30, 1939, exclusive of expenditures for flood control.¹⁰ These sums have, however, been expended upon the Mississippi River and its tributaries during a period of more than one hundred years. Many of the improvements which they have produced at one time or another have undoubtedly been swept away, and most have depreciated, for working upon a river is literally carving in sand. We have actually no way of knowing what it would cost today to render the Mississippi navigable if no money had even been spent upon the stream, and no means, therefore, of calculating the interest charge that we might be willing, on grounds of principle, to enter in the books. If we charge the Inland Waterways Corporation with its proportion of the interest on \$789,192,833 reckoned at 4 per cent, the annual

⁹ *Traffic World*, April 2, 1932, p. 724.

¹⁰ *Annual Report of Chief of Engineers*, 1939.

expense will be \$6,408,246, or 2.881 mills per ton per mile, but this charge is certainly too high.

Conclusions with Respect to the Cost of Transportation by the Inland Waterways Corporation.—The computations explained in the preceding pages may be summarized in the following table:

ESTIMATED COST OF TRANSPORTATION, INLAND WATERWAYS CORPORATION, 1938

Item	Mills per Ton per Mile
Operating costs	3.122
Taxes	.278
Maintenance of river	2.236
Interest on Corporation property-	•372-
Total, excluding interest on government investment in the Mississippi	6.008
Government investment in the Mississippi	2.881
Grand total	8.889

The figures presented in the table may be compared with an estimate of 5.46 mills per ton per mile indorsed by the executive of the Inland Waterways Corporation as of 1928, and with a total of 10.85 mills per ton per mile published by Professor Ripley in 1930.¹¹ They may also be compared with estimates prepared by the staff of the Federal Coordinator of Transportation in which the cost of water transport is presented for selected commodities and on selected portions of The Mississippi River system as of the year 1935. These last-mentioned estimates of cost range from 6.2 to 9.7 mills per ton per mile on the Mississippi below St. Louis.¹² On the whole, they support the conclusions which have been presented in the text.

Comparison of Waterway Costs with **Railroad** Costs.—The usual rail unit with which river transportation costs are contrasted is the average railroad revenue per ton per mile. This average was, in 1938, .983 cents for rail carriers reporting an annual gross revenue of \$1,000,000 or more. Revenue per ton per mile is a figure of income, not of outgo, but it may be accepted as equivalent to expense on the theory that railroad income does not more than cover expense. In fact, it is the railroads' contention that their income does not provide them with a sufficient return on capital, and if this is true,

¹¹ *New York Times*, December 28, 1930. See reply by General T. Q. Ashburn in *ibid.*, February 8, 1931. There is an elaborate discussion of the cost of transportation on the Mississippi in H. G. Moulton, *The American Transportation Problem*, Brookings Institution, Washington, 1933-

¹² The Coordinator's estimates include operating costs, taxes, maintenance of the river, and amortization of investment in river improvements which are considered to be active.

their average costs must be at least as great as the amounts which they take in.

If we compare the ton-mile costs of transport upon the Mississippi River with the average receipts of all railroads in the United States, the water costs will be found to be lower. This comparison is so obviously defective, however, that we shall do better if we utilize information presented by the Coordinator in the report to which we have already referred. In this recent study rail costs, including overhead, were calculated according to methods worked up by the Coordinator's staff and by the Bureau of Statistics of the Interstate Commerce Commission. The attempt was made to secure a result which would be comparable with river costs. The general conclusion of the Coordinator's investigation was that the cost of movement was less per ton per mile upon the lower Mississippi than upon railroads which connected Mississippi River termini on commodities such as grain, paper, canned goods, coffee, bags and bagging, and on some other articles. They were higher on commodities such as sulphur, sugar, and iron and steel, although the difference in ton-mile figures was not always great. On some particular movements, such as that to Chicago, the advantage of the railroad was large. On others, such as the haul of iron and steel from Pittsburgh to New Orleans, it was negligible, and on still others, such as the short haul of cotton from Memphis to New Orleans, the rail cost was notably higher than the cost upon the river.

Yet in spite of this showing upon a ton-mile basis, the Coordinator concluded that, in most cases, it was cheaper to ship freight by rail than by water even in the lower Mississippi Valley, except when distinctly short-haul transport was involved. This was because the windings of the river made the average distance by water between any two selected points greater than the distance by rail. It follows that even when the river cost per ton per mile is less than the rail cost per ton per mile, the cost per ton may be considerably more. Taking a list of the principal commodities shipped upon the lower Mississippi and weighting them according to the distance and importance of the water movement, the Coordinator asserted that the average cost for the water haul was \$4.25 per ton in 1935 and that the cost per ton of moving the same commodities between the same termini by rail was only \$2.65. This disadvantage attached to water transportation upon the lower Mississippi recurs, in varying degrees, on most of the other parts of the Mississippi-Warrior River systems. Exception was made only in the case of transport upon the Ohio River, and in the rather special instances of the Monongahela and the Allegheny rivers, in which latter instances coal moves short distances at relatively slight expense.¹³

¹³ United States, Office of the Federal Coordinator of Transportation, *Public Aids to Transportation*, Vol. III, 1939.

General Observations upon the Cost of Mississippi River Transport.—

Whether the experience of the Inland Waterways Corporation and the calculations of the Coordinator indicate what the fair costs of river transport should be, and whether they supply us with a schedule of expense that will continue in the future, is not, of course, a matter which can be finally determined from the facts presented in the preceding paragraphs. There are those, on the contrary, who contend that Mississippi River costs are above a normal level because of the present incompleteness of the program of improvement of the stream, and who prepare estimates of reasonable expense, without reference to this particular enterprise, upon which arguments for additional development are based. These estimates are often interesting, although their value depends upon the experience of the compiler and upon the reliability of the information which is used in arriving at results. Space permits reference to only one analysis of the sort referred to—a summation presented to the American Society of Civil Engineers in September, 1937, by the Director of the Regional Port Commission at Chicago.¹⁴

It was the opinion of the Regional Director of the Chicago Commission that the operating costs of barge movements upon the Mississippi should range from 1.25 to 3 mills per ton per mile, depending upon the load factor, for steam tows of 5000 tons propelled at a rate of 5½ miles per hour in still water. While these figures were considerably below the Inland Waterways Corporation's experience the Director felt justified in comparing them with an estimated railroad cost of 4.5 to 5.5 mills per ton.¹⁵ Up to this point the comparison was strongly in favor of the water route. The construction costs of a Mississippi River channel were set down, on the other hand, at about \$186,000 per mile, in contrast with a figure of \$50,000 to \$70,000 per mile for a single railroad track. The capital investment was, therefore, according to this estimate, much larger for river than for rail. But the amount of investment was believed to be largely independent of the amount of tonnage which moved over the stream. It was pointed out, on the basis of this not unreasonable assumption, that the relation of rail costs to the cost of water movement upon the Mississippi depends largely upon the volume of traffic to be moved. When tonnage is light the annual interest and carrying charge of the water route is likely to be so high per ton per mile as to outweigh the operating advantage of the water haul; when the amount of freight is very great the expense for interest and amortization, along with the constant costs of maintenance, will be so diffused that the operating economies of the water service will reduce its average ton-mile cost below that which will be possible upon a railroad line. In further elaboration of his position the Director calculated that a total of some 5½ billion ton-miles of transport was required

¹⁴Rufus W. Putnam, "The Value of Water Transportation," *Proceedings of the American Society of Civil Engineers*, Vol. 63, September, 1937, p. 1230.

¹⁵Estimates, in both instances, include interest upon*equipment used.

at the present time in the Mississippi Valley. For this amount of business the railroad, he thought, would be cheaper than the river. For double this ton-mileage he believed that the river would prove cheaper than the rail, and for a total of, say, 35 billion ton-miles he estimated that the advantages of the water route would be enormous. This was a reasoned position upon which a long-time policy could be based.

Estimates and calculations of this kind are difficult to criticize because they rest largely upon judgment. It may be doubted if the completion of the present government programs upon the upper Mississippi and the Missouri will reduce average costs of the services which river operators will have to meet. Rather is it likely that these average costs will increase because, when the upper reaches of the river are developed, the business upon the lower Mississippi, where conditions are most favorable, will form a smaller portion of the whole. It is likely enough, on the other hand, that the cost of river movements on any particular section of the stream, including charges for the maintenance of the river and interest on the cost of improvement, will become less per ton per mile for some time as the use of the river approaches the capacity which any reasonable expenditure can produce. Such a decline in costs has its limits, but the limits are somewhat distant.¹⁶ Against this may be set the reflection that greater utilization of the Mississippi must depend upon one or both of two things: first, upon an increase in the total amount of traffic offering itself for transportation, and second, upon the ability of the river companies to divert this traffic from railroad and motor vehicle to the river barge. Both matters contain elements of uncertainty, and the second may require a decision on questions of policy also. For if the total traffic does not notably increase, and the gain of the river is to mean a corresponding loss to agencies operating upon the land it may be wise for the community to control the pace of its water route development in order to spread the cost of the obsolescence of adjacent railroads over a greater number of years.

Should the Operations of the Inland Waterways Corporation Be Continued.—There is always the possibility that the boats of the Inland Waterways Corporation should be sold and the federal barge line services withdrawn whatever conclusion is reached concerning continued investment in the Mississippi. This would throw the responsibility upon private parties for operating the water route which the government would provide. As a matter of fact, the Inland Waterways Corporation was launched only with the intention of demonstrating the practicability of water transportation, and the

¹⁶The Federal Coordinator concludes that very large increases in traffic on some portions of the Mississippi system will be necessary before the charges per ton per mile on account of improvements in these sections will fall to a reasonable sum. To bring the average charge for improvements down to 5 mills per ton per mile it will be necessary, for instance, to multiply the 1936 traffic upon the upper Mississippi 11 times and that upon the Missouri, from Kansas City to the mouth, 49 times' (*Report on Public Aids to Transportation*, p. 78).

government originally expressed a desire to cease operating upon the river when it should have provided six essential conditions for successful barge line service. These six conditions were the following:

1. Suitable navigable streams.
2. Vessels adapted to the channels on which they plied.
3. Suitable terminals.
4. Balanced freight.
5. Cooperation with rail lines, motor lines, and other means of transportation, with interchange of freight and joint routes and joint rates.
6. An equitable division of the accruing revenue for joint service performed between rail, water, and motor carriers.

Most of the stipulated conditions have been realized, although there is no talk of terminating the experiment. During the past six years the receipts and expenditures of the Mississippi-Warrior system have been as follows:

RECEIPTS AND EXPENDITURES OF THE INLAND WATERWAYS CORPORATION

Year	Operating Revenues	Operating Expenses	Net Revenue	Net Income
1932	\$6,131,347	\$5,607,366	\$ 513,981	\$ 470,141
1933	5,018,006	4,928,339	89,666	30,049
1934	4,301,088	5,168,792	867,703 ^a	920,148 ^a
1935	5,964,764	5,317,478	647,187	607,598
1936	6,307,124	5,939,639	367,485	509,087
1937 ^b	7,237,714	6,974,607	163,108	253,935
¹ 938 ^b	8,086,612	6,943,409	1,143,203	1,127,636
¹ 939 ^b	6,934,861	7,186,800	251,939 ^a	

Deficit.

^a Includes Warrior River Terminal Co.

During the period 1924 to 1935 the Corporation reported a total net income of \$686,682, a sum which has been enlarged by the results of the last four years. The Federal Coordinator, however, concludes that this showing of net earnings is fallacious and that, between 1924 and 1935, the Corporation really incurred an aggregate deficit of nearly ten and perhaps as high as fifteen million dollars according to the basis of the calculation used.¹⁷

This is not a brilliant showing; from the point of view of sound government economy there should be a liquidation of the enterprise. The fact that an operating surplus is being reported in most years, however, and the political reasons which make the continuance of the Inland Waterways Corporation desirable will probably cause the company to persist for a considerable time to come.

¹⁷ *Public Aids to Transportation*, Vol. III, pp. 239-240. The estimatees of the Coordinator included a charge representing a proportion of the annual cost to the government of providing river improvements and other aids to navigation.

St Lawrence Improvement.—Let us now turn to the project for the improvement of the St. Lawrence River. The St. Lawrence plan calls for a river depth that will accommodate ocean ships between Montreal and the Great Lakes. It is therefore an undertaking of even greater magnitude than that for the canalization of the Mississippi.

At the present time the channel in the St. Lawrence River from the strait of Belle Isle to Montreal, 1003 statute miles, has a depth of 30 feet and a minimum width of 450 feet. From Montreal to Lake Ontario is a distance of 182 statute miles, of which a total of 46 miles is in 6 lateral canals, having a minimum depth of 14 feet and minimum lock dimensions of 270 by 45 feet.¹⁸ The canals are separated by stretches of navigable water. Above the canalized section there is a depth of 30 feet for a distance of 68 miles to Lake Ontario. From the foot of Lake Ontario to the Welland Canal there is a distance of 160 miles with free navigation. The Welland Canal itself is 27.6 miles long, with 8 locks and a depth of 25 feet.¹⁹

In order to open a passage from Belle Isle to Lake Erie for ships drawing 25 or 30 feet of water, it is necessary only to maintain a corresponding depth in the Welland Canal and the lateral canals just mentioned, and to improve in addition such portions of the remaining stream bed as may be unsafe for large ships. The total requiring treatment, exclusive of the Welland Canal itself, is estimated at 67 miles.²⁰ It may be added that by proper construction the length of canal navigation in this distance may be reduced. The project submitted to the International Joint Commission of 1921 provided for only 33 miles of canals, the balance of improved waterway consisting of deep pools in which vessels could proceed at normal speed.

As a matter of fact, the Canadian government has already enlarged the Welland Canal to a minimum depth in the earth cuts of 25 feet, and structures have been sunk to a 30-foot depth, so that they can be easily deepened again by dredging if this seems desirable.²¹ There are seven lift locks, 859 to 865 feet long, and one guard lock, 1380 feet long, all with depths of 30 feet of water over the meter sills.²²

St. Lawrence Ship Canal Project.—With respect to the recent history of the St. Lawrence Ship Canal project, reference may be made to the treaty of 1909 between the governments of the United States and Great Britain relating to the beneficial use of the waters of the St. Lawrence between Montreal and Lake Ontario.

¹⁸ In one case the lock width is 43 feet 8 inches.

¹⁹ United States Army, Corps of Engineers, *Transportation on the Great Lakes*, Transportation Series No. 1 (Revised 1937).

²⁰ A. H. Ritter, *Transportation Economics of the Great Lakes-St. Lawrence Ship Canal*, published by the Great Lakes-St. Lawrence Tidewater Association, Washington, 1925, pp. 11-12.

²¹ Report from the Chief of Engineers on preliminary examination and survey of deeper waterway from the Great Lakes to the Hudson River, etc., 69th Congress, 1st Session, H.R. Doc. No. 288, p. 20.

²² One of the seven lift locks has a length of 865 feet.

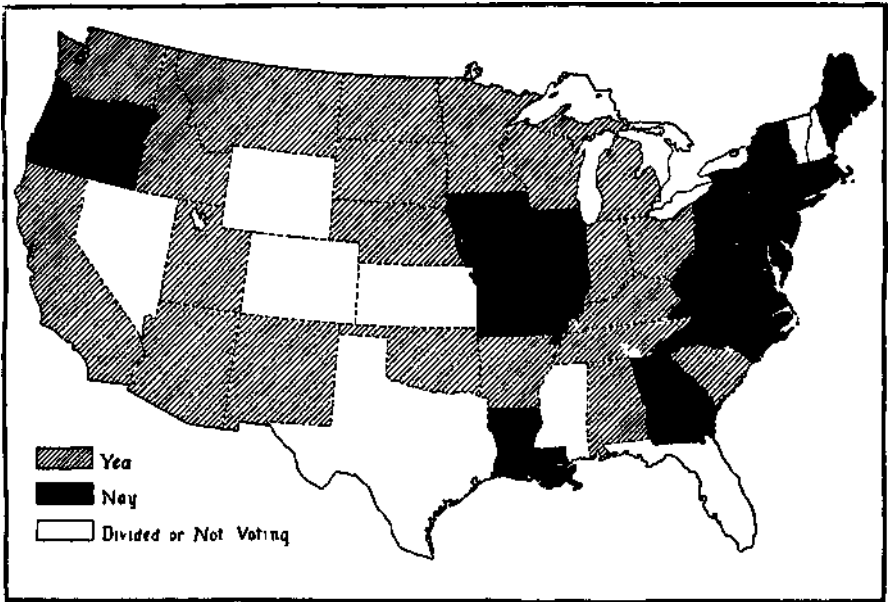
On January 21, 1920, the governments of the United States and Canada, acting under the provisions of Article IX of this treaty, referred to an International Joint Commission a series of questions bearing upon the character, cost, and probable benefit of improvements in the St. Lawrence River between Montreal and Lake Ontario designed to make the river navigable for deep-draught vessels of either the Lake or ocean-going type. The Commission was advised by two competent engineers, referred to as the "Engineering Board." It reported under date of December 19, 1921.

In May, 1922, Secretary Hughes advised the Canadian government that President Harding favored the negotiation of a treaty to be framed on the basis of the report of the Joint Commission, or such modifications as might be agreed upon. To this Premier King replied from Ottawa that the Canadian government did not consider the time opportune for the negotiation of a treaty. In 1924, however, the governments of the United States and Canada appointed, each for itself, a national committee of nine members to advise on all questions that might arise in the consideration of the project for the improvement of the St. Lawrence. The chairman of the Canadian committee was George Perry Graham, Minister of Railways and Canals, and the chairman of the American committee was Herbert Hoover, Secretary of Commerce. The two governments at this time enlarged the engineering board of 1921 to six members, including three members representing Canada and three members representing the United States, and submitted to this enlarged board a new list of questions relating to the cost and practicability and incidental effects of the proposed St. Lawrence improvements. The Board of Engineers reported in November, 1926; the report of the American national committee followed on December 27 of the same year, and that of the Canadian committee was rendered in January, 1928.

About the same time, on December 31, 1926, the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce published a survey of the economic aspects of the proposed waterway improvements between the Great Lakes and the Atlantic seaboard which assembled a considerable amount of statistical data. Since that time no less than seven official reports have supplied additional information and have provided opportunity for discussion of plans for the development of the St. Lawrence from the point of view of navigation and power.²³

²³ The reports referred to in the text are the following: (1) Report of Conference of Canadian Engineers on the International Rapids section of the St. Lawrence River (1929); (2) Report of the St. Lawrence Power Development Commission (1931); (3) Report of the Joint Board of Engineers Reconvened on the International section of the St. Lawrence River (1932); (4) Report on Great Lakes-St. Lawrence seaway. . . . Study by Power Authority of the State of New York in cooperation with the Interdepartmental Board (1934); (5) Report of the Interdepartmental Board of the Great Lakes-St. Lawrence project 0934; (6) Reports, Var., on Survey of the Great Lakes-St. Lawrence Seaway and Power Project (1934); (7) Report of board appointed by the Canadian Minister of Marine to consider Water Levels in the St. Lawrence Ship-Channel (1937).

Treaty of 1932*—In 1932, after four years' discussion in both countries, representatives of Canada and the United States signed a treaty providing for the construction of a deep waterway from the Great Lakes to the ocean by way of the St. Lawrence. The treaty indicated certain sections of the new waterway which were to be constructed, respectively, by Canada and by the United States, and erected a joint commission to build works in the so-called "international section" of the enterprise. Other clauses related to the distribution of generated power and to the maintenance of the level of the



VOTE ON ST. LAWRENCE WATERWAY TREATY, MARCH 14, 1934

Lakes, with special reference to possible diversion by the Sanitary District at Chicago. The treaty was transmitted to the United States Senate on January 10, 1934, with a message from the President urging its ratification. It was debated, recurrently, during January, February, and March; on March 14 it passed the Senate by a vote of 46 to 42, but since the approval was by less than two-thirds of the ballots cast the treaty failed of ratification. In spite of the advocacy of Mr. Roosevelt, the division in the eastern and central and north central states was rather along sectional than along political lines. Michigan, Wisconsin, North and South Dakota, and Montana supported the treaty in order to improve their outlet to tidewater. Indiana and Ohio followed, probably for similar reasons. Certain other states bordering on the Mississippi were opposed, because the development of the St. Lawrence route appeared to them to conflict with the Lakes-to-the-Gulf undertaking

in which they were chiefly interested.²⁴ The Atlantic seaboard was almost solidly against the treaty, believing that its effect would be to divert traffic from American cities to the Canadian port of Montreal. The argument that an improved St. Lawrence would serve the needs of coastal and intercoastal commerce did not convince this important section of the country. Indeed, even the senators from New York both voted against ratification, although New York was the President's home state and Mr. Roosevelt's prestige was involved. In contrast to their colleagues from the East, senators from the Southwest, the Rocky Mountain states, and the Pacific coast had no local interests which forced them to advocate or to oppose the St. Lawrence waterway improvement, and their action, as perhaps also the votes of senators from Kentucky and Tennessee, was probably based on political or personal considerations or upon independent judgment with respect to the issues that were raised. Mr. Roosevelt has recently revived the issue and may submit new proposals at an early date.

Estimated Cost.—We have a large amount of information regarding the probable cost of the St. Lawrence project in the reports of the International Joint Commission of 1921 and in the reports made or prepared for United States and Canadian boards and committees during the decade 1924 to 1934—

Summarized briefly, the engineers of the Commission of 1921 estimated the cost of a 25-foot channel from Lake Ontario to Montreal, including six locks with a depth of 30 feet over the sills, at \$252,728,200. For a 30-foot channel the estimate was increased by \$17,986,180, to a total of \$270,714,380. This estimate included no allowance for putting the six existing canals in this route out of commission, nor was any allowance made for the charter rights and privileges, whatever they might be, of the New York and Ontario Power Company, at Waddington, New York. On the other hand, the estimate did include the cost of power houses equipped to deliver 1,464,000 horsepower annually. Of the total of \$252,728,200, the major part, or \$159,097,200 was included to cover the cost of improving the international section of the river. According to the Commission, the work could be completed in eight years.²⁵

The Joint Board of 1926 estimated that the cost of a 25-foot channel from Lake Ontario to Montreal, including eight or nine locks, would be \$423,571,000. Additional channel excavation to provide channels initially 27 feet

²⁴ The Mississippi River states did not wish to subsidize an additional route to compete with the Mississippi River, and they objected particularly to paragraphs in the treaty that forbade the diversion of water from the Lakes through the Chicago Drainage Canal beyond the quantities fixed by the United States Supreme Court in 1930 except by authorization of an International Joint Commission.

²⁵ *International Joint Commission- Report Concerning the Improvement of the St. Lawrence River between Montreal and Lake Ontario for Navigation and Power*, 1921, 67th Congress, 2d Session, Sen. Doc. No. 114, Ser. 7972, pp. 168-169.

deep from Lake Ontario to Montreal would cost \$5,800,000 more. The estimate provided for power houses installed to deliver 2,619,300 horsepower annually. Of the sum mentioned \$264,546,000 was attributed to the international section.²⁶

The increase of the Board's estimates over those of the Joint Commission was explained by the Board to be due partly to the more accurate data available in 1926 and also partly to measures proposed in 1926 to provide a fuller ultimate power development on the St. Lawrence and to insure more satisfactory winter operation than was contemplated in 1921. The time required to complete the work was set at from seven to eight years, substantially as estimated by the Commission of 1921.²⁷

In 1932 the Joint Board of Engineers reconvened, with a partly changed membership, and estimated the cost of improving the international section of the St. Lawrence River to a depth of 27 feet and with an installed capacity of approximately 2,200,000 horsepower at \$274,742,000. This was not very different from the estimate of \$264,546,000 in 1926 and, like the earlier sum, assumed a two-stage development of the river. The total cost of a 27-foot waterway between Montreal and the head of Lake Superior was put at \$543,-429,000, again much the same figure as that arrived at six years before. These conclusions were accepted as a basis for the Treaty of 1932.

²⁶ The additional cost of subsequently enlarging to 30-foot depth channels initially excavated to 25 feet in depth was estimated at \$24,400,000. The cost of providing channels from the head of the Lakes to Montreal, including the installation of works to yield 1,365,000 horsepower on the St. Lawrence and the entire cost of the New Welland Canal was estimated at \$509,300,000 for a depth of 25 feet and at \$536,600,600 for a depth of 27 feet.

²⁷ Report of Joint Board of Engineers appointed by the governments of the United States and Canada, November 16, 1926. The report of the Joint Board of Engineers in 1926 included a careful study of the various diversions of water from the Great Lakes and a consideration of proposals for artificial regulation. The Board was generally opposed to regulation as expensive and impractical, although it did contemplate some dredging and the construction of dikes or sills at certain places to affect stream flow in the Niagara and St. Clair Rivers. The Board pointed out that regulative works might be administered to serve either of two divergent purposes. They could be used to decrease the fluctuations in Lake levels for the benefit of navigation and of riparian interests on the Lakes, at the expense of the outflow into the St. Lawrence; or they could be used to improve the outflow into the St. Lawrence for the benefit of power production and of navigation on the lower river, at the expense of the levels of the Lakes. If regulative works were operated to decrease fluctuations in Lake levels for the benefit of navigation and of riparian interests on the Lakes, they would serve primarily American users; if they were operated to improve the outflow into the St. Lawrence for the benefit of power production and of navigation on the lower river, at the expense of the levels of the Lakes, they would yield their chief benefits to Canadian consumers. This conflict in interest might conceivably cause difficulties between Canada and the United States. The Joint Board of 1926 pointed out concretely that in case a future deficiency in water supply should occur, the question would arise whether the emergency should be met by holding back water in the Lakes at the expense of the St. Lawrence, or whether the navigable depth in Montreal Harbor should be maintained at the expense of Lake navigation. Such obstacles presented by national divergencies in interest are not insuperable, but they are worth mentioning, and they undoubtedly tend to delay a comprehensive treatment of the Great Lakes-St. Lawrence problem.

Division of Expenditures Between Canada and the United States,—According to the Joint Board of Engineers of 1932 the United States should be expected to provide \$272,453,000 out of the total cost of developing the Great Lakes-St. Lawrence route and Canada should spend 270,976,000. A considerable portion of these sums has already been expended by both countries. In computing the total cost of the waterway, in so far as past expenditures were concerned, the formula was adopted of including only those expenditures which would not have been made except in contemplation of the completed deep waterway. The American expenditures were made to include \$56,500,000 for deepening the channels in the upper Lakes, providing a new lock in the St. Marys River, and constructing compensation works which the United States had agreed to build; of this sum \$14,000,000 had already been appropriated and allotted. The cost to the United States of deepening the river in the Thousand Islands section was put at \$461,000, which had already been appropriated. The expenditures of the United States in the International Rapids section was to reach a total of \$215,492,000. The total of new funds which the United States was to be called upon to spend was \$257,992,000 for both navigation and power works. Of this \$89,726,750 was to be provided by the State of New York and the balance by the federal government.

The Canadian expenditures were made up of \$128,000,000 for the New Welland Ship Canal which had been completed, \$772,000 for the work in the Thousand Islands section, \$59,250,000 in the International Rapids section and \$82,954,000 for improvements in the Lake Francis, Soulanges, and Lachine areas, which were in Canadian territory. Of these sums \$62,962,500 were to be provided by the Province of Ontario.²⁸

Disputed Questions with Respect to Cost and to Division of Cost,—It is obvious that expenditures of the magnitude with which we have been dealing cannot be forecast with entire accuracy, and there are those who believe that the allowances for contingencies will prove inadequate and that actual outlays will largely exceed estimates. Apart from this general observation, critics point out that the report of the engineers makes no allowance for interest during construction. If new expenditures, over and above funds already appropriated, amount to \$400,000,000, as they probably will, and interest is reckoned at 4 per cent during half the period of construction, on the supposition that the capital invested will steadily increase from nothing at all at the beginning of the work to the full amount at the expiration of

²⁸ Statement by the United States Department of State, 1932. The estimates stated in the text are based on the report of the Joint Board of Engineers of November 16, 1926, and include unit prices as of that time. The engineers were of the opinion that if contracts for the recommended works should be let at price levels approximating those in 1932, an appreciable saving in construction costs would result. See also the agreement made the nth day of July, 1932, between the Dominion of Canada and the Province of Ontario, concerning the development of power in the International Rapids Section of the St. Lawrence River.

eight years, then the engineers' totals must be increased on this account by the sum of \$64,000,000.

The report of 1926 is also attacked because it made no allowance for the deepening of Lake harbors which will be necessary if vessels of a draught of 24 or 25 feet are to tie up at docks.²⁹ An elaborate discussion of this matter, published by the Brookings Institution, asserts that harbor improvements will be needed at Fort William-Port Arthur, Duluth-Superior, Chicago, Milwaukee, Detroit, Toledo, Cleveland, Buffalo, Toronto, and Kingston; and that the cost will average \$25,000,000 per harbor, or \$250,000,000 in all.³⁰ On the other hand, it is denied that necessary improvements will cost the sums mentioned; and it is said that if new piers, wharves, and slips do cost these amounts, the cost will be met from tolls collected from the users, so that taxpayers will be exempt. A better answer would doubtless be that new facilities upon the Lakes would serve local traffic as well as commerce passing through the St. Lawrence, and that the cost of such facilities should not be charged to the St. Lawrence improvements alone. It may be that the deepening of channels in the upper Lakes, including the new lock on the St. Marys River, and the cost of the Welland Canal should be charged in part to local commerce.

Canadian representatives also argue that the burden imposed upon Canada by the agreed distribution of costs between Canada and the United States bears no proper relation to the relative advantages which the two countries may expect from the improvement, or to the financial strength of the contracting parties. The former argument, which is the more relevant of the two, is based upon the expectation that the new waterway will serve the domestic and coastal commerce of the United States, which is much larger than the domestic and coastal commerce of Canada. For foreign trade the proportions are different, and here American interests are inclined to assert that the improved St. Lawrence will especially benefit Canada by diverting export business from American to Canadian ports.³¹

Volume of Traffic.—The International Joint Commission ventured no estimate of the amount of traffic which might be expected to move on an improved St. Lawrence River. The United States National Committee of 1924 concluded that the potential traffic of such a waterway would amount to

²⁹ In 1937 the only Lake harbors with a 24-foot depth were Toledo and Lorain, in Lake Erie, Escanaba and Calumet on Lake Michigan, and Agate Bay and Marquette on Lake Superior. Most of the other important harbors reported minimum depths of between 18 and 22 feet.

³⁰ H. G. Moulton, C. S. Morgan, and A. L. Lee, *The St. Lawrence Navigation and Power Project*, Brookings Institution, Washington, 1929, p. 97.

³¹ The Canadian point of view is well set forth in C. P. Wright, *The St. Lawrence Deep Waterway. A Canadian Appraisal*, Macmillan Co. of Canada, Toronto, 1935, and in W. T. Jackman, *Economic Principles of Transportation*, University of Toronto Press, Toronto, 1935. The report of the United States Department of Commerce in 1934 emphasized the importance of the proposed St. Lawrence waterway to the domestic coastwise and intercoastal trade.

between 21,000,000 and 25,000,000 tons. This was substantially the amount also suggested by the United States Department of Commerce, and, indeed, the National Committee relied upon the Department of Commerce for its information with respect to commerce upon the river. Ten years later, in 1934, the Department of Commerce collected extensive information with respect to the population and productive activity of the area in the United States which it considered to be tributary to the Great Lakes-St. Lawrence waterway, but it set up no new independent estimate at this time of the amount of possible tonnage which this route might command. The War Department of the United States government did, however, prepare an estimate in 1934, fixing 13,000,000 tons, excluding Canadian commerce, as the potential traffic of the new route. The War Department worked on the basis of figures for 1929, and therefore warned the public that changes in business conditions between 1929 and 1934 might require correction of its results. It was to this last estimate that President Roosevelt referred in his message transmitting to the Senate the Treaty of 1932; it represents, accordingly, the last official pronouncement on the subject. Meanwhile private calculations have been published which differ from the official expectations of the United States government. Of these, the most optimistic is the forecast of 30,174,000 tons in a study published by the Great Lakes Tidewater Association,⁸² and the most conservative is one of 10,563,100 tons presented in a monograph of the Brookings Institution.³³

Potential Traffic.—The varying estimates referred to all deal with "potential traffic," not necessarily to business which the Great Lakes-St. Lawrence route will actually secure. What this term really means can only be determined by examination of the details of each of the different calculations. We may, however, select the War Department estimate as a sample and explain the process by which a pertinent figure can be obtained.

To determine "potential traffic" the War Department took the following steps:

1. An area tributary to the Great Lakes-St. Lawrence waterway was first defined by the use of comparative shipping costs. For this purpose the actual prevailing rates over the cheapest existing routes other than the Great Lakes and St. Lawrence River were ascertained, to representative destinations, and on a large number of articles. These rates were then compared with the estimated costs of handling the same traffic by water or by rail and water over the St. Lawrence route, using ocean rates in the calculation for the portion of the haul which might reasonably take place upon that river and the Lakes, and the points to which the estimated were lower than the actual prevailing rates were counted as tributary to the St. Lawrence.

⁸² A. H. Ritter, *Transportation Economics of the Great Lakes-St. Lawrence Ship Channel*, published by the Great Lakes-St. Lawrence Tidewater Association, Washington, 1925.

⁸³ Moulton, Morgan and Lee, *op. cit.*, p. 109.

2. The possible volume of shipments to and from the tributary area was calculated in three divisions:

- a. To obtain outgoing tonnage the amount of exports which might use the waterway was estimated to be the same percentage of the total national exports of a list of selected commodities as the percentage which production of these commodities in the tributary area bore to the total production in the United States. No effort was made to include Canadian commerce.
- b. The volume of inbound commodities ready for immediate consumption which might use the Great Lakes-St. Lawrence waterway was obtained by multiplying the number of people in the tributary area by factors expressing per capita consumption. Selection and sampling was necessary as in the preceding case.
- c. The volume of import materials used by industries in the area, such as wood pulp, china clay, rubber, etc., was determined by study of the requirements of plants in operation when the study was made.

The summation of the results of these various processes yielded, in 1934, a figure of 13,000,000 tons. This was stated to be the "potential traffic" of the Great Lakes-St. Lawrence route. Referring back to the comparison of actual and estimated costs used in delimiting the tributary area, the War Department calculated the saving to shippers would be \$78,893,130 annually if 13,000,000 tons were moved. The Department did not predict that this amount of tonnage would move nor that this saving would be obtained, but only that such results were possible. Probably all current estimates of the outcome of proposed improvements contain a very large margin of error. The belief that this is so may be based on many grounds, including the wide difference between the results which different students obtain and the failure in many instances to allow for the influence of marketing and manufacturing conditions, which would reduce the diversion of traffic from rail to river routes. Many articles which are produced within the zone of influence of the St. Lawrence waterway will be unable to adapt themselves to the peculiarities of water service, and other goods may be kept by the rail lines at lower charges. Moreover, the principal commodity which all estimates concede to the St. Lawrence is export grain; and grain exports from the North American continent tend, on the whole, to decrease as population grows.³⁴

Character of Ships Which Would Use an Improved St. Lawrence—Depth of Channel.—There has been repeated discussion of the types of vessel which are likely to use an improved St. Lawrence and of the depth of channel which it is desirable to provide. The weight of expert opinion is that present lake

³⁴See Stanford Food Research Institute: *Projected Waterways in North America as Related to Export of Wheat*, Stanford University, August, 1932. This study contains an excellent appraisal of the Great Lakes-St. Lawrence project from the point of view of the shipper of wheat.

freighters are not suitable for ocean or narrow-channel navigation. Such vessels are limited to a draught of approximately 20 feet because of the available depth of water in the Lakes, and to a width that cannot much exceed 60 feet at present because of the limitations of approved types of loading and unloading machinery. On the other hand, they secure capacity by increasing length, until a typical lake carrier of 14,000 tons will exceed an ocean vessel of the same tonnage in length by 150 or 200 feet. The length of the lake freighters makes them difficult to maneuver, while their shallow draught makes them unstable in heavy seas. They are not, generally, high powered, and the distribution of their fuel, engine space, and living quarters differs from that in ocean steamers. Lake boats are not, therefore, likely to frequent the St. Lawrence or to engage in coastwise, or still less in transoceanic, navigation.

Whether Ocean-going Vessels Will Ascend to the Great Lakes.—There is no consensus of opinion with respect to the use of ocean vessels on inland waterways.

Those who take the view that ocean vessels cannot be expected to use the St. Lawrence or the Great Lakes make the following points:

1. The most economical ocean vessel is at present of 30 feet draught or even more. Lake ports and channels generally cannot accommodate such craft, nor could they pass through the St. Lawrence and the Welland Canals improved according to present plans.³⁵

2. Operation through locks in waters of restricted depth and in narrow channels involves delay. Ocean vessels are expensive, time is a factor, and delay destroys profits.

3. River and canal navigation is dangerous, and insurance rates correspondingly high. The dangers in the St. Lawrence include fog, and at some seasons of the year ice, as well as the hazards due to shallow channels and limited maneuvering space.

4. Outgoing vessels from the Lakes cannot count on full loads, because the bulk of the available traffic will be eastbound.

Those who believe that ocean boats can and will enter the Great Lakes if the proposed improvements are completed, reply:

1. Most vessels which enter or leave American harbors draw less than 25 feet, and most of our imports and exports are carried in such vessels.

³⁵ Wright argues at length that the project depth of 27 feet for the Great Lakes-St. Lawrence waterway is too small. He points out that a vessel which draws, say, 25 feet in salt water will require additional depth of channel in fresh water. It is his view that 27 feet would hardly provide such a craft with the necessary minimum clearance except at very low speeds (C. P. Wright, *The St. Lawrence Deep Waterway*, Macmillan Co. of Canada, Toronto, 1935). See also Moulton, *The St. Lawrence Navigation and Power Project*, Brookings Institution, Washington, 1939, for the conclusion that a 27-foot channel would exclude 62 per cent of the tonnage and 85 per cent of the faster cargo vessels entering American ports. The city of Montreal has been for some time considering the advisability of deepening the ship channel between Montreal and the mouth of the St. Lawrence to 35 feet (Report of the Interdepartmental Montreal and Ship Channel Water Levels Board).

2. Experience on the St. Marys Falls Canal and on the Atlantic seaboard seems to show that the restricted channels of the St. Lawrence and the Great Lakes offer no particular problem to ocean-going ships. More or less restricted channels are found at the entrances to nearly all the big seaports.

3. Both as regards fog and ice, the St. Lawrence route to Europe compares not unfavorably with the customary steamer lanes from north Atlantic ports.

4. Excluding grain, the imports into the territory tributary to the St. Lawrence route balance the exports from that territory. Grain certainly causes an excess movement eastward, but many ocean ports are prosperous in spite of equal disparities.

It is scarcely possible yet to decide confidently between these opposing views. It is probable, however, that only moderate-sized ocean vessels at best will reach the Lakes even after the St. Lawrence has been improved, and it should be remembered that climatic conditions will bar even these boats during five months of the year.

Power Resources.—The fact that the St. Lawrence waterway is a power as well as a navigation project introduces additional complications, although power is a resource from the point of view of navigation if it can be sold for a price which exceeds the cost of generation and if the revenues can be used to meet charges on the investment in a ship channel.³⁰

The engineers' report of 1926 proposed a development of 2,619,300 horsepower in a two-stage construction in a channel of 25 feet. The cost was estimated at \$423,571,000, with an additional \$5,800,000 if channels of 27 feet were additionally provided between Lake Ontario and Montreal. Of this, \$264,546,000 were attributed to the international section for the development of 2,200,000 horsepower in addition to facilities for navigation. The actual available power was expected to be less than this because of irregularities in the flow of the river, but 1,539,125 primary and 283,595 secondary or a total of 1,822,720 horsepower could, it was thought, really be attained. This was a very considerable undertaking, promising to yield, in kilowatt hours, nearly as much electricity as had been produced in the entire state of New York in the year 1929, and more than twice as much as that generated by the Hydro Electric Commission of Ontario in the year 1935. The part of the total costs of the Great Lakes-St. Lawrence waterway that is to be attributed to power development has always been recognized to be large. Thus the engineers' report of 1932 which estimated the cost of the project in the international section at \$274,742,000 distributed the expenses between power and navigation as follows:

³⁶ The possibilities of power development in the St. Lawrence arise out of the fact that the river drops 226 feet in the 183 miles between the lower end of Lake Ontario and Montreal Harbor. The fall occurs principally in three sections: (1) The International Rapids section from Ogdensburg, N. Y., to Cornwall, Canada. The fall in this section is 92 feet in 48 miles. (2) The Soulanges section above the mouth of the Ottawa River. The fall here is 83 feet in 18 miles. (3) The Lachine section just above Montreal Harbor. The fall in this part of the stream is 48 feet in 24 miles. Power development plans call for the construction of three or four dams across the main channel of the river, with three power plants fed by headrace canals (Moulton, *op. cit.*, pp. 204-205).

Cost of works solely for navigation	\$ 34,188,000
Cost of works solely for power	132,452,000
Cost of works common to navigation and power	108,102,000
Total	\$174,741,000

The importance of the power aspects of the St. Lawrence has thrown the navigation project into the center of a power controversy with which, from the point of view of the present treatise, we have no real concern. It has attracted supporters and provoked opponents who are only incidentally interested in navigation, probably strengthening the position of the advocates of waterway improvement in the United States, but weakening it on the other side of the international boundary.

State authorities in New York assert that the state, not the federal administration, has jurisdiction to develop the power resources of the St. Lawrence River within state boundaries. An act of the New York legislature, passed in 1931, creates a body corporate known as "The Power Authority of the State of New York," which is authorized to issue bonds, apply for licenses, construct structures for the generation of power, and contract with private companies for the sale, transmission, and distribution of power.³⁷ This law constitutes an important step in the development of the control of power in New York. It bears upon the question of navigation improvement in that it expresses a claim to part of the power which the St. Lawrence will generate and a disposition to bear part of the expense that will be involved. The federal administration declined to delay negotiations with Canada because of the position of New York, but proceeded without announcing definitive views as to the relative authority of state and federal governments. Pending legislation contemplates the allocation of the electric energy generated on the St. Lawrence to New York in return for a state contribution of \$89,726,750 toward construction costs.

The official view of the United States is that a need exists for a major increase in the supply of electric power in the State of New York to meet a prospective doubling of the demand in this area during the twenty years from 1930 to 1950. This demand will be sufficient, it is argued, to absorb easily the half of the St. Lawrence power which the Treaty of 1932 assigns to the United States, and the characteristics of the particular enterprise will also permit an experiment in government power production under favorable conditions as to cost which will benefit both domestic and industrial consumers of electricity on the American side of the international line.⁸⁸

From the point of view of Canada the development of the St. Lawrence power presents an inconvenience, in that Canada is not ready to consume the

⁸⁷ This legislation of 1931 follows the recommendations of the St. Lawrence Power Development Commission submitted to the legislature of the state of New York in January, 1931.

³⁸ Report on the Economic Advisability of the St. Lawrence Power Project, prepared by the Federal Power Commission with the Cooperation of the Power Authority of the State of New York, 1934.

additional power which she would have the right to use.³⁹ Public opinion in the Dominion is, moreover, opposed to the export of power from Canada to the United States because it fears that exported power will stimulate American competition with Canadian industry. Finally, the relations between navigation and power raise constitutional questions in Canada as in the United States, which in Canada have already been carried to the courts.

Arguments in Favor of a St. Lawrence Waterway.—We are now in a position to summarize the principal arguments for and against the opening of a ship channel from Montreal to the Great Lakes.

The strongest argument for the improvement of the St. Lawrence is that the deepening of short stretches of this river will open a connected route of 1800 miles. In this respect the St. Lawrence project presents advantages over both the Mississippi River navigation and the Erie Ship Canal. The route from Montreal to Lake Superior will, moreover, accommodate large ships, and it will provide these vessels with a good deal of freedom of navigation. This will reduce risks and increase the speed of transit. Advocates of the project firmly believe that the cost of transportation by way of the St. Lawrence and the Lakes will be less than the cost of railway transport, for the same reasons that make ocean and Lake transport generally less expensive than carriage upon the land. Assuming that this is so, there are two reasons for pushing the work with vigor. The first is that American agriculture is depressed. Better transport may aid the Mississippi Valley farmer, and the Canadian farmer also, in competing with Russian and Argentinian grain producers in the Liverpool market, and so may restore prosperity to a basic industry. Prompt action is also needed to offset the harmful effects of the Panama Canal upon the Middle West. The Canal was an enterprise which benefited the two coasts. Mississippi Valley interests assert that the Canal made it possible to ship canned goods from the Pacific Northwest to New York more cheaply than they could be brought from the canneries of Iowa and Wisconsin to the eastern seaboard, and insist that there should now be government action lending support to the interior. A final argument is that the St. Lawrence improvement will produce power, and that this power either will help pay for deepening the river channel, or, if sold at cost, will benefit consumers in an important section of the United States.

Arguments Opposed to a St. Lawrence Waterway.—Perhaps the most cogent argument against the St. Lawrence project is that it proposes a very large expenditure to enlarge transportation facilities at a moment when the United States and Canada are overprovided with means for moving freight. The fact that Canadian railways are in part government owned lends force to this objection. From the American point of view it is a disadvantage that the waterway terminates in Canadian territory. It is true that some New England interests prefer a Canadian terminus to a route which ends in the city of New York, but this is not the general view. An improved river that lies partly in

³⁹ War conditions may alter the Canadian point of view upon this point.

Canada and ends at a Canadian port may build up Canadian cities instead of American cities; moreover, it will be closed in time of war and subject to **the** inconveniences of joint control in time of peace. From the Canadian standpoint, on the other hand, the United States will gain more than Canada, first, because the traffic on the St. Lawrence will be preponderantly American, and second, because Canadian railway rates are lower than American rates, and Canadian transportation facilities more elaborately developed. Canadian apprehensions on the score of power have already been mentioned. The last argument in opposition to the improvement of the St. Lawrence is that the cost of the work is likely to be greater and the traffic less than official estimates would lead us to believe.

Advantages and Disadvantages of Water Transportation in General.—On the whole question of waterway improvement there are two clearly defined opinions in the United States.

One view is that expressed by Mr. Hoover, who contends that the capital cost of new expansion will be less by water than by rail, and that increased depth of water and technical improvements in equipment upon our waterways will make them once more the most economical means of transport for many kinds of goods. The underlying reasons for the position of advocates like Hoover are two: first, that rivers and lakes are facilities which nature provides, in a measure, free of expense; and second, that the tractive effort required to move a ton of freight in a water-supported vehicle is less than that required to move the same freight in a wheeled vehicle operating upon the land.

The contrary view to the one just stated is that it will cost more in most cases to make a waterway serviceable and to maintain it than to build and maintain a railroad of equal capacity. This conclusion in turn rests upon several assumptions which can be distinguished. Nature does not provide canals, it is pointed out; and, even though she creates rivers and lakes, she does not always make them navigable. Naturally the cost of improving different streams will vary, but it may easily be large. Again, water service is slower than rail service and less flexible because more localized. And finally, the lower tractive effort is said to be offset by the necessity of transshipment. Freight rarely originates upon the waterway or is consigned to a destination on its banks. Goods must, therefore, use the rail even for most water hauls, and transshipment is expensive. These are not all the elements in the controversy upon either side, but they are points strongly emphasized in the debate.

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CHAPTER XXVI

COORDINATION. RAILROADS AND MOTOR VEHICLES

We may now leave the subject of waterway development to consider again the peculiarities of motor transport, dealing with the topic, this time, in terms of coordination. Motor transport implies the existence of both roads and vehicles. We shall not discuss roads and the construction of roads in the present chapter, but we shall examine attempts to harmonize the use of roads, wherever they may be, with the services of other transportation agencies.

Coordination of Complementary Service.—We have already spoken in Chapter V of the complementary activities of railroads and motor lines. Road and rail service may be coordinated in the handling of passengers and of freight through friendly agreements between independent agencies. This may be done by interrelated schedules, appropriately located terminals, interchangeable equipment, and a multitude of other expedients. The coordination is still more complete if through rates and routes are introduced.¹ There is more co-ordinated end-to-end operation of rail and motor service in the United States than most people understand, and though the practice is not yet general, many formal and informal arrangements provide continuity of haul when both rail and motor carriage are necessary for efficient service.

Railroad Use of Motor Vehicles.—The coordination of complementary service in which different types of carriers are engaged is easiest when both are under common control. Motor companies seldom own railroads, but railroads have made some use of motor vehicles, both in line and in terminal service. Directly, in the United States, this use has not been very great. At the end of 1938 the railroads in this country operated only 79 trucks, tractors, and trailers, 28 busses, and 1 combination bus-truck in revenue service, and although they employed a somewhat greater number in non-revenue service, the total was still insignificant.² But indirectly the railroads have done more, so that in May, 1936, Class I railways already held a financial interest in 128 highway enterprises, with an investment of \$43,000,000. Besides this, the steam railways in December, 1938, had 262 motor-truck and 87 bus contracts for line operation, over 1100 contracts for pick-up and delivery service, and approximately

¹ Motor vehicles were expressly authorized, in 1935, to establish through rates and routes with rail and water lines.

² Interstate Commerce Commission, *Statistics of Railways*, 1938.

400 contracts for terminal transfer service by bus or truck. The use of motor vehicles by railroad companies in line haul is sometimes in lieu of train service, sometimes supplementary to train service, and sometimes independent of railway operation. The railroads use trucks at terminals for various sorts of intraterminal movements and for the collection and delivery of freight at the consignee's place of business.³ Still more than this has been done by the German *Reichsbahn* and the German Post Office, and the private railroads in Great Britain.

Attempts to Control the Competition Between Rail and Motor Lines.—Whatever may be true of the future, the principal immediate public concern is to determine the type of business in which rail and motor facilities shall, respectively, be encouraged to engage, rather than to promote the elaboration of joint agreements for the conduct of complementary operations. Motor vehicle and rail relations are competitive, at the moment, more than they are complementary. The rail is losing business to the road. This disquiets governments which are responsible for railroad bills and shippers who fear a closing of the railroad plant. Proposals are, therefore, made to divide the field of transport between rail and road on some principle and by some method 'which may be generally approved. The process is called "coordination." It cannot be said that the results are illuminating, but the attempts of some European countries to bring order into a confused situation and also some of the administrative and judicial policies of the United States which bear upon coordination deserve description in this place. We may proceed, therefore, to a discussion of this coordination technique.

France.—In France, coordination was actively under way as early as 1935. The first step was to set up a national committee to consider the subject, and a group of local committees, one for each department. The original organization of the central committee proved unsatisfactory; but in 1936 and 1937 this organization was changed to make it more representative, and the central body was made reasonably secure. As organized in 1936, the central committee included a president, appointed by the Minister of Public Works, three members of the National Economic Council, two representatives of business and of agriculture, two persons selected by the railroads, and three designated by highway carriers. In 1937 a superior transport council was created in Paris with eighty-one members, one-third representing the government, one-third the users of transport facilities, and one-third the transport agencies themselves.⁴ The old central committee now became a subcommittee of the new council; actually, however, neither its duties nor its membership were

³ There is a convenient classification of rail-line and terminal uses of trucks in the report of the Federal Coordinator on the Regulation of Transportation Agencies, 73d Congress, 2d Session, Sen. Doc. No. 152, 1934, P. 265. The same report, pp. 279 ff., describes the various ways in which railroads in the United States participated in bus operation up to June 30, 1933.

⁴ Of the last-named group no members represented personnel.

changed.⁵ The central committee does not, ordinarily, originate coordination plans, but it examines and approves plans which come to it from the departments.

Departmental Committees.—The departmental committees in France are made up in each case of the prefect of the department as chairman, the engineer of bridges and highways, two members of the *conseil general* of the department, and seven other government appointees, of whom two are chosen from the membership of chambers of commerce and agriculture, two are railroad and three highway carrier representatives—a total of eleven.⁶

To these departmental committees come suggestions from rail and highway carriers and from the great government industrial monopolies known as "regies," indicating stretches of line or services which should be abandoned in order to avoid duplication and to bring about a fair division of traffic between the groups. Inasmuch as both rail and highway services are registered and since for some time no one has been permitted to install a new service of either kind without the permission of the Minister, the categories have a definiteness and stability which permits negotiations of this sort. The committees use the suggestions of the carriers but do not necessarily adopt them. Plans which they finally approve, by two-thirds vote, go to the *conseil general* of the department and thence to the superior transport council. If it is impossible to obtain a two-thirds vote or if a carrier contests the decision in a case the matter is referred to the transport council. The ultimate step in the procedure is a ministerial decree adopting and prescribing the distribution of services embodied in the committee plan and regulating the rates and service of highway carriers on routes upon which road transport has been substituted for rail.⁷

Principles Followed in Distributing Traffic.—The general purpose of "repartition" in France is to avoid duplication of service. The characteristic of a well-devised plan of coordination, as the French have thought it out, is that it causes the retirement of either rail or road service when both offer to accommodate the same passengers or freight. Cases in which two modes of transportation must be retained, contrary to the general principle, are to be regarded as exceptions.

In the case of passenger traffic repartition generally means that highway carriers are expected to withdraw from areas of dense traffic which railroads can efficiently supply. Motor carriers will take care, however, of movements in more sparsely settled territory, and they will provide facilities for some local,

⁵ M. Borel, "La coordination des transports de voyageurs," *Revue GinSrale des Chemins de fer*, 1 Decembre, 1938.

⁶ *Journal Official*, 15 Novembre, 1936, p. 11854.

⁷ These ministerial requirements are embodied in *cahiers des charges* which each enterprise must possess. The *cahiers* describe the route of the undertaking, the equipment to be used, the frequency of service, and the rates. A model form was printed in the *Journal Officiel*, 1 Mars, 1938, p. 2422. The description in the text refers, of course, to pre-war practice.

as distinguished from through business, even in sections of relatively dense population. Where road services are maintained parallel to the railway, their fares must be equal to those which the railroads charge.

Progress in Passenger Coordination.—Up to January 1, 1939, eighty-five out of eighty-nine departments had considered and thirty-five departments had approved plans for the coordination of passenger traffic. As a result of these plans, 5170 km. (3212 miles) of railroad had been entirely closed to passenger traffic, and the passenger service on 2170 km. (1348 miles) had been partially discontinued. Meanwhile 3700 km. (2299 miles) of motor bus lines had ceased passenger operations, and other motor services had changed their routes so as to diminish competition with the railroads. It has been estimated that ceasing to operate a kilometer of railway saves 38,000 francs, and that closing a kilometer of bus route saves 30,000 francs per year. On this basis the national advantage which France has already secured from her passenger coordination program is reckoned to exceed 300,000,000 francs up to the present time.⁸

Freight.—Freight traffic does not lend itself to repartition through the French departmental committees because it is not handled by common carriers over established routes, or at least not to the same degree as passengers. This does not mean, however, that different principles of coordination need to be worked out, but rather that different methods should be used in order to achieve similar results.

The French decree of July 13, 1935, announced the rule that highway carriers should receive a preference on short hauls and in the case of small consignments, and rail carriers a preference on long hauls and quantity shipments; traffic in the middle distances should be equitably divided between both types of services.⁹ This, or something close to it, is still the ultimate basis of apportionment, although the decree of 1937 describes the categories a little differently.¹⁰

Of course, phrases like short, middle, and long mean very little, and there is not much in the French legislation to define them with precision. But in the decrees of July 13, 1935, which established certain zones, short seemed to mean a distance which did not exceed 50 kilometers but might be less; long, a distance exceeding 100 kilometers as a minimum and 200 kilometers as a maximum; and middle, all distances between these limits. It was stated that interpretation of the phrases quoted should vary according to the density of business in a region, the number of railroads per square mile, and the impor-

⁸ *Archiv für Eisenbahnwesen*, Marz-April, 1939, p. 400. Special provision for passenger coordination has been made in the Paris area. Under a decree dated November 12, 1938, a special Paris committee possesses extensive powers over the rates, schedule, interconnections, labor relations, etc. of the various forms of transport operating in Paris.

⁹ *Journal Officiel*, 17 Juillet, 1935, pp. 7683, 7687.

¹⁰ The classes mentioned in 1937 are (1) "camionnage" or local carting service; (2) short hauls; (3) long hauls. (*Journal Officiel*, 1 Septembre 1937, pp. 10072, 10073.)

tance of the towns which were served. More recently, a truck has been regarded as engaged in local traffic as long as it operates in zones defined to include the department in which the headquarters office of the truck manager is located and contingent departments. This permits a radius of local action which may be as great as 100 or 150 kilometers.

Local and Long-distance Truck Traffic.—Under the French scheme local commercial trucking can be freely undertaken, provided that it creates no new competition for the railroad in the zone in which it occurs, and on condition that the railroad receive the preference in hauling heavy goods. Since February 1, 1936, all trucks are required to register in France, but those operating in local service are subject to no special tax or other requirements. Rural trucking is also exempt from special control.

Long-distance truck traffic is, however, subject to several kinds of regulation. In the first place, it requires a license, and the issue of the license affords occasion for a tax.¹¹ This tax can be used for purposes of equalization. Thus in 1937, when railroad tariffs were raised, the license tax on trucks was increased to prevent diversion of traffic from rail to road.¹² Secondly, trucks must charge rates which are at least as high as those in railroad tariffs. To simplify this prescription, railroad freight is divided into three classes and a kilometric rate is set up for each class, by decree. Trucks may not carry goods of any class for less than the kilometric rate assigned to that class, except when the railroads quote exceptional or quantity charges. In this event the trucks may transport for the railroad rate, plus an extra allowance to cover the cost of terminal delivery. Finally, truck owners are encouraged to join organizations of truck operators. These are set up in each department by ministerial decree. They are expected to aid in securing compliance with the trucking laws, and they have authority to make agreements which are binding upon their members. Membership in these unions is not compulsory, but transport undertakings which do join are exempt from some taxes and are freed from some formalities in papers and reports in connection with their daily routine.¹³

Participation by French Railways.—French railway companies do not contemplate, themselves, engaging in motor vehicle operations. In fact, the decree of February 28, 1938, provides that the National Railway Company will pro-

¹¹ In 1937 the tax was 500 francs per vehicle ton.

¹² *Journal Officiel*, 9 Juillet, 1937. Seventy-five per cent of the tax which trucks pay for the privilege of engaging in long-distance traffic goes to the National Treasury and 25 per cent to the provincial authorities. The larger portion is obviously intended to help the Treasury to meet deficits incurred by the main-line railways; while the 25 per cent is to be devoted to the maintenance of provincial roads. (Vladimir Ibl, "A Comparative Study of Road Motor Transport Regulations," *Bulletin of the International Railway Congress Association*, Vol. 18, September, 1936, pp. 916, 926.)

¹³ Private carriers are subject to the same regulations with respect to the maximum working day for their employees which control public enterprises ("Die Entwicklung der französischen Eisenbahnen in den Letzten 15 Jahren," *Archiv für Eisenbahnwesen*, März-April, 1936).

ceed to terminate all railroad participation in road passenger traffic before January 1, 1941, with three exceptions.¹⁴ Motor operation has been a financial burden to the French railways, and they are anxious to find relief.

Germany.—In Germany there was sufficient use of motor vehicles as early as 1919 to cause the passage of a law requiring commercial operators to obtain concessions prior to undertaking regular service,¹⁵ except in the case of the Post Office Administration which was exempt from this requirement. Concessions were granted only if safety and efficiency of the service could be guaranteed and if the enterprise was to be managed and directed in accordance with the public interest. Such provisions made for safety and regularity of service, but were not framed with any thought of coordination. Under this system a considerable highway traffic grew up, the extent of which the German Ministry explained by the lower rates which the trucks charged on comparatively high-grade shipments moving short distances.¹⁶

Complaints by the Reichsbahn.—The German State Railways complained that the newly developed motor vehicle operation had caused them a loss in revenue amounting to no less than 320 million reichsmarks (140 million RM. in passenger revenue and 180 million RM. in freight revenue) for the year 1928 alone, due mainly to the diversion of the higher classes of freight. This competition was not, in their eyes, fair (1) because the motor lorry, to speak of truck competition alone, was not subject to any obligation either to maintain service or to carry goods at a fixed tariff; (2) because the lorry used roads built, maintained, and policed by public funds without contributing a fair amount in taxes; and (3) because the liability of the motor vehicle operator for damage was less under the German law than the liability to which the railway was subject. This last advantage the railways considered all the more unreasonable because the danger of accident was greater in road operation than in the case of services rendered by rail.¹⁷

¹⁴The exceptions are the following: (1) supplementary transport, such as terminal or tourist service, in cases where no independent motor vehicle agency is willing to undertake the work; (2) complementary service parallel with railroad transport, for passengers, when this fits into a plan approved by departmental committees and by the Superior Transport Council; (3) situations in which the railroad may be called upon to contribute to the expenses of road operation which has been substituted for railroad service (*Journal Officiel*, 1 Mars, 1938, pp. 2410, 2415).

¹⁵*Bulletin of the International Railway Congress Association*, Vol. 16, December, 1934, P. 1305.

¹⁶Between 1914 and 1932 the number of motor vehicles, including motorcycles, circulating on German highways increased from 84,682 in 1914 to 1,499,700 in 1932. Of these the automobiles and auto cars accounted for 497,300 and the trucks for 152,400. Regular services by road were being carried on, in 1932, over 63,892 km. of highway—a length of route exceeding by some 10,000 km. the operated mileage of the *Reichsbahn* (Marcel Peschaud, "La question du rail et de la route en France et dans les principaux pays étrangers," *Revue Generale des Chemins de fer*, Septembre, 1933).

¹⁷Zeitschmann, "On the Question of Competition of Road Transport (Germany)," Report No. 5, *Bulletin of the International Railway Congress Association*, Vol. 12:1, January, 1930, p. 191.

The railways therefore demanded:

i. That the concession laws be extended so that the whole of the motor truck traffic, and not merely the regular lines, should be subject to authorization, at any rate for the long-distance cross-country traffic.

2. That the trucks be debited with their full and just proportion of the costs of road construction and be made to bear a proper share of the cost of traffic police.

3. That the railways be freed from the obligation to publish all tariffs and be allowed to make special rate reductions in favor of individual clients, where there was competition. "The more freely the railways could meet the price-cutting of the motor transport operator," it was said, "the more it would be able to limit the total amount of its price reductions, and the less would be the effect of the protective measures on the tariff system of the *Reichsbahn* and on the industry in general."¹⁸

Act of October 6, 1931.—The act of 1931 was not entirely responsive to the complaints which have been mentioned, but it did attempt to increase the effectiveness of motor vehicle regulation. What the new law did, essentially, was to require all regular passenger carriers (1) to procure an authorization to operate; (2) to publish schedules and tariffs; and (3) to charge clients equally. Authorizations were now to be granted only after consultation with other transport agencies, including the *Reichsbahn*. As before, the Post Office was exempt from the rule that all regular road carriers must secure a license.¹⁹ In freight service, too, commercial truckers were compelled to secure permits to haul for distances exceeding 50 kilometers. Licenses for the carriage of freight were to be issued only after consultation with local chambers of commerce. Carriers subject to license must carry insurance, they must obey local regulations, and they must charge prices which conformed to the general rate scheme established in their territory by the Minister of Transport. This meant, in practice, that they were forbidden to charge less than the first-class rates provided in the *Reichsbahn* tariffs. This limitation was regarded as of great importance, so that it has been said that the central idea of the German legislation of 1931 was, in so far as it related to trucks, the fixing of minimum rates. This is contrasted with the English law, that placed more reliance upon taxation.²⁰ The freight highway operations of the *Reichsbahn* itself were not subject to the law nor was purely private transport made subject to regulation.

Passenger Law of 1934.²¹—Experience under the law of 1931 proved unsatisfactory both for passengers and for freight. This was in part because too many

¹⁸ *Ibid.*

¹⁹ The distinction between "regular" and "occasional" service was drawn with reference to frequency of operation. Carriers which served any locality at least five times a month were classed as regular.

²⁰ R. Grets, "Das Guterverkehrsproblem in England," *Archiv für Eisenbahnwesen*, Vol. 56, Jatroar-Februar, 1933, pp. 35-72.

²¹ *Reichsgesetzblatt*, December 10, 1934, p. 1217; March 30, 1935, P- 473-

busses evaded classification as "regular" carriers,²² and in part because the extreme multiplication of small trucking enterprises and the variety of expedients through which concessions were concealed made it impossible to prevent departures from the published rate. Finally, political changes in Germany brought an authoritarian government into power which was naturally disposed to regulation of a more thoroughgoing type than the act of 1931 had attempted to provide. The result of these conditions was the enactment of two elaborate statutes, in 1934 and 1935, one governing highway passenger and the other highway freight operations which, with their accompanying ordinances, established the system under which road operations in Germany are now carried on.

Under the Passenger Act of 1934 all busses had to obtain certificates, whether they were in regular or occasional service.²³ The certificates were issued by the provincial authorities of the various German states.²⁴ The German statute provided that passenger licenses might be issued when the applicant was responsible, the safety and adequacy of the service assured, and when the undertaking was not contrary to the public interest. It must be disapproved when no need for the service existed. It was explained that an undertaking was contrary to the public interest, first, when it was conducted upon highways that were unsuitable and second, when it subjected existing transport undertakings to uneconomical competition or forestalled developments more adapted to public need. This declaration was evidently sufficient to support any desired plan of coordination. Before taking action, a license-granting authority must hear, if the application was for local regular service, the existing highway carriers, local chambers of commerce and of industry, and local government officials. If, however, the application contemplated through service, the Post Office, the *Reichsbahn*, and the agricultural interests of the district might present their views, as well as the representatives of business interests. There was also pro-

²² The classification could be avoided by varying routes, by reducing the number of calls at any locality to less than five, and by renting instead of owning vehicles.

²³ A transport undertaking was now considered regular if during any two months in the year it provided more than two services each week between given places, and if these services were open to the public. Occasional services were those rendered by other commercial passenger vehicles. The license for the former conveyed permission for the installation and operation of the service; for the latter it specified the number, kind, and use of the vehicles to be employed. In neither case was there anything exactly equivalent to the vehicle licenses required under the English law, but similar results were obtained by the prohibition of the carriage of passengers in vehicles not suited to the purpose.

²⁴ Sometimes this authority consisted of one man, as the Minister of the Interior in Baden or the Minister of Finance in Brunswick; sometimes of a bureau of a state government, as the Section of the Interior of the State Department in Mecklenburg; sometimes of a designated group, as the *Regierungspräsidenten* in Prussia. None of these persons or bodies were local authorities as the term is used in England and in the United States, but neither did the law contemplate the centralization of the issue of licenses in a single, national, board. It should be added that the licensing of taxis—classified as occasional transport—was intrusted to the police departments of the cities. Under the German scheme of government provincial governments are, of course, dependent upon the government at Berlin.

vision for hearings in connection with the grant of permits for occasional service. The additional fact perhaps deserves mention that inquiry had to be made in each case of the Police Office at Berlin so that information which the police possessed relating to the applicant might be obtained. Authorized enterprises could not, under the act of 1934, expand without government permission. Besides this, the rates, schedules, and working conditions of regular highway carriers had to be approved by the licensing authorities and this rule was also applied to occasional services which offered themselves to the general public upon the highway. And licensing authorities might attach conditions to any permit, and to these the licensee was required to conform.²⁵

Freight Act of 1935.²⁶--Freight legislation embodied in the act of June 26, 1935, and in the subsequent ordinance of March 27, 1936, like the passenger legislation, was designed to remedy the weaknesses of the act of 1931. As in 1931, the law applied to all persons carrying goods for third parties over distances which exceeded 50 kilometers. It excluded, therefore, purely private and short distance, but included occasional or contract service.²⁷ All such carriers were required to obtain a license. The licensing authorities were sometimes the same and sometimes different from those which had jurisdiction over passenger road traffic, but, as in the earlier case, they were officials of the principal old German states. The procedure in considering applications for a license here too included provision for a hearing, and evidence of responsibility on the part of the applicant, of suitability of his equipment, and of economic need for the service. To make the record complete in freight as in passenger proceedings, the Berlin police department and in addition the German Labor Front and the Imperial Motor Vehicle Association were asked to contribute

²⁵ The *Reichsbahn* and the *Reichspost* were only partially subject to the regulation which has been described. They did not, for example, seek licenses from local authority. The *Reichspost* had already been freed from this necessity, but the *Reichsbahn* was now relieved also. Instead of being forced to obtain a license, the two government agencies were merely required to notify each other and the licensing authorities four weeks before they installed new regular services. If there was objection, the Minister of Transport decided. Occasional services they might not undertake, except incidentally, but they needed no license for operations of this sort that were conducted with equipment ordinarily devoted to regular transport. The rates, conditions of service, and schedules of the *Reichsbahn* and of the *Reichspost* required the approval of the Minister of Transport but not that of the local authorities. They had to be published and applied without discrimination.

²⁶ *Reichsgesetzblatt*, June 28, 1935, p. 788; March 30, 1936, p. 320.

²⁷ The ordinance of March 27, 1936, Sec. 4, defined private transport as follows:

"The following transport is to be regarded as private transport: All transport of goods for the rightful business of the firm, whether it is a question of goods bought, extracted or manufactured, either for consumption of the premises or for sale, with the reserve that the following conditions be met:

"The transport must be used solely to bring the goods into the premises, move them about the premises, or distribute them to customers; the trucks must be driven by the owner himself or his employees, who must be employed by the firm in question and not belong to other firms."

The order recognized as private transport even that transport worked by several firms in common if the above conditions were met, as long as all the firms in question were producers, manufacturers, or business firms constituting a financial group. In this case the truck had to belong to one or other of the members of the group.

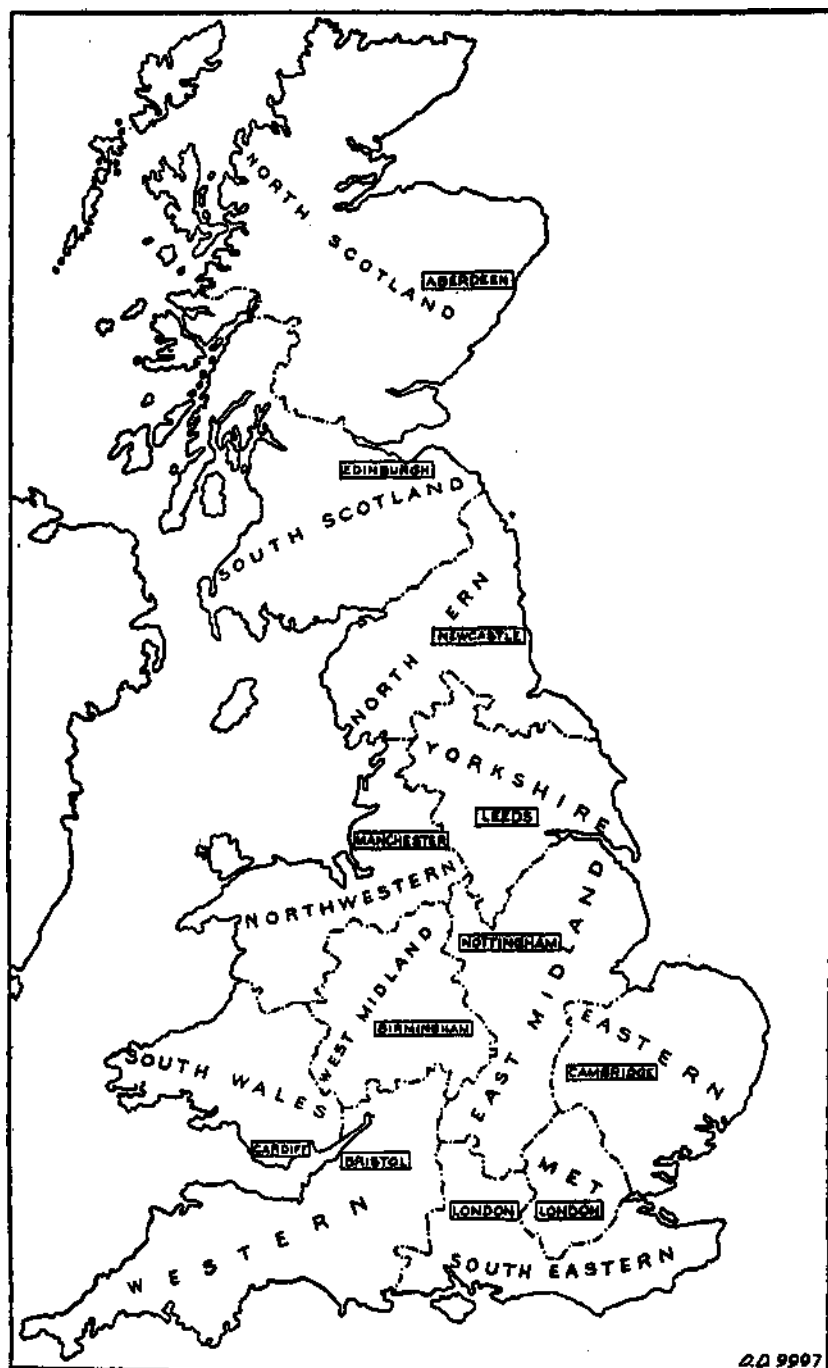
information from their files. Services to be operated by the *Reichsbahn* did not, however, need a certificate. Before deciding upon any application the *Reichsbahn* and local chambers of commerce and industry were to be consulted. These prescriptions did not add much to the rules embodied in the act of 1931.

The substantial additions to earlier legislation which were accomplished by the act of 1935 were those which related to the Motor Vehicle Operating Association which the act set up. This Association was to be a body organized by ministerial decree and subject to ministerial supervision. All commercial truckers were compelled to join it. The Association, in agreement with the *Reichsbahn* and after consultation with interested groups, fixed tariffs, which were later approved or disapproved by the Minister of Transport. If the *Reichsbahn* and the Association disagreed, the Minister was to decide. These tariffs were to be observed. That they would be was made likely by the fact that the Association collected freight charges for its members, and that it had power to levy fines. In addition, the Association took care of insurance, organized transfer stations, and generally planned for the development and systematization of highway traffic. Its decisions were binding upon its members, and no member could withdraw except in a manner permitted by the Association rules.

The provisions of the law which have been cited insured that thenceforth all freight moved by public highway carriers in Germany would be carried at rates and in a way which the *Reichsbahn* and the Minister of Transport approved. It meant also, and this was important, that the policing of truck traffic was made a responsibility of the industry itself and not only a duty of government. This, in a measure, had been also the theory of "code" regulation in the United States. To make still more certain that the result would conform to government plans, the law stated that if the measures taken by the Association operated against the public interest, or if the obligations imposed upon the Association were not satisfactorily carried out, the Minister of Transport might appoint a deputy who would "take notice" of what was being done. This was at least a threat of direct government control.²⁸

Current German Transport Organization.—Later legislation and decrees in Germany have tended to perfect the system of transportation control through the agency of association to which members of the industry are compelled to belong. This is now the standard type of industrial organization in Germany. In the transport field it finds examples in shipping, inland navigation, and in

²⁸ The law of 1935 did not apply (1) to freight carried in busses; (2) to mail shipments, except merchandise in packages weighing over 20 kg.; (3) to local traffic, defined as traffic within an area with a radius of 50 km. measured from the center of a territory in which a truck might operate; (4) to shipments originating in or destined to foreign countries if the Minister desired to make exceptions in such cases. Nor was the *Reichsbahn* entirely subject to the act. It is true that the *Reichsbahn* was required to publish its highway tariff and to adhere to the published rates, and that its rates required the approval of the Minister of Transport, but the *Reichsbahn* could install new road services without a certificate, and the limits of its activity in long-distance hauling were thus determined directly by the Minister and not by the licensing authorities in the several German states.



MAP SHOWING TRAFFIC DISTRICTS IN GREAT BRITAIN AND LOCATION OF LICENSING AUTHORITIES
 (Source: United States Department of Commerce, Bureau of Foreign and Domestic Commerce,
Transport Control Abroad, by W. R. Long, Trade Promotion Series No. 196, 1939.)

forwarding and warehousing, as well as in motor transport and rail carriage. These associations are autocratically controlled, with lines of authority centering in the Minister. They are well adapted to the smooth execution of whatever decisions the government desires to make, although they do not throw much light upon the fundamental questions with which the policy of coordination is concerned.²⁹

England.—English railways early complained of motor vehicle competition, and particularly because this rivalry affected high-grade shipments which paid the highest rates. It seemed to them that road carrier service threatened to undermine the entire transport rate system. They also protested that the success of the road vehicles in capturing traffic was due to practices which sound public policy should not permit. Trucks, they said, were often overloaded to a dangerous extent, speed limits were exceeded, and drivers were employed continuously during periods of excessive length. Doubtless such policies often constituted infractions of existing law, but the enforcement of traffic regulations was intrusted to the police and the police force was not adequate to the responsibilities which it assumed. Railroads urged, therefore, as early as 1928, that an effort should be made to coordinate road transport with the operations which the railroads were already carrying on.

Royal Commission on Transport, 1928.—The result of railroad representations was the appointment, in 1928, of a Royal Commission to consider the problems arising out of the growth of road traffic and to propose measures for the coordinated working and development of this and other forms of transport. This was a very comprehensive reference. Commissions of this type are frequently appointed in Great Britain, and their reports often clear the ground for immediate legislation. They are, on the whole, less partisan and more influential than are congressional committees in the United States.

The Royal Commission of 1928 rendered, in all, three reports.³⁰ Its chief service was to recommend a revision of the antiquated system of licensing then applied to road traffic in Great Britain, and to suggest that exclusive authority to grant licenses be henceforth vested in a limited number of district boards.⁸¹

²⁹Bodo Ebhardt, "Der organische Aufbau des gewerblichen Verkehrs im Deutschen Reich," *Archiv für Eisenbahnwesen*, März-April, 1939, pp. 353-394.

⁸⁰Royal Commission on Transport. First Report, 1929, "The Control of Traffic on Roads"; Second Report, 1929, "The Licensing and Regulation of Public Service Vehicles"; Final Report, 1931, "The Coordination and Development of Transport."

⁸¹The Royal Commission found that licenses for commercial passenger vehicles in England and Scotland were being issued, in 1928, by local authorities, chiefly by borough and urban district councils. There were more than 1300 local bodies which had the right to license, but none exercised jurisdiction over a district of any extent, and none possessed, except by chance, powers which were suitable to the control of modern transport. The significant recommendations of the Commission of 1928 were, accordingly, that England and Scotland be divided into a limited number of areas for licensing purposes, and that there should be appointed in each a board with exclusive authority to grant licenses to motor vehicles used to carry passengers or freight for hire or reward.

Act of 1930.—This act carried out the licensing recommendations of the Royal Commission of 1928 with respect to passenger vehicles, but not with respect to motor vehicles carrying freight. The statute divided Great Britain into thirteen areas,⁸² in each of which the Minister of Transport appointed a commission of three men. All motor vehicles (other than tramcars and trolley vehicles) which carried passengers for hire or reward were required thenceforth to possess licenses for their vehicles and licenses permitting them to operate. Both types of permits were to be granted by the area commissioners, and in considering applications the commissioners were to have regard to the following matters:

1. The suitability of the route on which service was to be provided under the license.

2. The extent, if any, to which the needs of the proposed routes were adequately served.

3. The extent to which the proposed services were necessary or desirable in the public interest.

4. The needs of the area as a whole (including the provision of adequate, suitable, and efficient services, the elimination of unnecessary services, and the provision of unremunerative services) and the coordination of all forms of passenger transport, including transport by rail.

After 1930 the alarming diversion of passenger traffic from rail to route in England seems to have been controlled. In the London area the entire responsibility for the coordination of passenger transport was vested in a "London Passenger Transport Board,"**⁸³ into the details of whose organization it is not necessary to go. In the rest of the country coordination was accomplished by the area commissioners provided in the Road Traffic Act of 1930. It is before these tribunals that applications are now made for what Americans call certificates of convenience and necessity for passenger highway operation, and these are the authorities which have the power to protect the railroad against the pressure of increased bus competition.

Salter Commission of 1932,—Meanwhile, however, the movement of freight on English roads had assumed sufficient importance to require some sort of recognition. We have seen that the Royal Commission of 1928 did not propose and that the act of 1930 did not provide any effective control of trucking. So far as the Royal Commission was concerned, at least, this inaction was justified by the reflection that most of the increase in the number of trucks which had been apparent in England after 1922 had consisted of vehicles owned by particular traders or of vehicles under contract to particular concerns, and that these trucks or lorries were engaged, on the whole, in local

⁸² Later reduced to twelve.

"London Passenger Transport Act, 1933, 23 Geo. V 155, Ch. 14. The London Passenger Transport Board consisted of a chairman and six other members with power to acquire and operate underground, tramway, light railway, and busses within the London area. Through a "Joint Committee" the Board coordinated its own services with the suburban services of the four amalgamated railway companies constituted under the Railways Act of 1921.

deliveries of a sort unsuitable to any other mode of conveyance. The rail carriers did not accept this view of the facts, and a continued discussion occurred between rail and road with reference to the extent and, particularly, to the conditions of competition between these two forms of enterprise. We have already referred to some of the railroad complaints. The rail carriers also observed that competition between rail and road in trucking service was not fair because the road carrier could pick and choose its traffic, did not need to publish its rates, had no obligation to serve, had no obligation to treat all customers alike, and conducted its business without specific responsibility to trade and industry.³⁴ To this the owners of motor vehicles replied that the truck was more convenient and essentially more economical than the railroad, and that diversion, to the extent that it had occurred, had been in the public interest; it was their opinion also that the decline in railway traffic after 1929 was to be explained by the depression, and that road competition had played only a minor part among the many adverse influences to which the railroads had been exposed.

Pressed by the railroads, the government consented to cause the relations between rail and road carriage of freight to be examined, and appointed a committee of nine for the purpose, consisting of four railroad and four motor vehicle officials, with an independent chairman. The Committee, or Conference, was known as the Salter Conference, after its chairman, Sir Arthur Salter. It was appointed on April 11 and reported on July 29, 1932.⁸⁵

Recommendations of the Salter Conference.—The specific recommendations of the Salter Conference were, later, so largely embodied in the Road and Rail Traffic Act of 1933 that they need be only briefly summarized at this point. The Conference proposed that all trucks should be licensed. In so far as private (ancillary) carriers were concerned, the licenses were to serve as a device to enforce the payment of reasonable wages and the observance of proper conditions of service; in the case of common carriers licenses might be refused when existing transport facilities were adequate. Private carriers were to be forbidden to carry goods other than their own except within a radius of ten miles from their places of business. There was to be a Central Advisory Committee to advise the Minister in matters relating to licensing and to the regulation of road carriers. The Conference was not able to agree upon a recommendation that motor vehicle rates should be published, or that they should be controlled; it merely called this subject to the Minister's attention.

In addition to these proposals the Salter Conference considered elaborately the question of motor vehicle taxation, and since this part of its recommendations was not fully accepted by the government it should be somewhat more fully explained. The fundamental conclusion reached was that the taxes on motor vehicles should be substantially increased. The reason given was

³⁴*The Railway Gazette*, Vol. 58, March 3, 1933, pp. 298, 302, address by Sir Josiah Stamp.

³⁵Great Britain, Ministry of Transport, *Conference on Rail and Road Transport, Report*, London, 1932.

that only such an increase would place the railroads, which built and maintained their own roadbeds, on an equal basis with the motor carriers, which used the public road. The amount of the proposed increase was to be such as to raise the total contribution of road carriers, through petrol and license fees, to the sum of £60,000,000, an approximation of the annual cost of maintaining and policing the public highways. Of the sum, 23,500,000 was to be collected from the owners of commercial trucks and £36,500,000 from the owners of all other mechanically propelled vehicles, such as private cars, motor cycles, coaches, busses, taxis, etc. Of the amount allocated to commercial trucks, the larger increase over existing rates was to be imposed in the case of heavy vehicles, as the Conference believed that the larger trucks had been notably undertaxed during previous years. This was the skeleton of the Conference recommendations.⁸⁶

Objections to the Salter Recommendations.—The critics of the Salter report raised two principal objections to its recommendations. One point urged was that the Committee had used a wrong method in allocating the costs of highway use between different types of motor vehicles. The other contention was that the roads of England were of direct and indirect advantage to many classes of citizens besides the owners of motor vehicles. Costs of highway maintenance and construction should not, therefore, it was argued, be assessed solely against the owners of motor vehicles, but should be borne in part by public funds.

Most of the public controversy centered upon the second objection. The defense offered by the Conference conceded a general public interest in the roads, but the Conference observed that it did not propose to assess against motor owners, as it might have done, any charge for interest on the sums invested in highway construction during earlier years. This omission, it was said, granted to road carriers a virtual subsidy, characterized as a "legacy from the past," which sufficiently offset the extra burden that refusal to recognize the general public interest in existing roads imposed upon motor carriers. Since, actually, the license duties provided in the government budget were 10 per cent below those proposed by the Salter Conference, the final decision may be regarded as a compromise between the views that have been set forth.⁸⁷

On the whole, the conclusions of the Salter Conference received warm commendation from representatives of British railways. The points noticed were (1) the increased taxes proposed to be placed on private trucks;⁸⁸ (2) the likelihood of better enforcement of laws relating to wages of truck drivers

⁸⁶ Under the proposed schedules a 10-ton lorry fitted with pneumatic tires, which had previously paid only £48 annually, would have been called upon to pay £226. Duties upon the smaller trucks were not changed (*London Times*, August 17, 1932, p. 11, col. c).

⁸⁷ *The Railway Gazette*, Vol. 60, March 2, 1934, P. 365.

, ⁸⁸ Private trucks amounted, perhaps, to 70 per cent of all goods vehicles in England.

and their conditions of service; (3) the elimination of unfit vehicles from the roads; and (4) the proposed control of common carrier operation upon the highways. There was even impatience over the apparent slowness of the government in introducing legislation to place the Conference recommendations into effect. Government action was not, really, long delayed; and this brings us to the discussion of the important statute of 1933.

Road and Rail Traffic Act, 1933.—Under the act of 1933 the obligation to obtain a license was extended to the carriers of goods both in the case of private carriers and in the case of carriers operating "for hire or reward," that is to say, carriers offering their services to the general public. Licenses for goods traffic were to be issued by the chairman of the traffic commissioners of any area created by the act of 1930. They were to be either (A) public carriers' licenses; (B) limited carriers' licenses; or (C) private carriers' licenses. The last-named variety permitted the holder to transport goods in connection with his own business but not as a common carrier for others. The shopkeeper, the laundryman, the farmer, and the industrialist might operate under licenses of class C. This was to be the largest of all the groups; in the beginning, indeed, the Ministry of Transport expected to issue 300,000 class C licenses as against 100,000 for the other two classes combined.³⁹ Holders of B licenses might use their vehicles in connection with their own business, but they might, in addition, engage in common carriage subject to conditions which the licensing authority was empowered to attach.

Of these various kinds of licenses, those of class C were to be granted usually as a matter of course.⁴⁰ But in the event of applications for licenses of classes B and A the licensing authority was required to give public notice) to listen to objections, and to consider, if the question was raised by persons who were already providing facilities in the area, whether transportation in the district would be in excess of requirements if the application were granted. In the case of applications for renewal the previous conduct of the applicant as a carrier of goods was among the things which might be considered. Short-time licenses might be issued for the execution of a particular piece of work, for the purpose of a seasonal business, or for any other purpose of limited duration.⁴¹ Licenses might be canceled, for it was a condition

³⁹*The Railway Gazette*, Vol. 60, January 19, 1934, p. 103. Class C licenses were granted for three years, B licenses for one year, and A licenses for two years.

⁴⁰The exceptions were when the applicant was the holder of a license which had been suspended, or when a license which he had previously held had been revoked. In either of these cases the licensing authority might exercise its discretion.

⁴¹The setting up of temporary services threatened to deprive established enterprises of opportunities during seasons of the year while traffic was abundant without reducing the responsibilities of such carriers at other times. To protect long-distance transport, at least, from competition of this sort, the Ministry of Transport took the view that the additional number of vehicle journeys allowed to be operated by short-time license on any one day or in any one direction should not exceed three times the minimum number of vehicle journeys in the same direction for the daily running throughout the year of which the operator was willing to assume the responsibility *The Railway Gazette*, Vol. 59, September 22, 1933, p. 409).

of every license (1) that the authorized vehicles should be maintained in a fit and serviceable condition; (2) that all statutory provisions with respect to speed, weight, and loading should be complied with; (3) that drivers should not be kept on duty for periods in excess of those specified in the act; and (4) that road carriers should keep proper records. Rules relating to such matters had been included in the act of 1930, but for reasons already mentioned they had never satisfactorily been enforced. After 1933 it was possible to compel compliance by the threat of license cancellation as well as by the direct activity of the police.⁴²

Licensing Authorities.—Power to grant and to cancel licenses was vested in the chairman of the area commissions set up under the act of 1930.⁴³ Appeals lay to a tribunal of three members appointed by the Minister of Transport for the purpose. The act also created a "Transport Advisory Council" to give advice to the Minister in matters related to coordination. The Council consisted of thirty-two members, appointed by the Minister from a wide range of interested groups.⁴⁴ It had no administrative duties,

Railroads also suggested that it might be sound policy to allow them to appear in opposition to the grant of short-time C licenses; but the law has not been changed so as to make this possible.

⁴² The Road and Rail Traffic Act contained what, in the United States, is known as a "grandfather clause," requiring licensing authorities to grant A or B licenses to applicants who, applying not later than April 1, 1934, could show that they had been engaged in corresponding service during the year beginning April 1, 1932. This enabled all existing common and partly common carriers to be licensed upon passage of the act, and so postponed an effective reduction in the number of road vehicles in operation. On the other hand, the renewal of B licenses could be contested as early as 1934 and that of A licenses as early as 1935. Meanwhile the railroads would be protected to some extent by improved conditions of highway operation and, in the alternative, by the elimination of offending operators from the public roads.

⁴³ The number of these area commissions was, in 1933, reduced from thirteen to twelve.

⁴⁴ Members of the Council were to include representatives of the following interests:

Interests	Number of Representatives
Local authorities in England and Wales	4
Local authorities in Scotland	1
Users of mechanically propelled vehicles	5
Users of horses and horse-drawn vehicles	1
Users of roads other than as above mentioned	
Pedestrians	
Pedal cyclists	1
Railways	3
Canals (other than canals owned or controlled by a railway company)	1
Coastwise shipping	2
Harbors and docks (other than harbors and docks owned or controlled by a railway company)	1
Labor	3
Trading interests (including agriculture)	5

Total

23

In addition to the above there were to be additional members, not exceeding three, whom

but it was expected to play an important part as a policy-forming body.⁴⁶

Agreed Charges.—A special section of the Road and Rail Traffic Act of 1933 dealt with what were termed "agreed rates." Earlier statutes had declared that railroad rates in England should be approved by the Railway Rates Tribunal—a body created by the act of 1921—and that subsequently these rates should be charged to all users without discrimination. The addition of a section in the Road and Rail Traffic Act of 1933 relating to rates was the result of a decision of the Railway Rates Tribunal in 1932, sustained upon appeal in 1933, in what is known as "Robinson's case."⁴⁶ This was a proceeding in which a dealer in oil cake and feeding stuffs had contracted with the Great Western Railway for the carriage of his products from Avonmouth Docks to 320 stations in a described area. Robinson had been shipping about 12,000 tons a year by road from Avonmouth and about 21,000 tons a year by rail to these destinations. He estimated that by purchasing a fleet of motor trucks he would be in a position to transport the whole of his traffic by road at an average cost of 7s. *id.* per ton. The railway then offered to carry all of Robinson's traffic at a flat rate of 7s. 2d. per ton, irrespective of destination within the area, if a minimum of 40,000 tons a year could be guaranteed. The offer was accepted, but the Railway Rates Tribunal declared that such average rates were illegal because they were not within the scope of the railway's statutory powers. The Tribunal added, *obiter*, that the practice seriously affected the trade of the district, enabling Robinson & Co., by undercutting, to put the business of other traders in peril.⁴⁷

The Robinson decision seems to have been extremely disappointing to the railways, and it was upon their request that legislation on the subject of "agreed charges" was inserted into the act of 1933. By this act it was now declared that any railway company might, if it saw fit, agree with a trader upon a schedule to be applied to that trader's merchandise and that such agreements, when approved by the Railway Rates Tribunal, should become effective. Agreed schedules might be protested by shippers who thought that their business would be detrimentally affected, by port or harbor authorities

the Minister might from time to time see fit to appoint. It is to be observed that railroad representation upon the Council was smaller than that of road carriers, and that both together constituted less than half of the whole.

⁴⁵ Road and Rail Traffic Act, 1933, 23 and 24 Geo. V, Ch. 53.

⁴⁶ 21 Railway and Canal Traffic Cases 46, 1932.

⁴⁷ Robinson's case presented, also, other interesting complications. The carriers expressed willingness to make similar arrangements with other shippers but there were, apparently, no other shippers able to give the required guarantee. It was further pointed out by counsel that Robinson, by selling f.o.b. shipping point to near-by consignees, could restrict his actual shipments to points to which his cost, before the agreement, had exceeded 7s. 2d. This would have resulted in an important reduction in his costs below the estimated average which the use of trucks would have enabled him to attain, limited only by the necessity of providing a minimum tonnage of 40,000 tons.

or by dock companies, and by representatives of persons engaged in the coastwise shipping business; but they could not, apparently, be objected to by highway carriers. By the end of 1937 no less than 1843 applications for agreed charges had been filed under the new law, and of these 1745 applications had been approved. While the practice of quoting agreed charges did not directly promote the coordination of road and rail facilities, it obviously tended to strengthen the railway in its competition with highway carriers.

Summary Description of European Organization for Coordination.—We may summarize the coordination activity in England, Germany, and France in a series of generalizations:

1. The impelling motive for coordination in each of these countries has been the diversion of traffic from the railroad to the road. In Germany and in France this diversion has placed a financial burden upon the national government; for Germany owns her railroads and the government of France guarantees the dividends of the French railway systems. The English government also supports the credit of the English railroads, although it is not directly responsible for their solvency.

2. Each country has introduced a thoroughgoing system of licensing as a means for coordination. In each, an appropriate authority is prepared to refuse permission to establish new railroads or new commercial truck services when new services are thought to be contrary to the public interest. The concept of public interest is broad enough to provide for the protection of existing services against excessive competition.

3. In France, but not in England or in Germany, machinery is supplied for the deliberate withdrawal of one agency in favor of another, and for the assumption by the second agency of the responsibilities of the first. This is done when all parties at interest agree that the exchange will contribute to the public good or if the Minister can be persuaded to issue a decree.

4. Rail rates are regulated in all three countries. Truck rates are controlled in France and in Germany. In France the rates which motor companies charge are stipulated in their "*cahiers des charges*!" In Germany they are established by carrier associations. In France, long-distance truck rates, and bus rates for services parallel to the railway, must be as high as the prices which the railroads charge. In Germany, commercial trucking rates are fixed by the truck association after consultation with the *Reichsbahn*. Only in England do motor rates go uncontrolled.

5. In Germany the *Reichsbahn* and the Post Office engage extensively in motor transportation. In England the railroads own large interests in motor enterprises. In France, however, the railways are inclined to withdraw from the motor field.

6. The regulation of private motor truck operation is everywhere found difficult. Governments do, however, require the registration of private trucks.

They also have studied and are studying the problem of taxation, and are disposed to regulate hours or wages or both in the trucking industry.

United States.—In the United States the principal instrument employed for the coordination of railroad and road operations is the state or federal regulatory commission. These commissions exert most influence through their power to grant or to refuse permits or certificates of convenience and necessity. As between the state and national bodies, it may be noticed that the state commissions play a more important part in regulating road than they do in regulating air, water, or railroad transport, because a large proportion of motor traffic is local in character. The power of state commissions is, moreover, extended by a provision in the federal law that exempts carriers which hold a certificate permitting intrastate operation from the necessity of obtaining a federal certificate in order to engage in interstate commerce, and by a section in the Transportation Act of 1940 exempting, under certain conditions, motor carriers operating within a single state from federal control.⁴⁸

Control by State Commissions.—Most state laws provide that permits or certificates shall be obtained from a designated official body before motor carriers may begin commercial service in contract or common carrier operation. The wording of the statutes of the state of California may serve as an illustration of such legislation.

The California laws relating to the issue of permits and certificates read as follows:

No passenger stage corporation shall hereafter operate or cause to be operated any- passenger stage over any public highway in this state without first having obtained from the railroad commission a certificate declaring that public convenience and necessity require such operation.⁴⁹ . . .

No highway common carrier shall hereafter begin to operate any auto truck, or other self-propelled vehicle, for the transportation of property for compensation on any public highway in this State without first having obtained from the Railroad Commission a certificate declaring that public convenience and necessity require such operation.⁶⁰

Except as hereinafter provided, no highway carrier, other than a highway common carrier, shall engage in the business of transportation of property for compensation by motor vehicle on any public highway in this State without first having obtained from the Railroad Commission a permit authorizing such operation.⁵¹

Except as hereinafter provided, no carrier shall engage in the business of transportation of property for compensation by motor vehicle over any public highway

⁴⁸ Motor Carrier Act, 1935, Sec. 206(a); Transportation Act of 1940, Sec. 19.

⁴⁹ Public, Utilities Act, Sec. 50¼ .

⁵⁰ Public Utilities Act, Sec. 50 .

⁵¹ Highway Carriers Act, 1935, Sec. 3.

in any city in this State without having first obtained from the Railroad Commission a permit authorizing such operation.⁵²

Provisions of this sort cover the operations of all motor vehicle common carriers and of all contract carriers except contract carriers of persons and, by special exception, the operation of school busses.

In granting or refusing certificates of convenience and necessity state commissions consider at least the following matters: (1) The financial responsibility of the applicant; (2) the condition and character of the equipment and facilities which the applicant will provide; (3) the character of the service to be rendered; (4) the demand for the service; (5) the effect on highways and on highway traffic; (6) the number of motor and railway carriers already in the field and the effect upon these services of new and competing operations.⁵³

Avoidance of Duplication.—State commissions which consider such matters attentively have the opportunity to do two things. The first of these is to protect the traveling and shipping public against irresponsible, inadequate, and expensive service, and the investor against loss of capital in enterprises which have no reasonable prospect of success.⁵⁴ The second is to prevent or lessen unnecessary duplication of facilities with its attendant waste. Probably the most effective work which commissions have so far done has been of the former sort and this, strictly speaking, is not a work of coordination. It is more than ordinarily necessary to safeguard the public, however, including the investor, from irresponsible enterprise in a business such as motor vehicle operation, because motor service can be started with very little capital, and men attempt it without experience, responsibility, or resource. This is, of course, the case in other fields also, as in the selling of real estate or insurance or book subscriptions, but public policy distinguishes carriage from activity of these other types, and calls for a preliminary sifting of the applicants who wish to undertake the work. There is little difference of opinion with respect to the objectives of regulation of this sort, although there may be divergent views regarding action in a particular case.

The laws and practice of different states vary considerably with respect to the control of duplication. Thus in South Carolina the mere existence of other motor carriers is no ground for denial, and in North Carolina the statute provides that the state commission shall not refuse a certificate for the transportation of property "solely because of multiplicity of similar operators over

⁵² City Carriers Act, 1935, Sec. 3.

⁵³ The Federal Coordinator of Transportation discussed these requirements in 1934 (73d Congress, 2d Session, Sen. Doc. 152, Ser. 9790. See also *Re Bridge Bus Line Corporation*, 20 P.U.R., N.S., 188, 1937). Requirements for the issue of permits to contract carriers are less severe than those for the issue of certificates to common carriers. Public interest in contract carriage has been declared by the Connecticut Public Service Commission to require: (1) the preservation of public service upon the highways, and (2) the avoidance of congestion upon and damage to the highways. The public is also concerned (3) with the effect of contract operations upon the ability of established common carriers to perform their public employment (19 P.U.R., N.S., 522, 1937).

" 20 P.U.R., N.S., 188, 198, 1937.

such proposed routes." But on the other hand Virginia, in 1923, forbade the granting of permits when public convenience and necessity was already reasonably served,⁵⁵ and Florida directed its commission to grant a competing certificate only when established certificate holders failed to furnish the service which the commission deemed necessary.⁵⁶ In 1934 the probable effect of the contemplated additional service upon the business of existing transportation agencies was made a matter for formal determination by the laws of thirty-three states in connection with common carrier applications and by the laws of fourteen states in connection with applications for authority to operate as contract carriers. Only such a policy can pretend to lessen duplication, however much the free grant of certificates may serve to stimulate the expansion of motor transport. In a number of states commissions are allowed to consider the adequacy of existing motor service in deciding whether to grant or to refuse certificates, but not the adequacy of rail service. In other states, however, commissions are required to give due consideration to the services afforded by steam and electric railways and to the probable effect of the additional service proposed by applicants upon the business of such carriers. In 1934 the second rule was followed in twenty-five states with respect to common carrier and in twelve states with respect to contract carrier applications.

Summary of Cases,—Most of the state cases which involve the competition of rival enterprises for authority to initiate motor vehicle operation may be classified in four groups. These will be listed in order to summarize the discussion at this point.

1. Two motor vehicle corporations may seek a certificate to operate in a territory which has not already been served. This is the simplest case because it requires neither a discussion of adequacy nor a comparison of different controls. A commission has only in such an instance to select the company which* is most likely to render satisfactory service. It is true that even in such a case some differences in policy may appear. Thus the Colorado Public Utility Commission has remarked that: "If a common carrier operation is to survive, it seems desirable to grant it to that carrier who has the widest experience throughout the territory as a whole and the least obstacles to overcome."⁵⁷ The Utah Commission, on the other hand, has taken the position that small intrastate operators should be protected as against large interstate operators if they are adequately financed and equipped to meet the demands of the shipping public.⁵⁸

⁵⁵ 161 S.E., 895, 1932.

⁵⁶ D. Philip Locklin, *Economics of Transportation*, Business Publications, Chicago, 1938, pp. 806-807.

⁵⁷ Re Miller, Amended Application No. 1521 *et al*, Decision No. 8680, Nov. 4, 1936 (P.U.R. Annual, 1937. Sec. 90, p. 56).

⁵⁸ Re Arrowhead Freight Lines, Cases Nos. 1867, 1919, 1922, March 31, 1937 (P.U.R. Annual, 1937. Sec. 93, p. 56).

Apart from such preconceptions on the one side or the other, a commission will consider the character of the service proposed to be rendered by each applicant, the fares to be charged, the priorities of the various applications, and other similar matters. Usually the carrier offering the lower fares will be preferred, but in a case in Indiana in 1934 a permit was denied to a contract carrier by motor truck because its proposed charges were so inadequate as to tend to break down fair competition among transportation agencies in the state.⁵⁹

2. A motor company or a railroad company may seek to operate trucks or stages in an area already served by other motor vehicle but not by railroad lines. In the majority of jurisdictions, if the applicant is competent, the decision will turn upon the adequacy of existing service. There is no established preference for rail or motor ownership of trucks in such a case, although there is a question in the minds of some commissioners as to whether rail operation of motor vehicles in "outside" areas is consonant with public policy. Adequacy is largely a matter of opinion, but unsatisfied demand for service is evidence on the one hand, as is sustained and growing patronage on the other. Sometimes specific tests are used such as the frequency of schedules or the recent withdrawal of previously rendered service. If the service rendered by the company in possession is inadequate, a commission may sometimes require improvement and deny the competitor's application on assurance that this improvement will be introduced. But in this matter the sound rule appears to be that announced by the Railroad Commission of the State of California in an analogous case. In granting a certificate to the Valley Motor Lines in 1931, the Commission observed that existing companies should not be allowed to forestall competition by improving their service after an application for a competing certificate had been filed. "Only until the time of threatened competition," said the Commission, "shall the existing utility be allowed to put itself in such a position with reference to its patrons that the Commission may find that such patrons are adequately served at reasonable rates."⁶⁰

3. A motor vehicle company may seek a certificate which will bring it into competition with a railroad line. Such an application will require consideration of the adequacy of the existing service, as in the preceding case. But in addition it will compel discussion of the merits of two alternative techniques. In some states the service rendered by the railroad will not be regarded in determining adequacy. Where this is the policy the request of a competent motor vehicle company will be granted almost as a matter of course. In most states the railroad service will be taken into account, with due allowance for the differences between operations by motor vehicle and operations by rail and for preferences in either direction which customers are believed to en-

⁵⁹ 9 P.U.R., N.S., 221, 1934.

⁶⁰ P.U.R. 1932 B 216, 1931. But cf. P,U,R. 1927 C 186, 1926 (Ohio).

tain. In some instances, where the railroad has enjoyed a monopoly, a commission will desire to introduce competition by admitting an independent line.

4. A railroad may ask permission to introduce motor vehicles into a territory which it has previously served by rail, either complementing, or in substitution for, rail service. At the same time a motor vehicle company may demand a similar certificate. These are the most common controversies in which railroads are involved. The argument for railroad preference in these cases is strong, (1) because the rail-managed service is likely to be superior; (2) because a larger portion of the existing transportation plant is likely to be conserved; and (3) in the extreme case, because refusal of a certificate to the railroad may cause abandonment of the railroad enterprise. On the other hand, a commission may be inclined to trust a new rather than an old management, and so prefer the independent motor company. Or, in the alternative, it may reject both applications in order to protect its highways from the effects of the diversion of traffic from rail to road. In the majority of cases the railroad is preferred.⁶¹

Authority of the Interstate Commerce Commission.—Since 1935 the Interstate Commerce Commission has exerted an authority over motor vehicle operation in interstate and foreign commerce parallel to that which the states still retain over more local transport. The following table shows the number of applications for certificates of convenience and necessity which the Commission has denied or granted or partially denied or granted between June, 1936, and February, 1939. Applications for permits or licenses are not included in this table.⁶²

⁶¹ In granting a certificate to an electric railway in preference to an independent motor company the Illinois Commission has declared that a certificate for the operation of a motor bus line should be granted to a corporation, skilled and experienced in the transportation business, which had financial ability to carry the enterprise through to a successful conclusion, in preference to a corporation organized by men whose experience was mainly in manufacturing and real estate, especially when the former company operated an electric railway through the territory which was to be served (P.U.R. 1926 A, 116, 1925).

The Maine Public Utility Commission said, in a decision rendered in 1932: "It has been the well-considered and settled policy of the Commission during all of the years since motor vehicle service for the carrying of passengers for hire over regular routes has been under its jurisdiction, to coordinate and supplement the existing railroad and street railway service by motor vehicle service whenever possible, and not to authorize motor vehicle service in competition with existing railroad or railway service, except when the general public interest clearly indicated that such a course is necessary or at least highly desirable." (P.U.R. 1933 C, 85, 87, 1932.)

⁶² The table includes only bus and truck cases in which the Commission rendered a printed report. The number of applications for certificates which are disposed of without printed report is normally greater than the number in which a report is made. Thus, in January and February, 1939, 55 applications were approved and 25 denied on recommendation of joint boards or examiners without printed report. There is, however, a printed report when the applicant contests the recommendation, and in cases which the Commission deems important. The table also excludes applications for permits and licenses. See chap. xxxii for statistics which cover applications of all sorts.

MOTOR VEHICLE APPLICATIONS FOR CERTIFICATES OF CONVENIENCE AND NECESSITY
DENIED OR GRANTED OR PARTIALLY DENIED OR GRANTED BY THE INTERSTATE
COMMERCE COMMISSION BETWEEN JUNE, 1936 AND FEBRUARY, 1939

	Period	Denied	Granted	Partially Granted or Denied
1936	June to December		29	
1937	January to December	123	159	52
1938	January to December	186	519	185
1939	January to February	10	11	24
		333	718	261

The figures in the table indicate that the Interstate Commerce Commission has taken its responsibilities seriously under the law of 1935. The large number of applications denied does not, however, indicate that the Commission is disposed to restrict motor common carrier operation within narrow limits; it rather reflects the fact that many persons apply for permission to operate upon the highways as common carriers who have very limited resources. Thus out of 91 applications for truck certificates which were denied between June, 1936, and December, 1937, 44 were presented by operators who owned only a single vehicle apiece, 5 by operators who had no rolling equipment at all, and 32 by concerns which owned from 2 to 5 vehicles. The Commission is compelled to scrutinize carefully the capacities of would-be common carriers of such slender means in order that the public may be protected. Even so, it accepts more applications from small operators than it rejects. The magnitude of organizations undertaking bus operations is apt to be greater than that of carriers which offer trucking service because bus services must be more frequent than truck collections, a minimum of comfort and regularity is demanded, and the liability to loss through accident is greater. Possibly this accounts for Commission approval of a relatively large number of bus enterprises during the first year and a half of its administration of the law.

Section 207, Motor Carrier Act.—The pertinent clauses which deal with the relations between rail and motor carriers are found in two separate sections of the Motor Carrier Act. Of these, Section 213 is concerned with applications to consolidate rail and motor services and Section 207 with projects for the organization of new operations.

Section 207 of the Motor Carrier Act contains the clauses which authorize the Interstate Commerce Commission to issue certificates of convenience and necessity to motor vehicle common carriers "if it is found that the applicant

is fit, willing, and able properly to perform the service proposed . . . and that the proposed services, to the extent to be authorized by the certificates, is or will be required by the present or future public convenience or necessity."⁶³

The Interstate Commerce Commission has interpreted these words in the light of the statement made by the United States Supreme Court in *Texas & New Orleans R. Co. v. The Northside Belt Ry. Co.*⁶⁴ In this case the Court observed that: "The purpose of paragraphs 18 to 22⁶⁵ is to prevent interstate carriers from weakening themselves by constructing or operating superfluous lines, and to protect them from being weakened by another carrier's operating in interstate commerce a competing line not required in the public interest."

In referring to this decision the Interstate Commerce Commission said: "The question, in substance, is whether the new operation or service will serve a useful public purpose, responsive to a public demand or need; whether this purpose can and will be served as well by existing lines or carriers; and whether it can be served by applicant with the new operation or service proposed without endangering or impairing the operations of existing carriers contrary to the public interest."

The Commission holds, in general, that the terms "convenience" and "necessity" used in the statute are not synonymous, but must be given separate and distinct meanings. The word "necessity" must be liberally construed, however, for there are few things in life which can be regarded as absolute necessities.⁶⁶ It has no prejudice in favor of monopolistic operation, but only the conviction that sound economic conditions in the motor carrier industry will be jeopardized by [allowing](#) new operators to enter a field in competition with existing carriers who are furnishing adequate, efficient, and economical service.⁶⁷ Rail and water as well as motor vehicle agencies are considered by the Commission in determining whether existing service is adequate, although in most instances the applicant for a certificate is opposed by existing motor lines as well as by transport corporations using the older technique. Nor is the Commission opposed in principle to the operation of common carrier motor vehicles by railroads or by companies controlled by railroads. On the contrary, it has allowed carriers by rail to operate motor services

⁶⁸ Under a proviso in Section 206a of the Motor Carrier Act, however, motor carriers who hold a certificate from a state board are not required to obtain an additional certificate from the Interstate Commerce Commission to enable them to participate in the handling of interstate or foreign commerce, if they limit themselves to the carriage of this commerce wholly between points within a single state (1 M.C.C. 45, 1936).

⁶⁴ 276 U. S. 475, 479, 1928; see 1 M.C.C. 190, 203, 1936; 9 M.C.C. 712, 713, 1938.

⁶⁵ These are the paragraphs of the Interstate Commerce Act which require railroads to obtain certificates of convenience and necessity to cover new construction and extension.

⁶⁶ 1 M.C.C. 190, 202, 1936.

⁶⁷ 1 M.C.C. 445, 1937-

paralleling or extending their lines⁶⁸ where the permission seemed likely to lower rates or to improve service. Decisions rendered up to the end of February, 1939, approved applications presented by or in the interest of the Great Northern, Union Pacific, Santa Fe, Missouri Pacific, Chicago and North Western, Central of Georgia, Baltimore and Ohio, Maine Central, and other railroads.⁶⁹ In these matters the Commission is, however, cautious in permitting rail-controlled motor vehicles to operate in a territory already well supplied by independent motor lines. It may grant a certificate in such a case when the applicant proposes to supply a service closely coordinated with that of the existing railway, on the theory that this will be a service that is new and different and one which independent motor lines cannot provide; but when it does act favorably it will attach conditions designed to protect motor companies already in the field.⁷⁰ If no public need exists which cannot be satisfied by existing and established agencies, the application will be refused.⁷¹

Section 213, Motor Carrier Act—Section 213 of the Motor Carrier Act of 1935 reads, in part, as follows:

It shall be lawful, under the conditions specified below . . . for a carrier by railroad, express, or water to consolidate, or merge with, or acquire control of, any motor carrier or to purchase, lease, or contract to operate its properties, or any part thereof.

When ever a consolidation, merger, purchase, lease, operating contract, or acquisition of control is proposed under this section, the carrier or carriers or the person seeking authority therefor shall present an application to the Commission, and thereupon the Commission shall notify the Governor of each State in which any part of the properties or operations of the carriers involved in the proposed transaction is situated, and also such carriers and the applicant or applicants, and other parties known to have a substantial interest in the proceedings of the time and place for a public hearing. If after such hearing the Commission finds that the transaction proposed will be consistent with the public interest and that the condi-

⁶⁸3 M.C.C. 711, 1937.

⁶⁹ Most, though not all, railroad applications so far filed have been for permission to operate busses.

⁷⁰ A striking illustration of the Commission's attitude is found in the Kansas City Southern Transport Company case (10 M.C.C. 221, 1938). In this case the Commission granted a certificate to a subsidiary of the Kansas City Southern Railway permitting the applicant to perform motor services supplementary to and auxiliary to the railway service. The general plan was to transport less-than-carload traffic by rail between key or break bulk stations on the railroad and to distribute it from these points by truck to the smaller way stations. It was also proposed to substitute truck operation for the present station-to-station way freight service. The Commission allowed the certificate, with some reluctance, but stipulated that applicants should be limited to the transportation of shipments which they received from or delivered to a rail carrier under a through bill of lading covering, in addition to movement by the applicants, a prior or subsequent movement by rail. This was a limitation entirely designed to protect existing motor services in the territory; it interfered, to some extent, with the coordination between motor and rail which the railroad was seeking to effect. (See also 10 M.C.C. 525, 1938.)

⁷¹9 M.C.C. 712, 1938.

tions of this section have been or will be fulfilled, it may enter an order approving and authorizing such consolidation, merger, purchase, lease, operating contract, or acquisition of control, upon such terms and conditions as it shall find to be just and reasonable and with such modifications as it may prescribe: *Provided, however*, That if a carrier other than a motor carrier is an applicant, or any person which is controlled by such a carrier other than a motor carrier or affiliated therewith . . . the Commission shall not enter such an order unless it finds that the transaction proposed will promote the public interest by enabling such carrier other than a motor carrier to use service by motor vehicle to public advantage in its operations and will not unduly restrain competition.

Section 213 deals with the consolidation of motor carriers, not with new enterprises, but it would seem evident that both the consolidation clauses of the Motor Carrier Act and those parts of the act governing the issue of certificates of convenience and necessity are closely allied. They are, indeed, alternative methods of accomplishing a single result, for a railroad may enter the motor vehicle field either by organizing a new company or by purchasing control of a going concern. In actual practice railroads find it harder to acquire control of an existing motor line under Section 213 than to initiate a new enterprise under Section 207. This is because the proviso in Section 213 requires the Commission to find that consolidation will "promote the public interest by enabling such carrier . . . to use service by motor vehicle to public advantage in its operations," while under Section 207 proposed services need only be found to be "required by present or future public convenience or necessity."

On this point the fullest expression of the Commission's view is to be found in the Pennsylvania Truck Lines case, decided in 1936. This was a proceeding in which a subsidiary of the Pennsylvania Railroad Company sought authority to purchase the entire capital stock of an independent trucking company operating in Ohio and adjacent states. The railroad argued that the acquisition would promote the public interest by permitting the establishment of a coordinated truck-and-rail service properly synchronized under a single management. The Commission thought that the merger might benefit the public, but with the important proviso that the authority to consolidate should not be construed to include the right of rendering service for or to, or the interchange of traffic at, any point other than a station of the Pennsylvania Railroad Company. On the general subject, and with reference to railroad operation of trucks to points not reached by the railroad lines it said:

While we have no doubt that the railroad could, with the resources at its command, expand and improve the partnership service and that, so far as numbers are concerned, there is now an ample supply of independent operators in the territory for the furnishing of competitive service, we are not convinced that the way to maintain for the future healthful competition between rail and truck service is to give the

railroads free opportunity to go into the kind of truck service which is strictly competitive with, rather than auxiliary to, their rail operations. The language of section 213 . . . is evidence that Congress was not convinced that this should be done. Truck service would not, in our judgment, have developed to the extraordinary extent to which it has developed if it had been under railroad control. Improvement in the particular service now furnished by the partnership might flow from control by the railroad, but the question involved is broader than that and concerns the future of truck service generally. The financial and soliciting resources of the railroads could easily be so used in this field that the development of independent service would be greatly hampered and restricted, and with ultimate disadvantage to the public.⁷²

Subsequent to the Pennsylvania Truck Lines case the Commission permitted the Santa Fe Trails Stages, Inc., a subsidiary of the Atchison, Topeka, and Santa Fe Railroad to acquire control of two stage lines operating in Arizona and Utah to and from points not reached by the rails of the Santa Fe Railroad Company. The Commission pointed out that the proposed operation penetrated, for the most part, territory not served by other transportation agencies, and was disposed to regard it as equivalent to the building by the railroad of a branch or feeder line into a territory not hitherto occupied and hence an enterprise auxiliary or supplementary to the carrier's rail operations.⁷³ Permission to purchase in this instance satisfied a public need which perhaps justified the Commission in failing to adhere to the logic of its earlier decision.

It is curious that the Commission in the Barker case should have justified the restriction of railroad truck service to the handling of traffic between railroad stations on the ground that this policy would best preserve competition between rail and truck. There is actually some reason to believe that the danger of suppressing the use of a valuable transport device—the truck—is greater when a railroad is allowed to develop a motor service between its stations than when it is permitted to reach out into new fields. For a railroad will keep traffic which passes from one of its stations to another upon its rails if the thing can be done, but it has no interest adverse to the energetic extension of feeder motor operations. It is more understandable, if this is the underlying motive, that railroads, which are large, established concerns, should be restrained from a policy of purchase of motor vehicle operations, wherever located, in an attempt to suppress competition. This type of restraint of trade can be practiced, however, by large motor companies as well as by large railroads, and should be dealt with under general laws.⁷⁴

⁷² 1 M.C.C. 101, 1936. See also 5 M.C.C. 9, 77, 1937; 15 M.C.C. 101, 1938.

⁷³ 1 M.C.C. 225, 1936.

⁷⁴ The reader is referred to chap. xxxii for discussion of the policy of the Interstate Commerce Commission in fixing minimum rates for motor carriers. The Commission has fixed such rates but not, particularly, in order to protect the railroads.

Comparison of American and European Practice.—The problem which the Interstate Commerce Commission faces in the United States when it considers the expansion of rail control into the motor vehicle field differs from that in France and Germany where railroad organizations are government affairs. At least, government authorities would hardly admit in either of the last-named countries that government management might improperly discourage motor operation, although the American Commission may be right in believing that common control tends to produce this result. There are, however, similarities between the general European and the American situation with respect to coordination. In each area the existing railroad system is suffering from the competition of a new means of transport. In each the government has set up an elaborate system of licensing, in part designed to protect existing services against excessive competition. In France and Germany, as in the United States, motor truck rates are regulated; in England, Germany, and the United States railroads engage extensively in motor transport.

There are also some points of difference. The United States regulates bus and trucking rates but it has not insisted upon the parity between rail and motor charges that is demanded in France and Germany. The United States recognizes that there may be too many commercial motor vehicles upon the roads but it has not imitated France in providing for the repartition of existing passenger services between rail and bus. The United States has been harassed by the difficulty which its commissions encounter in locating and regulating the small motor operator; but, except in the days of the N.R.A. and the old trucking code, it has not been disposed to utilize the service of a trade association in motor industry control as France and Germany now do. It may be that this list of similarities and contrasts could be expanded by students who had access to the deliberations of the area commissioners in England and the departmental committees in France as well as to the decisions of the Interstate Commerce Commission decisions in the United States.

Difficulties in Coordination.—The difficulties in adequate coordination arise from lack of facts or lack of will, and the latter may be attributed to indifference or to the play of political forces. The argument for coordination is simple enough, especially when we limit ourselves to the desirability of avoiding waste through the use of the most effective means of transport. Of course waste occurs when an inferior rather than a superior instrument is employed to accomplish a task which either can perform. When new inventions and improvements are available, moreover, they should be used only on condition that the introduction of the new device will bring a gain large enough to offset the loss caused by the displacement of its predecessor. Commissioners and administrators understand these principles well enough but do not always find it easy to apply the rules, and we can understand why when we consider the peculiarities of motor transport. For one thing, motor vehicle operation is relatively new, and its possibilities are not entirely known.

Since the machinery which motor vehicles employ is being constantly improved, no calculation of the relative cost of carriage by road and rail is likely to be valid during any considerable period of time. Moreover, the cost of operation of any transport enterprise changes with alterations in the quantity and kind of use. A conclusion as to cost which assigned a preferred position to a given agency and thereby enlarged the traffic which that agency obtained might by itself create the condition of relative advantage which the estimate originally assumed to exist. Costs are seldom exactly ascertainable anyway, and important allocations are necessary in determining the cost of performing particular operations when a business satisfies several needs. How far, for example, should improvements of the Mississippi River be charged to flood control and how far to navigation? Or how much does an airplane contribute to commerce and how much to national defense? These are difficulties of importance, and to them we must add the circumstance that conclusions based upon cost are convincing only to the degree that the services whose costs are to be compared are identical. Now rail and motor services are similar, but there are differences between them with respect to speed, safety, regularity, convenience, and other matters which have to be allowed for. The essential conditions for a comparison are absent, and the lack has to be supplied by estimates and evaluations concerning which people disagree.

It follows from the various facts which have been mentioned that commissions and administrators have never so far been able or willing to determine the relative cost of transportation by rail and by road; and this, in the United States, has hampered their entire policy of coordination. There are also two other considerations which would have given them trouble even if costs of transport had been easier to ascertain. These relate to the by-products of transport and to politics. As for the first, either railroad or motor vehicle operation may produce by-products which the community may dislike to sacrifice. This is the case when road construction provides income for the unemployed, or railways are built to stimulate the growth of backward communities, and other examples might be given. As for the second, it is clear enough that a program of coordination has political repercussions. This is because coordination may change the relative status of communities which rely upon different agencies of transport, or upon the same agencies to a varying degree, so that one community may prosper and the other decline. There are some sections of the country which depend, for instance, on waterway transport and other sections to which this transport is not available. There are cities which will lose their advantage of position as motor vehicle service is extended. Any large policy of support to waterway or to motor vehicle enterprise will tend to improve the relative position of some areas, and any policy of support to railroads will prevent this change. Doubtless a mere recognition of a state of inferiority will not place the users of a facility in any worse position than that which they occupied before. But if

restrictive action follows recognition, then the users of the restrained facility will suffer in those exceptional areas where this facility is relatively efficient; and these users besides, together with persons who continue to employ the inefficient service because they have no alternative, will lose because the decreased business handled by the facility will everywhere increase its costs. As a matter of fact, discussions of coordination in the United States quickly become questions of sectional controversy; and this occurs even more frequently, perhaps, than the theory of the case would seem to justify.

Possibly these are the reasons why coordination, at least in the United States, has chiefly operated to exclude a certain number of enterprises which were inadequately financed or for some other individual cause unlikely to render adequate service in common carrier operation. Coordination has done comparatively little to reduce the growth of transport facilities when proposed by companies or individuals who have had experience and capital which they wished to engage in the business of transportation, and still less to induce already established carriers to cede their place to others who might be preferred on public grounds.

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PART VIII

LABOR AND FINANCE



CHAPTER XXVII

LABOR

Number of Employees Engaged in Transportation.—The average number of employees in the transportation industry in the United States was, in 1934, as follows:

ESTIMATED AVERAGE NUMBER OF EMPLOYEES IN THE
TRANSPORTATION INDUSTRY, 1934¹

Field of Transportation	Number
Railroads	
Class I	1,007,700
Class II	15,200
Class III	
Class I switching and terminal	16,200
Other switching and terminal	13,000
Total	1,066,600
Pullman Company.	19,100
Railway Express Agency	34,700
Southeastern Express Company	1,500
Electric railways subject to Interstate Commerce Act	19,100
Pipe lines, including estimate for intrastate lines	15,800
Intercity busses	36,000
Intercity trucks	173,500
Scheduled air transportation, domestic only	6,000
Water (domestic and foreign)	193,100
Total	1,775,500

Sixty per cent or all transportation employees in 1934 were employed by railroads, 17 per cent by intercity trucks and busses, and almost 17 per cent by corporations engaged in foreign and domestic water transport, including inland waterway and coastwise and offshore business. Others means of trans-

¹ United States, Office of the Federal Coordinator of Transportation, *Report on Comparative Labor Standards in Transportation*, March, 1937, Washington, p. 15. There is no equally good summary for any year subsequent to 1934.

port in the aggregate accommodated only 6 per cent of the transportation labor group. We may neglect the last-named categories in most discussions, although some special interest attaches to the air and pipe line employees because of the nature of the work they do. These workers, however, are relatively few in number, their wages and hours are generally favorable,² and they are not often engaged in serious controversy with their employers. We may also omit the group of waterway employees because their problems are better treated in a treatise upon ocean transport than in a book **which** is principally concerned with carriage upon the land.

Comparison of Railroad and Motor Vehicle Employees.—If we restrict our attention to labor in railroad and motor vehicle transport, which constitutes 77 per cent of the total list, we have 1,066,600 railroad and 309,500 motor vehicle employees to consider as of the year 1934. These include both skilled and unskilled workers. Motor vehicle employees are drivers and drivers' helpers, men who maintain and service equipment, and station and office employees. Railroad workers keep the track, right of way, and equipment in good condition, load, unload, switch and operate trains, and check, record, and analyze the business which is done. Both railroads and motor trucks employ soliciting forces, and both require professional and clerical assistance. In the motor industry all of the drivers, at least half of the maintenance personnel, and a goodly proportion of the office employees may be classed as skilled. The proportion of skilled effort is greater in motor vehicle than in railroad work, because railroad track maintenance is largely accomplished by unskilled labor. Railroads also use a large number of truckers, shop laborers, janitors, waiters, etc., while the motor vehicles employ fewer workmen of these types. On the other hand, the railroad "transportation" employees, especially locomotive engineers and conductors, dispatchers, telegraphers, station agents, and the like, generally have more specialized skill and have undergone a longer period of training than have bus and truck employees; and because of the greater magnitude of the typical organization unit, the railroad supervisory force is relatively more numerous and important than that employed by busses or trucks.

Wages and Hours in the Motor Transportation Industry.—In October, 1935, according to data compiled by the Federal Coordinator of Transportation, the earnings of employees on intercity bus operators averaged 65 cents an hour for drivers, 55 cents for maintenance employees, and 47 cents for station and office employees. Intercity truck drivers earned somewhat less, or 56 cents; but truck maintenance employees received about the same average hourly amount as did comparable classes of workmen in passenger service;

² This does not necessarily mean that a skilled mechanic in a hangar will be paid more than a man of equal skill in a factory, but only that the average pay is relatively high and the average working day is relatively short.

and office and terminal employees earned more, or 50 cents. Bus drivers worked about 45 hours a week and truck drivers about 52 hours. The hours of maintenance employees ranged from 51 to 57 and those of office employees from 43 to 59. There is a considerable variation between the extreme limits in wages and hours in the motor industry, and the tendency has been for wages to rise and hours to become more favorable in later years. Some recent wage agreements are evidence of this in the field of wages. And the Coordinator reported that between July, 1933, and October, 1935, the average working week of regular bus drivers who were surveyed in his field studies decreased by 8.8 hours, that of maintenance employees by 5.8 hours, and that of station and office employees by 4 hours.

Union Organization.—The national unions which include employees of motor vehicle transportation companies among their members are the following:³

1. The Amalgamated Association of Street and Electric Railway and Motor Coach Employees of America.
2. The International Brotherhood of Teamsters, Chauffeurs, Stablemen and Helpers.
3. The Brotherhood of Railroad Trainmen.
4. The International Association of Machinists.

No one of these unions is exclusively, or even primarily, a motor transport union. The Amalgamated Association was originally a street railway union which interested itself in busses when street railways began to operate these vehicles. The Teamsters seek to represent all truckers, including those engaged in private transport. The Brotherhood of Railroad Trainmen is, as its name suggests, principally a railroad organization; and the Machinists take in automobile mechanics and machinists in other industries than transport. Not unnaturally, there are sometimes jurisdictional disputes. The Teamsters Union at first claimed both bus and truck employees, although in 1933 it agreed with the trainmen to confine itself to the trucking industry. The Brotherhood of Railroad Trainmen, which admits motor bus drivers to its membership, and the Amalgamated Association of Street Railway and Motor Coach Employees, which enrolls all employees of street and electric railways and in addition all employees of motor bus companies, sometimes clash.⁴

Not only this, but there have been controversies between the International Association of Machinists, which is affiliated with the American Federation of Labor, and the Transport Workers of America, affiliated with the C.I.O., on the question as to which should organize the mechanical employees of the Pennsylvania Greyhound Lines;⁵ and there have been repeated conflicts between the various national unions and company unions organized within

³ United States, Office of the Federal Coordinator, *op. cit.* p. 141.

⁴ 4 N.L.R.B. 520, 1937; 7 N.L.R.B. 186, 1938.

⁶ 6 N.L.R.B. 314, 1938

the scope of operations of particular motor transport companies.⁶ The hostile attitude of the National Labor Relations Board toward system organizations, however, has made these less important than might otherwise have been the case. Other jurisdictional differences between transport unions have never been really significant.

In spite of the efforts of the national unions the motor vehicle transport employees are, as we have said, still incompletely organized. Although no current information is available, a survey conducted by the Federal Coordinator of Transportation in 1935 developed the fact that out of 76 independent intercity bus operators reporting for the month of October only 5, employing 16 per cent of the drivers included in the survey, had collective bargaining arrangements with standard unions. The truck employees were more thoroughly unionized; in this case 62 out of 223 truck operators, employing 45 per cent of the surveyed labor force, stated that they had such arrangements with their workmen. Little organization was found in the South, and few office or terminal employees except platform men were organized anywhere. It is probably true that motor transport employees are better organized today than they were in 1935. It is unlikely that the organization is yet complete, and it is a circumstance of some significance that what organization there is is along craft rather than industrial lines. Motor employees are not industry-conscious; they do not talk in terms of the limitations and problems of motor vehicle transportation as railroad employees, speak in terms of the railroad problem. They are not, therefore, as distinct a segment of the labor field as are their railroad associates, and they have few or no policies which grow out of their peculiar needs.

Labor Boards in the Motor Transport Industry—The Interstate Commerce Commission*—There are two government boards which have jurisdiction over motor vehicle transport employees. The first of these is the Interstate Commerce Commission and the second is the National Labor Relations Board.

The authority of the Interstate Commerce Commission is derived from Section 204 of the Motor Carrier Act of 1935. This section authorizes the Commission to establish reasonable requirements with respect to the qualifications and maximum hours of service of employees, and safety of operation and equipment. The Commission's jurisdiction in these matters extends to private and contract as well as to common carriers, although the phrases used in conveying the power are not the same in all three cases. The Commission has held, however, that its authority is not general, but that qualifications and hours can be regulated only to promote safety. It will not, therefore, shorten hours in order to increase employment; nor will it assume jurisdiction over

^c 1 NX.R.B. 1, 1935; 1 N.L.R.B. 130, 1936; 2 N.L.R.B. 159, 1936; 2 N.L.R.B. 431, 1936; a N.L.R.B. 780, 1937; 3 N.L.R.B. 317, 1937; 6 N.L.R.B. 112, 1938; 6 N.L.R.B. 314, 1938; 7 NX.R.B. 358, 1938.

the hours of clerical, stenographical, and other employees whose functions do not affect the safety of motor vehicle operation. It will, **however, hear** testimony concerning the number of hours which drivers of trucks **and** bussed spend upon the road, and it has ruled that more than sixty hours of driving per week, or more than fifteen hours per day, is excessive for either bus or truck. Representatives of organized labor have asked for **the** prescription of a daily maximum of ten hours, but the Commission has not been willing to go so far.⁷

National Labor Relations Board.—The National Labor Relations Board has jurisdiction to determine which labor organization, when several compete, has the right to represent motor transport employees in negotiation with their employers; it has also the power and duty to prevent unfair labor practices. Representation cases sometimes grow out of disputes between national labor unions, but most frequently they follow attempts or alleged attempts by employers to create company unions which the employers can control. The Board is highly critical of company unions. In deciding cases in which unfair labor practices are alleged, the Board characteristically exerts itself to protect motor employees from discrimination or discharge because of union activity. In the cases which have come before it, the alleged reasons for discharge have covered a wide range, including such things as infraction of rules, discourtesy to passengers, careless driving, failure to stop at road crossings, improper maintenance of equipment, drinking while on duty, and the like. The Board takes the view that discharge of a union employee is not to be justified merely by showing that the employee has been guilty of derelictions of these types, but that it must be shown that the dereliction is the cause of the discharge. Thus a union employee should not be discharged for drinking or for careless driving unless it is established that this penalty is generally enforced against union and non-union employees alike. Unfortunately this imposes upon the Board a rather complicated task of motive determination, and the results are hardly satisfactory except to partisans upon the labor side. In 18 controversies involving 108 employees during the period from December 7, 1935, to September 30, 1938, the Board ordered the reinstatement of 98 and ruled in favor of the employer in the case of only 10 employees.⁸ This distribution may represent the correct proportion of merit between the contending sides; employers feel, however, that the Board is biased against them, and there is some ground in the decisions for believing that this may be the case.

⁷ 3 M.C.C. 665, 1937. The Commission has approved the use of properly designed **and** equipped sleeper cabs. Drivers may spend more than fifteen hours per day on the road if **they** are not on duty more than fifteen hours and have an opportunity to sleep.

⁸ The 98 cases included 7 employees who had gone out on strike. The Board ruled that **these** employees had not been discharged because of union activity, but it held **that they should,** nevertheless, be reemployed.

Labor in the Railroad Industry. Wages and Hours.—Railroad employment is of many types; and because of this fact railroad averages are less significant than averages which relate to motor busses and trucks. But for jobs which are at all comparable, the railroad pays more than do the motor companies. Locomotive passenger engineers in 1935 were being paid \$1.84 per hour, on the average instead of the 65 cents which bus drivers earned; railroad mechanics in the metal-working trades received about 82.5 cents per hour, while automobile mechanics in the employ of city busses averaged between 60 cents and 66 cents, and those in the employ of intercity truck operators about 60 cents. The average hourly earnings of all railroad employees in October, 1935, were 64 cents, and this was more than the 58 cents paid to employees of intercity busses and the 53 cents paid to employees of intercity trucks; but as we have said, broad averages are misleading in this case. With respect to hours, the railroad industry has long observed a basic eight-hour day for most groups of its employees. Certain categories, such as patrolmen, cooks, yardmasters, crossing and bridge flagmen, etc., work longer hours, but these amount to only a small proportion of the whole. In October, 1935, train and engine employees in road service were working 37.6 hours, train and engine employees in yard service 42.4 hours, and all other railroad employees 44 hours in an average week. It is, perhaps, a reasonable generalization that railroads, like motor companies, pay wages to skilled workers which are not noticeably out of line with those paid similar workmen in other industrial occupations; but where comparison is possible, the pay of railroad employees is at the higher level. These differences between railroad and motor transport payrolls can doubtless be traced back to differences between the industries themselves.

On the whole, the motor industry is as yet more simply organized than is the railroad. It requires less elaborate supervision and it uses simpler and less powerful machines. We have already referred to these differences in part. And it is also true that the motor vehicle common carrier personnel is less specialized than the railroad working force. Motor mechanics come largely from commercial garages and factories and are not specially trained for service with motor transport corporations. Potentially, anyone who can drive a private automobile can drive a truck or even a bus; and although some truck and bus companies require their drivers to pass through a brief test period, few demand formal training for transport work. If we add to these peculiarities the fact that the motor industry is made up of small business units in active competition with each other at all points, operating in a buyers' rather than in a sellers' market, and that motor labor is incompletely organized, whereas railroads are relatively few in number and are subject to pressure by a thoroughly organized and well-led labor force, we have a sufficient explanation for the more obvious contrasts in the businesses from the point of view of their employed personnel.

Post-war Increases in Wages of Railroad Employees.—A striking feature in rail labor history has been the improvement in wages and in working conditions which occurred during the World War of 1914-1918. Generally speaking, the pay of railroad employees as late as 1917 was low.

The Lane Commission, presently to be referred to, spoke on this point as follows:

It has been a somewhat popular impression that railroad employees were among the most highly paid workers. But figures gathered from the railroads disposed of this belief. Fifty-one per cent of all employees during December, 1917, received \$75 per month or less, and eighty per cent received \$100 per month or less. Even among the locomotive engineers, commonly spoken of as highly paid, a preponderating number received less than \$170 per month, and this compensation they have attained by the most compact and complete organization, handled with a full appreciation of all strategic values. Between the grades receiving from \$150 to \$250 per month, there is included less than three per cent of all the employees (excluding officials) and these aggregate less than sixty thousand men out of a grand total of two million.

Prior to 1917, controversies between employees and railroad managements, which threatened a nation-wide strike of railroad enginemen, firemen, conductors, brakemen, and other train employees, had been momentarily settled by the Adamson Law of 1916, establishing eight hours as the basis for a day's pay, although not prohibiting a longer working day.⁹

Report of the Lane Commission.—In 1917 there was no comprehensive revision of railroad wages, although partial advances continued to take place on a considerable scale. In 1918, however, as one of his first acts as Director-General of Railroads, Mr. McAdoo appointed a railroad wage commission of four men to investigate the whole question of compensation to persons in railroad service.

This commission, known as the Lane Commission, after its chairman, Franklin K. Lane, reported in April, 1918. It found that the cost of living had so advanced that a man who received \$85 a month on January 1, 1916, needed a 40 per cent addition to his wage on April 30, 1918, in order to give him the same living that he had before. For smaller incomes the required increase was somewhat greater, for larger incomes somewhat less. The Commission therefore recommended a schedule which began with a flat increase of \$20 per month for employees receiving under \$46 monthly. Men and women receiving from \$46.01 to \$50 were to be advanced 43 per cent, and from this point on the various wage classes in railroad service were to receive increases in steadily decreasing proportions, until the level of \$250 per month was reached, beyond which point no increase was given.

*An official commission reported in 1918 that the effect of this act had been to increase wages in road freight service about 15, and in yard service about 25, per cent. Passenger service was little affected.

RECOMMENDED SCALE¹⁰

To the Monthly Rate of Pay of Men Receiving, in December, 1915, the Amounts Named in This Column	Add the Per Cent Named in This Column	Equivalent to the Amounts Named in This Column	Making New Rate per Month as Shown in This Column
Under \$ 46.00		\$10.00	
\$ 46.01 to 47.00	43.00	10.21	\$ 67.21
60.01 to 61.00	41.00	15.01	86.01
80.01 to 81.00	40.44		113-75
100.01 to 101.00	31.29	31.60	132.60
-150.01 to 151.00	15.96	24.10	175.10
100.01 to 101.00	8.16	16.60	217.60
240.01 to 150.00			150.00

This scale was promptly approved by the Director-General and made effective, with unimportant variations, as of January 1, 1918. Advances in wages received by an employee after the last day of December, 1915, were deducted from the increases awarded in 1918. On the other hand, the new rates were based upon the eight-hour day, so that the employees in any branch of the service who worked longer than eight hours were entitled to overtime. The cost of the Lane award, together with subsequent increases in wages up to January 1, 1920, was in the vicinity of one billion dollars. Subsequent to the Lane award and to the decision of the Director-General based thereon, wages were again advanced by a decision of the Railroad Labor Board effective May 1, 1920. Part or all of this later advance was offset by reductions in 1921 and 1922. Between 1923 and 1929 wages slowly but steadily advanced although without general revision of the wage structure. In 1932 they were cut 10 per cent, temporarily, by agreement between the railroads and the unions. By 1935 these cuts had been restored, and in 1937 the managements were induced to agree to a general advance approximating 5 cents an hour. In 1938 the railroads sought, unsuccessfully, to reduce wages by 15 per cent.¹¹ The net result of all this was to increase the average hourly pay of railroad workers from 28.3 cents an hour in 1916 to 66.7 cents in 1921,¹² and to 74.8 cents in 1939. These increases were largely offset at the beginning by changes in the cost of living which occurred during and immediately succeeding the war, but they were not entirely offset by price changes even at this time; and the general decline in retail prices which occurred after 1920, taken

¹⁰ The table presents extracts only from the recommended scale. The actual scale, of course, provided for all wage groups up to those receiving \$250 per month.

¹¹ *Summary of the Case of the Employees Represented by the 18 Cooperating Railroad Labor Organizations before the Emergency Board, 1938*, by Charles M. May, Attorney, pp. 9-18.

¹² The rate in 1920 was 67.6 cents an hour, but this amount included an award of back pay.

together with a sustained wage income, substantially improved the economic position of the average railroad employee.

Volume of Railroad Employment—While, however, railroad wages increased after 1916, the same cannot be said of the volume of employment which the industry was able to supply. On the contrary, the number of people employed by Class I railroads in the United States between 1920 and 1939 notably declined, and since 1930 the total has been less than the number reported to be upon the railroad payroll in 1916.

EMPLOYMENT, CLASS I RAILROADS, 1916 TO 1939, EXCLUDING
SWITCHING AND TERMINAL COMPANIES¹⁸

Year Ending December 31	Average Number of Employees	Hours Paid for (Millions)	Average Hours per Employee	Average Compensation per Hour
1916	1,647,097	5,190	3,151	\$.18
1917	1,732,876	5,438	3,138	.31
1918	¹ 1,841,575	5,701	3,096	.46
1919	1,913,411	5,0325	1,630	•57
1920	1,011,831	5,447	2-,693	.68
1921	1,659,513	4,147	2-, 499	.67
1922	1,616,834	4,311	1,650	.61
1923	1,857,674	4,929	2-, 653	.61
1924	1,751,361	4,535	2-,589	.61
1925	1,744,3"	4,531	2-, 598	.63
1926	1,779,,75	4,671	1,616	.63
1927	1,735,105	4,519	1,605	.64
1928	1,656,411	4,314	1,604	.66
1929	1,666 850	4,347	1,617	.67
1930	1,487,839	3,760	2-,527	.68
1931	1,158,719	3,039	1,414	.69
1932	1,031,703	2,378	2-,305	.64
1933	971,196	2-,2-33	2-,299	.63
1934	1,007,701	2-, 394	1,376	.64
1935	994,371	2-,397	1,411	.69
1936	1,065,614	2-, 675	1,512	.69
1937	1,114,663	1,780	1,512	.71
1938	939,171	2-,330	1,480	•75
1939	987,943	2, 490	1,510	•75

Study of the accompanying table will reveal the principal facts concerning recent railroad employment. In brief, the railroads employed more than two million people in 1920; but in 1939 their payrolls listed only 987,943, or less than half the number reported eighteen years before.

¹⁸ United States Interstate Commerce Commission, *Statistics of Railways in the United States*,

Causes for Variation in Numbers Employed.—Unquestionably, variations in the volume of employment in the railroad industry result from changes in the quantity of traffic which the railroads are asked to haul from year to year. But this is not the entire explanation; for while the sharp declines in railroad ton- and passenger-mileage between 1929 and 1932 and between 1937 and 1938 were accompanied by an almost proportional falling off in rail employment, it is not true that the substantial increase in railroad business between 1921 and 1929 or the still greater relative recovery between 1932 and 1937 correspondingly swelled the number of railroad employees.¹⁴ This failure of rail employment to keep pace with business, at least when rail traffic was upon the up-grade, requires a special explanation. Most probably the reason is not that employees work harder when traffic is abundant but that changes in organization and above all additions to capital investment place **more** abundant and more powerful equipment at the disposal of labor so that more can be accomplished with the same effort and in no greater time. During the eighteen years from 1920 to 1938 the gross investment of new money which railroads devoted to additions and betterments amounted to almost \$10,000,000,000.¹⁵

These funds made it possible to buy larger and more powerful locomotives, and to lay heavier rail made from better steel. Improved fasteners afforded better alignment and sturdier resistance to the impact of trains. Automatic signals displaced switchmen and gatemen at highway crossings. Railway track labor was economized by the use of creosoted ties and gravel ballast. Rights of way were leveled so as to permit the use of mowing and burning

¹⁴ Railroad history between 1920 and 1938 may be divided into four periods, of which two, from 1929 to 1932 and from 1937 to 1938, were marked by sharply declining traffic, and two, from 1921 to 1929 and from 1932 to 1937, were years of increasing business. The following table shows the percentage changes in the average number of employees, number of hours paid for, ton-miles, and passenger-miles which occurred during these four periods.

Item	Period			
	1911 to 1929	1929 to 1932	1932, to 1937	1937 to 1938
Average number of employees	Incr. 0%	Deer. 40%	Incr. 8%	Deer. 16%
Hours paid for	Incr. 5%	Deer. 45%	Incr. 18%	Deer. 17%
Ton-miles	Incr. 46%	Deer. 48%	Incr. 54%	Deer. 10%
Passenger-miles	Deer. 17%	Deer. 45%	Incr. 45%	Deer. 13%
Traffic units	Incr. 31%	Deer. 47%	Incr. 51%	Deer. 18%

Witt Bowden, in the *Monthly Labor Review* for July, 1937, uses a traffic unit made up of revenue passenger-miles X 2.6 plus revenue ton-miles. The figure of traffic units in the above table is calculated on this basis. It is evident from the figures presented in the table that rail employment fell off between 1929 and 1932 and between 1937 and 1938 as rail traffic decreased, but that it did not, during the period to which the figures relate, increase in the same proportion as business grew.

¹⁵ Net investment was less than the sum mentioned in the text because carriers properly credit their investment accounts, when improvements are made, with the value of property that is superseded or withdrawn. But for the purpose of indicating the extent of technological improvement in an industry during a given period the gross is superior to the net investment figure.

machines in controlling vegetation, reducing to 2 or 3 man-hours the work which formerly required 300 to 800 man-hours to perform. Paint was sprayed instead of being applied with a brush. Power wrenches were used to tighten joints and power tampers consolidated ballast. Ditches were dug by machinery instead of by hand. Centralized traffic control reduced the amount of trackage laid by increasing the amount of traffic which could be handled on existing tracks. In modern roundhouses deep pits were installed for handling engines, hydraulic wheel hoists for removing and replacing wheels, and power hoist trucks for handling engine parts. Telephones and printer telegraphs made Morse telegraph operators unnecessary. Chemical treatment of water reduced the number of locomotive failures due to leaking flues.¹⁶ Changes of this sort increased the ratio of ton-miles in the railroad industry to the number of employees, and led labor representatives to assert that rail companies are now receiving more work at substantially lower costs per employee, per hour of service, and per dollar of wage than ever before in their history. While it is not certain, as we have intimated, that capital improvements appreciably increased the strain upon employees, they enabled the railroad industry to perform its functions with a smaller staff, and they partially neutralized the advantage of a higher wage by reducing the number of people which railroads were able or willing to hire.

Rail Labor Organization.—The necessity of defending favorable wage levels, the desire to protect employees who were displaced by changes in organization or by technological improvement, and also an attitude of the federal government which seemed, generally, to favor union efforts, encouraged the development of organization in the railroad industry after 1920 for the protection of its personnel.

Railroad workers are now grouped into a number of unions, of which the four "brotherhoods" or "orders," representing respectively the Locomotive Engineers, the Locomotive Firemen and Enginemen, the Railway Conductors, and the Railroad Trainmen are the best known and most important.¹⁷ In addition to these independent brotherhoods, the Railway Clerks, Railroad Telegraphers, Railroad Signalmen, Railroad Switchmen, Railway Carmen, and Railway Maintenance of Way Employees are organized into national

¹⁶ *Monthly Labor Review*, Vol. 35, November, 1932, pp. 1050-1051; Vol. 38, 1939, pp. 43, 52-53, 58-59. American Railway Engineering Association, *Proceedings*. See especially the reports of the Committee on the Economics of Railway Labor.

¹⁷ According to Leo Wolman (*Ebb and Flow in Trade Unionism*, National Bureau of Economic Research, New York, 1936) the membership of these four organizations in 1934 was as follows:

Locomotive Engineers	58,200
Locomotive Firemen and Enginemen	61,400
Railroad Trainmen	114,000
Railway Conductors	34,300

Total	167,900

unions, affiliated with the American Federation of Labor. Still other railroad employees belong to the International Association of Machinists, to the International Brotherhood of Electrical Workers, or to additional organizations of this type, the membership of which is not limited to railway workers. All of these groups except the Trainmen cooperate as members of the Railway Labor Executives' Association; to this last-named body also belong maritime unions such as the International Longshoremen's Association, the Marine Engineers' Beneficial Association, and the National Organization of Masters, Mates, and Pilots, as well as the Railway Employees Department of the American Federation of Labor. The total membership of the Railway Labor Executives' Association consists of twenty-one unions, in most cases organized upon a craft basis.¹⁸

According to figures prepared by Wolman and published by the National Bureau of Economic Research, more than 98 per cent of all engine and train service employees were covered, in April, 1935, by agreements negotiated by some trade union. This group included locomotive engineers, firemen, conductors, and trainmen. Approximately 96 per cent of railway signalmen, 95 per cent of yard service employees, 85 per cent of telegraphers, 75 per cent of maintenance of way employees, 70 per cent of clerical and station employees, 59 per cent of train dispatchers, and 47 per cent of the various shop crafts were also covered in the same way.¹⁹ Most employees who did not work under

¹⁸ In 1938 the following unions were affiliated with the Railway Labor Executives' Association:

- Brotherhood of Locomotive Engineers.
- Brotherhood of Locomotive Firemen and Engincmen.
- Order of Railway Conductors of America.
- Switchmen's Union of North America.
- Order of Railroad Telegraphers.
- American Train Dispatchers' Association.
- Railway Employees' Department A. F. of L.
- International Association of Machinists.
- International Brotherhood of Boilermakers, Iron Ship Builders and Helpers of America.
- International Brotherhood of Blacksmiths, Drop Forgers and Helpers.
- Sheet Metal Workers' International Association.
- International Brotherhood of Electrical Workers.
- Brotherhood of Railway Carmen of America.
- International Brotherhood of Firemen and Oilers.
- Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees.
- Brotherhood of Maintenance of Way Employees.
- Brotherhood of Railroad Signalmen of America.
- National Organization of Masters, Mates, and Pilots of America.
- National Marine Engineers' Beneficial Association.
- International Longshoremen's Association.
- Order of Sleeping Car Conductors.

¹⁹ Wolman, *op. cit.*, p. 130. This does not mean that the union membership in the various crafts mentioned approximated the pereentages mentioned in the text, because agreements negotiated by trade unions often covered non-union members also; but it does indicate the dominant bargaining position of trade unions in railway affairs.

trade union arrangements in 1935 were covered by agreements negotiated by so-called "system associations." These associations were unions which limited their membership in each case to the employees of a single railway system. They were alleged to be controlled by railway managements and are distinguished upon this ground, although the parties concerned usually denied that the railways exercised control. These figures sufficiently indicate the activity of railway unions in collective bargaining.

Conciliation and Mediation in the Railroad Industry.—Railway unions enjoy an advantage in negotiating with their employers because railroad transport is an industry relatively vulnerable to strikes. This is because the stoppage of trains has a disastrous effect upon general business. Rail unions count upon these facts as they do upon the political protection which their large voting membership enables them to demand. And they are aware of the likelihood that prolonged conflict between railroad companies and their employees will strengthen the movement toward government ownership of the railroads of the United States—a consummation which management dislikes but which labor has officially indorsed.

Yet the chief contribution to the technique of labor relations which is to be found in the railroad field lies, perhaps, in the conciliation, mediation, and investigation procedure which the federal law has set up from time to time rather than in the processes of bargaining between rail managements and the representatives of labor.

Wartime Organization, 1918.—During the World War the Director-General of Transportation set up two types of labor tribunals. One was a so-called Board of Railroad Wages and Working Conditions to consider in an advisory capacity rail working conditions and such other matters affecting wages as he might refer to it. The other took the form of three "adjustment boards" to consider all controversies growing out of the interpretation or application of wage schedules or agreements which were not promptly adjusted by the officials and the employees on any one of the railroads operated by the government. Half the members on the Board of Railroad Wages and Working Conditions, and half the members on each adjustment board were to represent labor and half railway management.

Now of these two types of war labor organization, the Board of Railroad Wages was of secondary importance. But the adjustment boards had two peculiarities which were of considerable significance. The first of these was that the labor members of the boards were chosen by employees working through their national unions. Unorganized employees, or even employees who did not belong to enumerated unions, had no voice in the selection, although the government did appoint an Assistant Director of the Division of Labor of the Railroad Administration, whose special duty it was to investigate and adjust their peculiar difficulties. The second peculiarity of the adjustment boards was that they were national. Adjustment Board No. 1 repre-

sented all the locomotive engineers, conductors, trainmen, and firemen; Board No. 2 all the shop crafts; and Board No. 3 all the telegraphers, switchmen, clerks, and maintenance of way employees, without regard to geographical position. Inasmuch as the chief opponents of the national trade unions in the railroad industry were, in 1918, system or company unions which railroads like the Pennsylvania were endeavoring to support, both of these peculiarities of the wartime adjustment boards were highly acceptable to the trade unions and were sought to be perpetuated after the termination of federal control.

Transportation Act of 1920. Adjustment Boards.—The Transportation Act of 1920 continued the adjustment boards, though with differences which tended to lessen rather than to increase their significance. Most significant in 1920 was the fact that the number and territorial jurisdictions of the boards were to be determined henceforth by agreement between carriers and their employees or organizations representing their employees. This brought at once to the fore the question of local v. national organization which the war administration had settled by decree. In general, the men favored national adjustment boards, because organizations of national scope were expected to remove the discussion of grievances from the atmosphere of local prejudice, because they would establish general principles for the interpretation of agreements, and because they would reduce to a minimum the number of men withdrawn from railroad service to serve as judges. The carriers opposed national boards because they believed that tribunals of this kind would lose contact with local conditions, would bring about undue standardization, and would involve unnecessary expense of time and money, not only in maintaining the boards, but also in attending upon them.²⁰ That national boards might strengthen national railway unions was an additional argument against them from the carriers' point of view.

These differences delayed the establishment of adjustment boards under the act of 1920, although by 1924 a board had been erected for engine and train service employees on one large railway system in the East, another covering three systems in the East, one covering the greater number of systems in the Southeast, and another covering the majority of the railroads in the West. Formal boards of adjustment for other classes of employees were also set up on individual railroads.

Railroad Labor Board.—Besides the adjustment boards, the Transportation Act of 1920 provided for a "Labor Board." This was intended to be a tribunal of very considerable dignity and permanence. The members of the Labor Board were to be nine in number, including three representatives of the public, three of labor, and three of management. The public representatives were to be appointed directly by the President; other members were appointed by the President, but out of a specified number of nominees submitted

²⁰ Hearings on Howell-Barkley bill, 1924, testimony Holden, Richberg.

by the carriers and the labor interests. The salaries of members of the Labor Board were fixed at 10,000, their term of office at five years, and their jurisdiction was extended to questions both of wages and of salaries, and to disputes over grievances, rules, and working conditions which the boards of adjustment could not settle because they had not been organized or because they could not or would not render a majority decision. Like the adjustment boards, the Labor Board had no authority to enforce any judgment it might pronounce.²¹

Criticisms of the Railroad Labor Board.—The principal criticisms levied against the Railroad Labor Board were the following:

1. The tripartite organization was said to be unfortunate, because it tended to confirm the representatives of management and labor in a partisan attitude, and threw the weight of decision upon the public representatives.

2. The public members of the Board lacked technical knowledge.

3. The permanent character of the Board unfitted it for the work of mediation, because any long series of decisions inevitably displeased one side or the other and thus destroyed the good will which a mediator must enjoy in order to secure success.

4. The machinery of the Board was unwieldy for the settlement of minor disputes.

5. In practice, the Board was accused of being slow, prejudiced, committed to wrong principles of action, and susceptible of being used as a means of propaganda looking to the reduction of wages.

To these five objections of the employees, the National Industrial Traffic League, a shippers' organization, added that the operation of an agency such as the Labor Board tended to undermine discipline, to limit freedom of contract, and, because the board acted nationally, to strengthen the national organizations both of employers and of employees.

Defense of the Railroad Labor Board.—The principal arguments in behalf of the Labor Board were the following:

1. The Board, through its tripartite organization, recognized the public interest in railroad labor disputes, while it retained the advantage of what-

²¹ The Interstate Commerce Commission was charged with the duty of prescribing the manner in which carriers and labor interests were to make their nominations. It accordingly designated the Association of Railway Executives as the organization to present nominations for board members representing management. In the case of labor, the Commission originally set up three groups. These represented, first, engineers, firemen, conductors, trainmen, and switchmen; second, machinists, boilermakers, blacksmiths, sheet-metal workers, carmen, and electrical workers; and third, telegraphers, maintenance of way employees, shop laborers, signalmen, clerks, freight handlers, express and station employees, and stationary firemen and oilers. Subsequently the Commission added a fourth group, made up of a somewhat miscellaneous assortment of associations, including train dispatchers, yardmasters, traveling auditors, roadmasters, and station agents. This fourth group provided the more important groups of subordinate officials opportunity to make nominations to the Labor Board, and it also found place for skilled and unskilled employees who were not members of any association.

ever technical information representatives of management or employees might possess.

2. Public members of the Board became competent by experience.

3. The permanent character of the Labor Board trained Board members and made it possible to build up a staff of experts and statisticians.

4. The official adjudication of labor disputes in the railroad industry prevented a number of strikes, for it became practically impossible for any organization to win a strike over the decision of a tribunal upon which all parties were fully represented and before which the disputants were fully heard.

5. While the correctness of the decisions of any judicial body is a proper subject for debate, most of the rulings of the Board commanded the assent of all of its members, and public opinion, on the whole, supported the majority of the Board even when decisions were not unanimous.

Reasons for Failure.—The Labor Board ultimately failed to maintain itself because it had no power to compel acceptance of its decisions, because the absence of any adequate number of adjustment boards overwhelmed it with¹ minor controversies, and because the employees came to regard it as a hostile organization to which their interests could not safely be intrusted. The result was an increasing amount of wage negotiation and settlement between carriers and employees without reference to the Board's machinery, and, finally, the introduction into Congress in January and the passage of a bill in May, 1926, remodeling the mediation and arbitration provisions of the act of 1920. This bill received the joint indorsement of both carriers and employees prior to enactment, and was passed by Congress in the form in which it was introduced.

The Railway Labor Act of 1926.—The Railway Labor Act of 1926 constituted a third attempt to set up sound conciliation machinery in the railroad industry. Like the Transportation Act that preceded it, the new law made provision for the voluntary establishment of adjustment boards to which disputes growing out of grievances or out of the interpretation or application of agreements might be submitted if the parties in conference failed to agree. But this was not the portion of the act which interested Congress or the part in which existing machinery was improved. The important clauses in the new legislation were those which replaced the now unpopular Railroad Labor Board.

The new law replaced the Labor Board by a Board of Mediation, to be composed of five members to be appointed by the President of the United States for five-year terms, at salaries of \$12,000. Either party to a dispute might invoke the services of this new tribunal (1) in cases arising out of grievances or out of the interpretation or application of agreements, etc., not adjusted by the parties in conference and not decided by the appropriate adjustment board; (2) in cases involving changes in rates of pay, rules, or working conditions not

²² 44 Stat. 577, 1926.

settled by mutual agreement; and (3) in any other cases of dispute not settled in conference between the parties. Failing reference by either side the Board might proffer its services without application, but the Board of Mediation was not to decide a controversy. Instead of this, it exercised the following functions:

- i. It was expected, first, to use its best efforts, by mediation, to bring the parties to an agreement.

2. Failing agreement, its duty was to urge the parties to submit their controversy to arbitration.

3. In case carriers or employees, or both, refused to arbitrate, and the dispute threatened to interrupt interstate commerce to a degree that would deprive any section of the country of essential transportation service, the Board of Mediation was required to notify the President, who might then, at his discretion, create a special board for the occasion, to investigate and report respecting the dispute. The report of the special board had no binding force, but the law provided that after the creation of such a board, and for thirty days after the board had made its report to the President, no change, except* by agreement, should be made by the parties to the controversy in the conditions out of which the dispute arose.

The essential elements in this procedure were, first, conference; second, the establishment of boards of adjustment by voluntary agreement; third, a permanent mediatory body; fourth, the selection of special boards of arbitration; fifth, delay and publicity in case the parties failed to agree; and sixth, the absence of public representation, at any stage of the proceedings until the last, in the bodies expected to express opinions of the facts.

Theory of the Act of 1926.—The chief accomplishment of the act of 1926 was the replacement of a Labor Board which had the responsibility of rendering decisions in contested cases, though it lacked authority to enforce its decisions, by a new, permanent board, whose sole duty was mediation. Such a reconstituted board had a reasonable chance of retaining the confidence of both parties in labor disputes and thereby promoting industrial peace. The new act differed from its predecessor also in its provision for investigating and reporting agencies, created for the purpose when occasion might demand, to inform public opinion and to introduce an element of delay which might permit tempers to cool and negotiations to be resumed. Congress abandoned in this legislation the attempt to adjudicate labor controversies in the railroad business, and substituted machinery designed to facilitate agreement between employer and employee and to focus public opinion upon the litigant whom the special, presidential boards might determine to be wrong. This change may be regarded as a confession of impotency, but the inability of Congress to command had been, perhaps, sufficiently demonstrated by the experience of previous years. The general theory of the act in these respects commended itself to representatives of both labor and management at the time of its

passage, as we have already pointed out. The law had some defects, however, **even when** its principles were accepted, and these led to additional, amendatory legislation, which remodeled the machinery for negotiation and mediation into its present form.

Criticisms of the Act of 1926.—A principal defect in the act of 1926 was that the adjustment boards which it contemplated could be set up only by voluntary agreement between carriers and their employees. This was a difficulty inherited from the Transportation Act of 1920 which the later law had made no effort to remove. It is true that some 300 of these organizations were created or first began to function under the act of 1926, but the later boards were mostly "system" tribunals, they had no means of enforcing their decisions, and they frequently deadlocked when the representatives of the two parties, equal in number, disagreed.²³ It was also charged that the wording of the statute of 1926 did not sufficiently protect employees in choosing their representatives for collective bargaining. This complaint, strictly speaking, represented the introduction of a new feature in rail labor legislation, but it voiced a demand which was in harmony with the spirit of the times and one which, for labor in general, was presently to be satisfied by the National Labor Relations Act of 1935.²⁴ Public discussion of the matter centered upon the merits and defects of company, independent, and "standard" unions, the right of minorities to select their bargaining agencies, and the practice by some railroads of paying wages to representatives of labor organizations or of permitting labor negotiations to be conducted on "company time." The further limitation of management action in such matters involved an important principle; in part also, like the policy of national adjustment boards, it was urged or opposed for strategic reasons related to long-time policies on which the action of the larger unions was based.

Amended Railway Labor Act of 1934.—The result of these and other criticisms of the act of 1926 was the passage of a new law in 1934, amending the earlier act in the following respects:

1. A National Board of Adjustment was now set up, consisting of thirty-six members, of which eighteen were to be selected by the carriers and eighteen by national labor organizations. This Board was divided into four divisions, three of ten members each and one of six members, with jurisdiction over disputes involving stated classes of employees. The divisions considered controversies arising out of agreements concerned with rates of pay,

²⁸ National Mediation Board, *First Annual Report*, 1935, P- 38. Mr. Winslow, chairman of the United States Board of Mediation, opposed the creation of national adjustment boards in 1934 on the ground that conditions differed on different railroads (United States Senate, Hearings on S. 3266, p. 142). Mr. Eastman advocated national boards because he thought that uniform practice in dealing with alleged violations of specific agreements would be desirable (*ibid.*, p. 155). The carriers expressed willingness, in 1934, to indorse regional boards (*ibid.*, pp. 70-72), but the concession came too late.

*" 49 Stat. 449, 1935.

rules, or working conditions; their power was limited, however, to **the** interpretation of agreements—they had no authority to fix wages or to determine working rules. The decisions of the Board were final except as they were subject to ultimate court control. If it was unable to reach a decision in any case a division, or failing division action, the Board of Mediation to be presently described, was to select a neutral referee to sit with the division and to make an award. If either carriers or labor groups refused or neglected to select representatives upon the national board, the Board of Mediation might fill the vacancies. If there was dispute as to what organizations should participate in the choice of labor members of the National Adjustment Board, the matter was to be settled by a committee representing the claimant whose right was disputed, the other and qualified national labor organizations, and the Board of Mediation.

2. Carriers were forbidden to interfere with the designation of labor members on the adjustment board or generally with the organization of their employees. The law prohibited this interference generally, and in addition specified acts which were declared to be illegal. Severe penalties were imposed for infractions of the act, to be collected by suit instituted by the United States Department of Justice in proper courts.

3. The old Board of Mediation of five members was replaced by a new "National Mediation Board" of three members appointed by the President for three-year terms at salaries of \$10,000. The new Board, unlike its predecessor, had no jurisdiction over disputes concerned with the interpretation of agreements, for these were now handled by the National Adjustment Board; but its services could be invoked or it could proffer its services in controversies that grew out of changes or proposals to change rates of pay, rules and working conditions. Copies of all contracts relating to these matters in which carriers subject to its jurisdiction participated were to be filed with the Mediation Board. The Board was empowered to decide, in disputed cases, who should represent employees, not only in choosing labor members to sit on the National Adjustment Board in the manner which has been explained, but in other negotiations with their employers.

4. The National Mediation Board, like the old Board of Mediation of the act of 1926, was directed to use its best efforts to bring the parties to any controversy to an agreement, or failing this, to induce them to submit their differences to arbitration.

5. No changes could be made in rates of pay, rules, or working conditions during the following periods:

- a. After carriers or employees had indicated their desire for conference with each other and while the conference was being held.
- b. For thirty days after the Board of Mediation had notified parties **that** its mediatory efforts had failed.

- c. After the creation of an emergency board and for thirty days after such a board had made its report. This provision was carried over from the act of 1926.

6. The provisions of the act of 1926 with reference to arbitration and to the appointment of emergency boards remained unchanged.

7. By further amendment of 1936,²⁵ all the provisions of the act of 1934 were extended to common carriers by air engaged in interstate commerce and to air carriers transporting mail, except those provisions relating to the National Adjustment Board. This last amendment permitted air carriers to establish, voluntarily, adjustment boards and provided for a compulsory and national "Air Transport Board" when the National Mediation Board should deem this necessary, but it did not require a national organization when the amendment was first passed.²⁶

Work of the Mediation and Adjustment Boards of 1934.—During the four fiscal years from July 1, 1934, to June 30, 1939, the Board of Mediation created by the amended Railway Labor Act of 1934 accepted 1101 cases for mediation service. Of these 538 were so-called "representation" cases, mostly concerned with disputes between national and system labor organizations. In elections conducted under the supervision of the Board during this period a little over 60 per cent of employees voted for national and 40 per cent for system representatives when this question was at issue. The Board's responsibility in elections was to define such terms as "craft," "class," and "majority," to pass upon the eligibility of individuals whose right to vote was questioned, and to organize and oversee the voting when this was necessary. Its work in this field was important and successful.

²⁵ 49 Stat. 1189, 1936.

²⁶ Other statutes which affect employees of transportation companies are the following:

1. Amendments to National Bankruptcy Act, 1933 and 1934 (47 Stat. 1467, 1933, Sec. 77, pars. [o], [p], and [q]; 48 Stat. 911, 1934, Sec. 77B, pars. [l] and [m]). These amendments forbade judge, trustees, receivers, etc. to interfere with labor organizations functioning on railroads subject to their temporary control.

2. Emergency Railroad Transportation Act, 1933 (48 Stat. 211, 1933, Sec. 7, pars. [a], [c], [e]; Sec. 12). These paragraphs contemplated the selection of labor committees for regional groups of carriers and the establishment of regional boards of adjustment whenever action taken by the Coordinator made such action necessary. Section 12 protected employees in their right to strike. The temporary character of the Emergency Transportation Act and the limitations which some of its clauses placed upon the power of the Coordinator made its labor provisions unimportant.

3. National Labor Relations Act, 1935 (49 Stat. 449, 1935). This important law did not apply to persons subject to the Railway Labor Act. It did not, therefore, regulate labor relations between employees and railroads or air lines. Water carriers, trucks, and interurban electric railways (interstate) were, however, subject to its provisions. The National Labor Relations Act had no provision for mediation or adjustment. It set up a board of three members, appointed by the President for five years, with salaries of \$10,000, which functioned as a police organization to protect labor in the exercise of certain rights. These rights were substantially the same as those mentioned in paragraph two in the text under* the head "Amended Railway Labor Act of 1934."

4- Legislation governing labor relations in the aviation industry is discussed in chap. xxxiv.

The Board dealt also with 558 so-called "mediation" cases **during the** same period. **The** official **report** of its accomplishment in cases which **it** undertook to mediate is as follows:

METHOD OF DISPOSITION OF MEDIATION CASES,
FISCAL YEARS 1935-1939²⁷

Mediation agreements signed	261
Arbitration agreements signed	8
Emergency board report	9
Withdrawn as result of mediation	127
Withdrawn prior to mediation	88
Closed by Board after refusal to arbitrate by	
Carriers	41
Employees	2
Both parties	9
Dismissed	13
Total	558

About one-half (47 per cent) of the cases disposed of by the Board resulted in the signing of agreements—a successful outcome from its point of view. A little more than a quarter (27 per cent) were withdrawn prior to arbitration, or closed after a refusal to arbitrate, or were the occasion of emergency board reports. These were the Board's failures. An additional quarter (23 per cent) were withdrawn, as the Board says, "as a result of mediation." It would appear that the parties were unwilling to sign agreements in these cases but that, in the opinion of the Board, progress had been made toward settlement. Little use was made between 1935 and 1939 of the arbitration machinery provided in the act. Six emergency boards had been appointed up to June 30, 1939, three of them to deal with disputes upon the Pacific coast, but with the exception of one that functioned in the nation-wide dispute of 1939 none of them were of much importance. It is difficult to evaluate the total of this work, but on the face of the record the Board seems to have made a considerable contribution toward the maintenance of industrial peace.

Probably the most satisfactory portion of the labor machinery which has developed out of the structure set up in 1920 has been the National Adjustment Board. The uniformity of practice in dealing with alleged violations of agreements which this Board provides has not proved to be a serious disadvantage, while slight expense, promptness in decision, and the willingness of parties to accept the rulings of the Board have characterized the adjustments of **the** past four years.²⁸ This success has been due in a measure to the compe-

²⁷ *Fifth Annual Report* of the National Mediation Board, 1939, p. 9.

²⁸ It is true that the fact of "willingness" can be overstressed; indeed, in several ways **the** work of adjustment under the act of 1934 has taken an unexpected form. The law **proceeds** on **two** assumptions: (1) that disputes which come under the jurisdiction of **the** Adjustment **Board**

tence of the men who hold place in the various divisions but also, and probably in greater part, to the fact that the Board works with specific documents and does not deal, except indirectly, with the larger and more nebulous issues of wages and standards of living with which the Board of Mediation is concerned. Its chief weakness is probably in the reliance which it is forced to place upon its referees. When referees are used they are freshly appointed for each case or group of cases, generally by the Board of Mediation. They have no practical experience in railroading, they are not likely to be so frequently reappointed as to become expert, because their decisions make them unacceptable to one side or to the other, and they come into cases at a comparatively late stage of the proceedings when dockets have already been made up. It has been suggested that a permanent panel of referees might be chosen, or that there be an impartial chairman of the National Adjustment Board whose function it would be to assist all the divisions in deciding deadlocked cases, but this would revive some of the difficulties with which the Labor Board of 1920 had to reckon, and the suggestion is not likely to be approved.

Dismissal, Unemployment, and Retirement.—In addition to their activity in collective bargaining, railroad unions have concerned themselves in recent years with what may be called "security problems." The desire for security in railroad work is intensified by the irregularity and declining volume of railroad employment and also by the fact that railroad workers are relatively advanced in years and so are more conscious than most employees of the necessity of making provision for their old age.

Dismissal Wage.—The Federal Coordinator defended the policy of paying dismissal compensation, in 1935, upon these grounds: (1) It provides a just reward for long service. (2) It compensates for the loss of skill and expectancies. (3) It assists the displaced employee during the interval before a new position is secured.²⁹ The first and, in part, the second of these arguments have really nothing to do with dismissal payments. Just rewards for service and for skill should be provided by the wage and not through a supplementary allowance paid when the employee is discharged. It is the third of the reasons

shall be settled by discussion between representatives of the parties without recourse to mediation or arbitration; and (2) that persons who obtain a favorable decision from the Board shall enforce their rights through court procedure. As a matter of fact the National Adjustment Board is evenly divided in perhaps a third of the cases, so that a substantial part of its decisions are determined by referees appointed by the Board of Mediation. Moreover, labor organizations discourage labor claimants from utilizing court procedure. What happens is that the labor organization concerned, if an award is not complied with, takes a strike vote. This brings in the Board of Mediation again in an attempt to settle the controversy and, later, either a board of arbitration or the appointment of an emergency board may result. Carriers, of course, have no comparable extra-legal procedure to which they may resort. (See W. H. Spencer, "The National Railroad Adjustment Board," *The Journal of Business of the University of Chicago*, Vol. XI, No. 2, Pt. 2, April, 1938.)

²⁹ United States, Office of the Federal Coordinator of Transportation, *Report on Transportation Legislation*, House Doc. 87, 74th Congress, 1st Session, 1935, p. 82.

given in justification of a dismissal compensation which has real validity. This is not because an employee who is seeking a new position has any claim to charitable relief, but because the expense of transfer from one job to another, when this is a necessary and recurring incident of production, is a real industrial cost which should be included in the total which the price of the product or service should be expected to provide. The payment of a dismissal wage by the employer calls attention to the costs of labor transfer, and makes it more likely that these costs will be recovered from the consumer, for whose benefit the operations of production are carried on.

Plan Proposed by the Federal Coordinator of Transportation.—The Federal Coordinator of Transportation recommended, in 1935, the adoption of a system of dismissal payments to meet the situation created by dismissals of railroad employees when labor-saving improvements had been introduced. He did not attempt to deal at this time with the entire problem of technological displacement in the railroad industry, but he proposed that allowances should be given to persons displaced by larger projects, involving consolidations, mergers, and unifications, which required governmental authority or relaxation of governmental restrictions, or projects which were stimulated by the government.³⁰ For this group he proposed payments which should vary with the wage, length of service, and age of the employee. The minimum allowance was set at \$100. The maximum lump sum payment was \$4387.50—an amount which he thought might be paid to an employee of age 55, with 30 years service and a salary of \$200 per month.³¹

³⁰ United States, office of the Federal Coordinator, *op. cit.*, p. 86. This restriction had already appeared in the federal act of 1933. We shall see later that the act of 1933 set up the office of a Federal Coordinator and granted powers to the Coordinator designed to promote economy in railroad operation. The act stipulated that the number of employees in carrier service should not be reduced below the number in service during May, 1933, after allowing for normal shrinkage, and that no employee should be deprived of service nor be placed in a worse position with respect to employment by economies that might be introduced. The statute applied, however, only to economies effected under the authority of the act (48 Stat. 211, Sec. 7, 1933).

³¹ The compensation in the Coordinator's scale for an employee earning \$150 per month may be set down in illustration of the plan (*ibid.*, p. 95):

AMOUNTS OF DISMISSAL COMPENSATION UNDER THE COORDINATOR'S PLAN

Age	Length of Service						
	1 Years	5 Years	10 Years	15 Years	10 Years	15 Years	30 Years
35 and under	187.50	468.75	937.50	1406.25	1875.00	...	...
40	201.57	503.90	1007.82	1511.72	1015.63	1519.53	...
45	215.63	539.07	1078.13	1617.19	2156.25	1695.31	3234.37
50	119.69	574.22	1148.44	1722.65	1196.87	2871.10	3445.32
55	143.75	609.37	1218.75	1828.13	2437.50	3046.87	3656.25

Employees aged 60 to 65 and, optionally, employees aged 55 were allowed temporary annuities to carry them to the period when their retirement allowances (*vide infra*) would begin.

Union-management Dismissal Compensation Plan of 1936.—The recommendations of the Coordinator were not accepted at the time, but representatives of the labor unions and of the railroad managements signed a five-year agreement in the following year, effective June 18, 1936, which provided for dismissal compensation more or less as the Coordinator had proposed.⁸² The agreement of 1936 covered only changes in employment due to "joint action by two or more carriers whereby they unify, consolidate, merge, or pool . . . their separate railroad facilities" or any of the operations or services previously performed by them through such separate facilities. Changes due to other causes were expressly excluded. This was, in substance, the proposal of 1935.

The amount and distribution of allowances under the agreement of 1936 were as follows:

Employees whose salary was reduced by coordination, although they were not dismissed, were to be paid the difference between their old salary and what they received in the new job during a period not to exceed five years; and employees who, because of coordination, were compelled to change their place of residence were to be reimbursed for the expense of transfer and paid compensation, also, for certain incidental expenses or losses which moving might entail.⁸⁸

Unlike the Coordinator's plan, these schedules took no account of the age of the employee, but only of his wage and length of service; in varying lump sum payments according to length of service, moreover, they were relatively favorable to the younger men, in that the multiplier in Column B ceased to

⁸² Meanwhile the labor unions had caused the so-called Wheeler-Crosser bill to be introduced in Congress, possibly as a means of bringing pressure to bear upon the carriers. The Wheeler-Crosser bill was an extreme and ill-digested measure. It applied to cases of consolidation and pooling, but also "to any action which may either reduce existing competition between carriers or between carriers and other forms of transportation service, or may reduce the amount of public service previously being performed by the carrier." In all such cases the effect of the change upon employment was to be estimated and displaced employees were to be given (1) comparable employment; or, (2) if comparable employment were not available, then continuing compensation amounting to not less than two-thirds of the compensation which the employee would have earned by continuing his previous employment; or, at the option of the employee, (3) a dismissal compensation equal to the earnings to be anticipated from one full year of continuing service; or, (4) an adequate pension for those eligible for retirement under any applicable provision of existing pension plans. The carriers pointed out that this proposal regulated mergers of the facilities of a single carrier as well as consolidations between carriers. They also argued that under such a law they would not be able to take off a dining car or close a station or discontinue a train, even though the traffic which once justified these facilities might have disappeared. Even Senators Wheeler and Couzens agreed that the provisions of the bill were too broad. It would seem also, that the proposed scheme of compensation was ill devised (United States Congress, Senate Committee on Interstate Commerce, *Hearings on S. 4174*, 74th Congress, 2d Session, 1936; *ibid.*, *Hearings on H.R. 11,609*, 74th Congress, 2d Session, 1936).

⁸³ United States Congress, Senate Committee on Interstate Commerce, *Hearings on S. 4174*, 74th Congress, 2d Session, 1936, pp. 140 ff.; *Congressional Record*, May 21, 1936, pp. 7661, 7766; *Monthly Labor Review*, Vol. 42, June, 1936, p. 1503.

Length of Service
of Employee*

Dismissal Allowance
(Employee May Elect A or B)

			B
			A Single Payment, Equal to the Monthly Pay Received by the Employee in the Position Last Occupied, Multiplied by the Number Indicated in the Following Table
	Monthly Payments, Each Equal to 60 Per Cent of Average Monthly Compensation During Last 12 Months of Employment, to Be Continued for the Length of Time Indicated in the Following Schedule		
1 year and less than 2. years	6 months		3
2 years and less than 3 years	12 months		6
3 years and less than 5 years	18 months		9
5 years and less than 10 years	36 months		12
10 years and less than 15 years	48 months		12
15 years and over	60 months		12

In the case of employees with less than one year's service, compensation took the form of a lump sum payment equal to five days' pay, at the rate of the position last occupied, multiplied by the number of months during which service had been performed.

increase after the category of employees with five years of service had been attained. Neither the Coordinator's plan nor the agreement of 1936 attempted to protect railroad employees against the steady progress of technological improvement in the railroad industry, but each sought to afford some shelter against the effects of large government-sponsored consolidation plans which Congress might be disposed to favor if rail finances continued to be depressed.³⁴ In this connection, at least, the dismissal compensation legislation was of considerable importance.

Railroad Retirement Legislation. Age Distribution of Railroad Employees.—The average age of railroad employees is higher than that of most industrial

³⁴ Geo. M. Harrison, testifying for the employees in 1936, expressed the opinion that the consolidation of all the railways of the country into twenty-one systems would make it possible to lay off 250,000 men (United States Congress, House of Representatives, *Hearing before a Subcommittee of the Committee on Interstate and Foreign Commerce*, 74th Congress, 2d Session, on H.R. 11,609, 1936, p. 114). The Interstate Commerce Commission is also alive to the possible effects of consolidation upon employment, and has on several occasions, in approving applications for merger, attached conditions designed to protect employees. (See 185 I.C.C. 403, 427, 1932; 199 I.C.C. 588, 594, 1934; 207 I.C.C. 315, 318, 1935; 207 I.C.C. 543, 544, 1935.) The authority of the Commission to prescribe conditions of the sort was affirmed by the Supreme Court in *U. S.-Lowden* (308 U. S. 225, 1939)-

groups.³⁵ In 1933, 62 per cent of all railroad employees were 40 years of age or older, and 46 per cent were 45 years of age or older. In some categories the percentage of older men was considerably higher than the average. Thus 61 per cent of the influential class of train engine and yard employees and 51 per cent of station agents, towermen, and telegraphers were 45 years of age or older in 1933. And in 1937 44 per cent of railroad brakemen and flagmen, 79 per cent of road conductors, and 83 per cent of road enginemen and motormen were in this older group. When such men lose jobs they find it hard to do well in new occupations, especially when new tasks require adjustment to a changed technique.³⁶ Their remaining years of work are limited, in any case, and they are subject to pressure by younger employees whose advancement they seem to block. The relatively advanced age which characterizes the railroad group is probably the result of stringent seniority regulation, operating in an old industry which has temporarily ceased to grow. Whatever the cause, the result is that the railroad man has more than the usual reason to be interested in the permanency of his job and in the possibility of securing a pension when he is through.

Private Railroad Pensions.—In 1932 51 railways or systems had formal pension plans, 23 railroads or systems had informal plans, and 10 other companies had arrangements which they characterized as "indefinite." These 84 companies operated 207,216 miles of road, and employed 90.6 per cent of the total number of employees of Class I railways, including the Pullman Company and the Railway Express Company. In most cases the companies with formal or informal plans granted their men retiring allowances equal to 1 per cent of the average earnings of the employee during the ten years immediately preceding retirement multiplied by the number of his years of

⁸⁵ The age distribution of employees of 13 railroads, December 31, 1933 (Federal Coordinator) and of all employees under the Railroad Retirement Act registered under the Social Security Board registration of January 1, 1937, was as follows (*Annual Report of the Railroad Retirement Board*, 1937, p. 66):

Ages	Employees of 13 Railroads Dec. 31, 1933 (Federal Coordinator)		Registrants Jan. 1, 1937 (Social Security Board)	
	Number	Per Cent	Number	Per Cent
All employees	189,620	100.0	1,410,121	100.0
Under 15	5,261	1.8	128,396	9.1
25-34	39,034	10.6	273,731	19.4
35-44	57,994	30.6	383,177	17.1
45-54	53,740	28.3	356,330	25.3
55-64	16,799	14.1	106,161	14.6
65 and over	6,792	3.6	61,316	4.4

⁸⁶ Conclusions based upon a general study of the problem of the older worker are published in the *Monthly Labor Review*, Vol. 48, February, 1939, p. 257.

service. These payments were financed entirely by the companies. On such a basis an employee with average earnings of \$1600 during his last ten years of service and a total record of 30 years would receive an annual pension of \$480. **The** actual average pension payment in 1931 was \$656. Under these pension plans the railways in 1931 were supporting 49,597 pensioners, at a cost to them of \$32,630,000 for the year.³⁷ It was, however, alleged that the eligibility requirements of the private railroad pension plans were too severe and that the payments were too small. And what was probably of even greater importance, beneficiaries of the plans had no means of enforcing the continued payment of pensions for which they had qualified. These peculiarities provoked an insistent demand for some amendment of, or substitute for, the private pensions plans in force.

History of Retirement Legislation.—Organized effort on the part of railroad employees to obtain some form of retirement allowance which was more satisfactory than that offered by private pension arrangements began at least as early as 1930, when a convention met at the Great Northern Hotel in Chicago and set up the Railroad Employees' National Pension Association. This association received little cooperation from the brotherhoods, but it prepared a bill which was first published in the *Railway Pension Review*, a monthly publication, and later introduced into the Senate and House of Representatives.³⁸ Meanwhile the railway brotherhoods had considered the subject separately and had conferred with a committee established by the railroads with respect to the pension problem.³⁹ The activity of the brotherhoods in turn resulted in a bill which was introduced in the Senate and in the House. None of these attempts at legislation passed beyond the committee stage; but in 1934 another plan, this time sponsored both by Senator Wagner of New York, who had earlier acted for the brotherhoods, and by Senator Hatfield of West Virginia, who had acted for **the** Pension Association, was proposed, debated in Congress, and finally passed.⁴⁰ This act of 1934 was declared unconstitutional by the United States Supreme Court.⁴¹ It was accordingly replaced by a somewhat altered law in 1935.⁴² When the District Court of the United States for the District of Columbia pronounced the new legislation to be still beyond the power of Congress to enact,⁴³ President Roosevelt urged railroad manage-

³⁷ Statement by J. H. Parmelee, Director, Bureau of Railway Economics, in *Hearings before the Committee on Interstate and Foreign Commerce*, House of Representatives, 73d Congress, 2d Session, on H.R. 9596, 1934, pp. 55, 58.

³⁸ United States Congress, House of Representatives, *Hearings before the Committee on Interstate and Foreign Commerce*, 75th Congress, 1st Session, on H.R. 6956, 1937, testimony W. W. Royster, p. 94; *Hearings before a Subcommittee of the Committee on Interstate Commerce*, 72d Congress, 2d Session, on S. 3892 and S. 4646, 1933, testimony H. I. Ekern, p. 50.

³⁹ Hearings on S. 3892 and S. 4646, *ibid.*, testimony D. R. Richberg, p. 22.

⁴⁰ 48 Stat. 1283, 1934.

⁴¹ 295 U. S. 330, 1935.

⁴² 49 Stat. 967, 1935.

⁴³ 16 Fed. Suppl., 955, 1936.

ment and labor to come to some agreement which neither would be disposed to contest in the courts. Both groups accepted the recommendation. Conferences were held, principles were agreed upon, and early in 1937 a third bill or pair of bills was presented to Congress and ultimately enacted into law. The provisions of these statutes are now in force.⁴⁴

General Questions Involved in Retirement Legislation.—The alternative to some kind of retirement allowance is that the employee shall himself accumulate a reserve, or that persons incapacitated by old age shall be supported by relatives and friends. But in fact, the need for such accumulation is not admitted by one side nor much insisted upon by the other in wage negotiations, and so the surplus from which individual reserves might be derived generally does not exist; indeed, if wages were raised in order to make savings easier, the worker would probably spend the increase in income for other things than the protection of his old age. Granting this for the railroad industry, and recognizing further that existing private railroad pension schemes were insufficient, it was necessary for unions and management in 1937 to agree upon the following points:

1. Who should be the beneficiaries; that is, to whom should pensions be paid?

2. How liberal a retiring allowance to railroad employees should the industry attempt to provide?

3. How should the funds be raised?

Although these matters are related, we shall discuss them separately.

Beneficiaries.—The act of 1937 extended its benefits to applicants who had been in an employee relation to some carrier on or subsequent to the twenty-ninth day of August, 1935. It limited itself, that is to say, to employees of railroads, express companies, and sleeping car companies, and companies controlled by such enterprises which operated as part of a general steam railroad system of transportation. But the officers of railway labor organizations were included, as well as employees of traffic associations, demurrage bureaus, and similar bodies.⁴⁵ Of this mass of employees, the following were entitled to apply for pensions:

1. Individuals who, on or after August 29, 1935, should be sixty-five years of age or over.

2. Individuals who, on or after August 29, 1935, should be sixty years of age or over and (a) either have completed thirty years of service or (b) have become totally and permanently disabled for regular employment for hire. The annuity of persons in this group was to be reduced by one one-hundred and eightieth for each calendar month between the age sixty-five and their age when the annuity began to accrue.

⁴⁴ 50 Stat. 307, 1937 50 Stat. 435, 1937-

⁴⁵ The year 1935 was used because the act of 1937 was, in form, an amendment of the previous act of 1935.

3. Individuals, without regard to age, who on or after August 29, 1935, were totally and permanently disabled for regular employment for hire, and should have completed thirty years of service.⁴⁶

Persons receiving pensions under private plans were permitted to transfer to the Railroad Retirement System if they were eligible. If they were not eligible, the United States government nevertheless undertook to continue the pensions which they were receiving from the private companies up to a maximum in any case of \$120 per month.

Amount of Retiring Allowance.—The retiring allowance was computed under the act of 1937 by multiplying an applicant's years of service by the following percentages of his monthly compensation: 2 per cent of the first \$50; 1½ per cent of the next \$150; and 1 per cent of the next \$150. Generally speaking, the monthly compensation was the average compensation which the applicant had earned during the months included in his "years of service." Years of service comprised first, all service subsequent to December 31, 1936; and, second, enough years prior to this date to bring the total to the number of 30. However, only compensation during the years 1924 to 1931 was included in the computation based upon the second category, so as to maintain the retiring annuity at a level unaffected by the depression between 1932 and 1936. The rates in the act of 1937 were the same as those previously proposed in the acts of 1934 and 1935; they were less, however, than the rate (2½ per cent) carried in the so-called Hatfield bill of 1932. What is fair in such instances is as difficult to determine as the level of a reasonable wage or of a reasonable price.⁴⁷ Whatever the amount, it is important to remember that the annuity was based on years of service and on compensation, and that service in this connection meant employment by any railroad subject to the act. An employee might, therefore, shift from railroad to railroad without jeopardizing his pension rights.⁴⁸

⁴⁶ Paragraph 2 in the text above referred to persons who were disabled before they had completed thirty years of service, and paragraph 3 to persons who were disabled after they had completed thirty years of service. The pensions of individuals in the former category were reduced if they retired before age sixty-five, but individuals in the second category escaped this cut. .

⁴⁷ The minimum annuity in the act of 1937 is \$40 a month, except for individuals who have been receiving a monthly compensation that is less than \$50; the maximum annuity is \$120.

⁴⁸ This freedom of transfer has been criticized by carriers, partly on grounds of practical convenience of administration and partly because the system seems to bear unequally upon different railroads. The second objection applied most forcibly to the acts of 1934 and 1935 in which the costs of retirement legislation were met (1) by a percentage levy upon employee wages, and (2) by a percentage levy upon the gross earnings of the carriers. This system discriminated against carriers whose operating revenues were relatively large when compared with their expenditures for wages. Such discrimination was removed in the act of 1937 by relating both carrier and employee contributions to the payroll. In so far as there is still inequality it would seem to appear in connection with the financing of employee claims based on service rendered prior to the passage of the act. A new railroad, or one whose working force has recently expanded, now contributes on the basis of its present payroll; and yet a considerable portion of these contributions will be used to satisfy employee obligations accrued on other lines

Source of Funds.—All the railroad retirement schemes since 1932 have agreed that both employers and employees should contribute to the cost of a pension system. The theory of contributory annuities in general contemplates that the parties concerned will periodically pay sums into a fund. These payments will accumulate at compound interest and, if sufficient in amount, will ultimately provide resources out of which annuity allowances to beneficiaries will be made. Such allowances will not be gratuities, they will be earned; and each contributor or annuitant should have a legally enforceable interest in the fund. If the contributor remains within the field of employment which the contributory scheme is designed to protect he should receive and should be able to compel the payment of a periodic allowance beginning at his retiring age and continuing until his death. If he withdraws from the scheme—say, to enter other employment—he may take with him the accumulation of his own payments; and, in a properly designed plan, he may take the accumulations of his employer's payments also, on the theory that these, in effect, represent deductions from wages which he would have received if no contributory system had been in force. A common basis for contributions to an annuity fund is a percentage of the wage of each employee, matched by an equal payment from the employer. With such an arrangement, the individual pension which can be paid will depend upon the level of wages, the rate of interest earned by the fund, and the mortality rate of annuitants. Or, if the pension is fixed, the rate of assessment will depend upon the level of wages, the interest earned, and the mortality experience of persons receiving pensions. To this simple description of a contributory system must be added the observation that plans of this sort usually make provision for the payment of retiring allowances to employees whose remaining period of service is too short, when the plan is inaugurated, to permit an accumulation that will justify their annuity. Such allowances may be charged to the employer, on the theory that he receives a special gain from the rejuvenation of the working force to which the pension system is applied, or they may be cared for by an increase in the assessments upon both employers and employees beyond the level which a fund without prior liabilities would require. In either case, the older employees in the system receive an annuity at retirement which they have not entirely paid for, but which the employer alone or the employer and the annuitant's fellow employees both help to provide.

Act of 1937.—This brief explanation of the theory of contributory annuities will introduce a description of the provisions of the act of 1937 with respect to the source of funds from which annuities were to be paid. Under this law there was set up a Railroad Retirement Board, whose duty it was to certify to the Secretary of the Treasury the name and address of each individual enduring periods in which its own operations have been small. There is a real hardship in such a case, although the inequity may not offset, from the public point of view, the obvious advantages of the pooling system to the employees.

titled to receive a payment, the amount of such payment, and the time at which it should be made. The responsibility for providing the money which the indicated payments required rested upon the Secretary of the Treasury. In discharging this responsibility the Secretary was directed and empowered to take two steps. In the first place, he opened in his books a so-called "Railroad Retirement Account" to which he credited annually a sum sufficient to permit the payment of annuities in accordance with the provisions of the act. This amount was later certified to the Bureau of the Budget and was covered by direct congressional appropriation. Sums credited to Retirement Account were not merely enough to meet cash disbursements in the year in which credit was allowed, but they were such amounts as, compounded at 3 per cent, would offset liabilities as they accrued. In the early years of such a fund liabilities will grow more rapidly than cash outlays so that a reserve balance will appear in the fund. This could be invested in government securities under the terms of the act.⁴⁹

In the second place, the Secretary collected excise taxes from the rail carriers in terms of percentages on their payroll and income taxes from employees based upon their wage.⁵⁰ The percentage of both collections was 2 $\frac{3}{4}$ per cent in 1937, 1938, and 1939; it increased in later periods until, in 1948, it was 3 $\frac{3}{4}$ per cent. These tax collections were authorized in a separate act so that they might seem to have no connection with pension payments;⁵¹ it was expected, however, that they would meet the expenses which the Retirement Act imposed on the Treasury. In this connection there was provision for a report every three years by the Retirement Board which was to estimate the liabilities created by the retirement system and which would inform Congress whether the expectation of the legislators in 1937 was being realized in fact.

In most respects the act of 1937 conformed to the theory of a contributory annuity system, and this was to be expected because of the competent actuarial advice which Congress received in the course of the preparation of the law. In spite of the triennial reports of the Retirement Board it is still uncertain, however, whether collections by the government will actually be equal to the expenditures which the act proposes. Indeed, the varying taxes and contribu-

⁴⁹ See *Annual Report of the Railroad Retirement Board, 1937*, p. 91. R. V. Fletcher, speaking for the Association of American Railroads, expressed the opinion that there would be more money in the Treasury to the credit of the Retirement Fund than would be necessary to meet obligations, for possibly twenty years or more (United States Congress, House of Representatives, Committee on Interstate and Foreign Commerce, *Hearings on H.R. 6956*, 75th Congress, 1st Session, May, 1937, p. 91). See also the testimony of M. W. Latimer, chairman of the Railroad Retirement Board (*ibid.*, p. 138).

⁵⁰ Stat. 435, 437, 1937. The taxes due from employees are deducted by the carriers from the employees' pay-checks and remitted to the government. In calculating taxes due from carriers and employees there is excluded compensation paid to any employee in excess of \$300 monthly.

⁵¹ This separation of pension appropriations and collections dates from the act of 1935 (49 Stat. 967, 1935). It was an obvious device to protect the new law against attack on constitutional grounds, and was so dealt with by the District Court of the United States for the District of Columbia (16 Fed. Suppl., 955, 1936).

tions to meet pension outlays that have been suggested at different times indicate a good deal of haziness with respect to the payments which management and labor should be required to make⁵² and some feeling that charges to be levied against participants might be determined by bargaining as well as by the actuarial requirements of the various plans. The selection of a rate does not now affect the security of the annuitants, because the federal government is directly responsible for pension payments under the existing law, but federal interposition has the disadvantage that it paves the way for subsidization of the transport industry in the interest of employees which may prove ultimately to be important.

The act of 1937 also departed from the general practice of contributory annuities in that it did not recognize the right of an employee who desired to enter some occupation other than railroading to withdraw the accumulation of his contributions to the pension fund. This worked to the disadvantage of workmen and not, as in the preceding case, to their benefit. The law did permit an employee who withdrew from railroad service to apply to the railroad, when he reached the age of 65, for a pension based upon the years of railroad service which he had accomplished before withdrawal. But there was a difference, in that a man who withdrew from railroading before age 65 and then died before he had qualified for an annuity lost—or at least his heirs lost—the amount of his accumulated contribution to the retirement fund. The amount involved became a windfall from which others profited. The only apparent justification for such a procedure appears to be found in the argument that the employee should not be permitted the opportunity to dissipate his protective fund.⁵³

Other criticisms of the act of 1937 relate to the inability of older employees under its provisions to count more than thirty years of service in calculating their pensions; to the fact that employers contribute only half the cost of pensions instead of two-thirds as in the act of 1934; and to the failure to provide for employees already retired by railroads which had no pension systems in operation. Too much must not be made of these objections; it is evident that railroad unions obtained on the whole, through retirement legislation, an im-

⁵² The Wagner bill of 1932 contemplated payments by employees which ranged from 3½ to 6½ per cent of their compensation depending upon age, and equal amounts contributed by employers. The act of 1934 proposed initial assessments of 2 per cent upon the employees and 4 per cent upon the carriers. The act of 1935 collected 3½ per cent of employee compensation from each. The original suggestion in 1937 was of rates beginning at 2½ per cent and then rising to 3 ½ per cent at the end of a certain period, matched by equal payments by the carriers (*Hearings on H.R. 6936*, testimony Fletcher, p. 90), but after representations by the Treasury the rates were raised to the percentages finally inserted in the act of 1937.

⁵³ Curiously enough, the law permits an employee to retire before age 65, to accept employment in another industry, and then to apply to the Retirement Board for an annuity when he reaches age 65; but if he does this he must cease to render service to the last person by whom he was employed prior to the date when the annuity begins to accrue. He must, in short, find a new job. (See Section 2d of the act of 1937.)

portant addition to the gains from collective bargaining which we have earlier described.

Unemployment Insurance.—The subject of unemployment insurance was discussed by the Federal Coordinator in 1934,⁵⁴ and his office made a special report upon the matter in 1936.⁵⁵ Meanwhile a presidential Committee on Economic Security had recommended a system of unemployment insurance for all industry,⁵⁶ forty-eight states and the District of Columbia had established systems of unemployment compensation,⁵⁷ and Congress had passed the Social Security Act, levying taxes on employers to create a fund out of which grants were made to states to assist in the administration of local unemployment compensation laws.⁵⁸ Unemployment insurance was in the air in 1936 and 1937, and it is not surprising that the labor unions addressed themselves to this problem as soon as railroad retirement legislation had been passed. What they did was to draft bills embodying their demands, confer with representatives of the carriers and then, when no agreement could be reached, seek federal legislation. This they actually secured in 1938.⁵⁹

Character of Railroad Unemployment.—Railroad unemployment is of two sorts. There is first the unemployment of persons who have been permanently separated from the industry as the result of declining traffic, abandonment of lines, coordination of facilities, labor-saving improvements, mergers and consolidations. The railroad industry cannot be made to support these persons permanently, and unemployment insurance can do nothing for them. But besides this type there is a considerable cyclical or seasonal unemployment, and there are employees who are used by the railroads for limited periods but in such a way that they are unable to occupy themselves profitably in other lines, and so remain always partially unemployed. Railroad unions have advocated unemployment insurance only for the last two classes.

According to the Federal Coordinator, 6 to 8 per cent of the employees upon seven railroads which he studied in detail were given temporary layoffs between 1925 and 1929 which averaged fifteen weeks a year. The layoffs varied in different services and in different years, but the employment group which suffered most was that of maintenance-of-way employees, and the worst recent year was 1932, when 19 per cent of all railroad employees were furloughed for periods which lasted, on the average, for twenty weeks.⁶⁰ Expressed another

⁵⁴ *Report on Transportation Legislation*, 74th Congress, 1st Session, House Doc. No. 89, 1935, pp. 67 ff.

⁵⁵ United States, Office of the Federal Coordinator, *Unemployment Compensation for Transportation Employees*, Washington, 1936.

⁵⁶ *Report of the Committee on Economic Security*, transmitted to Congress by the President in January, 1935.

⁵⁷ United States Congress, Senate, *Hearings before the Committee on Interstate Commerce*, 75th Congress, 3d Session, on S. 3772, June, 1938, testimony Fletcher, p. 154.

⁵⁸ 49 Stat. 620, 626, 1935.

⁵⁹ 52 Stat. 1094, 1938.

⁶⁰ *Report on Transportation Legislation*, *op. cit.*, 1935, pp. 67, 70.

way, **the** number of separate persons which railroads employ in the course of a year is much greater than their average annual payroll. According to the chairman of the Railroad Retirement Board the ratio was 1.51 to 1 in 1937. For every average employee which railroads hired in that year they employed half of one additional person.⁶¹ Such a situation causes acute distress in the specialized branches of railroad work, and even relatively mobile unskilled laborers sometimes fail to find compensatory employment when their railroad occupation comes temporarily to an end.

Terms of the Railroad Unemployment Insurance Act of 1938.—The statute which the unions proposed, and which was enacted with little change, now stands as follows:

Contributions.—Every employer under the present law is required to pay into a fund held in the Treasury of the United States a sum equal to 3 per cent of so much of the compensation of his employees as does not exceed \$300 a month.⁶² Ten per cent of the accumulations in the fund is to be available for purposes of administration and promotion; but 90 per cent of the contribution, plus accruing interest, is to be used in paying unemployment benefits, and no benefits are to be paid which the fund is insufficient to provide.

The 3 per cent payment under the federal act takes the place of payments which railroads previously had been compelled to make under the terms of state compensation laws. There was, presumably, a net increase in costs to the carriers in 1938 because the new federal benefits were more liberal than the unemployment benefits which state acts had allowed, but information on this point was not submitted to Congress in connection with the discussion of the law. Whether the 3 per cent contribution will provide funds sufficient to cover proposed expenditures will only be known by experience, for unemployment cannot be forecast by actuarial methods.⁶³ At least the 10 per cent allowance for administration is certainly liberal, so much so that this share of the tax may quite possibly be used for purposes which a strict definition of administration would not include. It deserves notice that neither employee nor government contribute to the unemployment fund. Six of the state systems which the act of 1938 replaced required employee contributions; the plan submitted by the Federal Coordinator relied entirely upon federal appropriation. The

⁶¹ *Hearings on S. 3772, 1938, testimony Latimer, p. 138.*

⁶² Compensation in excess of \$300 per month paid to any employee is omitted from the reckoning. The statute also requires representatives of employees, such as officers of labor unions, to pay 3 per cent of their wage into the Treasury fund; this contribution payable by, and the benefits payable to labor representatives will be omitted, to simplify the exposition, from the description in the text.

⁶³ The Chief Actuary of the Railroad Retirement Board did prepare, in March, 1938, an estimate of costs based upon a somewhat different bill (United States Congress, House of Representatives, *Hearings before a Subcommittee of the Committee on Interstate and Foreign Commerce, 75th Congress, 3d Session, on H.R. 10,127, 1938, testimony Parmelee, p. 176*) which justified a contribution of 3.03 per cent. In 1936 the Office of the Federal Coordinator estimated that a scale of benefits which was considerably more modest than those enacted in 1938 would cost 3 per cent of the carriers' payroll.

present plan adopts neither of these alternatives. Carriers object to this, and also to the failure of Congress to provide a "merit rating" for the benefit of railroads which employ their men with more than average regularity.

Benefits.—Benefits under the act vary with the earning power of the employee. The minimum daily allowance which is paid on account of unemployment is \$1.75 and the maximum is \$3.00.⁶⁴ Employees are not compensated for all of their unemployment, but secure benefits only for each day of unemployment in excess of seven during any half-month. The maximum benefit paid to an individual during a year may not be more than eighty times his daily benefit.

Perhaps the most striking feature of the act of 1938 is its refusal, in calculating allowances, to maintain any constant ratio between the earnings of the beneficiary when employed and the unemployment benefit which the beneficiary is to receive. On the contrary the ratio of maximum annual benefit to total annual compensation of the worker when employed varies, under the statutory rates, from 93 per cent in the case of a man who normally earns \$150 from the railroad in a year to 18.5 per cent in the case of an employee who earns \$1300 or 12 per cent for one who earns \$2000. This lack of correspondence between benefits and earnings is the result of a deliberate decision to give preference (1) to low-paid employees, and (2) to irregularly employed employees. Representatives of labor justify this discrimination on humanitarian grounds, but more particularly by the contention that workers in the higher wage brackets are protected from unemployment by their seniority rights. They may be demoted but they will not be discharged. Carriers reply that men who are irregularly employed by the railroad industry often have other occupations, that men in regular service deserve first consideration, and that high rates in the low-income groups will make the entire system unduly expensive and probably will cause a deficit in the fund.

Beneficiaries.—A railroad employee who is suspended or dismissed and who has not found substitute employment may apply for unemployment benefit, provided:

1. There was payable to him compensation of not less than \$150 with respect to employment during his base year—i.e., during the twelve months prior to the time when the year in which he expects to receive benefits began.

⁶⁴The following table indicates the rate of unemployment payments for different classes:

Earnings of Applicant During the Calendar Year Preceding the 12 Months in Which He Begins to Receive Benefits	Amount of Daily Benefit
\$ 150 to \$ 199.99	\$1-75
200 to 474.99	2.00
475 to 749.99	1.25
750 to 1024.99	1.50
1025 to 1299.99	2.75
1300 and over	3.00

2. Within six months prior to the year in which he will receive benefits he has been unemployed fifteen consecutive days, or eight days in each of two half-months. This prior unemployment is referred to as a "waiting period."

It is expected that the requirement of \$150 earnings during the base year will eliminate extreme cases of casual labor, and that the waiting period will result in the exclusion of instances of occasional unemployment where no real hardship is involved. Benefits will not be paid to persons who have resigned from railroad service, who have been discharged or suspended for misconduct, or who may not be entitled to compensation for other specified reasons. Benefits will be paid, however, to employees who are on strike.

Critics believe that certain classes of persons will receive benefits by reason of the law who do not deserve aid or who deserve less aid than a strict application of the statute will allow. We need not discuss these particular objections, because they refer to minor features of the law or of its administration.

Administration.—The administration of the act of 1938 is intrusted to the Railroad Retirement Board, the organization already set up to administer the Railroad Retirement Act of 1937. The Board is appointed by the President of the United States. Its principal responsibility under the unemployment insurance law is to certify to the Secretary of the Treasury the names and addresses of persons entitled to unemployment benefits; but it is also authorized to establish and operate free employment offices, and the act contains the following paragraph:

The Board, with the advice and aid of any advisory council appointed by it, shall take appropriate steps to reduce and prevent unemployment and loss of earnings; to encourage and assist in the adoption of practical methods of vocational training, retraining, and vocational guidance; to promote the reemployment of unemployed employees; and to these ends to carry on and publish the results of investigation and research studies.

General Comments.—The Railroad Unemployment Insurance Act of 1938 has the principal merit of substituting a uniform system of unemployment insurance in the railroad industry for a variety of separate state systems. Labor relations on the railroads are not conducted on a localized basis. Employees transfer across state lines, state unemployment compensation laws vary, and it is difficult to apply them to a shifting personnel. From the point of view of the carriers also it is simpler to contribute to a single fund than to maintain relations with a number of state funds. The objective of the federal statute, like that of the state laws, is, of course, to relieve a portion of the railroad labor force from a part of the burden which seasonal and cyclical variations of unemployment force it to bear, and, possibly, to reduce these variations by stabilizing employment. Opponents criticize the law because it lays an increased load upon the finances of an ailing industry—a load which the competitors of railroads do not equally have to support. Other alleged weak-

nesses are found in the absence of employee contributions toward the building up of the unemployment fund, in the extent of assistance afforded employees whose connection with the railroad industry may be very slight, in the effect upon state unemployment systems which the withdrawal of railroad contributions may produce, in the possibility of malingering or fraud on the part of the employees, and in the payment of unemployment compensation to men on strike.

Summary.—We may summarize our account of railroad labor history and organization in the following paragraphs:

1. Railroad employees have obtained a substantial improvement in their wages and working conditions during the past twenty or twenty-five years.

2. This improvement has been due to the exercise of political and economic power by railroad labor unions—a power which considerably increased during the World War, 1914-1918, and has been consolidated in the years since 1926.

3. Elaborate machinery has been set up for the consideration of labor disputes incident to railroading, and this machinery appears to work with reasonable success but on the whole to the advantage of the labor group.

4. Railroad unions have concerned themselves with social security legislation since 1936 and have secured the adoption of plans for dismissal compensation, old-age pensions, and unemployment insurance. In this, as in organizing machinery for mediation, unions have relied upon their political more than upon their economic strength.

5. The union program has not protected employees against the effects of decreasing employment in the railroad industry at large. Labor has fought, it is true, against the introduction of labor-saving devices and methods, advocating particularly full train crew laws, arbitrary limitations of the length of trains, and reductions in the number of hours worked per week. But on the whole it has been unable to check the general trend toward mechanization, and its very success in maintaining high wages and attractive working conditions for employees who continue to hold railroad jobs has increased the incentive to management to economize in the use of labor.

Differing Points of View of Management and Labor.—The chief complaint of railroad management is now that railroad labor organizations have forced an increased scale of remuneration and an increase in security payments upon the railroads at a time when the industry is unable to bear the load without sacrifice of credit and impairment of the physical condition of its plant. Unemployment insurance and old-age retirement payments alone, calculated upon a payroll of \$2,000,000,000 will amount to \$115,000,000 in 1938.⁶⁵ As for wages, railroads contend that they have gone up while the cost of living has

⁶⁵ Interstate Commerce Commission, *Annual Report*, 1937, p. 4. Carriers have been relieved of payments under company pension plans approximating \$37,000,000 and of contributions to state unemployment systems, but the second of these outlays and to some extent the first is also the result of pressure developed during recent years.

gone down, and that the increase since 1929, at least, has occurred while national income and the wages of farm and industrial labor have declined. This as well as loss of business, they say, has contributed to the insolvency of 30 per cent of the railway mileage of the United States, and to the dramatic failure of the industry as a whole to earn a reasonable return.

Employees reply in part that present railroad distress is due to inefficient or improper management. They argue that wages constitute a lien upon railroad income which should have precedence over interest and dividends, and most fundamentally they assert that wages should not be varied in any industry according to that industry's ability to pay. Instead, workers should receive pay determined by the level of payments for similar work performed elsewhere and by such considerations of policy related to a living wage as have been accepted in the community, and every industry should be called upon to pay this wage. Fear of government action, culminating perhaps in an appropriation of the entire railroad system, has weakened carriers' resistance to these employee demands.

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CHAPTER XXVIII

FINANCE



Number of Investors in the Transportation Industry.—There are no statistics which show the number of investors in the transportation industry in the United States. The Interstate Commerce Commission does, however, publish figures that relate to railroads, and these show that in 1938 there were 887,492 persons who held stock in Class I railroads.¹ The number of railway bondholders is probably considerably less than the number of stockholders, although it may be large enough to bring the aggregate to a total at least as great as the number of 939,171 persons who were, in 1938, employees of Class I railroads. While the individual stock or bondholder depends less upon dividends or interest payments than the average employee depends upon wages for his living, he represents a substantial body of individuals, whose equities deserve respect. The present chapter will deal with practices and policies which interest investors; it will consider principally questions of railway finance because illustrative material is most abundant in this railway field.

Sources of Capital.—Railroads—and this is true of modern corporations generally—secure their supply of capital from two sources. The first of these is their own earnings; the second is the fund of community savings upon which, under certain conditions, they are able to draw. A third source which is occasionally important is government aid or subsidy. This is not an independent source in the last analysis, for government appropriations are themselves derived from community savings; but the relation of the individual saver to the enterprise which enjoys the use of his capital changes when government selects the purpose to which the capital is to be applied.

Investment from Earnings of the Enterprise.—A company which finances itself by recurrent investment of its own earnings saves the expense which the sale of securities usually involves. There are no advertising, no solicitation, no banking commissions, and no underwriting costs. Not only this, but a company which plows back its revenues into its plant incurs no obligation to pay

¹This is the aggregate of the stockholders reported by the companies without elimination of duplications by reason of the fact that one person may hold stock of two or more railways and without consideration of the fact that a registered holder may be a trustee for more than one holder.

a fixed return upon the capital which it retains and uses. It avoids, finally, or diminishes its reliance upon financing houses which may, at critical moments, demand a limited control. The reinvestment-of-earnings policy is regarded as economical and conservative for these various reasons. Thus at one time the Pennsylvania Railroad took pride in the fact that it reinvested one dollar of earnings for every dollar which it distributed as a dividend. Few companies, however, followed this extreme example, and certainly in recent years no standard like this has been approved.

Arguments in favor of financing by reinvestment have been challenged on two grounds. In the first place, the policy is said to damage the interests of the stockholder, because it retains in company employ money which might have been distributed in dividends. It is contended that the individual stockholder, and not the director of a company, should decide whether the stockholder's interest in a company should be increased. This argument is sometimes associated with the observation that directors in large companies may be more responsive to the desires of managing officials who desire to promote company expansion than to the wishes of stockholders whom they are supposed to represent. The other contention is 'that the reinvestment of corporate earnings reduces tax revenues. This is because stockholders who receive dividends pay taxes, and if they are wealthy stockholders, they pay at higher rates than any normal tax schedule applied to corporate earnings would be likely to provide. Hence reinvestment and tax evasion are linked together. These arguments, and particularly the second, were used to defend the undistributed profits tax of 1936; but they did not convince the opponents of this tax, nor prevent the repeal of the surtaxes upon undistributed profits which this law contained.

Railroad Reinvestments, 1921-1938.—Between 1921 and 1938, railroads in the United States spent \$68,000,000 out of their net income for investment in physical property and \$173,000,000 out of profit and loss account for the same purpose.² We do not err greatly if we take the sum of these two amounts as the measure of earning reinvestment that Class I carriers found possible during the period which the figures cover. Investment in physical property from earnings was most abundant between 1921 and 1930. After 1930, the direct appropriation of net income to investment became negligible, although appropriations from surplus continued upon a moderate scale. It is interesting to observe that during the entire period up to 1938, charges to net income and to profit and loss for investment in physical property amounted together to less than 5 per cent of dividends declared, and to only 3 per cent of the increase in stock and long-term debt. It will hardly be maintained that American railroads have found in their earnings since 1921 a major investment resource.

² Profit and loss is not necessarily an account built up from earnings; between 1921 and 1938, however, 79 per cent of the amounts which Class I railroads credited to profit and loss came from earnings. During this period credits to the fund exceeded debits, so that accumulations of earlier years were not reduced.

Capital Obtained by Appeal to Investors.—The major reliance of corporations in the United States is upon private individuals with disposable capital who may be induced to devote this capital to business enterprise. Corporations which seek the use of this capital offer to the owner some compensating advantage, usually including the right to share in the earnings the capital will produce in the business in which it is to be set to work. Voluntary agreements between capital-owner and capital-user determine, in a capitalistic society, the manner in which savings will be applied, at least in so far as savings are not appropriated by taxes or used in undertakings which the owner of newly saved capital himself already controls.

During the years 1922-1938 the railroads sold to investors 3212 million dollars in bonds and 562 million dollars in stock to raise money for additions and betterments, and for the purchase of equipment and other "properties." It is not possible to say how much capital was procured by these issues, because we do not know the price which carriers received for their securities. We do know, however, that the bonds sold for all purposes during the period brought in cash amounting to 62 per cent of the par value of the bonds and 28 per cent of the par value of the stock besides large amounts of property of less certain worth. These same percentages applied to the par value of securities sold in order to enlarge the railroad plant produce a total of 2148 millions of dollars in cash alone; and this is certainly a large understatement of the new resources derived from the issue of railroad stocks and bonds between 1922 and 1938.

Interest and Dividend Payments, 1922-1938.—Payments to securityholders have fluctuated considerably during recent years. The variations have been most notable in the case of stock, but they have been large in the case of bonds also.³

The reader's attention is drawn to the extreme fluctuations in dividend payments between 1922 and 1938, from a maximum of 400 million dollars in 1930 to a minimum of 62 million dollars in 1938; and to the large, though less extreme, variation in the payments to bondholders, from 402 million dollars in 1930 to 240 million dollars in 1938. It may properly be inferred that rigid

³ Interest and dividend payments have, to some extent, to be estimated because of the lack of detail in Interstate Commerce Commission returns. The Commission publishes figures of dividends payable to the public for the years 1930 to 1937. It is assumed that the dividends payable to the public were the same proportion of dividends declared between 1922 and 1929 as they were, on the average, between 1930 and 1938. Interest payments are distinguished from interest accrued in Commission reports for the years 1929 to 1938. The relationship of these items to each other in 1929 is assumed to be typical of the distribution between 1922 and 1928. Allowance for intercorporate payments has to be separately made in the case of bonds, and this is accomplished by computing the percentage of debt in the hands of the public to gross debt outstanding each year, and by multiplying the stated or computed annual interest payments by these percentages. Statistics of interest and dividend payment which result from these calculations are not, of course, exact, but they are probably more accurate than crude figures without corrections.

PAYMENTS TO STOCK AND BONDHOLDERS, 1922.-1938

Year	Dividend Payments (Millions)	Interest Payments on Funded Debt (Millions)	Total (Millions)
1922	217	352-	569
1923	277	365	641
1924	255	380	635
1925	275	379	654
1926	324	383	707
1927	398	389	787
1928	345	391	736
1929	392	390	782
1930	400	402	801
1931	263	394	657
1932	71	374	445
1933	75	343	418
1934	III	313	424
1935	103	193	396
1936	132	274	406
1937	134	277	411
1938	61	240	302

stipulations in a loan contract do not completely protect the beneficiary in times of business depression. Dividends are cut first when revenue declines, however, and bond interest is maintained until carriers are ready to accept the consequences of bankruptcy; by this time business may have begun to revive and the better-situated companies may be in a position to resume dividends. It follows that the minima of total payments in interest and dividend accounts do not coincide with the minima of either interest or dividends taken separately. For this and other obvious reasons the range of variations in total payments is less than the range in stock payments but appreciably more than the range in the case of bonds.

Rate of Return on Property Investment.—It is hardly possible to compute hourly compensation for capital as we did for labor in the preceding chapter, principally because there is great difficulty in determining the unit which should be used in making such a calculation. Compiled statistics state, however, the ratio of railroad earnings to aggregate property investment; and these figures are repeated in the following table.

The accuracy of the figures presented in the table depends upon the degree to which the term "investment" measures the capital actually employed by railroads in the United States. It is possible that the capital is overstated, and if this is so the ratio given will be too low. In its report in the bituminous

CLASS I RAILROADS—RATE OF RETURN UPON TOTAL
PROPERTY INVESTMENT

Year	Rate	Year	Rate
1916	5.90	1932	1.24
1921	2.81	1933	1.82
1926	4.96	1934	1.78
1927	4.18	1935	1.93
1928	4.61	1936	2.57
1929	4.81	1937	2.17
1930	3.28	1938	1.43
1931	1.99	1939	1.16

coal rate case⁴ the Interstate Commerce Commission found a value for the transportation properties railways of Class I, as of January 1, 1938. This value it set at \$19,882,000,000. On the basis of this valuation, the carriers earned a rate of return of 1.88 per cent in 1938, which is a different rate from the 143 per cent stated in the table. The difference, however, is not great, and the relation between reported investment and Interstate Commerce Commission valuations does not, probably, vary greatly from year to year; we may believe that the figures tabulated are sufficiently accurate to justify the conclusions we may venture to draw.

Comparison of rail financial figures with those which set forth the sums paid employees show a drop in return between 1916 and 1921 instead of a sensational rise as in the case of wages. Since 1921 the average return upon investment has fluctuated, rising more rapidly than wage payments up to 1929, and falling farther and more swiftly between 1929 and 1932. Interest and dividend payments changed also during these years, but in less proportion, doubtless because carriers called upon their reserves in years when their receipts fell off. Generally speaking, an essential difference between the wage relationship and the interest and dividend relationship during a period of declining railway income is that in the latter case the effect of reduced payments is more diffused. This is because wage rates are, on the whole, maintained in good times and in bad and relief is secured by varying the number of persons employed; but in the case of dividends and interest the volume of stocks and bonds outstanding persists with little change, and adjustment is made in the rate of return. It is probable that this difference explains why a reduction in wage expenditure causes greater distress than a reduction in capital payments, even without reference to the fact that employees' incomes are derived mainly from their wages, while owners of stocks or bonds are often profitably employed. Dismissal, unemployment insurance, and systems of relief do something to mitigate the effect of fluctuations on wage payments, but they do not fully compensate individuals who are displaced.

⁴ 229 I-C.C. 434, 451, 1938.

Capital Stock.—We may now pass from the subject of payment to investors to a brief description of the forms of contract in which investors' rights are usually set forth. There are two types of rights accorded individuals who provide corporations with capital. One type may be described as the rights of a proprietor, the other as the rights of a creditor.

The rights of a proprietor are easily understood. They include the right to assist in the determination of company policies, as by voting in elections through which directors are chosen; the right, with other proprietors, to receive such profits as the directors may decide to distribute; and the right to share in the assets if and when the business is liquidated. The proprietor has other rights and privileges than these, but they are all derived from his position as owner; and in so far as they are limited, the restriction is in the interest of an orderly conduct of the corporation's affairs. Thus a proprietor cannot, himself, compel the corporation to declare a dividend or to return the capital which he has invested unless and until the affairs of the company are wound up. Nor has he title to the company's property, but only specified rights to exert authority and to receive benefits, in common with other stockholders.

Common and Preferred Stock.—Corporations secure capital by selling shares of stock—an act which is equivalent to the admission of new participants to the corporate enterprise. Shares will be represented by certificates, each of which will have engraved upon it the name of the issuing company, the class of stock, the number of shares covered by the certificate, and such other pertinent matters as government authority may require or corporate directors think significant, including, ordinarily, a figure expressed in dollars which indicates the "par value" of each share. Par value may be more or less than the owner of the share has paid, and more or less than the amount for which he can sell his rights. It is not, therefore, a statement of value in the usual sense, but it is important because the relative interest of the stockholder in the corporation's affairs as compared with the interest of other shareholders is measured by the ratio which the par value of the shares which he holds bears to the aggregate of the par value of all shares issued.⁵

Stock may be all common stock, which needs no special description. But it may also be, in part, preferred stock, which is distinguished from the common by the fact that holders of preferred shares enjoy certain privileges. The most

⁵ Stock is sometimes issued without par value. When this is done, the interest of the stockholder is measured by the ratio which the number of the shares he holds bears to the total number of shares outstanding. No-par value stock has certain advantages, notably in that it avoids the suggestion that a share of stock represents a contribution or has a market value equal to its par, and in that it relieves a corporation from regulation which might prevent the sale of stock in an unfavorable market. On the other hand, tax laws often discriminate against no-par stock by treating each share for tax purposes as equivalent to a share with a par value of \$100. Between 1920 and 1938, no-par shares amounted to 40 per cent in value of all shares that the railroads issued. (See Herbert E. Dougall and Loring C. Farwell, "A Review of Railroad Financing, 1920-1938," *Journal of Land and Public Utility Economics*, August, 1940.)

important of these privileges are the following: (1) preference in the distribution of earning; (2) preferences in the distribution of assets in case of dissolution of the company; (3) preference in voting power. The first of these advantages is generally characteristic of preferred stock issues. Railroad preferred stock is not commonly preferred as to assets, nor, as a rule, does it have preference in voting power; there are important cases, however, in which this stock has been allowed the privileges with respect to voting which have made it easy to concentrate corporate control. Preferred stock is usually limited as to its dividend, so that holders may not receive more than a stated sum during a given period even though corporate earnings may have been very great; on the other hand its dividends are frequently cumulative. When the stated dividend is not paid upon cumulative preferred stock in any year, the deficit becomes a charge upon the earnings of later years which must be satisfied before dividends are paid upon the common stock.

Creditor Rights.—If a corporation does not wish to admit new participants into its enterprise and cannot rely upon its own earnings for new capital, it may offer creditor rights instead of proprietor rights to persons who will permit their savings to be used. Creditor contracts usually contemplate the loan of capital by a saver to a user for a fixed period of time instead of for the life of the corporation. The lender does not become a proprietor and he has no directive authority, nor is he affected by the rise and fall of corporate earnings unless the fulfillment of his contract is jeopardized. He expects repayment of principal and ordinarily he bargains for the periodic payment of a stated interest instead of for dividends which may not be earned or which directors may decide to withhold. It is a peculiarity of many loan contracts, though not of all, that the borrower provides security for the accomplishment of his undertaking.

Bonds.—Creditor contracts are most commonly executed by the issue of bonds, though capital may be obtained in smaller amount by the issue of notes or even by deferring the payment of current bills. A bond is a promise to pay, under the corporate seal.⁶ It may be drawn to bearer or to a registered holder. It will contain the provisions of the loan contract, either printed in full or incorporated by reference to a fuller document held elsewhere, and it will carry the signature of the proper corporate officers. If the corporation pledges security, the property pledged will be described in the bond, or the description will be incorporated by a reference. Bonds should be specific with respect to amounts and dates of payment, and they should state the manner in which creditors may enforce their claims in the event that the corporation fails to keep its promises.⁷ The peculiar technique associated with bond issues and described in most manuals is due to the large number of persons who are interested in any bond issue sold by a large corporation. Some individual or or-

⁶ W. H. Lyon, *Corporations and Their Financing*, Heath, Boston, 1938, p. 226.

⁷ Eliot Jones, *Principles of Railway Transportation*, Macmillan, New York, 1934, p. 20.

ganization must be selected to represent the creditors in their relations with such a borrower, and this representative acts as a trustee. The trustee holds the documents in which the provisions of the loan contract are set forth in detail. He also holds the security provided, in trust for the owners of bonds, and he will certify that each bond has been issued in accordance with the provisions of the papers intrusted to his safekeeping. He will have still other duties and responsibilities, especially in case of default, although the range of these responsibilities is indefinite. It is not necessary, for our present purpose, to consider this procedure at greater length.

Varieties of Bonds.—Contracts which convey creditor rights assume, naturally, a great variety of form. They differ, for instance, with respect to the period during which the loan contract is to endure, and the manner in which payment is, finally, to be made. There are issues which run for short periods and others which mature only after the lapse of a century or more.⁸ Sometimes the loan is repayable in its entirety at a fixed date, and sometimes it is payable in installments. Sometimes the corporation reserves the right to pay before the loan matures, and sometimes the bonds are not so subject to call. Bonds differ in their provisions concerning interest. The loan contract, as has been said, ordinarily requires stated, periodic payments to the lender. Sometimes, however, the payment is contingent only, as in the case of so-called income bonds. The bondholder in such a case has little more certainty of receiving interest than the preferred stockholder has the certainty of receiving dividends. In the extreme example he may be worse placed even than the holders of common stock; this was the situation of owners of deferred income bonds issued by the Philadelphia and Reading Railroad in 1882, whose interest was deferred to a dividend of 6 per cent upon the common stock.⁹ When the loan calls for a stated payment, failure to pay this interest is a default.

Perhaps the most striking variety in form is found in the provisions of loan contracts which relate to security. Corporations, like natural persons, may borrow without security. In such a case the company's past record and general standing is accepted as sufficient reason to believe that its promises will be made good, or the lender of capital may find adequate protection in his right to apply to some court for a judgment in case default occurs. But in most instances the lenders demand, and the borrowers supply, security. This means in the majority of instances, though not in all, that the bondholder is given a lien upon assets of the enterprise. A common practice is to deed these assets to him at the start, with the proviso that the transfer of title shall not take place so long as the terms of the loan contract are observed. There is, in these

⁸ English practice includes the issue of creditor securities without maturity date for principal unless default in the payment of interest occurs. These securities are known as "debenture stock." They are not, however, stock as the security is known in the United States, but a form of bond.

⁹ Stuart Daggett, *Railroad Reorganization*, Houghton Mifflin, Boston, 1908, p. 84.

details, a certain standardization of procedure; **but** when we turn to matters of substance we find that the security for a loan may be anything which the debtor possesses and the creditor is willing to accept. Thus we have real estate bonds, secured by the pledge of real estate, land grant bonds, equipment bonds, terminal bonds, collateral bonds, general mortgage bonds, and the like. When one piece of property secures several issues questions of priority arise, and prior lien bonds, preferential bonds, first, second, and third mortgage bonds appear. Finally, creditor contracts differ from each other in a great variety of miscellaneous detail. These variations include differences in the manner of collecting interest (registered and coupon bonds), special privileges accorded (convertible bonds), special obligations assumed (tax covenant bonds, sinking fund bonds). Even differences in the purposes for which bonds are issued are sometimes made a basis for classification, and we find refunding bonds, improvement bonds, extension bonds, redemption bonds, and similar issues. The peculiarities of different types of mortgage bonds and the manner of securing them are discussed at length in treatises on corporation finance.

Securities Issued by Class I Railways and Outstanding, December 31, 1938.—

The securities issued by Class I steam railways in the United States and outstanding on December 31, 1938, were as follows:¹⁰

Kind of Security	Amount
Stock	
Common	\$ 6,281,844,101
Preferred	1,866,758,227
Total	\$ 8,148,602,328
Funded Debt	
Mortgage bonds	\$ 7,677,812,814
Collateral trust bonds	710,417,095
Income bonds	188,534,086
Miscellaneous obligations	819,914,160
Equipment obligations	437,987,119
Total	\$ 9,934,665,384
Grand total	\$18,083,267,712

The securities listed in the preceding table represent the accumulation of contracts which have conveyed creditor or proprietorship rights in railroad enterprise to persons who have contributed cash, property, or services in return. The significance of the table is not, however, fully indicated by this summary statement, and we shall presently dwell upon the importance of a list of securities from other points of view. It is important to observe at this point, however, that the volume of outstanding railroad capitalization at any moment is so large that more stocks and bonds are issued each year in readjustments of

¹⁰ United States Interstate Commerce Commission, *Statistics of Railways*, 1938.

capital structure and in meeting claims which have become due, than are put out to attract new capital.

Readjustment and Retirement of Securities.—The following table illustrates the statement which has just been made by classifying securities issued by railroads of the United States between 1922 and 1938, inclusive, according to the purposes of their issue.

STOCKS AND BONDS ISSUED BY RAILROADS OF THE UNITED STATES, 1922.
TO 1938, INCLUSIVE, CLASSIFIED ACCORDING TO PURPOSE OF ISSUE¹¹

Purpose of Issue	Stock (Par Value)	Bonds (Par Value)
(000,000 omitted)		
Conversion	\$1301	\$2222
Reorganization	388	328
Consolidation	410	819
Retirement	249	1730
Purchase of securities	80	104
Total	\$1418	\$5303
Purchase of properties	164	233
Additions and betterments	398	1359
Purchase of equipment		162.0
Total	\$ 562	\$3212
Dividends	95	
Total	* 95	
Miscellaneous	2.05	166
Total	\$ 205	\$ 2.66
Grand Total	\$3290	\$8781

The figures presented in the preceding table indicate that, during a recent period of 17 years, 2428 million dollars of stock and 5303 million dollars of bonds were issued in exchange for other securities by American railroads, in the course of conversion, reorganization, consolidation, retirement, and purchase operations, while only 562 million dollars of stock and 3212 million dollars of bonds were issued to acquire new plant and new equipment. This large

¹¹ The figures quoted in the text are compiled from annual statements published by the Interstate Commerce Commission. They are not exact, because the proceeds from large issues of railroad securities are frequently devoted to several purposes which are not distinguished in the reports, and because categories such as "conversion," "retirement," and "purchase of securities" overlap. The separation between securities used to acquire new assets and those used to effect changes in capital structure or in conditions of control is, however, reasonably definite.

extent of readjustment in railroad finance is largely due to the more or less temporary character of the usual loan contract. Sometimes these contracts contemplate a change or conversion of one type of security into another at the option of the holder, as the exchange of a stock for a bond or of one type of bond for another, and sometimes the loan contract reserves the right to the borrower to "call" the loan before maturity and to pay it off if the borrower can in any way supply the cash. Loan contracts with neither of these provisions still mature at stated dates and must then be paid in cash or by the tender of a new contract acceptable to the lender; and failure of the enterprise or its merger with some other company may give rise to stock and bond issues in considerable amount. Doubtless some such readjustment and rearrangement is inevitable in an aggregate of business contracts subject to the pressure of events. It has been suggested, however, that the amount of change might be reduced by the substitution of loans without maturity date for the terminable mortgage issues common in American practice, and that this would be desirable. Perpetual loans are well known in England, where they bear the name "debenture stock." Debenture stockholders are ordinarily entitled to a fixed interest, and if this fails they may exercise any right conferred upon them by their contract, including even the right to establish a lien upon the assets of the corporation. They cannot, however, demand return of their principal so long as their interest payments continue to be received. The advantages of loans without maturity date are (1) they relieve the corporation of the expense incident to the retirement of old and the conclusion of new contracts at fixed intervals; and (2) they make it impossible for creditors to demand their principal at moments when market conditions may make it difficult for the company to negotiate new contracts in order to replace the old. On the other hand, the conditions of a large number of terminating contracts will correspond more closely to those which characterize new loans than will the conditions of a large number of contracts for the perpetual use of funds. This deprives lender and borrower of a speculative gain and brings corporation costs into closer adjustment with price.

Need for Adequate Publicity.—There are a number of questions, both of public and of private policy, which arise in the handling of the great mass of securities issued, exchanged, and retired by the processes of corporate finance. Many of these questions are not peculiar to railroads, but others are especially important in the railroad field.

From the strictly private point of view the proprietorship or loan contract is the outcome of a bargain through which capital is exchanged for rights in a going business. The essential condition which sound policy requires in this connection is that the pertinent facts shall be clearly, accurately, and fully set forth and made available to both parties to the contract.

Accounting Control.—In so far as American railroads are concerned, basic accounting facts are published in full, clear, and accurate form. This result

is partly due to the efforts of the railroads themselves, but the clearness of the records and, above all, the standardization and comparability of reports of different railroad companies are the outcome of congressional legislation and of intelligent direction by the Interstate Commerce Commission.

Control over railroad accounts was authorized by the original Interstate Commerce Act of 1887. It was made effective by amendments to this act in 1906 which imposed penalties for failure to conform to prescribed methods of bookkeeping and made it unlawful for carriers to keep any other accounts, records, or memoranda than those which the Interstate Commerce Commission required. Through special agents or examiners designated for the purpose, the Commission inspects the carriers' accounts from time to time to detect or to prevent any violation of this law.¹² Under the Motor Carrier Act of 1935 it prescribes the accounts of motor carriers as well as those of railroad companies. It may be assumed that railroad accounts, at least, are, and that motor carrier accounts eventually will be, in satisfactory shape.

Purchase and Sale of Securities. The Securities and Exchange Commission.—Publicity with respect to the financial facts which are needed in the evaluation of railroad securities is safeguarded by authority vested in two government commissions: the Interstate Commerce Commission and the Securities and Exchange Commission. The Exchange Commission was created in 1934. It has authority to prescribe the conditions under which securities may be registered on any national securities exchange. These conditions include the filing of statements with respect to the organization, financial structure, ownership of equity securities, management and service contracts, and other matters which the Commission thinks important. Statements of this kind are open to the inspection of the public. The Securities and Exchange Commission also regulates trading on the National Exchanges. It licenses brokers, issues rules governing the extent of margins, prohibits pegged prices and wash sales,¹³ inspects exchange memoranda and other documents and in general endeavors to promote an orderly conduct of business which will reflect the demand for and the supply of securities in a manner upon which the investing public can rely.

Authority of the Interstate Commerce Commission over Railroad Capitalization.—The Interstate Commerce Commission was given authority to control the issue of railroad stocks and bonds in 1920 and the issue of motor carrier stocks and bonds in 1935.¹⁴ No shares of capital stock or bonds or other evidences of indebtedness may be issued by any carrier subject to the Act

¹² The Commission believes that the accounts of each carrier should be inspected at least once every five years (*Annual Report*, 1936, p. 35). Its appropriations have not, however, permitted so frequent a review (*Annual Report*, 1934, p. 35).

¹³ "Wash sales" are sales balanced by equivalent purchases. They are intended to give a false appearance of trading activity in an issue of stocks or bonds.

¹⁴ 41 Stat. 456, 494, 1920; 49 Stat. 543, 1935,

to Regulate Commerce except upon application to **the** Interstate Commerce Commission and investigation and approval by that tribunal.¹⁵ The Commission may approve only if it finds that the issue (i) is for some lawful object within the carrier's corporate purposes, and compatible with **the** public interest, which is necessary or appropriate for or consistent with the proper performance by the carrier of service to the public as **a** common carrier, and which will not impair its ability to perform that service, and (2) is reasonably necessary and appropriate for such purpose. The Commission may grant or deny an application in whole or in part, or grant it on condition that certain modifications are made; it may not, however, rewrite the terms of the offering and then insist that the securities shall still be sold. Having approved an issue, the Commission may require periodical or special reports showing, in such detail as the Commission may require, the disposition made of the securities sold and the application of the proceeds. It is evident that these powers are much more extensive than **the** needs of publicity would require, but the Commission does, through its published decisions and through the financial information which it collects and prints, substantially add to the information of which the investor can dispose.

Concealment of Facts by the Use of Holding Companies.—A holding company is **a** corporation organized for the purpose of buying and holding the securities of other corporations for advantages connected with their control. American experience with railroad holding companies shows that they are a source of danger to the investor in two ways. First, they issue great quantities of securities which the public cannot properly appraise. And second, they may be and sometimes are managed for the advantage of third parties and not primarilyun the interest of their own securityholders. This last defect is especially apparent when a holding company is created to purchase properties which have strategic importance to some railroad, or when a company is a device for assembling hitherto independent carriers into a system, in order to afford increased opportunity for profit to a controlling group. Well-known examples of railroad holding companies are the Pennroad Company, organized in the interest of the Pennsylvania Railroad but largely financed by outside subscriptions, and the Alleghany Company, which was used by the Van Sweringens to assist in holding the parts of their empire together. Holding companies, it may be added, not only mislead the investor but they may also accomplish consolidations which are against public policy.¹⁶ For all these reasons, it is fortunate that railroad

¹⁵ Approval is not required for the issue of notes maturing not more than two years after the date thereof and aggregating (together with all other then outstanding notes of a maturity of two years or less) not more than 5 per centum of the par value of the securities of the carrier then outstanding. (Securities issued by water carriers are also excepted.)

¹⁶ The Alleghany Company was incorporated in 1929 to take over securities then owned by the Van Sweringen brothers and to raise funds for further investment. (U. S. Congress,

holding corporations were brought under the control of the Interstate Commerce Commission in 1933. By legislation passed in this year¹⁷ Congress permitted a corporation which was not a carrier to acquire one or more carriers by purchase of their stock, with the approval of the Interstate Commerce Commission, but subjected such a corporation to the provisions controlling accounts and capitalization embodied in the Interstate Commerce Act. This statute was primarily intended to extend the authority of the Interstate Commerce Commission over consolidations effected by the use of holding companies, but it did much also to protect the investor by assuring him more complete information when securities of holding companies were bought and sold. Henceforth the purpose for which railroad holding companies are formed will be known, their issues will be supervised, and their activities will be subject to government inspection and control.

Total Capitalization.—Besides providing for publicity, governments take an interest in the total volume of securities which carriers put out. The federal agency in this matter is the Interstate Commerce Commission, which acts under powers that have already been described. The object of government interference at this point is to prevent what is known as "overcapitalization." The difference between the term "stock-watering," which is sometimes used, and "overcapitalization" is that the latter word refers to a condition in which the par value of issued stocks and bonds exceeds the cost or value of a corporation's assets; and the term "stock-watering" describes a process—the issuance of new securities without an equal increase in assets. Overcapitalization is a result of stock-watering, but the stock of a company which is undercapitalized may be watered to a considerable extent before the stage of overcapitalization is reached.¹⁸ Overcapitalization also

Senate, Committee on Interstate Commerce, *Hearings before a Subcommittee pursuant to Sen. Res. 71, 1936*. These hearings began in 1936, but they have been continued.) Before it finished, it had raised 170 million dollars by the sale of bonds, preferred stock, and common stock to the investing public. With these funds it acquired 49.6 per cent of the stock of the Nickel Plate, 46 per cent of the stock of the Missouri Pacific, and 69 per cent of the stock of the Chesapeake Corporation which in turn held 48 per cent of the Chesapeake and Ohio Railway. Through the Chesapeake and Ohio and its subsidiaries it controlled the Erie, the Chicago and Eastern Illinois, and the Pere Marquette. By purchase of these and of other companies it engaged in railroad, coal, trucking, warehousing, ferry, shipping, land development, water, and lighting operations. The Pennroad Company was also organized in 1929, on the initiative of officers of the Pennsylvania Railroad. It issued 10,000,000 shares of no-par common stock, which were promptly placed in a voting trust, and then sold voting trust certificates in quantity sufficient to yield about 136 million dollars. Well equipped with money, it then bought the Detroit, Toledo, and Ironton Railroad from the Fords and the Pittsburgh and West Virginia Railroad, and substantial quantities of the securities of the New York, New Haven, and Hartford and of the Boston and Maine. These investments were made after the securities of the Pennroad itself had been sold. They were intended to strengthen the position of the Pennsylvania Railroad, not to obtain a profit for the stockholders of the Pennroad.

¹⁷ 46 Stat. 211, 217, 1933.

¹⁸ D. Philip Locklin, *Economics of Transportation*, Business Publications, Chicago, 1938, p. 598.

occurs when the value of corporate property declines. Experience shows that railroad capitalization will not be readily decreased when earnings become less; and this is true even when outstanding bonds are of the terminable type, because railroads are frequently unable to pay maturing debts in cash and they are still more generally unwilling to try to cut down the total of their loans. They substitute a new loan contract for the old. Thus indebtedness, once created, tends to become permanent, although the original arrangements may be changed.¹⁹

Disadvantages of Overcapitalization.—It is a fair question whether the amount of railroad securities outstanding has any important effect upon railroad policies or railroad credit; but most students agree that the volume of outstanding stocks and bonds does have significance in railroad affairs. This is mainly because management is likely to distribute corporate earnings by paying interest and dividends on excessive stock and bond issues, when capitalization is too high, although the money could be better spent in improving the physical condition of the roads. There are indirect effects, also, of unduly large capital issues. Securities which have a figure of par value engraved upon them may be accepted by investors as worth the indicated sums, although they will be worth less than this amount if the corporation's capitalization exceeds the cost or value of its assets. Even a regulating commission, indeed, may take the aggregate par value of securities outstanding as an indication of investment in the railroad plant. Actually, a commission will seldom do this unless the capital issues of a company have been regulated, and buyers are less easily misled than formerly by statements relative to "par," in these days of relative sophistication; yet some effect may be produced by misleading suggestions in either case. Finally, if capitalization is excessive and stocks and bonds are sold for what they are really worth, security prices will be low, speculation will be encouraged, and raids will be possible that may alter the conditions of corporate control. These are disadvantages which should be reckoned with.²⁰

¹⁹ This raises the question of sinking funds. If a debtor corporation sets adequate sums aside from time to time, these savings will enable it to retire indebtedness at the time when this indebtedness falls due. The funds so set aside are known as "sinking funds." When business is expanding, sinking funds are unnecessary, and surplus earnings can better be used to finance improvements than to pay off loans. When business is contracting, however, a corporation is fortunate to have sinking funds. Of course funds cannot be accumulated without savings, and savings are impossible without earnings. The conclusion of a recent monograph prepared by the Assistant Director of Statistics of the Interstate Commerce Commission is that sinking funds have not played an important role in reducing railroad funded debt or fixed charges (W. H. S. Stevens, *Railroad Sinking Funds and Funded Debt*, Government Printing Office, Washington, 1939).

²⁰ It has been pointed out that the real impropriety in overcapitalization arises out of the fact that assets are overvalued in the process and not that capitalization is too large; and this, of course, is true as financial statements are drawn up. Accounting practice requires that stocks and bonds be entered in the balance sheet along with other items as liabilities, and that they be balanced by an equal amount on the asset side of the account. If the arithmetic is

What Is the Measure of Corporate Value for the Purpose of Capitalization.—In an ordinary business enterprise the value of the undertaking may be considered to depend upon its earnings. This value may be estimated by capitalizing earnings at some assumed rate of interest. This can be done with railroads also. But in basing value upon earnings two things must be borne in mind in the case of a public service company. The first is that the earnings of public businesses are controlled, and the second is that public agents may not admit the right of securityholders completely to dispose of all the earnings or all the accumulations of earnings which may exist.

On the second point, differences of opinion have centered (1) on the right of a corporation to distribute in dividends income derived from investments which have themselves been made from earnings, and (2) on the legitimacy of stock dividends. Stock dividends do or may represent earnings which have been plowed into the plant instead of being paid over to stockholders at the time when they were first received. The general rule approves both stock dividends and the distribution of earnings upon reinvested income, but either or both practices are sometimes questioned upon grounds of public policy. Although, as we have said, the Interstate Commerce Commission has permitted stock dividends in many cases, it has also refused permission in some instances. Its refusals have been based upon the belief that railroads should sometimes leave substantial surpluses uncapitalized as a support for railroad credit, to provide for emergency needs, to offset obsolescence and necessary investments in non-revenue-producing property, and to serve as a general financial balance wheel.²¹ And Commissioner Eastman in other cases has argued that the capitalization of surplus may enlarge the rights of railroads against the public,²² on the theory that the right of a corporation to earn a return upon book surplus is not absolute. Objections of this sort, if sustained, may justify the view that the volume of a corporation's stock and bonds should be something less than the admitted value of its assets.

On the first point, there is a difference between the public and the private enterprise in that the income of the former is regulated with reference to some exterior standard, such as investment, cost of reproduction, rate-making value, or the like. In the long run the earnings of public companies will reflect changes in these basic figures; and, since they are determining, they may be taken as convenient measures of value, although they do not operate

correct the claim against assets, in this system, cannot exceed the sum of the assets given. The fault consists in describing the assets, in dollar terms, in a manner which overstates their value (H. R. Hatfield, *Accounting*, Appleton-Century, New York, 1928, pp. 208-209).

²¹ 67 I.C.C. 426, 1921. See also I. L. Sharfman, *The Interstate Commerce Commission*, Part II, Vol. A, Commonwealth Fund, New York, 1935, p. 517.

²² 67 I.C.C. 156, 175, 1921.

directly **but only through** their influence on regulatory powers applied to the fixing of rates. In practice, the Interstate Commerce Commission takes the short cut and most frequently tests the correctness of a proposed corporate capitalization by comparing it with the standard of cost, although it uses sometimes its own figures of final valuation, or even its estimate of the commercial value of the property concerned.²³ It may deserve attention, however, that Section 77 of the National Bankruptcy Act, as amended in 1935, directs the Commission to determine value on a basis that will give due consideration to the earning power of a property, past, present, and prospective. The language of the law is as follows:

If it shall be necessary to determine the value of any property for any purpose under this section, the Commission shall determine such value and certify the same to the court in its report on the plan. The value of any property used in railroad operation shall be determined on a basis which will give due consideration to the earning power of the property, past, present, and prospective, and all other relevant facts. In determining such value only such effect shall be given to the present cost of reproduction new and less depreciation and original cost of the property, and the actual investment therein, as may be required under the law of the land, in light of its earning power and all other relevant facts (Subsection 12, par. e).

In determining the basis for the capital issues of a bankrupt railroad the Commission is therefore held to a rule which seems somewhat different from that which it has applied to railroads in general. It may be, nevertheless, that the difference is more apparent than real; and this will be the case if prospective earnings ascertained under Section 77 are considered as regulated so as not to exceed a fair return upon cost. The immediate effect will be to hold the capitalization of most reorganizing railroads to an even lower level than the construction costs of these companies would justify—a result which can easily be defended in its application to this group.

Inflexibility of Loan Contracts.—It is a fair criticism of the present railway structure that it is too inflexible, so that temporary variations in earnings lead to bankruptcy and compel elaborate and expensive readjustments. Payments for the use of capital are relatively inflexible because they are largely controlled by loan contracts containing promises to pay interest at fixed dates instead of by proprietorship contracts which require distribution only

²³ In *Roscoe v. Syder* (170 I.C.C. 403, 407, 1931) the Commission distinguished between actual investment and value of the property, saying that the former, not the latter, was the proper measure by which to determine the amount of securities that a carrier might issue. In the cases to which it referred in illustration of this rule, however, the final value which it had previously refused to recognize had been a value found by a state commission. In the *Roscoe* case itself the Commission based its decision upon a final valuation of its own, in the absence of satisfactory figures as to cost. Possibly the distinction between investment and final valuation is an expression, in these instances, of a dislike of the basis for final valuation which has been forced upon the Commission by the courts. Whatever its usual **practice**, the Commission **reserves the right to take commercial value and earning capacity into account** (99 I.C.C. 357, 359, 1925)-

when dividends are declared. If we add to the sums disbursed on loan contracts railroad expenditures for rental of road and equipment which are not easily reduced, and taxes, the total of fixed outlays becomes so large that any substantial decline in income is likely to destroy the margin upon which solvency depends. This was the situation, for instance, between 1929 and 1932. During these years net revenue from railway operation fell from 1773 million dollars to 723 million dollars, a decline of 1050 million dollars, or 59 per cent. Here was a considerable decline, yet one which might have been endured if earnings had recovered without too much delay and if, meanwhile, capital outlays could have been cut down. But what actually happened was that interest charges during the period increased from 515 to 528 million dollars and that, while taxes and rentals fell, the decline was not proportionate to the falling off in revenue. The result was that the net income of Class I railways changed from a surplus of 897 million dollars in 1929 to a deficit of 139 million dollars in 1932 and that, by the end of 1933, 42,000 miles of railroad were in the hands of receivers or of trustees.

The practical reason why railroads sell bonds rather than stock is that sometimes only bonds with fixed rates of interest can be sold and that at most times bonds can be sold at a higher price. One reason for the better market for bonds is that savings banks, trustees, and insurance companies ordinarily are not permitted to buy common stocks. Indeed, state laws go even farther than this, as in New York, where savings banks are forbidden to buy bonds of railroad corporations which have failed to earn less than $1\frac{1}{2}$ times their fixed charges during 5 out of the 6 years next preceding the purchase and $1\frac{1}{2}$ times fixed charges during the year preceding that in which the purchase is made. Such restrictions exclude the most important institutional investors from bidding for railroad stock. Another reason is that some states prohibit the sale of stock at less than par—a requirement which can be met only by exceptional railroad corporations. Sales of stock are also difficult in times of depression because of the uncertainty of dividends, and at all times they fail to attract that portion of the investing public which is interested in security rather than in the possibility of speculative gain.

Besides these limitations of the market there are three other considerations responsible for the extensive use of bonds. One of them relates to what is sometimes known as "trading on the equity." This means that a corporation which expects to earn, say, 10 per cent upon an additional investment will improve the chances for increased dividends to its existing stockholders if it borrows the new capital at 4 per cent, whereas it will increase the chances of advancing its dividend rate to a less degree if it secures money by admitting new proprietors by the sale of stock. Another consideration relates to control. The issue of new stock, particularly if large quantities are sold, imperils the position of the dominant group. Especially

when railroad corporations have undertaken expansion and the acquisition of new lines have they found it convenient to pledge the stock they have acquired to secure the issue of bonds, rather than to offer stock of their own in exchange. By doing this they have secured the advantage of increased earnings through consolidation for their own shareholders without admitting the stockholders of the purchased corporation to a share in the management or profits of the enlarged concern. Bonds used in purchasing new properties are frequently of a type known as collateral trust bonds. Holders of such bonds, upon default, may seize the collateral which secures them, and if this is insufficient to satisfy their claims they may obtain judgment for the balance against the issuing company; but meanwhile they have no rights beyond those expressed in the contract of loan which they possess. Finally, the peculiar advantage of the equipment bond or equipment trust obligation seems to have appealed strongly to investors and to have led railroads to rely heavily upon this kind of secured contract in supplying themselves with locomotives and cars.²⁴

Railroad Financial Policies.—Attention has already been called to the fact that Class I carriers in the United States issued 3290 million dollars par value in capital stock and 8781 million dollars in bonds during the seventeen years from 1922 to 1938. Stock issues during the period amounted, therefore, to 27 per cent of total issues. This is a small fraction; moreover, the importance of stock issues between 1932 and 1938 is reduced by the fact that few shares were sold for cash or even for the acquisition of physical property. Most stock, on the contrary, was issued in exchange for other securities and principally for other stocks, even during prosperous periods when a different policy might probably have been followed. Large stock operations after 1922 include the issue of 753 million dollars in no-par stock by the New York Central in 1934 and the Great Northern in 1936 to be exchanged share for share for a like amount of issued and outstanding shares which had par values attached. There were also issues of 257 million dollars by the Chicago, Milwaukee, and St. Paul Railway in 1928 and of 114 million dollars by the Missouri, Kansas, and Texas Railroad in 1923 which were ex-

²⁴ Equipment obligations are secured by property which (1) is highly essential in railroad operation, and (2) can be separated from the railroad which originally acquired title or the right to use it and resold to another railroad without much sacrifice. There are, of course, a number of varieties of equipment obligations. One form of contract, for instance, vests title in a trust company which leases equipment to a railroad and then sells bonds secured by the lease. Another type takes the form of a conditional sale of equipment by a trustee to a railroad. In this case the railroad issues notes in payment which are resold by the trustee; but title to the equipment remains in the trustee until the notes mature and have all been redeemed. Even a railroad with poor credit can buy equipment on what amounts to an installment basis, and strong companies can often supply their needs for cars in this fashion upon very favorable terms. Between 1922 and 1937, 36 per cent of all issues of railroad bonds consisted of equipment and collateral trust securities; and in a number of individual years these two types of obligation exceeded that of all other kinds of bonds put out.

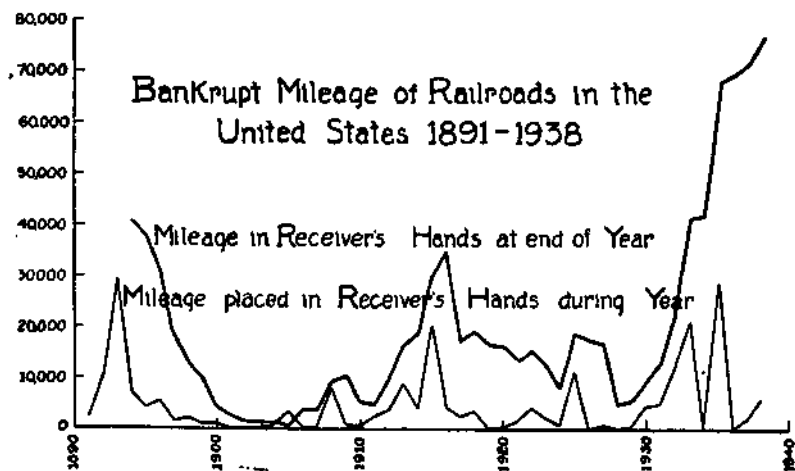
changed for older securities when these two companies were reorganized. In 1936 the Wheeling and Lake Erie offered 56 million dollars in common and preferred stock for other stock then outstanding. During the whole period, 95 million dollars in new stock was distributed in dividends. Although there are important exceptions, it may be said that railroads did not, before 1930, and since that time, have not been able to issue much stock for the acquisition of property or for the retirement of fixed interest-bearing obligations. They probably cannot issue stock for either of these purposes now, except through reorganization; but the need for greater flexibility in railroad finance is so great that even reorganization may be preferable, in many cases, to a continuance of the present plan.

Reorganization Does Not Necessarily Mean that Total Payments for the Use of Capital Shall be Reduced.—When earnings are insufficient to pay a fair return upon outstanding capitalization, steps should be taken to reduce capitalization or to increase earning power. But the substitution of stocks for bonds and the consequent reduction in fixed interest obligations may be necessary when earnings are irregular, even when these earnings are sufficient in amount over an entire period. The public, for its part, often erroneously assumes that the replacement of bonds by stock implies that the railroad will thenceforth be able to save the interest upon the retired bonds. This is not necessarily true, and there is no present reason to suppose that it will be true at all when the defect in a railroad financial structure is only an excessive proportion of bonds. We do not know, as a matter of fact, whether a corporation which replaces bonds by stock will be able to maintain contact with the capital market at less expense than before, although we assume that its general credit will be improved by the transaction because the flexibility of its finances over short periods will be increased. What we do know is that greater flexibility is sufficiently important to justify some change in the direction of corporate policy at the present time. This change regulating authorities can encourage by recognizing that stock issued to buy property or to retire fixed interest-bearing obligations has a right to a return, over a period of years, that is just as valid as the right of the bonds for which it is substituted.

Failures and Receiverships, 1891-1938.—Since 1891 a very large number of railroad corporations have passed into the hands of receivers or of trustees. The accompanying chart shows the railroad mileage placed in the hands of receivers or of trustees in each year since 1891, and also the mileage controlled by such officials at the end of every year.

The chart shows that the panics of 1893, of 1907, the difficulties incident to the outbreak of the World War in 1914, and the general business and financial collapse of the years after 1929 were followed by railroad failures. The sudden rise in the charted line in 1925 was due to a more special reason—it was caused by the failure of a single road, the Chicago, Mil-

waukee, and St. Paul, whose troubles had begun some years before. During the years 1891 to 1939, inclusive, 687 companies operating 233,599 miles of line were placed in the hands of receivers or of trustees, a figure to-be compared with the total of 249,826 miles of road operated by all companies in the United States as of December 31, 1938. Up to and including 1936, 128,601 miles of road had been sold at foreclosure, or 57 per cent of the amount of mileage placed in receivers' hands up to that time. The chart also shows the operated railroad mileage in the hands of receivers or trustees at the end of each calendar year. In most cases companies which fail are reorganized in the course of a few years, so that the curve of railroads in receivers' hands follows with a certain lag the line of railroads entering receivership. This lag was accentuated, however, during the years after 1930



because of the severity and duration of the depression which began in 1929 and because of some uncertainty with respect to the law under which reorganization could take place. Briefly stated, an extent of mileage equal to 94 per cent of the present railroad mileage of the country was placed in the hands of receivers or of trustees during the period 1891 to 1939. Meanwhile the gross earnings of railroads of the United States had grown from \$1,097,000,000 in 1891 to \$3,686,608,054 in 1938. This bad financial record was doubtless the result of several causes; it lent weight, however, at least to the suggestion that the inflexibility of the railroad financial structure should be lessened. Practically, this meant that the percentage of bonds to stock in railroad financing should be reduced.

Reorganization.—Railroad failures characteristically lead to reorganization, and this is desirable because the fact of failure indicates that conditions affecting the bankrupt company have changed for the worse since it was organized or that its original financial plan was ill advised. Some alteration in financial

structure will appear to be wise under circumstances like these, and this can best be accomplished after failure because creditors who hold advantageous contracts will then be most disposed to surrender or to modify the advantages which they possess. Until quite recently this alteration was brought about with the aid of the equity powers of federal courts. The steps taken were, in brief, as follows: Under the old equity procedure it was the practice for some creditor of a railroad to allege non-payment of his claim and to petition a court with appropriate jurisdiction in his behalf, or perhaps in behalf of all creditors, to take charge of and conserve the properties involved pending seizure and distribution of the estate or the completion of an agreement between the parties interested. On the filing of such a petition the railroad would admit the fact of non-payment, and the court would then appoint a "receiver" to administer the railroad system. The receiver would serve as an agent of the court. During his administration no creditor would be allowed to attach and reduce to separate possession property within the receiver's control. The receiver would, in this way, hold the parts of the railroad system together and continue them as a going concern, and creditors and stockholders would gain time during which a reorganization plan could be worked out.

While the receiver, under the old equity plan, administered the railroad, the creditors would organize themselves into committees, each representing one or more classes of security-holders. The representatives so chosen would, in the course of time, agree upon a plan. By the terms of the plan a new company would be incorporated which would undertake to issue securities of its own in agreed amounts and of different kinds. This new company would then buy the property of the old company at foreclosure sale, take over its operation from the receiver, and distribute the new securities among the creditors and proprietors of the old company in ratios which had been arranged. Persons who owned securities of the old company but were unwilling to participate in the reorganization plan would receive no new securities but only a share in whatever price the railroad brought at foreclosure sale. After foreclosure they would have no further connection with the railroad's affairs. This is, of course, a highly simplified statement of what occurred during a railroad reorganization under equity procedure, and practice differed from the routine given in many cases; but the description probably indicates the normal course of events with sufficient accuracy to be informing.

Defects in Reorganization Procedure under Equity.—The following defects were apparent in the equity procedure for railroad reorganization:

- i. There was conflict of jurisdiction between courts. The jurisdiction of federal district courts went no farther than the geographical limits of their districts, so that ancillary receiverships were necessary in every district in which the debtor had property. If a receiver or trustee had been appointed in a prior foreclosure, conservation, attachment, bankruptcy, or other judicial

proceeding, the equity court was powerless to deal with the property affected thereby.²⁵

2. Receivership administration and reorganization were often dominated by railroad or banking interests which had controlled the property prior to its formal acknowledgment of bankruptcy.

3. The relationship of individual security-holders to a proposed reorganization plan was unsatisfactory. Criticism of this point represented two divergent points of view. It was argued on the one hand that a majority of owners in any class should be able to bind minorities in that class to acceptance of a plan, and that these minorities should not be allowed to compel resort to a foreclosure sale. On the other hand, it was alleged that reorganization managers were able to compel the assent of security-holders to a plan because their share of the price for which the property would be sold would be very low.

4. There was inadequate supervision by regulating authorities both of receivership and of reorganization. It was true that securities which a new company, in the course of reorganization, proposed to issue were presented to the Interstate Commerce Commission for its approval. But the Commission's judgment was referred to only after security-holders and the judge in control of the property had approved a plan. The Commission had either to accept what had been done or to require proceedings which had developed over months or years to be begun again. In such circumstances the Commission often felt under the necessity of approving a plan which it did not favor in all respects.²⁶

5. Allowances of fees and expenses in connection with reorganization were often excessive.

Acts of 1933 and 1935 -Appointment of Trustees.—These serious criticisms of reorganization practice in equity proceedings brought about federal legislation in 1933, in 1935, and in 1936. The differences between these laws is not important to our present discussion, and the law of 1935, which is now in effect, is the only one which we need summarize.

By the acts of 1933 and 1935 Congress provided a new procedure for the reorganization of common carriers by railroads engaged in the transportation of persons or of property in interstate commerce.²⁷ Under the new law

²⁵ Thomas K. Finletter, *Principles of Corporate Reorganization in Bankruptcy*, Michie Company, Charlottesville, Va., 1937, chap. iii.

²⁶ United States Congress, House of Representatives, Committee on the Judiciary, 74th Congress, 1st Session, *Hearings on H.R. 6249*, 1935, testimony Eastman, p. 14.

²⁷ 47 Stat. 1467, 1474, 1933; 49 Stat. 911, 1935; 49 Stat. 1969, 1936. Street, suburban, or interurban electric railways were excepted if they were not operated as part of a general system of transportation or did not derive more than 50 per cent of their operating revenues from the transportation of freight in standard steam railroad freight equipment. It is still possible to apply to a court in equity for the appointment of a receiver under the law as it existed prior to 1933; but the railroad concerned or a creditor may file a petition at any time under the act of 1935, and if this is done the case will be transferred and handled under the new law.

(Section 77 of the Federal Bankruptcy Act) a petition may be filed by a railroad company or by creditors. The petition in either case must state that the corporation is insolvent or that it is unable to meet its debts as they mature. It will be filed with the court in whose jurisdiction the corporation has had its principal executive or operating office during the greater portion of the preceding six months, and a copy will be filed, at the same time, with the Interstate Commerce Commission. The court, if it approves the petition, will then exercise exclusive jurisdiction over the railroad and its property wherever located; and this is the case even when a trustee has been previously appointed for all or part of the property by another federal or state court. This simple and comprehensive provision removes the possibility of jurisdiction conflicts of the type which have created difficulties in earlier years.

When a railroad or creditor petition has been approved, the court gives notice of hearing, and after hearing appoints one or more trustees. In 1933 the law stipulated that trustees should be selected from a "panel" of names prepared by the Interstate Commerce Commission. This limitation was removed in 1935. Judicial appointments of trustees, however, become effective only after ratification by the Interstate Commerce Commission; and when a trustee is chosen who within one year prior to appointment has been an officer, director, or employee of the debtor corporation, the judge must also appoint another trustee or trustees who have had no such affiliation. The trustees administer the property of the defaulting carrier much as receivers had administered bankrupt property under equity rules.

Reorganization under the Act of 1935.—Plans of reorganization now follow this routine: They are filed with the court by a debtor with a copy to the Interstate Commerce Commission, or by creditors or stockholders. The Commission then holds hearings. After the hearings it renders a report, and the statute requires that in this report it shall approve a plan, although this approved plan may be different from the one proposed. The Commission certifies its plan to the court. The court holds hearings of its own, and approves or disapproves what the Commission has laid before it. If the judge disapproves, he refers the plan back to the Interstate Commerce Commission for reconsideration. If he approves he refers the plan back for submission to security-holders. At this stage creditors holding two-thirds in amount of each issue affected must approve. Stockholders holding two-thirds of the stock must also approve; but approval by stockholders or by any class of creditors need not be secured if the Commission shall find that the interest of such creditors or of the stockholders has no value or that these interests are fully protected in the plan. If the Commission finds that the corporation is insolvent, the consent of stockholders, in this case also, is unnecessary.²⁸ When a plan is

^r *Findings of the Commission in these matters must be affirmed by the court. Under the Federal Bankruptcy Act a person is insolvent whenever the aggregate of his property, ex-

not indorsed by the necessary proportion of security-holders—and this is important—it is returned to the judge, and he may confirm it in spite of the failure of stock- and bondholders to approve if he finds, after hearing, **that** the plan treats the interest or claims of negotiating parties with fairness and equity. Confirmed and approved plans are binding upon all creditors and stockholders, including dissenting groups. The debtor has authority to put them into effect under the supervision and control of the judge. During all this period of negotiation it is unlawful for any person to solicit proxies from any creditor or stockholder with the idea of representing them unless the Interstate Commerce Commission, by order, shall have approved the solicitation.

Fees of trustees and of counsel, and expenses of reorganization are paid out of the debtor's estate, but may not exceed limits which the Interstate Commerce Commission sets as reasonable.

Comments upon Section 77 as Amended in 1935.—On the whole, the act of 1935 accomplished a considerable improvement over equity procedure. Some of its features, however, have been criticized, and further experimentation may be necessary before this type of bankruptcy legislation reaches its final form. A feature which strikes the observer as clumsy is the passing of a proposed reorganization plan back and forth between the Commission and the court, with hearings by both agencies, involving expense to litigants and the possibility of ultimate difference of opinion between authorities with equal power. The increased protection which is afforded stockholders and junior creditors under Section 77 is also a matter which will deserve attention. Under equity procedure the position of the junior creditor is weak and the stockholder has hardly any rights at all. At present the consent of two-thirds of each class of creditors and the consent of two-thirds of the stockholders is required for the approval of a plan unless the railroad is found to be insolvent or the equities (or interests) of stock- and bondholders are found to be without value, or unless the judge decides to confirm a plan in spite of the unwillingness of security-holders to approve. Determination of insolvency requires a valuation. The chances are that junior interests will fare better under the present statute than they have fared in the past, and that this will create an obstacle to adequate revision of railroad financial structures, or that it will force senior creditors to make concessions which juniors are not equitably entitled to demand. Finally, the Commission and the court, taken together, have statutory authority to frame any kind of plan which they may like and to compel security-holders to accept their views. If exercised, this authority will deprive some creditors and stockholders of advantages which they might otherwise possess; but there are seri-

clusive of any property which he may have conveyed, transferred, concealed, or removed, or permitted to be concealed or removed, with intent to defraud, hinder, or delay his creditors, shall not, at a fair valuation, be sufficient in amount to pay his debts (Sec. 1, act of 1898).

ous questions as to how far courts and commissions can go in altering the form of existing contracts without illegal infringement upon individual rights.²⁹

Actually, Section 77 has accomplished little in encouraging railroad reorganization up to the present time. The Interstate Commerce Commission reports that 38 companies, operating 64,312 miles, were placed in process of reorganization under Section 77 between 1934 and the end of 1939; but only 4 companies, with a total of 375 miles, came out during these years, and of the 4, 2 resolved their troubles by ceasing to operate. The experience of equity reorganizations during the same period, however, although distinctly better was also bad; and it is probable that depressed railroad earnings do more to delay action in these matters than the legal requirements which have been

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Although this proposal to revise Section 77 failed, at least for the time, attention should be called to an amendment to the bankruptcy act passed in July, 1939 (53 Stat. 1134), which provided for voluntary readjustment of indebtedness by railroads which were not and had not been within ten years in equity receivership or in process of reorganization under Section 77. By this amendment railroads so described might, prior to July 31, 1940, file a readjustment plan with the Interstate Commerce Commission for its approval. If the Commission approved, and 75 per cent of the railroad's creditors assented, the plan could be put into effect.

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PART IX

PROBLEMS AND PRACTICE OF REGULATION

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CHAPTER XXIX

EARLY STATE LEGISLATION. GRANGER LAWS



Statutory Regulation of Transportation Agencies.—In the remaining chapters of this book we shall present a more formal account of the regulation of transportation agencies by governments than has been set forth anywhere in the preceding pages. Such regulation is extensive and important in the case of railroads, less so with respect to inland waterways and in process of development as far as motor road vehicles and air transport are concerned. We shall begin with the development of railroad statutory control; following this, we shall discuss the organization of regulation in other fields in some detail.

Railroad Regulation by Charter Provision.—In the United States, as in England, the first action of the legislature with respect to railroads was to issue charters. A charter is a grant of power by the sovereign authority which enables a corporation to exist for certain described purposes, and to do certain things. Meyer enumerates the leading features of railway charters in the United States as follows:

The leading features which are common to railway charters of the several states may be associated with the following points, every charter having one or more provisions, relating to some or all of these points: name of company; number of commissioners; number of board of directors; the amount of capital stock, size and number of shares; the amount of the payment per share at the time of subscription, and the maximum assessment per share, together with the number of days' notice required; systems of voting; the time limit as to beginning and completing construction, junctions, branches, and extensions; route; expropriation and methods of valuation, together with the manner in which disputes are settled; the amount of land which may be held; the number of miles to be constructed before traffic may be opened; the power to borrow money and the rate of interest; the distribution of dividends, liability of stockholders, annual reports, passenger and freight rates. In every state charters may be found which contain provisions on only a few of these points, while in most states charters were granted containing provisions on all of them, and perhaps others not here indicated.¹ . . .

¹B. H. Meyer, *Railway Legislation in the United States*, Macmillan, New York, 1903, PP. 53-54-

Evidently the fact that a railroad cannot function without a grant of **power** from the state affords the latter a convenient opportunity to insist that the railroad accept certain principles of conduct as a condition of operating at all. Some early charters, for instance, contained clauses requiring publicity of rates, fixing maximum scales of charges, calling for annual reports, forbidding discrimination, and other general matters of this sort, besides the phrases conveying powers immediately necessary to the corporate organization.

Defects of Charter Regulation.—Unfortunately, the practice of regulating railroad companies through charter provisions presents difficulties. In the first place, a railroad charter affects one corporation only. Secondly, charters not infrequently conflict, one with another, and where they do not, differences in their terms nevertheless cause controversy. This was true even in England before 1842, in spite of the fact that English railroad charters were all issued by Parliament and might therefore be expected to have been consistent with one another. In France, where there have been few important private railways and one charter-issuing authority, the government has been able to standardize charters and to use them effectively; but in the United States, where there are many railway companies and where each state government has authority to issue charters, the chance for variety in provisions is infinitely greater, and the attempt to regulate through charter provision has led to futility and confusion. Lastly, charters are difficult to amend, at least unless the right to amend is reserved when the charters are first granted, because a charter is a contract and cannot, therefore, be changed without the consent of both parties concerned. These facts have led American governments to give up the attempt to regulate through charter provision and to act through other forms of law.

Early General Laws and Constitutions.—In addition to regulation through charters, the state may act through general law. That is, it may prescribe rules of conduct for all railroads subject to its jurisdiction. Sometimes this is done through constitutional provision and sometimes through simple statute. Probably the difference is less than is supposed. Originally constitutions in this country were conceived of as relatively brief documents, setting up a framework of government and perhaps indicating in a broad way the purposes for which that government was organized. In such a constitution there is little place for railroad regulatory provisions, outside, perhaps, of clauses relating to a railroad commission or other body. Yet one can hardly say that the conception of a constitution as a framework of government has ever been accepted in all parts of the United States; certainly in the West today constitutional amendments resemble ordinary statutes in the detailed character of their provisions, differing from them mainly in the fact that they can be altered or repealed only by popular vote.

It is now over a hundred years since American states began to regulate railroad carriers by constitutional or statute law. The first general law was passed as early as 1833. In this and in subsequent statutes the states dealt with

applications for railroad charters, the safety of travel, the taxation of railroad companies, subscriptions to and transfer of stock, annual reports, and a variety of other items. It will be perceived that the subject matter of the early laws resembled that of the charters. In but few cases was an attempt made at the beginning to set maximum rates for the carriage of passengers or freight, and although some of the laws set up commissions, these bodies were concerned rather with matters of safety than with rates. Early general legislation in this country marked an advance in the direction of standardized treatment of railroad companies, but it accomplished little in the way of effective railroad control.²

Granger Movement—The most important of the early efforts to establish a system of railroad regulation was made in the early seventies, and was one result of what has come to be known as the Granger movement. The characteristics and effects of this movement, in so far as they relate to railways, will be discussed at some length in this chapter.

The Granger agitation proposed to organize the farmers of the South and the Middle West for the improvement of their economic condition. The granges were farmers' organizations, non-political, and intended to encourage diversification of crops, systematization of farm work, cooperation in buying and selling, and other sound agricultural policies. The idea seems to have been conceived by a government clerk named Kelley. Kelley's duties led him through the southern states in the year 1866, where he was impressed by the unprogressive spirit which the farmers there displayed. In 1867, aided by five other government clerks and a fruit grower of Wayne, New York, he worked out a ritual, framed a constitution, adopted a motto and a schedule of fees, and launched an organization bearing the name of the "Patrons of Husbandry," which was destined to enjoy an extraordinarily influential career.

An energetic man can always make converts in the United States if equipped, as Kelley was, with a constitution, a motto, a ritual, and a set of fees. Such symbols make an irresistible appeal to American citizens. It so happened, however, that the Grange organization benefited in its early years by a very great agricultural depression. Between 1866 and 1876 the price of wheat dropped from \$1.52 per bushel to \$.96 per bushel, the price of corn from \$.47 to \$.34, and the price of cotton from \$97.54 to \$47.31 per bale. This decline, which was the result of overproduction, aggravated by poor marketing methods and a disturbed state of the currency, predisposed the farmers to joint action of some kind and partly accounts for the rapid growth of the Grange during the ten years that have been mentioned. The most rapid development of all came after the panic of 1873. On May 19, 1873, granges in the United States numbered 3360; on March 1, 1874, 14,365; and on January 1, 1875, there were 21,697 of these farmers' organizations. This was the high point of the move-

² *ibid.*

ment. In July, 1876, the number of granges had declined to 15,127, although the membership in the order still amounted to 588,525.³

The importance of the Granger movement in connection with railroad legislation was that it enabled the farm voter in the Middle West to formulate and to give expression to his views on railroads, as on other matters, just at the moment when his views with respect to transportation were more than usually pronounced. For the western farmer attributed his failure to market his crops at a profit largely to exorbitant railroad rates. Moreover, the farmer was beginning to resent the fact that some shippers were receiving lower rates than others, and to regret the investment which he had made in railroad securities.

Illinois Railroad Legislation, 1869-1871.—Out of this seething discontent west of the Allegheny Mountains came several interesting experiments in legislation. These states principally affected were Illinois, Minnesota, Iowa, and Wisconsin.

In Illinois, a law was passed in 1869 declaring in general terms that railroads should be limited to just, reasonable, and uniform rates.⁴ This was followed in 1870 by an amendment to the constitution of Illinois declaring railroads to be public highways, forbidding stock-watering and consolidations of competing lines, requiring railroads to make annual reports to a state officer, and directing the legislature to pass laws to correct abuses and to prevent unjust discrimination and extortion by railroad carriers in the state.⁵

Acting under the mandate of the constitution, the Illinois legislature promptly passed a series of laws. One of these, relating to passenger fares, divided the railroads of the state into classes based upon their gross earnings per mile and fixed a sliding scale of maxima for the different classes, ranging from 2½ cents to 5½ cents per mile. Another act, applying to freight rates, forbade discrimination and, more particularly, provided that:

No railroad corporation . . . shall charge or collect for the transportation of goods, merchandise or property on its said road, for any distance, the same nor any larger or greater amount as toll or compensation than is at the time charged or collected for the transportation of similar quantities of the same class of goods, merchandise or property over a greater distance upon the same road.

Section 3 of the same act provided that:

No railroad corporation shall increase its rates of toll or compensation to be charged for the transportation, receipt, handling or delivery of any property from any point on its line of road to any other point on its line of road by reason of

³ S. J. Buck, *The Granger Movement*, Harvard University Press, Cambridge, 1913, p. 58.

⁴ *Ibid.*, p. 126.

⁵ F. N. Thorpe, *American Charters, Constitutions, and Organic Laws, 1492-1908*, Government Printing Office, Washington, 1909.

any decrease in its rates which may be required to be made under the first section of this act.

The normal or maximum rates, above which no increase was to be made, were fixed as the rates of the year 1870. It followed in practice that the law established the actual rates in effect in 1870 on any railroad in Illinois as the maximum rates for that railroad, as far as the transportation of the same class of goods for equal distances was concerned. This drastic rule was based upon the assumption that the rate voluntarily charged by a railroad could be assumed to be a reasonable rate.

Still another law in 1871 established a board of railroad and warehouse commissioners of three men, appointed by the governor for terms of two years, with salaries of \$3500 each. The commissioners had no power to fix rates, but the railroads were required to supply them with statistical and other information, and it was their duty to report to the governor annually and meanwhile to cause prosecutions to be brought for any violations of the law which they might discover.

Finally, an act regulating the receiving, transportation, and delivery of grain by railroad corporations forbade discrimination between shippers and warehouses in the handling of grain.

Illinois Act of 1873.—There was difficulty in enforcing the Illinois Act of 1871, partly because there were no adequate penalties for charging more than the maximum passenger fares provided by the law and partly because the clauses relating to discrimination were unenforceable by reason of their rigidity. Indeed, when a case under the freight-rate law reached the state supreme court, that tribunal ruled that the effect of the law was to prohibit all discrimination, not merely unjust discrimination, and that this was impossible under the state's constitution because it forbade an act which might be shown to be perfectly innocent.

Hence in 1873 the law relating to freight rates was repealed, and a new act was substituted for it. This new law forbade unjust discrimination and unreasonable rates. With respect to the particular measure of discrimination, the statute now declared that a difference in charge between persons and places for the same service in the same direction made a *prima facie* case of unjust discrimination, and that in attempting to justify such discrimination the railroad might not allege competition as an excuse.⁶ The words "in the same direction" were new in this connection, while the reference to a *prima facie* case meant that the carriers might now submit evidence in justification of a discrimination and that their practices would not be condemned off-hand.

Still more important, the new act provided substantial penalties for extortion, or for making any unjust discrimination as to passenger or freight

⁶ *Third Annual Report of the Illinois Railroad and Warehouse Commission, 1873, p. 162.*

rates, and directed the Railroad and Warehouse Commission of Illinois to make a schedule of reasonable maximum rates and fares for the transportation of passengers and freight and cars upon each railroad within the state. This legislation remained on the statute books until supplanted by the law of 1913.

Granger Railroad Legislation in Minnesota, 1871-1875.—The Granger legislation in Illinois has been described at considerable length, both because it was the first to be placed on the statute books of the western states and because it served as a model for later laws.

In Minnesota, the legislature passed an act in 1871 limiting the charge for passenger transportation to 5 cents per mile and prescribing maximum charges for freight. For the latter purpose freight was divided into five classes. Railroads were declared to be public highways, discrimination was forbidden, and penalties for violation of the act were prescribed; and the same year in another law the office of railroad commissioner was created, with power to investigate railroads and their operations and to make reports.

In 1874, both the act creating a railroad commissioner and the maximum fare legislation were repealed, and in their stead was enacted a law establishing a railroad commission of three members to be appointed by the governor for terms of two years. These commissioners were directed to make a schedule of maximum rates for each railroad doing business in the state. Unjust discrimination was defined and forbidden, and the commissioners were empowered to enforce the law by bringing suit against offending companies. This statute was modeled on the Illinois law of 1873; it was repealed in 1875 and a single commissioner was substituted with power to inquire and to report. The new act also did away with the schedules of maximum rates referred to in the previous law, although it still prohibited unreasonable and discriminatory charges in general terms.⁷

Granger Railroad Legislation in Iowa and Wisconsin, 1874-1875.—Both in Iowa and in Wisconsin fixed schedules of maximum rates and fares were established by law in 1874. In Wisconsin, a railroad commission of three members was set up, with authority to reduce rates below the statutory level but not to raise them. In Iowa no railroad commission was created until 1878, when the Railroad Act in that state was repealed, after which a commission functioned in an advisory capacity. Both in Iowa and in Wisconsin the laws contained references to discrimination, and in Wisconsin the consolidation of parallel and competing railroads was made illegal. The Wisconsin law was repealed in 1876, and a single commissioner with supervisory powers was substituted for the mandatory commission created two years before.

Between 1870 and 1886 restrictive railway laws, based more or less upon the legislation in Illinois, Minnesota, Iowa, and Wisconsin, were passed in

⁷R. Saby, *Railroad Legislation in Minnesota, 1849-1897*, Volkszeitung Company, St. Paul, Minn., 1912

Missouri, California, Nebraska, Kansas, and Oregon, as well as in a number of southern states. We shall not describe this legislation, however, but shall content ourselves with comment upon the laws of the four states in which the Granger movement began.

Economic Effect of the Granger Laws.—The prompt repeal of most of the so-called Granger laws, and the difficult economic conditions in the Granger states at or about the period at which this legislation was made effective, have led to the general assumption that these laws were ill devised and destructive. Moreover, the best-informed study of the Granger legislation which has been published confirms this assumption by declaring that the maximum rates prescribed in Iowa and Wisconsin during the Granger period were lower than conditions warranted, that the work of the railroad commission in Minnesota was unsatisfactory, and that the Illinois schedules failed to cause trouble largely because litigation postponed their effectiveness until the natural development of business had brought railroad charges below the maxima prescribed by law.⁸

There is, however, another side to the picture. For one thing, there is little evidence that the Granger laws actually caused serious loss to the carriers. Indeed, as has just been said, the Illinois law was not enforced until 1880 and a prolonged contest in Wisconsin seriously interfered with the administration of the new law in that state. Detrick has shown that railroad construction in the Granger states compared favorably with construction during the seventies in other states in the West, South, and East, and that the rate of increase of railroad net earnings in these states was well above the average of neighboring commonwealths. Even in Wisconsin, the state which is popularly supposed to have been most unfavorably affected by maximum rate legislation, the increase in average net earnings during the period from 1873 to 1876 was greater than in Indiana, Michigan, or Missouri, and also greater than the average for the Middle states of New York, New Jersey, Pennsylvania, Delaware, Maryland, and West Virginia, or the average for ten selected southern states ranging from Tennessee to Florida.⁹

If the Granger legislation was unduly drastic, at least it was innocuous because only partially enforced.

Nature of Experiments Undertaken by the Granger States.—The real significance of the Granger laws is not to be found in their effect upon conditions in the states which passed them, but in the fact that they made certain experiments and provoked certain statements of principle from the courts which proved of great importance in the development of railroad legislation.

⁸S. J. Buck, *The Granger Movement*, Harvard University Press, Cambridge, 1913.

⁹C. R. Detrick, "The Effects of the Granger Acts," *Journal of Political Economy*, March, 1903. The southern states referred to in the text are the following: Virginia, Kentucky, North Carolina, Tennessee, South Carolina, Georgia, Florida, Alabama, Mississippi, and Louisiana.

The experiments referred to in the preceding paragraph include the following:

- i. The establishment of schedules of maximum rates by direct legislative enactment.

2. The establishment of commissions with authority to draw up schedules of maximum rates.

- 3 The attempt to prevent discrimination between places by "pro-rata" or "short-haul" clauses in the law.

4. The attempt to preserve competition by forbidding the consolidation of parallel lines.

5. The prohibition of the granting of passes to public officials.

By no means all of these experiments proved successful enough to become standard practice in the legislation of the American states. On the contrary, the establishment of rates by direct legislative enactment has been generally unsuccessful in this country, and the enforcement of uniform or pro-rata rates without regard to local conditions has seldom made for the best interests either of the railroad which is subject to them or of the community which the railroad serves. On the other hand, the railroad commission has proved an increasingly useful device, and the prohibition of consolidations between parallel railroad lines at least marked a way which American legislatures have followed for many years.

Attitude of the Railroad Managements Toward State Railroad Control.—

Still more important than the experiments which the middle western states launched in the seventies through the medium of the Granger laws was the fact that these statutes, when they reached the courts for review as to their constitutionality, called forth such emphatic declarations of the public nature of railroad employment and of the consequent public responsibility of carriers and their subjection to public control as to provide a foundation upon which later railroad regulation could securely rest.

Old and clearly formulated as is the law of common carriage, railroad companies in the United States did not, in 1871, recognize the right of the public to control their affairs. Speaking of the railroads' attitude as late as 1882, Judge Reagan of Texas enumerated the pretensions of leading railroad officials and their lawyers as follows:

1. They assume that the railroads are private property.

2. They deny that they are bound by the law of common carriers.

3. They deny that their roads are public highways.

4. They assume that their charters constitute a contract between them and the state which amounts to a prohibition against future interference with their management of these corporations by the legislative authority.

5. They deny, some of them wholly, and some in a qualified manner, the

constitutional power of Congress and of state legislatures to regulate and control the terms on which they shall carry merchandise.¹⁰

This position of the railroad companies to which Judge Reagan referred was contrary to the general theory of the law, even at the time when the Granger acts were passed; but it was nevertheless an important step in advance when the new state legislation led the courts to reconsider and reaffirm the fundamental doctrine that railroads are subject to public control.

Granger Laws Held to Be Constitutional—Munn v. Illinois.—The leading case bearing upon the constitutionality of the Granger laws was that of *Munn v. Illinois*.¹¹ This case dealt with a section of the constitution of Illinois relating to warehouses, and, more particularly, with an act of the legislature of Illinois, passed under the authority of the constitution of 1870, which required the managers of public warehouses in that state to obtain licenses from the circuit court of the county in which the warehouse was located and to observe certain stated maximum rates for the storage and handling of grain. Munn and Scott were lessees of elevators in Chicago who continued to do a warehouse business without taking out a license and who charged higher rates than those stipulated by the law. The question at issue in the case was whether the state legislature had authority to pass the law which Munn and Scott had refused to obey and whether the fixing of maximum rates for the storage of grain deprived the plaintiffs of their property without due process of law, contrary to the Fourteenth Amendment to the Constitution of the United States.

Addressing itself to the question of constitutionality, the United States Supreme Court stated and elaborated upon the principle that there were certain businesses "affected with a public interest" which the public had a right to control. "When," said the court, "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. He may withdraw his grant by discontinuing the use; but, so long as he maintains the use, he must submit to the control."

It seemed obvious to the Supreme Court that a public grain warehouse was affected with a public interest, and that the legislature therefore had authority to make regulations regarding its use. It was not necessary to the decision in *Munn v. Illinois* to extend the principle of the decision to railroads, although, as a matter of fact, common carriers were mentioned as illustrations of public business in the course of the court's discussion.

The decision with respect to the warehouse provisions of the Illinois law was promptly followed by declarations with respect to the Granger legislation

¹⁰ United States Congress, 47th Congress, 1st Session, House Misc. Doc. 55, 1882, Serial 2047, p. 238.

¹¹94 U. S. 113, 1876.

of Iowa and Wisconsin, in which the principles of *Munn v. Illinois* were explicitly applied to the case of carriers by rail.

Other Granger Decisions.—In the case of *Chicago, Burlington, and Quincy Railroad v. Iowa*,¹² the Supreme Court ruled that railroad companies were engaged in a public employment affecting the public interest and were therefore subject to public control under the doctrine of *Munn v. Illinois*. The court therefore dismissed in this case a bill filed by the Chicago, Burlington, and Quincy Railroad Company asking for an injunction to restrain the attorney-general of the state of Iowa from enforcing the Iowa railroad legislation of 1874.

The case of *Peik >. Chicago and North Western Railway Company*¹³ differed from the foregoing in that the bill was filed by first-mortgage bondholders of the Chicago and North Western Railway Company in order to restrain the railroad company from conforming to, and the railroad commission of Wisconsin and the attorney-general of Wisconsin from enforcing, the Wisconsin law of 1874 limiting the rate of charges for transporting passengers and freight on the railroads in that state. The suit was somewhat summarily dismissed, because the principle involved was regarded as settled by previous decisions.

Finally, in *Winona and St. Peter Railroad Company v. Blake*,¹⁴ the Supreme Court upheld the legislation of Minnesota as it had already upheld that of the other Granger states.

By the end of 1876 there had thus been enacted in the United States a respectable body of statute law attempting the regulation of railroad companies in various ways, and the constitutionality of this legislation had been upheld by the federal courts. Neither courts nor legislatures have ever subsequently withdrawn the assertion of dominance which the Granger laws and court decisions secured for the organized public interest in railroad affairs. We shall show in the following chapter how the Granger legislation of the seventies led to the Interstate Commerce Act of 1887, and what further development occurred during the years that followed.

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¹² 94 U. S. 155, 1876.

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¹⁴ 94 U. S. 180, 1876.

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CHAPTER XXX

THE ACT TO REGULATE COMMERCE AND LATER AMENDMENTS



Division of Authority Between State and Federal Governments.—Already at the time when the Granger laws were passed, constitutional law in the United States had arrived at certain principles regarding the division of authority between state and national governments. With respect to commerce, it was agreed that the jurisdiction of a state covered commerce within the borders of that state, and that the jurisdiction of Congress extended to commerce which affected more states than one. The Supreme Court had further ruled that, when Congress failed to act, a state might enforce certain regulations relating to interstate commerce in which she was interested, although the Court at the same time declared that there were some types of matters which the state could never regulate, whether Congress acted or did not act, because the authority of Congress with respect to them was exclusive. The extent of the state's concurrent powers in any case depended upon whether the subject the state sought to control was one which required a single, uniform rule operating everywhere the same or whether public interest was best conserved by local and diverse enactments. In the one class of cases, inaction by Congress was taken to be equivalent to a decision that no action was desired, while in the other the local authorities were left a comparatively free hand until Congress, by positive action, had occupied the field.¹

Rule of the Granger Cases.—The problem of conflicting jurisdiction presented by the Granger cases will first be presented in a formal diagram.

Let *A* in this diagram represent one, and *B* another, state. Let *ab*, *cd*, and *efg* represent shipments. Of these, one shipment, *ab*, begins and ends in area *A*; another, *cd*, begins and ends in area *B*, and third, *efg*, begins in area *A* and has for destination a point in area *B*.

Now there is no doubt but that the state governments in *A* and *B* have jurisdiction over the hauls *ab* and *cd*, or that the federal government may control the haul *efg*. But suppose that the federal government has taken no action, and suppose that state *A* desires to regulate as much of the transportation *efg* as takes place between *e* and *f*, and *B* as much as takes place

¹Cooley v. Board of Wardens, 12 Howard, 298, 1851.

between *f* and *g*. Have the two states authority? Or, taking a still more general case, suppose that state *A* wishes to establish a maximum rate per mile to be charged by all railroads within the state. Can a statute fixing such a maximum be enforced as to the portion of the haul *efg* which lies within state *A*, and a similar statute be enforced by state *B* with respect to the portion of the haul *efg* which lies within that commonwealth?

Inspection of the facts of the Granger cases will show that they fell within the class of instances illustrated by the diagram. More particularly, in *Chicago, Burlington, and Quincy Railroad v. Iowa*² the statute at issue divided all the railroads of Iowa into classes according to business, and established a

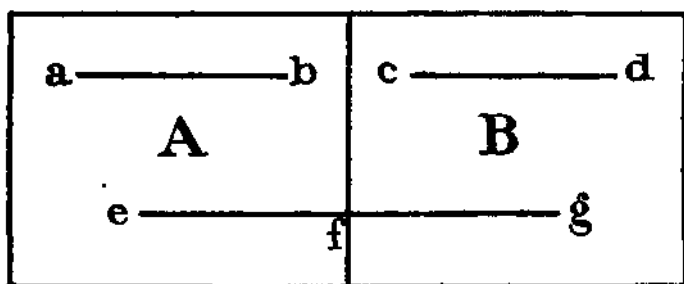


DIAGRAM ILLUSTRATING THE DECISION OF THE UNITED STATES SUPREME COURT IN THE GRANGER CASES

maximum of rates for each of the classes. These maxima applied both to traffic entirely within the state and to traffic which began or ended in other states than Iowa.

In *Peik v. Chicago and North Western*,³ the nature of the statute complained of was the same as that in Iowa, save that the eighteenth section of the law excepted rates on freight which came from beyond the boundaries of the state to be carried across or through the state.

It is clear that the Iowa and Wisconsin statutes of 1874 both applied, in part, to interstate commerce. It did not follow necessarily that the state legislatures had exceeded their authority in these laws, as Congress had taken no action in regulation of interstate railroad rates; but, none the less, it was necessary for the courts to decide whether rate regulation was a field in which the powers of the states were concurrent with those of the federal government or whether interstate rates were among the matters calling for uniform national regulation in a sense which debarred the states from regulating them, even in the absence of action by the federal body.

There were two Supreme Court decisions or groups of decisions upon this interesting point of constitutional law. The first ruling was to be found in the

²94 U. S. 155, 1876.

³94 U. S. 164, 1876.

Granger cases themselves, and in this the power of the states was fully sustained.

The law [said the Court in *Peik v. Chicago and North Western*] is confined to State commerce, or such inter-state commerce as directly affects the people of Wisconsin. Until Congress acts in reference to the relations of this company [the Chicago and North Western Railway Company] to inter-state commerce, it is certainly within the power of Wisconsin to regulate its fares, etc., so far as they are of domestic concern. With the people of Wisconsin this company has domestic relations. Incidentally, these may reach beyond the State. But certainly, until Congress undertakes to legislate for those who are without the State, Wisconsin may provide for those within, even though it may indirectly affect those without.

The immediate importance of the Granger decisions of 1876 with regard to the relative fields of state and federal authority in railroad rate regulation was that they appeared to make it possible for state governments between them to cover completely the field of interstate as well as that of intra-state railroad transportation.

Wabash, St. Louis, and Pacific v. Illinois.—In 1886, however, the rule of the Granger cases in the respect mentioned was overturned by a new decision,

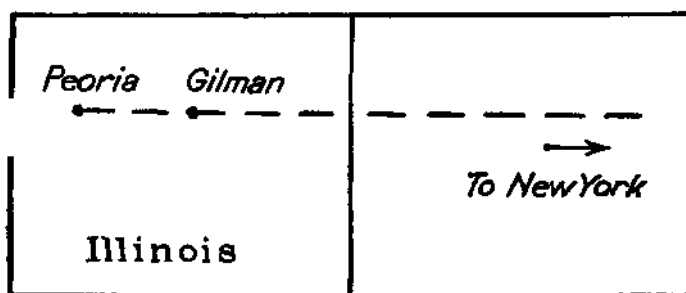


DIAGRAM ILLUSTRATING THE DECISION OF THE UNITED STATES SUPREME COURT IN *WABASH, ST. LOUIS & PACIFIC V. ILLINOIS*

rendered in the case of the *Wabash, St. Louis, and Pacific Railway Company v. Illinois*.⁴ The facts in this case may be represented by the accompanying diagram, which is similar to the one already reproduced on page 731.

The complaint in the *Wabash* controversy arose because a certain person was charged \$39 for the carriage of goods from Peoria, Illinois, to New York City, while another person was charged \$65 for the carriage of a similar quantity of similar articles from Gilman, Illinois, to the same destination. The reason for this was severe competition at Peoria, and less severe competition at Gilman. A greater charge for a shorter than for a longer haul over the same road being forbidden by Illinois statute, the attorney-general of the state brought suit to recover penalty. The railroad admitted that its

⁴118 u. s. 557, 1886.

practice was contrary to local law, but protested that the state statute was unconstitutional. Now this contention clearly had no basis under the rule in the Granger cases, for Congress had taken no more action to control interstate commerce in 1886 than it had in 1876; and according to the Supreme Court, in the absence of action by Congress, it was proper for a state government to protect its own citizens from discriminatory or unreasonable rates even though it should incidentally regulate interstate commerce in so doing. Nevertheless, the Court accepted in 1886 the argument which it had rejected ten years before, after a review of cases in which the inconveniences of state interference with interstate commerce were described. The Supreme Court did not even now deny that there were instances in which state rules might be applied to interstate commerce in the absence of federal action, but it felt that the regulation of railroad rates on interstate freight must be regarded as exclusively within the field of federal authority and could not safely be remitted to local rule and regulation.

The moment the Wabash case was decided, it became evident that state legislation with respect to railroads must be supplemented by federal law, or else that a very considerable share of railroad traffic would escape all legislative control. This condition of affairs provided the immediate reason for the passage of the Interstate Commerce Act of 1887, to the consideration of which we shall now turn.

Congressional Discussions and Investigations Prior to 1887.—The student should not imagine that the anti-railroad agitation throughout the country in the seventies and early eighties had passed unnoticed in the federal Congress. Resolutions calling for investigation of the problem of interstate regulation had been presented in the Senate and House of Representatives as early as 1868; and the report of the Windom Committee of 1872, as well as that of a committee of the New York legislature in 1879, known as the Hepburn Committee, had provided members of Congress with a considerable body of authoritative information regarding railroad discrimination and, to a less degree, with data bearing upon the possibility of a lower level of railroad rates. These were the years of the trunk-line rate wars, of railroad discrimination which led to the foundation of great private fortunes in coal and in oil, and of the beginning of complaints respecting the transcontinental system of railroad rates. Proposals for legislation appeared in every session of Congress, though none found place upon the statute books. In 1885 the House and the Senate, through the so-called Cullom Committee, undertook an extensive investigation which, in 1886, resulted in still another elaborate report.

There were three different funds of experience which were available to Congress when it set itself seriously to the task of framing an act to regulate commerce between the several states. One was the experience of the Granger states and of those other commonwealths that had passed acts in imitation of

the Granger laws. This legislation has been sufficiently described and will not again be referred to.

The Massachusetts Railroad Commission of 1869.—A second type of regulatory enactment which Congress could have duplicated if it had so desired was that initiated by Massachusetts and followed by some other eastern states. The Massachusetts statute of 1869 has been highly praised. The railroad commission which it established consisted of three men appointed by the governor for three-year terms, with power to prescribe the form of annual return rendered by railroad corporations, to supervise the railroads "with reference to the security and accommodations of the public," and to undertake certain duties of inspection, investigation, arbitration, and report. The commission was subsequently given authority to prescribe a system of accounts which every corporation operating a railroad was required to follow. No railroad could be opened for use until the board had examined it and certified that the laws relating to its construction had been observed, and that it appeared to be in a safe condition. No railroad could be constructed across another at the same grade or across navigable waters without the consent of the commissioners. No railroad corporation might locate or construct its road until a sworn estimate of the cost of construction had been submitted to the board and the board had been satisfied that a certain amount of the stock had been paid in.

The commission had supervision of the relocation of freight and passenger stations. It could revise the tariff for the care and carriage of milk. It could regulate the fares established by street railroad companies, but not so as to reduce their profits below a certain percentage upon the cost of the road. It could make rules regulating the transportation of explosives, the violation of which subjected a corporation to heavy penalties. It could approve of the use of certain mechanical appliances and by written notice revoke such approval. It could fix the route of a railroad in a city or town when the town or city authorities could not agree with the directors of the railroad concerning it.

The positive powers of the Massachusetts railroad commission have been emphasized in the foregoing enumeration in order to show that the commission was not, as is sometimes assumed, merely an investigating and reporting agency. Its position in the group of American regulatory bodies has been determined, however, by what it could not, rather than by what it could, do. Notably, the commission could not fix a rate, or require a railroad to change its methods of operation or add to its equipment, or generally enforce existing laws, except by investigation and presentation of facts to the state attorney-general for such action as he might deem expedient or by inclusion of its conclusions in an annual report to the legislature.

These characteristics of the law earned for the Massachusetts commission the name of a weak, or advisory, commission, as contrasted with commissions exercising mandatory powers over railroad rates, as in Wisconsin and Illi-

nois. It is much to the credit of the Massachusetts body that, with limited powers, it attained for itself a position of influence which gave its advice weight. Much greater authority in the hands of the California commission eleven years later led to less beneficent results. The Massachusetts commission is credited with causing the introduction of improvements and economies in the railroads in Massachusetts, such as the automatic block system, continuous or train brakes, and gradual elimination of grade crossings, with the reform of the system of railroad bookkeeping in the state, and with bringing about a steady decline in the average passenger- and ton-mile receipts on Massachusetts railways.⁵

Doubtless it had some influence in these matters. It should be observed, however, that much of the commission's achievement lay in the fields in which it possessed positive authority, and that the tendency to rate reductions in Massachusetts during the seventies and eighties, to which its friends allude, and which it had no authority to enforce, was by no means confined to the railroads which lay within its jurisdiction and probably resulted from causes over which it had little control. The trend of regulatory development in the United States has been in the direction of the strong rather than the weak commission, and the Massachusetts type has not maintained itself even in the state whose name it bears.

The English Railway and Canal Commission of 18J3.—Still a third source of instruction lay in English experience. In England the necessity for some kind of national control over railroad corporations had been felt even earlier than in the United States. The first of the English regulatory laws was the English Consolidation of Clauses Act of 1845, which laid down standard terms for the guidance of Parliament in granting charters; then came the Act for the Better Regulation-of the Traffic of Railways and Canals, passed in 1854; and, finally, the act erecting a Railway and Canal Commission, passed in 1873.

The English law of 1854 prohibited extortion and discrimination in general terms, and required railways and canals to afford reasonable facilities to one another and to the public. The principal duty of the commission of 1873 was to hear complaints and to determine controversies arising under the earlier law. Within these limits the commission had the power to render binding decisions, which the English courts would enforce. This was a greater power than the Massachusetts commission ever exercised. On the other hand, the English Parliament had not, in 1873, prescribed schedules of maximum railroad rates except through charter provisions, and the English Commission did not, like some of the western American commissions, possess the general rate-fixing power.

By 1887, therefore, Congress not only had an incentive to immediate action

⁶ Frank Hendrick, *Railway Control by Commissions*, Putnam, New York, 1900; W. A. Crafts, "The Massachusetts Railroad Commission," *Engineering Magazine*, Vol. X, 1895, P- 286.

in the Wabash decision of 1886, but it was able to draw upon the experience of American and English legislation over a period of more than fifty years; and it was pushed forward by an aroused public opinion offended by current railroad practices and strongly in favor of an increased measure of public control over the railroad industry. It is not surprising that these circumstances led to the enactment of an interstate commerce law.

The Interstate Commerce Act of 1887.—The attempt will now be made to summarize in a few pages the important provisions of the Act to Regulate Commerce, up to and including the Transportation Act of 1940. The Civil Aeronautics Act of 1938 will be referred to, also, although this legislation is not formally a part of the fundamental statute. The reader is asked to remember that the Commerce law began as a comparatively simple statute designed to supplement state legislation, but that it has grown to a code of over two hundred pages, closely linked to a considerable body of decisions by state and federal courts which deal with questions of interpretation or pass upon points of constitutional law. For convenience, the discussion in this chapter will be divided into two parts: first, presentation of the significant clauses of the Act to Regulate Commerce as passed in 1887; and, second, enumeration and classification of amendments up to and including the passage of the Transportation Act of 1940. Succeeding chapters will deal with the regulation of motor, water, and air carriers in more detail, and with national transportation policies which are subjects of current debate.

The principal provisions of the Interstate Commerce Act of 1887 were as follows:

Scope of the Law.—

The provisions of this act shall apply to any common carrier or carriers engaged in the transportation of passengers or property wholly by railroad, or partly by railroad and partly by water when both are used, under a common control, management, or arrangement, for a continuous carriage or shipment from one State or Territory of the United States, or the District of Columbia, to any other State or Territory of the United States, or the District of Columbia, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any other place in the United States, and also to the transportation in like manner of property shipped from any place in the United States to a foreign country and carried from such place to a port of transshipment, or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country: *Provided, however,* That the provisions of this act shall not apply to the transportation of passengers or property or to the receiving, delivering, storage, or handling of property, wholly within one State, and not shipped to or from a foreign country from or to any State or Territory as aforesaid.

The term "railroad" as used in this act shall include all bridges and ferries used or operated in connection with any railroad, and also all the road in use

by any corporation operating a railroad, whether owned or operated under a contract, agreement, or lease; and the term "transportation" shall include all instrumentalities of shipment or carriage. . . .

The new law applied to the carriers who handled the different varieties of transportation usually called interstate or foreign. After 1887 there could be no question but that authority in the states with respect to this commerce did not exist. The scope of Paragraph 2 of the act has been greatly extended since 1887, as will presently appear.

Reasonableness of Rates.—

All charges made for any service rendered or to be rendered in the transportation of passengers or property as aforesaid, or in connection therewith, or for the receiving, delivering, storage, or handling of such property, shall be reasonable and just; and every unjust and unreasonable charge for such service is prohibited and declared to be unlawful.

This statutory declaration added nothing to the common law rule, but operated to confer jurisdiction over questions of reasonableness upon the Commission later to be erected. It is significant that Congress did not embody a schedule of maxima in the law. It was much wiser to lay down a principle and to rely upon administrative action for the application of the principle to concrete cases.

Facilities.—

Every common carrier subject to the provisions of this act shall, according to their respective powers, afford all reasonable, proper, and equal facilities for the interchange of traffic between their respective lines, and for the receiving, forwarding, and delivering of passengers and property to and from their several lines and those connecting therewith, and shall not discriminate in their rates and charges between such connecting lines; but this shall not be construed as requiring any such common carrier to give the use of its tracks or terminal facilities to another carrier engaged in like business.

The facilities clause of the Interstate Commerce Act was taken, with some modifications, from the English Railway and Canal Traffic Act of 1854. It has proved comparatively ineffective. The American public has not suffered from any unwillingness of the railroads to develop through traffic, although, on the other hand, common carriers have picked and chosen among their connections almost at will. It is only since 1910 that the Interstate Commerce Commission has had full authority to establish through routes and to compel their unrestricted operation.

Discrimination.—

That if any common carrier subject to the provisions of this act 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 compen-

sation for any service rendered, or to be rendered, in the transportation of passengers or property, subject to the provisions of this act, 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.

That it shall be unlawful for any common carrier subject to the provisions of this act to make or give any undue or unreasonable preference or advantage to any particular person, company, firm, corporation, or locality, or any particular description of traffic, in any respect whatsoever, or to subject any particular person, company, firm, corporation, or locality, or any particular description of traffic, to any undue or unreasonable prejudice or disadvantage in any respect whatsoever.

The language of the two preceding paragraphs, like that relating to "facilities," is reminiscent of the English act of 1854. The English law was, however, much briefer. Attention should be called to the fact that only "undue" or "unreasonable" preferences were prohibited, and also to the conception of preference for or against localities as distinct from preference for or against the persons who live in localities.

Long and Short Hauls.—The provisions of the Interstate Commerce Act on the subject of greater charges for shorter than for longer hauls have been fully discussed in Chapter XX.

Anti-pooling Clause.—

That it shall be unlawful for any common carrier subject to the provisions of this act to enter into any contract, agreement, or combination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement for the pooling of freights as aforesaid, each day of its continuance shall be deemed a separate offense.

Pools were unenforceable, but not illegal at common law. The railroads maintained that competition would force them to discriminate unless they were allowed to pool, and the argument had some force. In later years, as we have seen in Chapter XXII, the opposition to pooling subsided; but in 1887 public opinion regarded agreements between railroads as a prelude to extortion, and state and national legislatures alike believed that they must be suppressed. The experience upon which this opinion was based was American experience, and the anti-pooling clause was an American contribution to the practice of railroad regulation.

Interstate Commerce Commission.—

That a Commission is hereby created and established to be known as the Interstate Commerce Commission, which shall be composed of five Commissioners,'

who shall be appointed by the President, by and with the advice and consent of the Senate. The Commissioners first appointed under this act shall continue in office for the term of two, three, four, five, and six years, respectively, from the first day of January, anno Domini eighteen hundred and eighty-seven, the term of each to be designated by the President; but their successors shall be designated for terms of six years. . . . Not more than three of the Commissioners shall be appointed from the same political party. No person in the employ of or holding any official relation to any common carrier subject to the provisions of this act, or owning stock or bonds thereof, or who is in any manner pecuniarily interested therein, shall enter upon the duties or hold such office. Said Commissioners shall not engage in any other business, vocation, or employment. . . .

That each Commissioner shall receive an annual salary of seven thousand five hundred dollars. . . . The Commission shall appoint a secretary who shall receive an annual salary of three thousand five hundred dollars. . . . The Commission shall have authority to employ and fix the compensation of such other employees as it may find necessary to the proper performance of its duties.

Comparison of the Interstate Commerce Commission with Other Commissions.—The tabular statement on page 740 compares the Interstate Commerce Commission, with respect to term of office, salary, and number of commissioners, with a selected list of other established railroad commissions with which Congress was familiar in 1887.

Of the selected representative railroad commissions included in this table, the English and the Massachusetts commissions were mentioned at the beginning of this chapter. The Connecticut commission was an example of a group of supervisory organizations early established in New England in order to lessen the number of railroad accidents and to supply the legislature with certain types of information; and the remaining bodies were more or less the direct result of the Granger agitation of the seventies. The resemblance between these various state commissions and the new federal body is sufficiently close to show that Congress was treading upon well-beaten ground. It certainly followed the standard practice of the time in making the Interstate Commerce Commission an appointive rather than an elective body; beyond this, the comparatively liberal salary fixed in the Interstate Commerce Act and the comparatively long tenure of federal as contrasted with state commissioners were a natural recognition of the larger responsibilities which the former were compelled to bear and the evident necessity of enlisting the service of able men in the administration of the interstate commerce law.⁶

In 1906 the membership of the Interstate Commerce Commission was enlarged to seven, the salaries were increased to \$10,000 annually, and the term of office was made seven years.⁷

⁶ The salary of a member of the United States Congress was, in 1887, only \$5000.

⁷ 34 Stat. 548.

Two more members were added in 1917,⁸ and two more in 1920,⁹ when salaries were raised to \$12,000. General reductions in federal salaries following the depression of 1929 reduced Commission salaries to \$8500, but they were restored to \$12,000 in later years. The Commission now consists of eleven members, holding office for seven years.

COMPARISON OF THE INTERSTATE COMMERCE COMMISSION OF 1887 WITH OTHER COMMISSIONS ESTABLISHED IN THE UNITED STATES AND IN ENGLAND PRIOR TO THAT TIME

Name of Commission	Year Estab- lished	Number of Members	Tenure (Years)	Salary-	How Chosen
United States Interstate Commerce Commission	1887	5	6	\$ 7,500	App'td by President
English Railway and Canal Commission	1873	3	5	15,000	App'td by King
Connecticut Railroad Commissioners	1853	3	3	\$3 per day	App'td by Governor
Massachusetts Board of Railroad Commissioners	1869	3	3	4,000	App'td by Governor
Illinois Railroad and Warehouse Commission	1871	3	2.	3,500	App'td by Governor
Minnesota Railroad Commissioners	1874	3	1	3,000	App'td by Governor
Iowa Railroad Commissioners	1878	3	3	3,000	App'td by Governor
California Board of Railroad Commissioners	1880	3	4	4,000	Elected
Georgia Railroad Commission	1879	3	6	2,500	App'td by Governor
Wisconsin Railroad Commission	1874	3	3	1,2.50	App'td by Governor

⁰ The English act of 1873 authorized salaries not to exceed 3000 pounds annually. The tenure of the commissioners was not directly fixed, but the term of the law of 1873 was set in the act itself as five years, and thenceforth until the end of the next session of Parliament. This set a minimum of five years upon the tenure of the commissioners, although with the possibility of a longer term of office. As a matter of fact, the commission of 1873 was continued from year to year until 1888. In 1888, the fundamental law governing the commission was changed; but, nevertheless, one of the original members, Sir Frederick Peel, continued in office until 1905, a term of thirty-two years.

⁸ 40 Stat. 270.

⁹ 41 Stat. 497.

According to the act of 1887, the Interstate Commerce Commission had the following powers with regard to common carriers subject to the Act to Regulate Commerce:

1. To inquire into the management of the business of common carriers.
2. To require annual reports.
3. To require a uniform system of accounts, and to prescribe the manner in which such accounts shall be kept.
4. To hear complaints or to make investigations relating to violations of the act.

Penalties and Procedure—The original law of 1887, as amended in 1889, provided penalties of fine not to exceed \$5000, or, in case the offense was an unlawful discrimination, also of imprisonment not to exceed two years, for violation of the act. Both penalties were applied to officers and employees of railroad corporations rather than to the corporation itself for reasons which are obvious, at least where imprisonment is concerned; and to officers or agents of corporations who delivered property to railroads for transportation, and knowingly and willfully, by false billing, false classification, etc., obtained transportation at less than the established rates. Besides this, damages could be recovered from the carrier by injured parties.

The procedure in case of complaint required, first, a petition to the Commission by a proper party alleging violation of the act. Then followed an investigation by the Commission, and a finding of facts as the Commission discovered them to exist. This finding could then serve as *prima facie* evidence of the facts found in a jury trial in court following indictment of the accused. Or, in cases which did not involve misdemeanors, the Commission's report was to be communicated to the offending carrier with an order to desist from the practices found to be illegal. In case the carrier failed to obey, the Commission was then to apply to the circuit court having jurisdiction for a restraining order. The court was expected to make appropriate inquiries, using the Commission's report as *prima facie* evidence, and, in the event that the court was satisfied that the carrier was in disobedience of the act, the restraining order asked for was to issue, and the carrier was to be penalized in case of further failure to conform.

The Commission did not have power to prescribe schedules of rates, or even to order a carrier to put a named rate into effect in order to settle a particular controversy, although for a time the Commission believed that it had the latter power. Its authority was limited to requiring a carrier to desist from unreasonable or discriminatory rates or practices. It therefore stood, with respect to power, between the advisory type of railroad commission exemplified by the Massachusetts board and the mandatory railroad commissions of Illinois and Wisconsin.

Miscellaneous Provisions.—Other clauses of the act of 1887 called for publicity of railroad tariffs, stipulated for ten days' notice of advances in rates,

provided for assessment of damages, for an annual report by the Commission to the Secretary of the Interior, and for other matters, generally of minor importance.¹⁰

Although statutory regulation of common carriers began, in this country, in the several states, and although it was as a result of state legislation that the authority of American legislatures over railroad corporations became firmly established, the further development of the technique of railroad control took place principally in connection with the federal law from which extracts have just been given. Indeed, even the later recrudescence of the state railroad commission idea marked a borrowing back of the results of federal experience by the states, much as the initiation of federal control benefited by the still earlier experience of the American commonwealths.

Enumeration of Amendments to the Act to Regulate Commerce.—The first amendment to the Interstate Commerce Act was in 1889. Other considerable amendments or additions followed in 1903, 1906, 1910, 1920, 1933, 1935, 1938, and 1940. In addition to these major statutes, there has been other legislation also, supplementing the Interstate Commerce Law, changing it in detail, and imposing special duties upon the Interstate Commerce Commission. Much, indeed, of the present staff of the Commission is employed on duties which were no part of the Commission's functions as originally conceived. This, for instance, is true of regulation under the Boiler-inspection Act, the Safety-appliance Acts, the so-called Ashpan Act, the Hours-of-service Act, the Valuation Act, and the Bankruptcy Act. In these instances the Commission has been selected as the appropriate agent to carry out new purposes entertained by Congress. The same can be said of the duties imposed upon the Commission of cooperating with the Shipping Board in developing port and transportation facilities in connection with water commerce, of determining the limits of zones of standard time, of enforcing the Clayton Act in so far as applicable to common carriers, of administering portions of the Panama Canal Act, of fixing rates on air mail, of advising the Reconstruction Finance Corporation with respect to railroad loans, and of directing railroad reorganizations. Like Shaw's Swiss soldier, the Interstate Commerce Commission has done its regular work so well that additional tasks have been piled upon it.

Summary Statement of Important Amendments to the Act to Regulate Commerce. Act of 1889.—The changes in this act were in some instances little more than verbal. Thus tariffs were to be posted in two public and conspicuous places in each depot instead of being only "kept"; they were to be, in addition, "accessible to the public," and they were to be placed where they could be conveniently inspected. The Commission was also now for the first time authorized to hire offices and to publish its reports.

¹⁰ In 1889 the Interstate Commerce Act was amended so as to require three days* notice of a reduction in rates, as well as ten days' notice of an advance.

The amendment of 1889, however, also did a few things of greater importance. Thus, it stipulated for three days' notice of declines in rates. It made some changes in the procedure for enforcement of the law, and it introduced, the penalty of imprisonment for certain offenses defined in the act.

Act of 1903.—The act of 1903 is popularly known as the Elkins Act. Its chief provisions were as follows:

1. The Elkins Act removed the penalty of imprisonment inserted in the Act to Regulate Commerce by amendment in 1889, substituting fines ranging from \$1000 to \$20,000 for each offense.

2. The fines contemplated by the new law were made assessable against offending railroad corporations, as well as against their officers and employees, and the corporation was made liable for any acts which, if committed by its officers or employees, would render these latter "guilty of a misdemeanor. The personal liability of corporation servants was, however, still retained.

3. It was made unlawful to receive as well as to give rebates or other concessions in rates. This provision is to be compared with the more limited clauses of the older law penalizing consignors or consignees who obtained transportation at less than the established rates by means of false billing, false classification, or similar deception.

4. Prosecution of violations of the act was made easier in two ways. In the first place, the Elkins Act forbade all concessions which resulted in the carriage of property at less than the published rates, thus simplifying the proof in cases in which discrimination was charged by making it unnecessary to show that one shipper had paid less than his neighbor if it appeared that he had paid less than the published rate; and secondly, the new law allowed suits to be prosecuted in any court of the United States having jurisdiction of crimes within the district-through which the transportation in question might have passed, as well as in the district in which the violation of law took place.

The Elkins Act proved distinctly helpful in the administration of the Act to Regulate Commerce, even though subsequent legislation reintroduced the penalty of imprisonment which it took out of the law. It was, nevertheless, only a statute of detail, making no great change in either the theory or the practice of regulation.

Act of 1906.—This law is known as the Hepburn Act, after its sponsor in the House of Representatives. It was the most important regulatory railroad statute passed between 1887 and 1920.

The Hepburn Act made no change in the wording of the paragraphs relating to reasonableness of rates, facilities, discrimination, long and short hauls, and pooling, as quoted in previous pages of this chapter, nor in the Elkins Act, except as subsequently mentioned. These clauses continued to express the underlying purposes of federal regulation.

There were, however, important changes in other sections of the law. We have already noticed that the Interstate Commerce Commission was enlarged

in 1906 and the salaries of its members raised. The jurisdiction of the Commission was at the same time more explicitly defined so as to include within its scope many railroad activities or activities of organizations connected with railroads about which there was the possibility of dispute. Thus the Commission's authority over express companies was now for the first time mentioned in the law, as was that over railroad switches, spurs, terminal facilities, sleeping car companies, pipe lines, and private cars; and its jurisdiction over all services rendered in connection with the elevation and transfer in transit, ventilation, refrigeration, or icing of property transported, as well as over receipt, delivery, and storage, was explicitly recognized. The Commission could doubtless have regulated these various agencies and facilities in any case if regulation had been necessary to effective control over other subjects formally and directly intrusted to its care, yet the matter admitted of doubt in particular cases, and it was well to have it settled.

The clauses of the new law with respect to railway accounting were of considerable importance. Prior to 1906, the statute authorized the Interstate Commerce Commission to prescribe a uniform system of accounting for railroads and required the carriers to render annual reports. There was no penalty, however, when reports were incomplete; the Commission had no power to inspect the carriers' books, and there was, in general, no adequate way for the Commission to compel the adoption of the system of accounting which it might approve. This was a serious defect in the law, because it deprived the Interstate Commerce Commission of the full, accurate, and comparable information which regulation demands. The Hepburn Act remedied this weakness in the Act to Regulate Commerce by imposing penalties for failure by carriers to conform to prescribed methods of bookkeeping and for failure to file reports with the Commission within a stipulated time. The Commission was given access at all times to the books of the railroads, and it was authorized to employ special examiners for the purpose of inspection. Carriers were forbidden to keep any other accounts, records, or memoranda than those which the Commission should prescribe.

The Hepburn Act also gave to the Interstate Commerce Commission the power to fix a maximum railroad rate. This was an important advance—in some respects the most important accomplished by the act of 1906. Thirty days' notice was now required for either a reduction or an advance in rates.

The Hepburn Act added to the discrimination provisions of the earlier laws both by enlarging the jurisdiction of the Interstate Commerce Commission and in three other ways as well:

1. For the first time the issue of passes was specifically forbidden. The original act of 1887, as amended in 1889, had prohibited discrimination only, in general terms, with the proviso that nothing in the act should prevent the free carriage of certain enumerated classes of persons. The Hepburn Act now dealt with the pass evil directly, while at the same time it relisted and extended the

exceptions. The list of persons to whom passes might be issued now included officers and employees of the pass-issuing road and their families, ministers of religion, inmates of homes for sailors and soldiers, mail-service employees, and a considerable group of other parties. The issuance of passes to persons upon the list was, of course, only permissible, not compulsory.

2. The penalty of imprisonment, removed by the Elkins Act, was restored, and made applicable to both the receiver and the giver of a rebate; and the recipient of the favor was required, as well, to forfeit three times the value of the consideration received.

3. The law now expressly forbade one practice out of which discrimination had grown in the past—namely, the mining and transportation of coal by companies that owned and operated both railroads and mines. The clause of the Hepburn Act relating to such common activities is known as the "commodity clause." It has had a somewhat checkered history and has been only partially effective, but it was intended to operate, and to some extent has operated, to prevent discrimination.

With respect to law enforcement, the Hepburn Act also made significant changes. Under this new law, as under the original act of 1887, the Commission might act upon its own initiative or upon complaint. When proceedings resulted in an order by the Commission requiring a carrier to pay money to injured persons, this order was enforceable in court, where it was handled like any other civil suit for damages. The difference between this and earlier procedure was immaterial.

But in cases where the Commission's order was not for payment of money, but called upon the carrier for some other action such as the reduction of a rate, the order now became effective within the time limit set in the order, unless suspended by court action, and penalties ran from the effective date of the order. The difference between this and the preceding rule was that the carrier was forced to take the initiative in order to prevent the Commission's order from becoming effective, while under the old procedure the Commission was forced to apply to the courts before its decision could be enforced, and penalties began only with the issuance of a court decree. The difference was technical, but important.

Act of 1910.—The principal changes introduced by the Mann-Elkins Act of 1910 related to the following points:

The long- and short-haul clause of the act of 1887 was amended by the excision of the words "under substantially similar circumstances and conditions." This seemingly unimportant alteration had the effect of reviving a section of the statute which, by reason of court decisions, had lost most of its original significance. A full discussion of the changes in Section 4 of the Interstate Commerce Act, with illustrations of the types of rate-making to which the clause refers, has already been presented in Chapter XX.

The Interstate Commerce Commission was now given the power to suspend

proposed changes in rates or classification for 120 days, pending investigation of the reasonableness of the change. If hearings with respect to the new rates were not completed within the 120 days, the Commission was authorized to continue suspension for a further period of six months after which time the changes were to become effective unless the Commission should meanwhile disapprove of them. In 1920 the total period of suspension was reduced to 150 days; in 1927 it was extended to seven months.

This clause was based upon the belief that the public was insufficiently protected by the shipper's right to protest against new rates as unreasonable and ultimately to recover, if successful in his protest, the difference between the new and the old rate on the shipments made during the period of litigation. For if the shipper protected himself against the change in rates by an advance in the price of his goods during the interim period, the burden was, at least in part, borne by the purchaser, and the shipper was not entitled to full reparation; but if the shipper was prevented from making sales, and did not ship by reason of the higher rates, he suffered a loss, but had no legal basis for a claim for reparation. These considerations, together with the additional reflection that the presumption of reasonableness attached rather to rates actually in force than to rates newly proposed, led Congress to empower the Commission to maintain rates upon the old basis during the period of investigation, when changes were proposed upon which the interested parties could not agree.

A Court of Commerce was created, with exclusive jurisdiction of the following types of cases:

1. All cases for the enforcement of any order of the Commission other than for the payment of money, where enforcement did not involve the collection of a forfeiture or penalty or the infliction of criminal punishment.

2. All cases brought to enjoin or set aside in whole or in part any order of the Commission.

3. Suits brought under the Elkins Act to enjoin illegal discriminations or departures from published rates.

4. Suits brought under Section 20 of the Act to Regulate Commerce, praying for the issuance of writs of mandamus, to compel the filing of proper reports or the keeping of prescribed accounts and, under Section 23, to compel the movement of interstate traffic or the furnishing of facilities.

The Court of Commerce was designed to take the place of the federal circuit courts in the adjudication of cases falling within the definitions of the preceding paragraphs. Appeals lay directly to the Supreme Court of the United States. The Commerce Court was manned by five judges, newly appointed by the President of the United States, with salaries of \$8500 each. It was hoped that the substitution of one trial court for many would promote uniformity of decision, reduce delay, and develop expertness on the part of the judges

concerned. The court, however, was not successful, and it was abolished by an act of October 22, 1913.¹¹

Besides the sections mentioned, the act of 1910 contained clauses relative to the routing of freight, the misquotation of rates, the regulation of the issuance, forms, and substance of tickets, bills of lading, etc., and other minor provisions which it is not necessary to describe.

Act of 1920.—This statute is currently referred to as the "Transportation Act of 1920." It was passed after return of the railroads to private operation upon conclusion of the World War of 1914-1918. Its additions to previous legislation were numerous and highly important. Most of these experiments have been considered in earlier chapters of the text; they are summarized in this place for convenient reference.

Transition from Public to Private Management.—The Transportation Act contained provisions intended to facilitate the transition from public wartime to private control which occurred on March 1, 1920. These included authority to fund indebtedness owed by carriers to the United States, the extension of new loans, and the offer to continue the government guarantee of a standard return during the first six months of private operation to carriers which desired such a continuation.

Support to Railroad Credit.—The statute instructed the Interstate Commerce Commission to fix rates which would yield a fair return upon the fair value of railroad property used in the service of transportation. The rate of return was set, provisionally, at 5½ per cent, to which was added ½ Per cent for improvements. Individual carriers which earned more than 6 per cent upon the rates so fixed were to pay half of the excess to the United States. The remainder of the excess was at first to be paid into a reserve fund; after this fund had become equal to 5 per cent of the value of the carrier's property, the carrier's share could be used for any legal purpose. For one reason or another the Interstate Commerce Commission never fixed, and the carriers were never able to charge, rates which yielded 5½ per cent except in two or three of the years following 1920.¹²

Authority of the Interstate Commerce Commission over Rates.—The Transportation Act altered the powers of the Interstate Commerce Commission over rates in four particulars. In the first place, it conferred upon the Commission the authority to fix the actual rate or the maximum or minimum, or maximum and minimum rate thereafter to be collected, instead of the maximum rate only. This logical extension of the power to fix a maximum rate, first

¹¹38 Stat. 208.

¹²In 1922 the Interstate Commerce Commission ruled that 5¾ per cent was to be regarded as a fair return. The railroads never earned 5½ per cent upon their investment after 1920. In 1925, 1926, 1928, and 1929 they earned 5½ per cent or more calculated upon a valuation set by the Commission in 1920 and increased by subsequent investment. The directive phrases of the act of 1920 which are described in the text were repealed in 1933.

granted in 1906, strengthened the hands of the Commission in dealing with cases of discrimination, allowed it to protect water carriers against destructive competition, and enabled it also, more generally, to require each commodity to contribute its fair share to railroad revenues.

A second amendment, relating to the suspension of rates, reduced the total period during which a proposed rate might be suspended from ten to five months. The clause here amended was introduced in 1910 in order to protect the public against the collection of rates against which protest was made, while these rates were the subject of litigation before the Commission. As originally passed, the Commission was authorized to suspend the operation of proposed schedules for 120 days, and then, if necessary hearings were not completed, to extend the suspension for a further period of six months, a total of ten months in all. In 1920 the extension of the suspension was limited to thirty days, thus lowering the period of uncertainty to five months. In 1927, the period was again changed to seven months, where it now stands.

Still another amendment in 1920 changed the clause in the existing law which required rates, fares, and charges to remain in existence for a period of two years after the determination of the Commission, to provide for continuance until further order, or for a specified period of time, according as it should be prescribed in the original order, unless the rates in question should be suspended or modified or set aside by the Commission, or be suspended or set aside by a court of competent jurisdiction.

Finally, the long- and short-haul clause of the Act to Regulate Commerce was amended in the manner already set forth in Chapter XX.

Construction and Abandonment.—The act of 1920 required preliminary approval by the Interstate Commerce Commission before a new railroad might be built or an old road dismantled. This was an important addition to the Commission's power, although one already possessed by many state railroad or public utility commissions. It was limited in effect, for constitutional reasons, to railroads engaged in interstate commerce; but inasmuch as most rail carriers participate in interstate business to a greater or less extent, the Commission's control in this respect extended to nearly all railroads of any importance in the United States.¹³ The act also empowered the Commission to require a carrier "to extend its lines," a phrase which has been the subject of some litigation.¹⁴

¹³ In *State of Colorado v. United States* (46 Sup. Ct. Rep. 452, 1926) the United States Supreme Court held that the Interstate Commerce Commission had authority to authorize discontinuance of intra- as well as of interstate transportation under some circumstances. This case involved a railroad located entirely within a state. The carrier was operated by a larger company at a loss, and the Commission proceeded on the theory that continued operation would amount to a burden upon interstate commerce, because the parent company was engaged in such commerce and would have to make the losses good. The court upheld the Commission's decision.

¹⁴ See 288 U. S. 14, 1933. This subject has been discussed in chap. xii.

Pooling.—The original act of 1887 had forbidden pooling. The Transportation Act amended this long-time prohibition to permit pools whenever the Commission should believe that the division of their traffic or earnings by carriers would be in the interest of better service to the public, would lead to economy in operation, and would not unduly restrain competition.¹⁵

Consolidation.—The Commission ~~was~~ directed to prepare and adopt a plan for the consolidation of the railway properties of the United States into a limited number of systems. At the same time, acquisition of control by one carrier of another in a manner not involving consolidation was made subject to Commission control.¹⁶

Operation.—The Commission had long had authority over regulations and practices connected with the receiving, handling, transporting, and storing of property in so far as necessary to enforce service upon just and reasonable terms, as well as authority in a limited field derived from the obligation to enforce the various safety appliance acts. Such authority, however, fell far short of the general power to issue orders regarding operating practice, as it was directed to the prevention of extortion and discrimination or to the introduction of specific safety devices, and not to the question of efficiency of operation.

In 1917, the Commission was empowered to establish reasonable rules, regulations, and practices with respect to the movement, distribution, exchange, interchange, and return of railroad freight cars; and, in case of necessity, to suspend existing regulations and to issue directions regarding car service for such length of time as it believed to be in the public interest.¹⁷

In the Transportation Act of 1920, the jurisdiction of the Commission was extended to freight locomotives and to special equipment as well as to freight cars, and to the use, control, and supply of equipment as well as to its movement, etc. Moreover, in case of shortage of equipment, congestion of traffic, or other emergency, the Commission was empowered (1) to give just and reasonable directions with regard to car service without regard to the ownership as between carriers of locomotives, cars, and other vehicles, (2) to require the joint or common use of terminals, and (3) to give directions for preference or priority in transportation, embargoes, or movements of traffic under permits. Again, whenever the Commission was of the opinion that any railroad was unable to transport the traffic offered it so as properly to serve the public, it might issue directions with respect to the handling, routing and movement of the traffic of such carrier and its distribution over other lines of roads.¹⁸ Still again, the Commission might, after hearing, order any railroad subject

¹⁵ See chap. xxii.

¹⁶ See chap. xxiv.

¹⁷ 40 Stat. L. 101, 1917.

¹⁸ The constitutionality of the grant of power described in the text was affirmed in *Avent v. United States*, 45 Sup. Ct. Rep. 34, 1924.

to its jurisdiction to provide itself with safe and adequate facilities for car service, and even to extend its line or lines.

No change was made in the Commission's authority under the Safety-appliance acts except that the federal body was now empowered to require carriers to install automatic train-stop or train-control devices, as well as to enforce the older acts relating to automatic couplers, hand holds, and similar apparatus for the preservation of life and limb.

Securities.—The new law gave to the Interstate Commerce Commission, for the first time, power to control security issues of carriers subject to the Act to Regulate Commerce. It was made unlawful for any carrier to issue any share of capital stock or any bond or other evidence of interest in or indebtedness of the carrier, or to assume any liability as lessor, lessee, guarantor, indorser, or surety in respect to securities of any other person or corporation, until authority from the Commission had been secured. Certain directions were given the Commission in the administration of its new powers, and this jurisdiction of the federal body was declared to be exclusive and plenary.

The principal purpose of the amendment was to prevent glaring malpractices in the issue and sale of railroad stocks and bonds such as had become familiar to the general public through Interstate Commerce Commission investigations of the New Haven, Rock Island, Pere Marquette, and St. Louis and San Francisco Railways. Incidentally, the power to regulate security issues later proved of value to the Commission in controlling railway consolidation under other sections of the law, and was an appropriate corollary to the assumption by Congress of responsibility for railroad earnings.

Clauses regulating the issue of railroad securities were to be found in 1920 in the statutes of several of the states, and earlier proposals for federal legislation had been approved by the House of Representatives in 1910, 1914, and again in 1916. The idea was not, therefore, new. The definite substitution of federal for state control in the finances of interstate carriers subject to the act was, however, a boon to the carriers because it relieved them from the necessity of complying with various and sometimes conflicting state statutes, and it was also in the public interest because central regulation was easier to enforce than state regulation and more likely to express a uniform and consecutive policy.

Accounting.—The Transportation Act of 1920 declared that the Interstate Commerce Commission should have access to all documents, papers, and correspondence kept by carriers subject to the act, as well as to all accounts, records, and memoranda. It also directed the Commission to prescribe the classes of property for which depreciation charges should be set up, and the percentage of depreciation to be charged in each class. These additions to the law were of some significance, but in general the accounting clauses of the Interstate Commerce Act were left unchanged.

Labor.—The act established a railroad Labor Board of nine members. Provision was also made for the creation of adjustment boards by voluntary action of unions and carriers, but few of these were actually set up.¹⁹

Emergency Transportation Act of 1933.—The Emergency Act was passed in response to presidential recommendations embodied in a message to Congress on May 4, 1933.

Federal Coordinator.—The President's message contained the following paragraph:

As a temporary emergency measure I suggest the creation of a Federal coordinator of transportation, who, working with groups of railroads, will be able to encourage, promote, or require action on the part of carriers in order to avoid duplication of service, prevent waste, and encourage financial reorganization. Such a coordinator should also, in carrying out this policy, render useful service in maintaining railroad employment at a fair wage.

In compliance with this suggestion, the act set up an officer to be known as "Federal Coordinator of Transportation." The Coordinator was to be appointed by the President, with the advice and consent of the Senate, or to be designated by the President from the membership of the Interstate Commerce Commission. If so designated, the Coordinator was to be relieved from other duties as commissioner during his term of service to such extent as the President might direct. The Coordinator was to appoint his own staff, and was to receive such compensation as the President might fix, except that if designated from the Commission he should receive no compensation in addition to that which he received as a member of that body. Since the President did actually appoint Mr. Eastman, a member of the Interstate Commerce Commission, this limited the salary paid to \$8500. There was disposition during the House debate to criticize clauses in the bill which authorized the Coordinator to select his assistants outside the Civil Service list, and there was some apprehension expressed lest exorbitant salaries might be paid, but neither objection was seriously insisted upon.

The Coordinator, under the law of 1933, was expected to confer with coordinating committees representing the carriers in the eastern, southern, and western parts of the United States. Carriers were directed to organize these committees, and the committees were charged with devising ways and means for avoiding duplication of service and facilities, for the control of allowances and accessorial services to the end that undue impairment of railroad net earnings might be prevented, and for the general elimination of waste. In case committees failed to make economies upon a desirable scale, either because they were unwilling or because they were hampered by state or federal laws, the Coordinator was empowered to issue orders. The act did not specify what these orders should be, but presumably they might prescribe such action looking toward economy of operation as was consistent with the purpose of

¹⁹ See chap. xxvii.

the act. Thus the Coordinator might require the joint use of railroad terminals, the reduction of executive salaries, the elimination of duplicate passenger service, the use, under some circumstances of motorized equipment, the pooling of equipment, the combination of ticket offices, and other measures designed to obviate waste. Orders of the Coordinator were to become effective in twenty days. They might be appealed to the Interstate Commerce Commission but they were not to be limited or controlled by the federal anti-trust laws or by any other restraint or prohibition in state or federal legislation.

Finally, the Coordinator was directed to investigate the transportation conditions of the country and to make recommendations to the Interstate Commerce Commission for transmission to the President and Congress.

Limitations upon the Power of the Coordinator.—An effective limitation on what the Coordinator could accomplish under the emergency law came from the fact that the entire portion of the act relating to the Coordinator lapsed after twelve months, subject to extension by the President for one year or part thereof. Orders issued by the Coordinator during this period continued, it is true, in effect, but they might be vacated by the Interstate Commerce Commission or by other lawful authority, and they were subject to state legislation or to the orders of state commissions, issued after the law had ceased to have effect.

In addition to the limitation resulting from the brevity of his tenure, the Coordinator was further hampered by the refusal of Congress to permit him to force railroad economies which would further reduce employment. The principles involved in this matter have already been discussed. The language of the law in its final form was as follows:

Sec. 7b. The number of employees in the service of a carrier shall not be reduced by reason of any action taken pursuant to the authority of this title below the number as shown by the pay rolls of employees in service during the month of May, 1933, after deducting the number who have been removed from the pay rolls after the effective date of this Act by reason of death, normal retirements, or resignation, but not more in any one year than 5 per centum of said number in service during May, 1933; nor shall any employee in such service be deprived of employment such as he had during said month of May or be in a worse position with respect to his compensation for such employment, by reason of any action taken pursuant to the authority conferred by this tide.

During consideration of the Emergency Act representatives of the standard labor unions came before the Senate Committee and objected strenuously to the proposed legislation unless some protection were afforded against a wholesale dismissal of employees. The subsection printed in the text was the Committee's answer to the demand.²⁰ In one way this new legislation went beyond the position which the employees originally had assumed. This was be-

²⁰ The figure 5 per cent was set because of experience that about this number retire from railroad service each year, in the normal course of business.

cause labor representatives had first contemplated the possibility of absorbing displaced railroad labor through a national program of public works and of industrial rehabilitation, as well as by adjustments within the railroad industry alone. The Committee action dealt with the railroads by themselves. In another way the subsection proved a disappointment because it did not cover all dismissals, as labor representatives seem originally to have believed, but only some dismissals. The limitation applied, that is to say, only to reductions by virtue of action taken under the emergency law. It did not apply to reductions made on railroad initiative without use of any authority conferred by the act and not involving any agency or mechanism which the act created. Carriers remained free under the act to dismiss employees without limit as long as the machinery of the Emergency Act was not invoked, although the Coordinator and the regional committees were bound by the standard of employment of May, 1933, less the annual 5 per cent reduction.

Subsection 7b constituted a definite victory for those groups which regarded employment in the railroad industry as more important than efficiency, over those which, taking a longer point of view, were anxious to restore the solvency of the rail carriers by eliminating waste in their operation. Congress rejected the Eastman view at this time, that ultimately avoidance of waste would be in the interest of the employees themselves because it would remove a threat to fair wages and working conditions; and it accepted the possibility that insistence upon a stable level of employment would so handicap the Coordinator that he would be left only with the power of investigation and advice. In a declining labor market, indeed, this would certainly have been the case. The encouraging feature in 1933 was only that in May railroad employment was far below normal so that a moderate improvement in business would provide a margin within "which the Coordinator could work.

Amendment of Section 15a of the Interstate Commerce Act.—The provisions of the Emergency Act so far described were temporary in character. The new law made, however, certain changes in existing statutes which were intended to be permanent. Among these was the elimination of clauses, inserted in 1920, that directed the Interstate Commerce Commission to fix rates which would yield a stated percentage upon a fair value of the carriers' property. There was substituted, instead, the following paragraph:

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.

For obvious reasons, the recapture clauses of the act of 1920 were repealed at this same time. No objection was raised in 1933 to the repeal of recapture except

to the stipulation that the repeal should be retroactive and that the monies previously collected from the carriers should be returned. The equities of the case were all in favor of refund; but some Congressmen pointed out that there were railroads entitled to recapture money which had received advances from the Reconstruction Finance Corporation. The argument was made that in these cases the government should at least set one debt oil against the other and refund a balance only. Congress rejected the contention (I) because Reconstruction Finance Corporation loans were already and otherwise secured and (2) because these loans were not yet due.

Repeal of the old Section 15a also suggested the need of some change in those sections of the Interstate Commerce Act which required the Commission to establish and maintain railroad valuations. There was some talk in 1933 of repealing completely the sections of the Transportation Act relating to valuation. This was not done, doubtless because Congress thought the Commission might still need valuation data in its work; but the Emergency Act relieved the Commission of the obligation to correct and revise its inventories so as to bring and keep them up to date. The Bureau of the Budget, furthermore, recommended that the Commission's appropriation for valuation for the year 1934 should be reduced by more than one-half. The valuation bureau of the Interstate Commerce Commission seems, therefore, to be in the course of liquidation. The unpopularity of its work comes in some measure from its failure to supply radical groups in Congress with ammunition for attack upon the railroad industry; but it is doubtless also the result of the uncertainty and instability of the estimates which Supreme Court decisions have compelled the bureau to employ.

Consolidation.—While no powers with respect to consolidation were vested in the Coordinator, the emergency statute revised and simplified the clauses of the Transportation Act which had to do with consolidation. These changes made in 1933 have been enumerated in Chapter XXIV of the present treatise. They included the grant to the Interstate Commerce Commission of control over consolidations effected by means of holding companies, and they eliminated the distinctions between acquisitions of control which involved and those which did not involve complete consolidation. Such amendments had been thoroughly considered, and they produced a real improvement in the law.

Bankrupt Carriers.—Carriers under control of a judge, trustee, or receiver were required to comply with the provisions of the Railway Labor Act and with certain paragraphs of Section 77 of the National Bankruptcy Act intended to protect railroad employees in their rights of collective bargaining.

Motor Carrier Act of 1935.—In 1935 the Interstate Commerce Act was amended by the addition of Part II, extending federal regulation to motor carriers engaged in the transportation of passengers or property in interstate commerce. The Interstate Commerce Commission was now empowered to

regulate rates, security issues, mergers, and accounts of highway common carriers, and to grant or to refuse them permission to operate. It was also given extensive, though not identical authority over contract carriers, and jurisdiction over private motor carriers in some particulars. The subject of motor vehicle regulation will be considered in Chapter XXXII..

Civil Aeronautics Act of 1938.—This act was not, in form, an amendment to the Interstate Commerce Act. It deserves a place in the list of regulatory statutes because it set up, for air commerce, a system of regulation comparable to that which the Interstate Commerce Commission administered for rail and, after 1940, for water carriers. The Civil Aeronautics Act established a commission, to be called the Civil Aeronautics Authority. The members of the Authority were to be appointed by the President of the United States. They were given power to supervise the rates of common carriers by air, to fix the maximum of hours to be worked by air employees, to enforce adequate service, to grant or refuse certificates of convenience and necessity, to prescribe accounts, and to promote the safety of commerce in the air. These duties could, reasonably, have been intrusted to the Interstate Commerce Commission. The reasons which persuaded Congress to prefer a separate organization for the regulation of air transport will be discussed in Chapter XXXIV.

Transportation Act of 1940.—The Shipping Act of 1916, together with the Merchant Marine Act of 1920 and of 1936 as amended, and the Intercoastal Act of 1933 had enabled a government board known as the Maritime Commission (formerly the Shipping Board) to regulate common and contract carriers by water in a variety of ways. The most important accomplishment of the Transportation Act of 1940 was the transfer of inland waterway regulation from the Maritime to the Interstate Commerce Commission. The act did this by adding Part III to the Interstate Commerce Act, and by repealing those portions of the Shipping Act and of the Intercoastal Act which were inconsistent with the new legislation. The statute of 1940 conveyed to the Interstate Commerce Commission the authority to regulate water rates, to grant or refuse certificates of public convenience and necessity, and to control consolidation, accounts, and various other specified matters. The act did not empower the Commission to regulate the security issues of water carriers, nor did it stipulate generally that water carriers should provide safe and adequate service. It excepted, also, important categories of bulk transport by water from the field of Commission control. In spite of these weaknesses, the act of 1940 improved the machinery of transport regulation by integrating the processes of water supervision with those of other carrier control.

Besides changing the technique of waterway regulation, the new law amended the Interstate Commerce Act and the Motor Carrier Act in more or less important details. These changes included an amendment of the long- and short-haul clause to eliminate the so-called "circuitry rule" applied to railroad rate-making, and a strengthening of the power of the Interstate Com-

merce Commission to require the installation of through routes. The right of the government to exact reduced rates from land grant railroads was considerably curtailed, the law with respect to railroad consolidation was revised, provision was made for the exemption from federal regulation of motor vehicles engaged in interstate commerce which operated entirely within the limits of a single state, the policy of granting export rates on agricultural commodities was approved, and miscellaneous provisions were introduced with respect to carrier liability, the joint use of terminals, commission procedure in rate cases, loans by the Reconstruction Finance Corporation, and other matters of detail with respect to which Congress believed that existing practice could be improved. Most of these changes have been mentioned in previous chapters.

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CHAPTER XXXI

CONFLICT OF STATE AND FEDERAL AUTHORITY



Predominance of Federal Authority in Transport Regulation.—During recent years the regulatory jurisdiction of the federal government has expanded in the field of transport as compared with the jurisdiction of the states. We have seen that the states were the first to reinforce by statute the common law obligations of reasonableness of charge and equality of rates and service which common carriers are required to respect. And state legislatures led the way, in this country, in establishing administrative commissions to enforce standards of carrier conduct which legislatures had laid down, thus beginning a process which produced a fairly satisfactory system of control. But we have also seen that states could not regulate the entire field of transport because interstate commerce was a federal matter, and we shall presently point out that the national government has hampered the activity of state commissions with respect even to commerce conducted entirely within the boundary of a single state. In actual fact, local authority is now almost entirely excluded from the field of railroad regulation. The same point has been reached in air and in inland water regulation; and there is some reason to believe that the course of control over motor carriers will ultimately be the same.

There are several reasons for the increasing prestige of the federal government in matters of transport control, and not all of them are the outgrowth of judicial support. One such reason, of course, is to be found simply in the increasing importance of interstate as compared with local commerce in a country such as the United States. The absence of local barriers and the presence of cheap transport make specialization possible in this country, which encourages the interstate movements of passengers and goods. The chapters in this book which describe the great flows of traffic in North America provide illustrations of specialization and of long-range commodity movements which must be controlled nationally if they are to be controlled at all.

Federal regulatory agencies are apt, also, to be more efficient than the organizations provided in most states. Regulation demands more than good will, and more than an appreciation of social needs; it is a technical business which requires comprehensive records, administrative expertness, initiative, and judicial learning and acumen. The federal government has built up or-

ganizations which possess these necessary resources because it can bear the expense and because it has been able to draw for its personnel upon the entire population of the United States. The fact that national attention has **been** focused upon what it does has given the federal government, moreover, the benefit of a more constant and varied criticism than that to which most state administrative bodies have been exposed.

Finally, it is an undoubted fact that the courts have supported the national government in a bold extension of its powers to regulate interstate commerce, expressly conferred by the Constitution, until these powers by implication now extend to a great mass of transactions as yet incompletely described which occur chiefly within the boundaries of single states. This chapter will deal mostly with judicial controversies in which this extension has taken place in the field of transportation.

Constitutional Basis for Federal Control of Transport.—Federal authority over transportation in the United States rests on three clauses of the national Constitution. Of these, Article i, Section 8, gives Congress power to define and punish piracies and felonies committed on the high seas, and offenses against the law of nations. Article 3, Section 2, provides that the judicial power of the United States shall extend to all cases of admiralty and maritime jurisdiction, and Article 1, Section 8, grants to Congress authority to regulate commerce with foreign nations, and among the several states, and with the Indian tribes. The first of these three sources of power is of negligible importance. The second affects only a small part of our inland commerce, but the third has assumed a significance which was hardly anticipated by the men who framed the Constitution of 1787.

Definition of Interstate Commerce.—Interstate commerce, according to court decisions, consists of commercial transactions which affect more than one state. It includes, though it is not limited to, acts of transportation. In attempting to define the authority of the Interstate Commerce Commission, the Interstate Commerce Act refers to the transportation of passengers or property and to the transmission of intelligence "from one State or Territory of the United States, or the District of Columbia, to any other State or Territory of the United States, or the District of Columbia, or from one place in a Territory to another place in the same Territory, or from any place in the United States through a foreign country to any other place in the United States, or from or to any place in the United States to or from a foreign country, but only so far as such transportation or transmission takes place within the United States." To this enumeration, which includes foreign as well as interstate commerce, we may add the case of transportation between two points in a single state, where the movement passes out of the originating state in the course of its journey. Thus a shipment from Arkansas through Indian Territory to another point in Arkansas has been held to be interstate

commerce,¹ and similarly a shipment from New York City through New Jersey and Pennsylvania to Buffalo, New York. The conception of interstate commerce, so defined, does not extend to commerce with which one state only is concerned.

Extension of the Power of the Federal Government to Intrastate Commerce.—Now when we speak of an extension of the powers of the federal government in the field of commerce we think of the tendency for national authority to penetrate within the boundaries of a single state and to reach commerce which, traditionally, has been classed as affecting one state only and so is subject exclusively to state control. If this can be done, the recognition of concurrent power in the states with respect to some interstate commerce may be more than offset by the extension of federal authority to commerce beginning and ending within a single state. It is extremely important to understand how far such enlargement of national power has actually occurred during recent years through the commerce decisions of the federal courts.

Safety-appliance Legislation—Air Service Legislation.—The theory which enables the federal government to expand its regulatory activities at the expense of the states is that of "implied powers." This theory concludes that the grant of an expressed power to Congress by the Constitution carries with it such correlative powers as are needed to make the grant effective. The doctrine of implied powers permits Congress, therefore, to regulate in ways not mentioned in the Constitution, if the action taken is necessary or proper in the exercise of delegated authority. In some cases this involves an encroachment upon the reserved powers of the states.

Federal railroad safety-appliance legislation supplies a simple illustration of federal action under the implied powers of the national Congress. The first two paragraphs of the Safety-appliance Acts as amended read as follows:

That from and after the first day of January, eighteen hundred and ninety-eight, it shall be unlawful for any common carrier engaged in interstate commerce by railroad to use on its line any locomotive engine in moving interstate traffic not equipped with a power driving-wheel brake and appliances for operating the train-brake system, or to run any train in such traffic after such date that has not a sufficient number of cars in it so equipped with power or train brakes that the engineer on the locomotive drawing such train can control its speed without requiring brakemen to use the common hand brake for that purpose.

That on and after the first day of January, eighteen hundred and ninety-eight, it shall be unlawful for any such common carrier to haul or permit to be hauled or used on its line any car used in moving interstate traffic not equipped with couplers coupling automatically by impact, and which can be uncoupled without the necessity of men going between the ends of the cars.²

¹ 87 U. S. 617, 1903.

² 27 Stat. 531, 1893.

The paragraphs just quoted are limited in terms to locomotives and cars used in moving interstate commerce. But the nature of railroad train brake systems and coupling appliances is such that it is difficult, if not impossible, to operate equipment in interstate commerce which complies with the law if, in the same train, there are vehicles which do not so comply. It follows that federal safety-appliance regulations are enforced with respect to cars moving in intrastate as well as to those moving in interstate commerce, and the authority to do this is implied from the power of Congress to regulate interstate commerce, which alone is expressly subject to the law.

A not dissimilar situation arises in connection with air commerce. The Civil Aeronautics Authority, a federal body, is empowered to promote safety of flight in air commerce by promulgating rules governing the use of aircraft. It certifies the airworthiness of airplanes, and grants or refuses operating certificates to companies and airman certificates to pilots. No unapproved plane, company, or pilot may engage in air commerce; and air commerce is defined to include not only interstate commerce but any operation or navigation of aircraft within the limits of any civil airway or any operation or navigation of aircraft which directly affects, or which may endanger safety in, interstate, overseas, or foreign air commerce. Here again Congress regulates activities which may be entirely intrastate because the regulation is necessary in order to protect other traffic over which Congress undoubtedly has control.

Trade Barriers.—It may well be that the federal government will resort to the doctrine of implied powers in motor vehicle as it has in railroad and air regulation, although it has only begun to regulate motor vehicle transport in ways which seem to infringe upon the jurisdiction of the states. Current discussions of situations which appear to require federal intervention center upon the subject of trade barriers. The term "trade barriers," in this connection, refers to local policies or prescriptions which restrict the flow of interstate commerce. There are many locally protective policies which have this effect and most of them, probably, cannot be controlled. But it is not certain that state tax and quarantine regulations are always immune when their obvious purpose is to protect local industry,³ and state laws regulating the operation of motor vehicles may easily run counter to the larger, national interest. The burden of complaint in the case of motor vehicle control is principally, it is true, the variety rather than the content of local ordinances. Thus permissible gross weights, width, and height of motor trucks vary in the different states. Some commonwealths allow no full trailers; others limit

³ Practical illustrations of protection by quarantine control are found in state declarations that dairymen whose premises have not been inspected by state inspectors may not be allowed to ship to certain markets in the state, or in local quarantines which bar cattle raised in one area from entrance into another because of the alleged prevalence of diseases which do not actually exist (F. E. Melder, *State and Local Barriers to Interstate Commerce in the United States, A Study in Economic Sectionalism*, University of Maine Studies, 2d Series, No. 43, The Maine Bulletin, November, 1937, University of Maine Press, Orono, Maine, 1937).

the number of trailer units, and others have no limitations of either sort. State laws vary in the prescription of lights, windshield wipers, fire extinguishers, and other facilities; and sometimes a truck is required in one state to be fitted out in ways which are illegal in the state adjoining.⁴

After the passage of the Motor Carrier Act the Interstate Commerce Commission, by order of July 1, 1937, set up standards for the equipment of motor carriers engaged in interstate commerce which replaced state regulations with respect to lights, brakes, flares, etc., by uniform requirements, although the courts have not yet authoritatively determined that state governments may not add to the federal specifications which the Commission has prescribed. The Commission has not yet, however, announced uniform restrictions upon the size and weight of motor vehicles; and it has not attempted to limit the right of every state to demand separate registration of motor vehicles carrying on interstate commerce within its boundaries. Agreement on this last point is made difficult by the fact that complete reciprocity would place greater burdens on the roads of some states than on those of others, and that these burdens would not be compensated by greater receipts. States like Maine and Florida would gain by reciprocity, while states such as Virginia and Pennsylvania, which lie midway in the path of the north-and-south movement along the Atlantic seaboard would lose. It is to be hoped, however, that these gaps in federal regulation will soon be filled. Doubtless there are differences in the character of roads in different parts of the country which may make it unwise to treat all sections alike in fixing maximum limits for the size and weight of trucks, and the elimination of local registration fees may deprive states of needed revenues; but the first of these objections can be dealt with by the Commission, and the second is insufficient to outweigh the considerable advantages of federal control.⁵

Federal Control of Intrastate Rates.—In addition to regulating the intrastate operation and the equipment used by railroad, air, and motor vehicle companies in intrastate commerce to the extent which has been described, the Interstate Commerce Commission has supervised intrastate railroad rates in ways which deserve careful consideration. Judicial approval of this extension of federal power has been obtained in two series of Supreme Court decisions. One is associated with the case of *Houston, East and West Texas v. the United States*, and the other is an outgrowth of the Transportation Act of 1920.

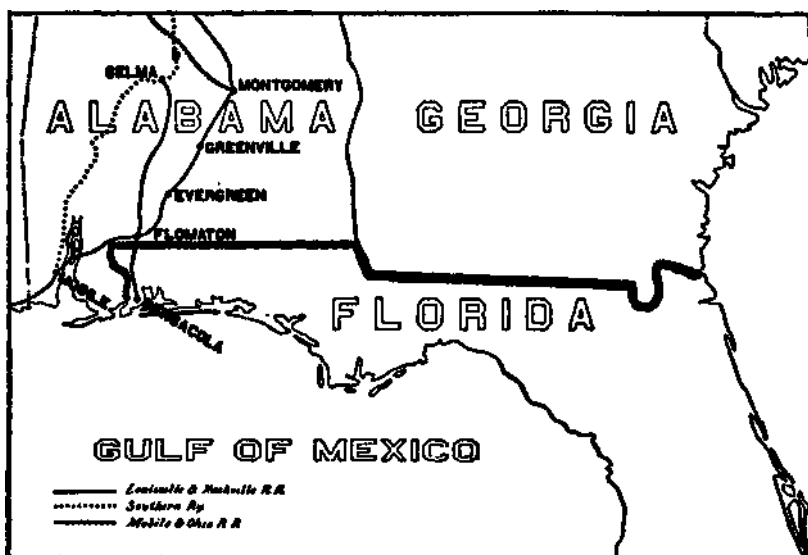
The Pensacola Fish Case.—The facts presented in *Houston, East and West Texas v. United States*, commonly known as the Shreveport case, can best be understood if two prior bits of litigation are first discussed. One of these is

⁴ United States Department of Agriculture, *Motor-Vehicle Traffic Conditions in the United States*, 75th Congress, 3d Session, House Doc. No. 462, Ser. 10, 251, 1938.

⁵ United States Department of Agriculture, Bureau of Agricultural Economics, *Barriers to Internal Trade in Farm Products*, Special Report by G. R. Taylor, E. L. Burtis, and F. V. Waugh, Government Printing Office, Washington, 1939.

selected because of its simplicity, and the other because the Shreveport ruling followed close upon it.

The map printed on this page shows the relative position of the states of Florida and Georgia and the location of the cities of Pensacola and Mobile. In a case brought before the Interstate Commerce Commission in 1910,⁶ it appeared that both Mobile and Pensacola were centers for a considerable fishing industry. Swift fishing vessels cruised in the Gulf of Mexico, and their catch was brought back to these mainland towns, whence it was shipped to interior cities in Alabama and in other states. Just before September 15,



THE PENSACOLA FISH CASE

1907, the railroad rate from both Pensacola and Mobile to Birmingham, Alabama, was \$1.00 per 100 pounds. With equal rates Pensacola secured more business than did Mobile, because it had slightly better fishing equipment, was a little nearer the market, and was more active in pushing sales.

In order to regain for Mobile business which Pensacola had taken away, the Railroad Commission of Alabama, on September 15, 1907, established a mileage rate scale in Alabama, under which the rate on fresh fish from Mobile to Birmingham was reduced from \$1.00 to 55 cents per 100 pounds. This rate did not apply from Pensacola, obviously, because the haul from Pensacola to Birmingham was interstate and the rate not subject to the Alabama Railroad Commission's control. In consequent proceedings, the reasonableness of the \$1.00 rate from Pensacola to Birmingham was not attacked;

and the Interstate Commerce Commission, when appealed to, observed that no reduction which it could fairly require would do more than modify, without removing, the discrimination of which Pensacola complained. Here, then, was a state rate, properly under the control of a state railroad commission by the principles of constitutional law, and yet this state rate affected interstate commerce. For as long as it was possible to ship fish from Mobile to Birmingham more cheaply than from Pensacola to Birmingham, the traffic over one route was sure to dwindle and that over the other route would increase.

Opinion of the Interstate Commerce Commission.—The Interstate Commerce Commission fully understood the facts in the Pensacola Fish case, but saw no remedy which it could apply.

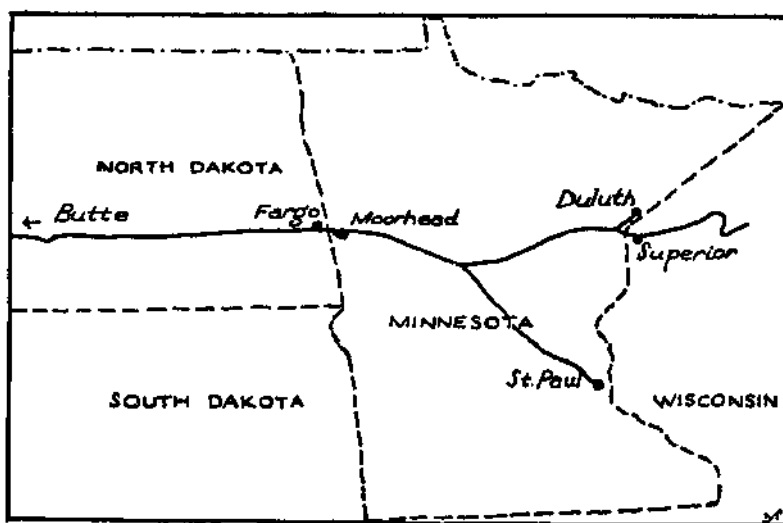
It may be [said the Commission] . . . that the Congress may constitutionally protect interstate commerce, as well as the carriers that are engaged in interstate transportation, by requiring that any state traffic moved by such a carrier shall bear its just proportions of the cost of operation and yield its proper proportion of profit to the carrier; and that with such an end in view it may authorize the Commission to fix minimum rates, at least, for state traffic when moved by carriers engaged also in interstate transportation; or that it may provide that no carrier engaged in the transportation of passengers or property may at the same time carry state traffic at rates that are less than the rates exacted by it for interstate carriages of like distance and under like transportation conditions. It has, however, not attempted any such legislation, and whether such an enactment would stand the test of scrutiny by the courts under the constitution as it now stands, and if so, whether it would be desirable from the standpoint of a broad public policy, are questions that must ultimately be determined by the legislative power and therefore cannot profitably be discussed by the Commission in this proceeding.

Minnesota Rate Cases.—Plaintiffs in the Minnesota Rate cases called in question two orders of the State Railroad Commission of Minnesota and two acts passed by the legislature of that state. These orders and laws prescribed 2 cents a mile as the maximum fare for passengers, except for persons under twelve years of age, for whom the maximum rate was to be 1 cent a mile. Maximum class rates were set for general merchandise, and maximum commodity rates in certain cases. In opposition, suits were brought by stockholders of the Northern Pacific Railway, the Great Northern Railway, and the Minneapolis and St. Louis Railroad Companies, seeking to enjoin the enforcement of the orders and of the legislation which has been described.⁷

The facts in the Minnesota Rate cases were more complicated than in the Pensacola Fish case. Yet both controversies were alike in that a state, in each instance, had taken action which affected interstate rates. In Minnesota the

⁷184 Fed. 765, 1911; 230 U. S. 352, 1913.

effect on interstate traffic was felt in the following ways: First, the reduction in passenger rates by state law caused persons who intended journeys from points in Minnesota to points in other states to buy local tickets from the place where their trips began to the Minnesota town on their route which lay nearest to the state border; at this point passengers again bought tickets, this time to their final destination. How general the practice became is shown by the fact that in June, 1907, the second month after the Minnesota maximum fare law took effect, there were sold by the Northern Pacific 4037 tickets between St. Paul or Minneapolis, on the one hand, and Moorhead or East Grand



— THE MINNESOTA RATE CASES

Forks (border towns) on the other, as compared with only 172 such tickets in the corresponding month of the year before. When combined with the fares from Moorhead or East Grand Forks to destination, the cut in the state rate produced a substantial reduction in the total fare.

Duluth and Superior.—A second result of the Minnesota legislation was that certain Minnesota distributing towns tended to gain at the expense of distributors in others states. This situation, which resembled that in the Pensacola Fish case, may be illustrated by reference to the position of Superior, Wisconsin, and Duluth, Minnesota.

Both Duluth and Superior are Lake ports through which shipments pass to destinations in Minnesota. Previous to the contested orders of the Minnesota Railroad Commission, the rates from Duluth and Superior to Minnesota points such as Moorhead had been the same. Likewise, the rates from Duluth to Moorhead, Minnesota, and to Fargo, North Dakota, had been equal, for otherwise Fargo could not have competed with Moorhead, nor Superior

with Duluth. After the reduction of the Minnesota state rates, the charge from Duluth to Minnesota points, including Moorhead, became less than the rates from Superior to the same points, and the rate from Duluth to Moorhead became less than the rate from Duluth to Fargo. The discrimination was temporary, because the Northern Pacific reduced its interstate rates to meet the state reductions. But, on the other hand, the action of the Northern Pacific made it clear that the state of Minnesota, in regulating intrastate rates, had successfully forced a cut in interstate charges also.

Balancing of Rates upon Butte, Montana.—Still another effect of the Minnesota rate reductions was even more far reaching. For more than twenty-five years, the Northern Pacific Company had balanced its east- and westbound rates upon the city of Butte, Montana. Rates from its western termini to Butte had been kept equal to the rates from its eastern termini to Butte. Likewise, rates from intermediate points east- and westbound had been kept in a certain relation to rates from the terminal points. It followed from the policy of maintaining such a balance that a reduction of the local rate from Duluth to Moorhead had three results: (1) It caused a reduction in the rates from Duluth to Butte, because the relationship between all westbound rates had to be preserved; (2) it forced the rate from western terminals to Butte to be lowered, in order to restore the old balance between the rates on eastbound and those on westbound business; and (3) it lowered the eastbound rates from points between the Pacific coast and Butte, because these local rates were kept in a certain relation with the rates from Pacific coast cities to Butte, Montana.

Opinion of the Court in the Minnesota Rate Cases.—The evidence in the Minnesota Rate cases showed beyond a shadow of a doubt that the action of the state legislature and of the State Railroad Commission in Minnesota had produced profound effects upon interstate rates in the entire Northwest territory. At the same time, the action, in form, related entirely to traffic within the state of Minnesota; and it was not clear that the indirect effect of state action upon interstate business was enough to invalidate the orders of the local bodies. The critical character of the problem was so far appreciated that the railroad commissioners of eight states filed their brief as *amici curiæ*, in support of the view that the Minnesota legislation should be sustained. Possibly even the Supreme Court was moved to an unusual degree of caution, for if the Minnesota maximum rate laws were declared void, it was evident that other similar laws might share the same fate, and that a considerable part of the structure of state railroad legislation might be destroyed. Whether or not it was influenced by such considerations, the Court did actually sustain the Minnesota legislation, and in so far approved the position of those who stood for local rights. Yet the careful reasoning by which the Supreme Court justified its opinion contained suggestions more in accord with national than with state ideas. Federal authority over inter-

state commerce, said the Court, is paramount. States cannot regulate interstate commerce, nor can they place burdens upon it. They can, however, take certain action which affects interstate commerce, because our system of government is a practical adjustment by which the national authority as conferred by the Constitution is maintained in its full scope, without unnecessary loss of efficiency. To this extent states have concurrent authority with the federal government. Concurrent authority is not equal authority. It yields when the federal government has itself acted. Yet in the absence of federal action some state laws affecting interstate commerce are good; and among these are laws regulating the internal commerce of a state, even when such legislation affects the flow of commerce between the states.

The reasoning of the Supreme Court in the Minnesota Rate cases took cognizance of the facts cogently presented in this litigation. It justified the state laws by appeal to the doctrine of concurrent authority of the states over interstate commerce in certain types of cases in which Congress had not acted; but it implied that Congress might, by its valid interposition, limit the exercise of local control. This went much further than the position of the Interstate Commerce Commission in the Pensacola case, and paved the way for the next interpretation of the law.⁸

Shreveport Cases.—We come now to the so-called "Shreveport" litigation, in which the hints thrown out by the Supreme Court in the Minnesota cases were acted upon, and the kind of problem presented by the Pensacola case was fully resolved.

Shreveport, Louisiana, is about 40 miles from the Texas state line, and 231 miles from Houston, Texas. In 1911 the Railroad Commission of Louisiana complained to the Interstate Commerce Commission that the railroads serving Shreveport were charging unreasonable rates from Shreveport to various points in Texas, and likewise that these railroads were discriminating against Louisiana in favor of Texas traffic. The gravamen of the complaint was that the carriers quoted rates from Dallas and other Texas points into eastern Texas which were relatively lower than those applied from Shreveport to the same destinations. Thus the rate on wagons from Dallas to Marshall, Texas, 147.7 miles, was 36.8 cents; and from Shreveport to Marshall, 42 miles, 56 cents. The rate on furniture from Dallas to Longview, Texas, 124 miles, was 24.8 cents; and from Shreveport to Longview, 65.7 miles, was 35 cents. These were illustrative instances of a large number of rate adjustments.

Position of the Texas Railroad Commission.—When the Interstate Commerce Commission looked into the matter, it found that the low level of Texas rates was not entirely due to voluntary action by the carriers, but that it was

⁸ In *Board of Railroad Commissioners of State of North Dakota v. Great Northern Railway* (281 U. S. 412, 1930) the Supreme Court followed the decision in the Minnesota Rate cases by refusing to enjoin a state commission from putting in force a schedule of intrastate rates. The reason given was that the Interstate Commerce Commission had not found that the intrastate rates unjustly discriminated against interstate commerce.

partly also the result of pressure exerted by the Texas Railroad Commission. This commission believed in protecting Texas shippers. It wished to encourage local jobbing and manufacturing establishments, in order to increase population in Texas, enlarge the yield of taxes, and afford to Texas farmers an improved market for their goods. It sought to accomplish this purpose, moreover, by ways which included attention to the relationships of railroad rates. "This Commission," said the *Fifth Annual Report of the Texas Railroad Commission*, "has always had in mind the securing of relatively just state and interstate rates, with a view of enabling Texas merchants and manufacturers to do business in competition with outsiders." Speaking particularly of Shreveport, the Texas commission argued that Shreveport enjoyed low carload rates from northern and eastern points. Such rates, in combination with local rates from Shreveport into Texas, were said to give an advantage to Shreveport jobbers which only a contrary adjustment of the scheme of local rates could possibly correct. Like Alabama and Minnesota, and even in greater degree, the Texas commission was alive to the desirability of protecting local interests.

Order of the Interstate Commerce Commission Affecting Intrastate Rates.—The facts in the Shreveport case were so similar to those discussed in the Pensacola and Minnesota decisions that we may omit any extended or further description of the rate structure in Louisiana and Texas in the year 1911. What made the Shreveport controversy notable was the rather crude display of local protective feeling which it evoked, and the resolute action which the federal agencies approved in support of a broader view. The reader will recall that the Interstate Commerce Commission, in the Pensacola case, had suggested several lines of action which would protect interstate commerce against state attack. One of these was to require that no carrier should carry state traffic at rates that were less than the rates exacted by the same carrier for interstate hauls of like distance and carried under like transportation conditions. It can hardly be an accident that the Commission, in 1912, besides prescribing a scale of class rates covering traffic from Shreveport to points in Texas, ordered also that the carriers should cease and desist from charging higher rates upon any commodity from Shreveport into Texas than were contemporaneously charged for the carriage of the same commodity from Dallas or Houston toward Shreveport for an equal distance.⁹

Of course, the rule of the Commission was expressed in comparative terms, and carriers might have satisfied the order, if they had so desired, by reducing the Shreveport rates. But the Commission did not require this course to be pursued. The railroads did not adopt a policy of rate reduction; and the Commerce Court, to which the matter was appealed, declared that the Texas carriers might raise their Texas rates in spite of the orders of the Texas commission, if they preferred to remove discrimination against interstate

⁹ 23 I.C.C. 31, 47, 1912.

commerce in this way.¹⁰ So interpreted, the order of the Interstate Commerce Commission operated to produce a change in rates between points which were entirely within the state of Texas. Yet the power of Congress to protect interstate commerce against the rivalries of local governments extended even as far as this, and the Supreme Court of the United States held that this power had been delegated to the Interstate Commerce Commission by the Interstate Commerce Act. Action by the Commission was action by Congress itself. "In view," said the Supreme Court, "of the aim of the [Interstate Commerce] Act and the comprehensive terms of the provisions against unjust discrimination, there is no ground for holding that the authority of Congress was unexercised, and that the subject was thus left without governmental regulation."¹¹ Here was the fact which distinguished the Shreveport from the Minnesota Rate controversy. Both cases involved the validity of state rates which interfered with the free flow of interstate commerce. In the Minnesota case Congress had not acted to protect its own, so that the state law was sustained. The incidental effects of the state's action upon interstate commerce were justified by appeal to the state's concurrent power. In the Shreveport case Congress had acted through its agency, the Interstate Commerce Commission, and to this action the state was obliged to yield.

Transportation Act of 1920 Embodies Shreveport Rule.—Congress embodied the Shreveport rule in an amendment to Section 13 of the Interstate Commerce Act which formed part of the Transportation Act of 1920.¹² This

¹⁰ 205 Fed. 380, 389, 1913.

¹¹ 234 U. S. 342, 1913. See also 244 U. S. 617, 1917; 245 U. S. 493, 1918; 274 U. S. 597, 1927; 282 U. S. 194, 1931; 283 U. S. 765, 1931; 52 Sup. Ct. Rep. 74, 1931.

¹² The text of the provisions added to Section 13 is as follows:

"(3) Whenever in any investigation under the provisions of this Act, or in any investigation instituted upon petition of the carrier concerned, which petition is hereby authorized to be filed, there shall be brought in issue any rate, fare, charge, classification, regulation, or practice, made or imposed by authority of any State, or initiated by the President during the period of Federal control, the Commission, before proceeding to hear and dispose of such issue, shall cause the State or States interested to be notified of the proceeding. The Commission may confer with the authorities of any State having regulatory jurisdiction over the class of persons and corporations subject to this Act with respect to the relationship between rate structures and practices of carriers subject to the jurisdiction of such State bodies and of the Commission; and to that end is authorized and empowered, under rules to be prescribed by it, and which may be modified from time to time, to hold joint hearings with any such State regulating bodies on any matters wherein the Commission is empowered to act and where the rate-making authority of a State is or may be affected by the action taken by the Commission. The Commission is also authorized to avail itself of the cooperation, services, records, and facilities of such State authorities in the enforcement of any provision of this Act.

"(4) Whenever in any such investigation the Commission, after full hearing, finds that any such rate, fare, charge, classification, regulation, or practice causes any undue or unreasonable advantage, preference, or prejudice as between persons or localities in intrastate commerce on the one hand and interstate or foreign commerce on the other hand, or any undue, unreasonable, or unjust discrimination against interstate or foreign commerce, which is hereby forbidden and declared to be unlawful, it shall prescribe the rate, fare, or charge, or the maximum or minimum, or maximum and minimum, thereafter to be charged, and the classification, regulation, or practice thereafter to be observed, in such manner as, in its judgment, will remove such advantage, preference, prejudice, or discrimination. Such rates, fares, charges, classifica-

amendment provided (1) that the states should be notified; and the Interstate Commerce Commission might confer with representatives of a state, when any rate, fare, charge, classification, regulation, or practice made or imposed by state authority was brought in issue in any investigation under the provisions of the Interstate Commerce Act; (2) that the Interstate Commerce Commission might take action to remove discrimination against interstate commerce when it found that any rate, etc., caused such unjust discrimination. The rates prescribed by the Commission in order to protect interstate commerce were to be observed by the carriers, the law of any state or the decision or order of any state authority to the contrary notwithstanding.

Speaking of the amendment of 1920, Senator Cummins, Chairman of the Senate Committee on Interstate Commerce, remarked:

The committee has attempted simply to express the decisions of the Supreme Court of the United States. We have not attempted to carry the authority of Congress beyond the exact point ruled by the Supreme Court . . . ; and the only thing we have done in the matter has been to confer upon the Interstate Commerce Commission the authority to remove the discrimination [against interstate commerce] when established in a proper proceeding before that body—an authority which it does not now have.¹³

The second half of Senator Cummins' statement refers to the fact that, before 1920, when the Commission found that a state rate discriminated against interstate commerce, it could require the state rate to be changed but it could not prescribe the new rate which was to be charged. After 1920 the Commission was empowered to prescribe a new intrastate rate in such manner as would, in its judgment, remove the discrimination.¹⁴

Motor Vehicles and the Shreveport Rule.—It deserves mention, however, that the Motor Carrier Act of 1935 did not follow the pattern of the Transportation Act of 1920 in giving statutory recognition to power which the Interstate Commerce Commission might assume over intrastate commerce under the Shreveport rule. On the contrary, Congress inserted a proviso in the law of 1935 which had the opposite effect. Thus, after providing that the Commission might fix the lawful rate, fare, or charge for motor vehicle transportation, Congress added:

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.¹⁵

tions, regulations, and practices shall be observed while in effect by the carriers parties to such proceedings affected thereby, the law of any State or the decision or order of any State authority to the contrary notwithstanding."

¹³ *Congressional Record*, 66th Congress, 2d Session, Vol. LIX, Pt. 1, pp. 142, 143.

¹⁴ See the discussion of the Shreveport case in *Board of Railroad Commissioners of State of North Dakota v. Great Northern Railway*, 281 U. S. 412, 1930.

¹⁵ 49 Stat. 543, 558-559, 1935, Sec. 216, par. (e).

This paragraph declared that Congress did not wish the Commission to exercise, in the case of motor vehicles, an authority which it might have possessed under the Shreveport rule. Not only did Congress so limit **the** Commission's power in 1935 but we may digress to observe that it went still further in 1940. In this last year it permitted a motor carrier which operated solely within a single state to obtain exemption from federal regulation of the interstate commerce in which it might happen to engage. This meant that a local company that participated in handling a through shipment originating outside the state might escape federal regulation of its share of the joint performance. It could do this if the Interstate Commerce Commission found that the transportation in question was "in fact of such nature, character, or quantity as not substantially to affect or impair uniform regulation by the Commission of transportation by motor carriers engaged in interstate or foreign commerce in effectuating the national transportation policy declared in this Act [of 1940]." These two provisions recognized the local character of much motor transport even when technically interstate; and they helped to reduce the excessive load which the Interstate Commerce Commission was forced to bear during the early years of federal motor vehicle control. The policy applied to railroads was more sound, however, from the larger point of view.

Section 15a of the Act to Regulate Commerce.—We have now to refer to cases growing out of the Transportation Act of 1920 which, like the Shreveport case, have given occasion for judicial extension of the national power over commerce. That part of the Transportation Act which embodied the Shreveport rule in the federal statute has already been described. The additional provision of the law which now requires attention was printed as Section 15a of the Act to Regulate Commerce. Section 15a contained the well-known clauses which directed the Interstate Commerce Commission to fix rates so that carriers would earn an aggregate net railway operating income equal, as nearly as might be, to a fair return upon the aggregate value of their property. There is no reason to believe that Congress had the slightest intention of legislating through Section 15a on the contentious question of state v. federal control in the field of intrastate commerce. But it will be evident that this question may easily be involved in any attempt to secure for a railroad a fair return, for a fair return can hardly be expected from interstate commerce alone. Nor can Congress readily direct the Interstate Commerce Commission to fix rates on interstate business to yield a sum which, added to whatever the intrastate tariffs bring in, will amount to a fair return; for such a formula would permit a state to reduce the rates charged on intrastate commerce to so unreasonably low a level that interstate traffic would be forced to contribute most of the earnings that the railroad system would require. We have said that this question of the relative contribution of two kinds of traffic to a fair return arose under Section 15a, and it is a fact that the litigation we

shall mention was related to this section. But it may be added at this point that the problem is not presented merely by the language of a particular section of the law. Statutory language may be changed; but as long as intrastate and interstate business are handled by identical systems, the problem of assigning to each its minimum contribution will be inherent in any policy that assumes a certain total as a minimum which shall be raised.

Rate Advances of 1920.—The particular way in which conflict between state and federal jurisdiction could arise under Section 15a was illustrated by experience under the rate increases allowed by the Interstate Commerce Commission in July, 1920. These increases were made after the conclusion of the World War and the return of the railroads to private operation. At this time the Commission authorized advances of 20 per cent in passenger fares, 50 per cent in rates for sleeping and parlor car accommodation, and from 25 to 40 per cent in freight rates in different parts of the United States. At the request of the Interstate Commerce Commission, three state railroad commissioners took part in the proceedings in the rate case, concurred in the conclusions reached, and issued a statement to state commissions throughout the country expressing their approval. Nevertheless, when the rail carriers applied to the various state commissions for permission to advance intrastate rates and fares to the same extent that interstate charges had been increased, they met opposition which could not always be overcome.

A few examples will illustrate the views of the local commissions. The state of Illinois is partly in Official, partly in Southern, and partly in Western territory. The Illinois Commission authorized intrastate rates to be increased 331/3 Per cent with the evident intent of averaging the varying percentages allowed in the three territories by the Interstate Commerce Commission. It denied, however, all applications to increase passenger fares because it felt bound by the Illinois 2-cent-fare law. In New York, the Interstate Commerce Commission, after conference with state authorities, directed the railroads operating in New York to raise their interstate freight rates 35 per cent, their passenger rates and excess baggage charges 20 per cent, and required them further to add a surcharge of 50 per cent for passengers on sleeping cars. As soon as the order was made effective, carriers applied to the Public Service Commission of New York for similar increases in intrastate rates. The New York commission granted the increase in freight rates, but denied the application as to passenger fares on the ground that passenger fares were limited by state statute. In Wisconsin, increases in intrastate passenger fares were denied for the sole reason that a state statute prescribed a maximum fare of 2 cents a mile. In Missouri, exceptions to the intrastate increases were made in the case of certain commodities, the rates on which had been recently advanced. In New Mexico, increases in certain rates on coal and low-grade ore were denied. In Indiana, increases were refused on passengers, baggage, milk, cream, and Pullman rates, and in the rates on brick. Class rates and

coal rates were increased 33 1/3 per cent, but livestock and iron and steel rates only 16 per cent. The Railroad Commission of Nevada denied all increases asked for in local rates on the ground that it had no authority to permit sweeping changes in rates without regard to their reasonableness. These examples will suffice to show that state commissions were disposed, in 1920, to resist the attempts of carriers to advance intrastate charges along with the rates for interstate movements, although there were some commissions which allowed the suggested changes without debate.

States Required to Raise Local Rates.—Failure of the state authorities to permit advances in intrastate rates comparable to those which the federal Commission allowed in the case of interstate rates now brought the matter before the courts. The complaint was not, as in the Shreveport case, that particular interstate hauls were being prejudiced by low state rates from competing points of origin to some common destination. Refusal to advance state rates might produce such a condition, but it might also create discrimination of a broader sort, directed against interstate commerce as a whole rather than against any specified interstate transaction. This was the charge brought in the Transportation Act cases. The Interstate Commerce Commission did point out that the action of the Wisconsin Railroad Commission in refusing to permit an advance in passenger fares in Wisconsin had caused a marked increase in sales of tickets from interior cities in Wisconsin to border towns, just as the Minnesota law some years earlier had caused people to buy tickets from the point in Minnesota where their journey began to the Minnesota town on their route which lay nearest to the state border. The Commission also found that in Wisconsin state passengers paying a lower rate rode on the same train, in the same car, and perhaps in the same seat with the interstate passenger who paid a higher rate. But in addition to all this, the Interstate Commerce Commission observed that passenger fares on the basis of 3.6 cents per mile for all passenger traffic were necessary to afford carriers in the Wisconsin group a fair return. If Wisconsin railroads were limited to 2 cents a mile on intrastate business, this traffic would fail to contribute proportionately by the sum of \$6,000,000. The failure of local traffic to contribute to the carriers' fair return equally with interstate traffic would constitute a discrimination against interstate commerce as a whole, as distinguished from discrimination against particular hauls. To prevent this, therefore, the Interstate Commerce Commission ordered that undue discrimination against interstate commerce should be removed by increases in all the Wisconsin intrastate passenger fares and excess baggage charges, and by surcharges corresponding with the surcharges ordered in interstate business. The same desire to protect interstate commerce as a whole was shown by the United States Supreme Court in the decision which followed upon the Commission's action.

Twenty per cent of the gross freight receipts of the railroads of the country [said the court] are from intrastate traffic, and 50 per cent of the passenger receipts. The ratio of the gross intrastate revenue to the interstate revenue is a little less than one to three. If the rates, on which such receipts are based, are to be fixed at a substantially lower level than on interstate traffic, the share which the intrastate traffic will contribute will be proportionally less. If the railways are to earn a fixed net percentage of income, the lower the intrastate rates the higher the interstate rates may have to be. The effective operation of the [Transportation] act will reasonably and justly require that intrastate traffic should pay a fair proportionate share of the cost of maintaining an adequate railway system.¹⁶

The same conclusion was reached in a case involving intrastate rates and fares in the State of New York, where also an order of the Interstate Commerce Commission directing increases in local charges was sustained.¹⁷

Recent Controversies.—The Interstate Commerce Commission has assumed jurisdiction over a number of intrastate rates since 1920 in cases in which a disparity between interstate and intrastate rates has been alleged. Some of these controversies have followed Commission action in approving general advances in the general level of interstate railroad charges—advances which were not followed by corresponding changes in intrastate rates. Important instances of this sort were disputes occasioned by the Commission decision in the so-called Fifteen Per Cent Advance Rate case of 1931¹⁸ and in the Emergency Freight Charges case of 1935.¹⁹ On other occasions the Commission has considered variations between state rates and the great mileage scales which the federal authority has set up.²⁰ Likewise the Interstate Commerce Commission has issued orders denouncing schedules of state rates on particular commodities or in particular areas because they resulted in undue preference and advantage to shippers in intrastate commerce. These decisions have sometimes been based upon the Shreveport rule and sometimes they have been justified by the conclusion that schedules prescribed by state authority discriminated against interstate commerce as a whole. The courts have continued to sustain the Commission's authority in such matters,²¹ although they have sometimes questioned the propriety of Commission action in a particular case. Thus the Supreme Court held, in the leading case of *Florida v. United States*,²² that the Commission had erred in overruling the schedules which the state of Florida had prescribed for the carriage of lumber within that state for two separate reasons. First, the Court said that the mere fact that lumber producers in Florida competed with Georgia shippers in Florida markets did not justify the Commission in changing intrastate log

¹⁶ 257 U. s. 563, 1922.

¹⁷ 257 U. S. 591, 1922.

¹⁸ 186 I.C.C. 615, 1932.

¹⁹ 213 I.C.C. 515, 1936; 214 I.C.C. 129, 1936.

²⁰ 190 I.C.C. 367, 1932; 206 I.C.C. 309, 1935; 209 I.C.C. 586, 1935; 214 I.C.C. 567, 1936.

²¹ 245 U. S. 493, 1918; 257 U. S. 591, 1922; 274 U. S. 344, 1927; 283 U. S. 765, 1931

²² 282 U. S. 194, 1931-

rates throughout the state of Florida, but only within the limited territory to which interstate rates were quoted. And second, in this same case, the Supreme Court held that it was not sufficient to show, under the Section 15a doctrine, that intrastate rates were not reasonably compensatory. The Commission, said the Court, must also find that raising the intrastate rates would increase carriers' revenues—a consequence which would not always follow. This Florida decision was later cited by the Commission to explain its refusal to raise intrastate rates in Louisiana in 1935,²³ and it has undoubtedly formed the basis of the Commission's decisions in other instances,²⁴ especially where water or truck competition made it seem probable that higher intrastate rates would divert tonnage from the railroad to other means of transportation.²⁵ The view expressed in the Florida case did not call in question the fundamental principles approved in the Shreveport and Transportation Act decisions, and requires, therefore, no restatement of the general rule on which the Commission has long relied.

Cooperation Between State and Federal Authority.—It seems very evident that the friction engendered by the enforcement of the Shreveport rule and by the Supreme Court doctrine in the Transportation Act cases will be lessened if some degree of cooperation between state and federal authorities can be arranged. It is no less necessary to do this in "Shreveport" cases than in the regulation of motor vehicles, with which the following chapter will be concerned. This was the idea expressed by Commissioner B. H. Meyer in 1916, some time after the decision in the Shreveport case. It was Mr. Meyer's thought that when a case involving the Shreveport principle should arise, the resulting investigation should be conducted jointly by the state commissions and the Interstate Commerce Commission. Every state commission directly involved would thus be given opportunity to participate in deliberation and to assist in formulating the final conclusions upon a record jointly made. The rate established through the joint efforts of the respective commissions would then apply to all business, state and interstate.²⁶

A delay of four years in acting upon this suggestion was due partly to the preoccupation of both state and national governments with problems associated with the war. During this time there was considerable friction between state and federal commissions. Cases involving the Shreveport principle are apt to involve (1) proposed advances in rates by carriers; (2) refusal by state commissions to approve these increases; (3) orders by the Interstate Commerce Commission permitting the carriers to make advances in intrastate rates; (4) court injunctions against the state commissions re-

²³ 211 i.c.c. 499, 1935.

²⁴ 223 I.C.C. 109, 122, 1937.

²⁵ 211 I.C.C. 647, 1935; 226 I.C.C. 625, 1938; 227 I.C.C. 538, 1938.

²⁶ National Association of Railroad and Utilities Commissioners, *Proceedings of the 42d Annual Convention*, 1930, pp. 137-138.

quiring them not to interfere with rates authorized by the Interstate Commerce Commission. The result of such a sequence is that the intrastate rates involved become "frozen." That is to say, state commissions cannot touch them, even for the purpose of minor change not related to the original controversy. The case is even worse when intrastate rates are fixed as the result of litigation under Section 15a. Naturally the state boards were embarrassed by this situation, and some resentment was expressed. This was doubtless why the Supreme Court, in the Wisconsin case, suggested that when the state commissions should recognize their obligation to maintain a proportionate and equitable share of the income of the carriers from intrastate rates, conference between the Interstate Commerce Commission and the state commissioners might dispense with the necessity for any rigid federal order as to the intrastate rates, and leave to the state commissions power to deal with them and increase or reduce them at their discretion. The remark of the Supreme Court was called to the attention of the president of the National Association of Railroad and Utilities Commissioners by the Chairman of the Interstate Commerce Commission. A joint committee was appointed, composed of five Interstate Commerce Commissioners and eight representatives of state commissions. The committee succeeded in working out a definite procedure for cooperative action between the federal and state authorities,²⁷ substantially in accord with Commissioner Meyer's suggestions of six years before. This agreement was somewhat elaborated in 1925,²⁸ and again, in 1937, it was supplemented by further definition of the manner in which state representatives in joint proceedings should be chosen.²⁹ So amended, the agreement still stands.

Statutory Recognition of State and Federal Cooperation.—The authority which enables the Interstate Commerce Commission to cooperate with state commissions is found in paragraph 3 of Section 13 of the Interstate Commerce Act, as amended in 1920, and in Section 205 of the Motor Carrier Act of 1935.

The amendment of the Interstate Commerce Act in 1920 permitted the Commission to confer with authorities in any state when rates and fares imposed by a state were brought in question because of their relationship to interstate rates and fares. The Interstate Commerce Commission was empowered to hold joint hearings in such instances and to avail itself of the cooperation, services, records, and facilities of the states. These clauses clearly covered the arrangements which the Commission and the states worked out in 1922.⁸⁰

The Motor Carrier Act of 1935 was still more explicit with respect to

²⁷ *Ibid.*, *Proceedings*, 1922, p. 427.

²⁸ *Ibid.*, *Proceedings*, 1925, p. 253.

²⁹ *Ibid.*, *Proceedings*, 1937, p. 62.

⁸⁰ The Interstate Commerce Commission had, however, cooperated with the states to some extent before 1920. See *ibid.*, *Proceedings*, 1935, p. 319.

cooperation between state and federal commissions. Section 205 contains the same provisions for conference and joint hearings which are found in paragraph 3 of Section 13 of the Interstate Commerce Act, as amended in 1920. But the Motor Carrier Act also requires the Interstate Commerce Commission to refer to joint boards, in cases where not more than three states are involved,³¹ the following classes of cases: applications for certificates, permits, or licenses; the suspension, change, or revocation of such certificates, permits, or licenses; applications for the approval and authorization of consolidations, mergers, and acquisitions of control or operating contracts; complaints as to violations by motor carriers or brokers of the requirements established under Section 204 (a);³² and complaints as to rates, fares, and charges of motor carriers or the practices of brokers.

Orders of joint boards are to be filed with the Commission, and become effective when adopted by the Commission, just as orders recommended by examiners become effective upon Commission adoption.

Activity under the Cooperative Agreement.—The following table gives, by years, the number of railroad cases in which there has been cooperation under the terms of the 1922 agreement, since 1930, between the Interstate Commerce Commission and some state commission.

COOPERATIVE RAILROAD CASES, 1930-1939

Year	Rate Cases	New Construction, Abandonment, Acquisition of Railroad Properties	Total
1930	11	41	63
1931	10	25	45
1932	11	19	41
1933	14	57	71
1934	16	11	38
1935	14	7	21
1936	7	15	11
1937	10	14	
1938	6	6	12
1939	14	9	23

This table provides some rough picture of the extent to which state and federal commissions have worked together in railroad control. It is clear that the results, statistically, have been small. In the year 1938 the Interstate Commerce Commission disposed of 526 cases, and yet only 12 of these were

³¹ If more than three states are involved, reference is discretionary.

³² This is the general section imposing the duty of regulating common, contract, and private carriers and brokers upon the Commission with respect to service, accounts, maximum hours of service of employees, and safety of operation and equipment.

railroad cases involving cooperative action between members of two commissions. Qualitatively the effect of state participation has been greater, probably, than the figures quoted show. State commissioners cooperate in most of the large freight rate surveys which the Interstate Commerce Commission conducts from time to time; and this, added to the contacts which occur in other railroad cases, has promoted friendly relations and a mutual understanding of the problems which state and federal officials have to meet. On the other hand, real cooperation in rate matters is difficult. Cooperation implies equality, whereas, in cases where intrastate rates affect interstate rates or, in the contrary event, where interstate rates affect intrastate rates, the Interstate Commerce Commission has authority and the state bodies have none. The federal Commission cannot shift its responsibility, and there is no evidence that it has attempted to do so, however much it may have encouraged the presentation of other views. There is, moreover, sometimes a question as to the relations of a state commission to cases brought before the federal board. A state commission may, and often does, appear before the Interstate Commerce Commission as an advocate of a certain policy. The state commission will have met in such instances, and will have decided upon a policy which it desires to see approved. The problem may then arise as to whether a member of the complaining state commission may properly sit with and advise the Interstate Commerce Commission, acting not as an advocate but as an impartial arbiter. Individual members of state commissions have asserted that there is no real difficulty in such cases, provided the state representative ceases to confer with his former colleagues while the case is being tried. It is not so clear that this view is right. Finally, cooperation involves expense. In 1927 two of the Texas Railroad Commissioners were spending most of their time on cooperative cases at the time when the National Association of Railroad and Utilities Commissioners met, and a third was about to enter the work. Cooperation means time from the point of view of the state commissions, and it means travel, for Interstate Commerce Commission conference work is apt to be done at Washington, and few state commissions are equipped to take on extra expense. The Motor Carrier Act (Sec. 205a) provides that members of joint boards shall receive such allowances for travel and subsistence expense as the Commission shall provide, but this has not yet been arranged in railroad cases in spite of the recommendation by the National Association of Railroad and Public Utilities Commissioners that allowances be extended in controversies of this sort.³³

Cooperation in Motor Vehicle Cases.—Joint action by state and federal commissions under the Motor Carrier Act has been much more frequent in motor vehicle cases than in railroad cases under the act of 1920. Doubtless this is partly due to the willingness of the federal government to pay the expenses of state commissioners engaged in joint board discussions of motor

³³ National Association of Railroad and Public Utilities Commissioners, *Proceedings*, 1938, p. 208.

problems. The principal reason for the difference, however, is to be found in the limited and localized importance of most motor carrier controversies. During the period beginning June, 1936, and ending in February, 1939, the Interstate Commerce Commission rendered 2464 decisions in motor carrier cases, and of these 2133 or 87 per cent dealt with applications for certificates, permits, or other matters related to the rights of motor carriers to do business upon the public roads. In most instances the applicant was a small operator, owning a few vehicles and serving a restricted territory; it was very seldom that the proposals presented to the Commission compared in magnitude with those submitted in railroad litigation. A regulative body which must decide a multitude of minor applications that may originate anywhere from Maine to California will seek to decentralize its administrative organization; and the joint boards have proved a convenient instrument in this decentralized control. Between June, 1936, and February, 1939, the Interstate Commerce Commission referred 1388, or nearly two-thirds, of its motor vehicle certificate and permit applications to joint boards. In 1041 of the cases so referred the recommendations of the boards became effective without objection by the parties or occasion for review by the Commission. The Commission reviewed the remaining 347 board reports, either on its own initiative or because of exceptions which the parties filed. In about half the cases reviewed the conclusions of the Commission differed from those reached by the joint boards; in the other half no indication of difference appears in the final Commission decisions. Although joint boards have not functioned to any significant extent in motor rate or consolidation controversies which may, under the act of 1935, also be referred to them for consideration, they have sensibly reduced the work which the Commission has been called upon to do in passing upon applications by motor "carriers for permission to operate. Joint boards in certificate cases serve in fact as Commission examiners. From the point of view of the federal government they appear to be as useful and they are less expensive than examiners would be. The state commissions, for their part, seem to be willing to contribute the services of their members in return for the privilege of sharing in the federal regulation of highway motor carriage. As the number of applications for permits and certificates falls off and other features of motor regulation become relatively more significant, the importance of this state cooperation may somewhat decline.⁸⁴

⁸⁴ Besides the instances discussed in the text, states have cooperated with the Interstate Commerce Commission in preparing a uniform accounting system for motor carriers, and in working at a motor freight classification which both state and federal governments may be disposed to accept. State authorities, also, have adopted Interstate Commerce Commission regulations relative to the safety of operation of motor vehicles in many cases. Cooperation in these ways involves the proffer of suggestions and advice by the states and, at the same time, the acceptance of federal leadership. It is probably more democratic than it is efficient. In this, as in other types of motor regulation, the public hesitates to build up a central organization which is capable of imposing strict regulation upon the motor carrier industry by its **own** unaided efforts.

Arguments Against the Centralization of Transport Control in Federal Hands.—Objections have been expressed to the extension of federal authority to intrastate commerce on several grounds. Naturally, the state railroad commissioners themselves oppose the extension. Moreover, the commissioners are not influenced solely by the wish to maintain their own prestige. Mr. William Jennings Bryan set forth the view of many of them when he testified in 1916 before the Newlands Joint Committee in opposition to the increase in federal regulation of railroads at the expense of authority then exercised by the states. Bryan then presented three arguments against an enlarged federal control. The first argument was that in the nature of things there cannot be an efficient regulation from a central source without the creation of machinery far beyond the expectations of those who favor such a plan. The second objection was that the further the work of regulation is removed from the people, the more difficult it is for the people to control their representatives. A third point was that the absorption of legislative power by the federal government and the surrender of legislative power by the state governments would practically obliterate state lines and weaken the states in the discharge of their duties. To these arguments have been added the contentions that centralization of railroad control limits opportunity to experiment, and that it causes delay. The volume of business pressing upon the central body is so great, it is said, that delay is inevitable.

Arguments in Favor of Centralization of Transport Control.—Advocates of the expansion of federal authority in transport matters are convinced that federal control is more efficient than local control, and that federal authority alone can maintain the internal freedom of commerce upon which the prosperity of the country must depend. On the first point they refer to the success of the Interstate Commerce Commission and to the relative failure of state commissions in the railroad field. Arguments by analogy are dangerous, but so far, concentration has quite clearly increased rather than decreased the efficiency of American regulatory control. On the second point, political and economic considerations appear to be opposed. From the political point of view there is much to be said in favor of decentralization of government in the case of nations not continuously concerned with problems of national defense. From the economic standpoint it is certain that state boundaries mean nothing in the division and localization of production which characterize a nation like the United States. Unimpeded transportation is a necessary condition to division of labor. National control tends to break down the barriers to efficient business enterprise which would be created by the competition of state governments for local economic advantage. What, indeed, would be the force of the prescription in the United States Constitution that "no State shall, without the consent of Congress, lay any impost or duties on imports or exports . . ." if state commissions could adjust railroad rates in the interests of local, commercial, agricultural, or manufacturing groups

within the boundaries of a state? Preceding chapters of this book are full of illustrations of the national character of American industry and commerce; from these alone the evils of any system which may permit local interference with interstate movements of people and of goods can easily be perceived.

Should State Commissions Be Continued?—Soon after the decision of the Supreme Court in the Wisconsin case, Mr. Benton, general solicitor for the National Association of Railroad and Utilities Commissioners, wrote Chairman Meyer of the Interstate Commerce Commission, asking certain questions with respect to the continuance of attempts at state railroad control. Mr. Benton wrote:

Within the next few days the legislatures of most of the states will be in session. The decreased purchasing power of money, which resulted from the war, has produced in every state a very proper disposition to challenge every expenditure, with a view towards eliminating any that seem unjustified.

A somewhat similar situation, though in a less accentuated form, existed two years ago. At that time a movement was made in two or three states towards abolishing state railroad commissions upon the alleged ground that the increased powers conferred upon the Interstate Commerce Commission by the Transportation Act had rendered state commissions useless, or practically so.

While this view was not accepted by the legislature of any state, I presume it will be advanced again this year in certain states. In fact, I am advised that in one state already suggestion has been made that the state railroad commission might well be abolished, for the reason that under the decision of the United States Supreme Court in the Wisconsin railroad rate case practically exclusive powers of regulation have been lodged in the hands of the Interstate Commerce Commission, and that the continued existence of state commissions can be of no value in proportion to their cost.

If this is a fact (and it should be assumed that the law will remain unchanged) it would be well that all the states should recognize it, and act upon it. Certainly, any unnecessary governmental expenditures ought to be avoided; and if the state commissions are useless they ought to be abolished. But if, on the contrary, they are a very necessary part of the governmental machinery for the proper regulation of our railroads, under our dual form of government, it obviously would be most unfortunate for the people of any state if their commission should be scrapped owing to a mistaken belief that its usefulness is ended.

To this letter Mr. Meyer replied in behalf of the Interstate Commerce Commission, as follows:

Under the commerce clause of the Constitution, Congress was granted power to regulate commerce with foreign nations, and among the several states (Sec. VIII 3). By the tenth amendment the powers not granted to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively or to the people. In exercise of the regulatory power thus granted, as applied to railroads, the Congress has always, down to and including enact-

ment of the transportation act, 1920, maintained a proviso now expressed in sec. 1 of the interstate commerce act in the following words:

The provisions of this act . . . shall not apply—

(a) To the transportation of passengers or property, or to the receiving, delivering, storage, or handling of property wholly within one State and not shipped to or from a foreign country from or to any place in the United States as aforesaid; . . .

In like manner it is specified that the provisions of that act shall not apply

(b) To the transportation of intelligence by wire or wireless wholly within one state and not transmitted to or from a foreign country from or to any place in the United States as aforesaid; . . .

Again, in the same section 1 of the interstate commerce act, the Congress, after empowering this Commission to issue certificates of public convenience and necessity covering, among other things, the construction or abandonment of lines or portions of lines of railroad, and to authorize or require any carrier by railroad subject to the act to extend its line or lines, specifically provides that the authority so conferred upon this Commission

shall not extend to the construction or abandonment of spur, industrial, team, switching or side tracks, located or to be located wholly within one state. (Sec. 1 (22))

To cite but one more illustration of the construction put by the Congress upon the commerce clause, the authority, which we have long sought, to cooperate with regulatory authorities of the states, has been granted to us by the amendment of 1920 in the following words:

The Commission may confer with the authorities of any State having regulatory jurisdiction over the class of persons and corporations subject to this Act with respect to the relationship between rate structures and practices of carriers subject to the jurisdiction of such State bodies and of the Commission; and to that end is authorized and empowered, under rules to be prescribed by it, and which may be modified from time to time, to hold joint hearings with any such State regulating bodies on any matters wherein the Commission is empowered to act and where the rate-making authority of a State is or may be affected by the action taken by the Commission. The Commission is also authorized to avail itself of the cooperation, services, records and facilities of such State authorities in the enforcement of any provision of this Act. (Sec. 13 (3))

It is true that in the same section the Congress prescribed the method in which this Commission should remove, if found to exist:

. . . undue or unreasonable advantage, preference, or prejudice as between persons or localities in intrastate commerce on the one hand and interstate or foreign commerce on the other hand, or any undue, unreasonable, or unjust discrimination against interstate or foreign commerce, which is hereby forbidden and declared to be unlawful, • . . (Sec. 13 (4))

But in following that method this Commission deals only with the relationship of rate structures, state and interstate or foreign, a relationship which the Supreme Court has held to be within the province of Congress. In the absence of such defects in relationship this Commission is not empowered to deal with the

intrastate rates maintained by carriers who come under its jurisdiction because also engaged in interstate or foreign commerce.

It is thus manifest that under existing federal law there are important regulatory fields embracing perhaps one-half of the passenger traffic and one-fifth of the freight traffic of steam railroads, as well as the bulk of the telephone service, which are left untouched and uncared for unless the states continue to maintain their own regulatory bodies, empowered to cover those fields. It is perhaps unnecessary to add that most state commissions have very important rate and security regulation jurisdiction over utilities such as water, gas, telephone, electric and local transportation companies over which this Commission exercises no authority whatsoever. In our opinion the continued existence and proper maintenance of the state commissions is essential to adequate railroad regulation, assuming, as you ask us to assume, that the law as it now stands remains unchanged.³⁵

Since the exchange of letters between Mr. Benton and Commissioner Meyer, public opinion has very generally accepted the conclusion that state railroad and public utility commissions should be retained. It is too evident that the federal government is unprepared to take over the work of the state commissions, even if this were constitutionally possible, to permit these bodies to abandon the field. The tendency is, nevertheless, for state authorities to emphasize local regulation of water, gas, telephone, electric, and local transportation companies, rather than the more contentious function of state railroad control. Only in the field of motor vehicle regulation is the distribution of control between state and federal commissions genuinely uncertain.

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CHAPTER XXXII

REGULATION OF MOTOR VEHICLES



Beginnings of Motor Regulation.—Motor vehicle regulation, like railroad regulation, was first attempted locally, but the original objectives of the two controls were different. Early railroad regulation sought to reduce rates and to prevent discrimination. The first need in the case of motor vehicles was to determine the types of vehicles which might be used and the conditions of their operation, in order to protect the public and conserve the roads. Hence a multiplicity of state and local rules which specified the speed, weight, and size of motor cars, the kinds of brakes, the number, color, and position of lights, gongs, and whistles, the location of gasoline tanks, the strength of chassis frames, the use of signals, and the relative priority of vehicles at intersections. Later federal regulation was to deal with these same subjects.

Variety of Local Requirements.—The variety of local motor regulation, already mentioned in the preceding chapter, may be illustrated by specific example of prescriptions in force as late as 1938.

Weight.—Maximum limits of weight were sometimes expressed in a single gross figure; but frequently the law set a maximum per axle, or a maximum per inch width of tire. The permissible weight varied in some states with the distribution of load upon the wheels; in other states such refinements were neglected. If we select two of these standards for illustration, it will appear that the state of Washington permitted in 1938 a maximum load of 500 pounds per inch of pneumatic tire, Texas and Vermont 600 pounds, Delaware and New Mexico 700 pounds, Pennsylvania, New York, Illinois, and Idaho 800 pounds, and the District of Columbia 880 pounds. The maximum allowed gross weight per axle was 10,000 pounds in South Carolina; but it was 15,000 pounds in Vermont, 16,000 pounds in Illinois, 18,000 pounds in Ohio, 22,400 pounds in New York, and 24,640 pounds in the District of Columbia.¹

Size.—Most states regulated the width of the motor vehicle, in 1938, and many controlled height and length as well. Limitation of automobile dimensions is an obvious necessity; there was a considerable difference of opinion, however, as to what the limit should be. Thus Florida prescribed a maximum width of 84 inches, most other states 96 inches, and Connecticut and Rhode

¹ National Highway Users Conference, Highway User Series, No. L I-A, 1938.

Island 102 inches. In Maryland and Rhode Island there was no limitation as to the length of vehicles. In Kentucky the maximum permitted was 26½ feet, in Tennessee 27 feet, in Massachusetts, Mississippi, and New Jersey 28 feet, in Georgia and South Dakota 30 feet, in 31 states either 33 or 35 feet, in Connecticut, Maine, Minnesota, and North Dakota 40 feet, in Oklahoma and Utah 45 feet, in Vermont 50 feet, and in Nevada 60 feet. The maximum permissible length of truck and full trailer combined, where there was regulation, ranged from 35 feet in Tennessee to 85 feet in Arizona, Georgia, and Rhode Island.

Lights.—A common requirement with respect to lights was to stipulate that objects must be discernible at stated distances. Georgia and Washington merely provided that the distance must be reasonable. Iowa and Nevada set the distance at 75 feet, Colorado and Pennsylvania at 100 feet, Missouri and Vermont at 150 feet, Massachusetts at 160 feet, California at 175 feet, and thirty other states at 200 feet. Green front lights were permitted in 15 states, white in 14 states, amber in 3 states, yellow in 3 states, and blue in 1 state.²

Signals.—To indicate an intention to stop or suddenly to decrease speed, the left arm was to be extended beyond the side of the vehicle; horizontally, in 17 states, downward in 14 states, waved up and down in 2 states.

An intention to turn to the left was to be conveyed to others by extending the left arm horizontally in 27 states; by extending the arm and pointing to the left in 6 states; by holding the left arm upward in one state; and downward in another. A forthcoming right turn was to be signaled in 14 states by extending the left arm horizontally, in 16 states by holding it upward, in 3 states by a circular motion of the left hand, and in 2 states by a sweeping motion of the left arm from rear to front.

Speed.—The speed limits for commercial vehicles varied with the type, size, and weight of the vehicle. The speed of passenger busses was fixed at 45 miles per hour in 10 states, at 40 miles per hour in 3 states, and at 35 miles per hour in 3 states, while Nevada fixed the limit at 30 miles per hour and Florida at 30 miles per hour.

In 9 states the speed of all trucks on the open highways was limited to 35 miles per hour in 1938, while in 3 states the limits were fixed, respectively, at 30, 40, and 45 miles per hour. A group of 21 states fixed separate speed limits for trucks of various gross weights and net loads. These speeds ranged from 10 to 45 miles per hour, and provided for a gradual decrease in speed with increase in load.

These illustrations, taken more or less at random from a considerable body of local regulation, are sufficient to suggest a source of embarrassment to motor vehicles which operate in more than one state where the laws of states con-

² United States Department of Agriculture, *Motor Vehicle Traffic Conditions in the United States*, 75th Congress, 3d Session, House Doc. 462, Part I, Ser. 10,251, 1938.

flict, as well as to show the tentative character of safety prescriptions at the present time.⁸

Federal Safety Regulations.—Federal safety rules for motor vehicles operating in interstate commerce are now prescribed by the Interstate Commerce Commission under the authority of the Motor Carrier Act of 1935. These regulations cover (1) qualifications of drivers; (2) rules for driving, including a list of emergency equipment; (3) parts and accessories necessary for safe operation (Under this head the Commission prescribes the number, character, and position of lights, braking standards, and the provision of horns, windshield wipers, safety chains, fire extinguishers, and the like.); (4) reporting of accidents; (5) maximum daily and weekly hours of service for motor carrier employees (The standard for drivers under federal rules is 60 hours a week and 10 hours in any period of 24 hours, with certain exceptions.); (6) inspection and maintenance. The rules for maintenance are not elaborate, but they require reports at the end of every day and insist that motor equipment shall be maintained in safe operating condition. The Interstate Commerce Commission has not yet issued regulations with respect to the size and weight of motor vehicles or with respect to the use of signals in interstate or foreign commerce, although it initiated an investigation into the matter of size and weight on November 8, 1937, under the direction of the Bureau of Motor Carriers. On the subject of speed the Commission now contents itself with the direction that no motor carrier shall be driven at a speed greater than is reasonable and prudent, having due regard to weather, traffic, intersections, width and character of the roadway, type of motor vehicle, and any other conditions existing at the time. It adds that no motor vehicle shall be driven in or through any state, legal subdivision thereof, the District of Columbia, or any area under the control of the federal government at a speed greater than that permitted by such state, legal subdivision thereof, District of Columbia, or the federal government.⁴ Motor carriers must observe all valid regulations and restrictions respecting the use of highways issued by the states, counties, and municipalities in the exercise of their police powers, as well as federal rules.⁵ Federal action has not yet, therefore, eliminated the confusion which differences in local requirements tend to produce. Eventually, nevertheless, a single code of rules must prevail in intra- and in interstate commerce, either by voluntary agreement between the regulating powers or by federal action in the interest of interstate trade and transportation.

Other State Supervision over Motor Vehicle Common Carriers.—In addition to safety control, motor regulation early sought to eliminate abuses resulting from operating and pricing policies in the industry. Miller lists the follow-

⁸ The National Conference on Street and Highway Safety has prepared several bills—among them one regulating traffic on highways—and has recommended these to state legislatures for enactment in order to standardize state requirements.

⁴ Interstate Commerce Commission, Motor Carrier Safety Regulations. See 1 M.C.C. x, 1936.

⁵ 1 M.C.C. 725, 735, 1937

ing criticisms which suggest the character of abuses believed to **be found** in the practice of motor carriage in 1933:

1. Motor vehicle owners discriminate between shippers. This is accomplished by rebates, sudden changes in rates, secret rates, or by simple differences in the rates charged different patrons.

2. Motor vehicle rates are unstable. This makes for uncertainty in business operations, even when, at any moment, all shippers pay the same charge.

3. Truck operations disturb marketing machinery and interfere especially with existing systems for the distribution of vegetables, fruit, and livestock.

4. The multiplication of trucks congests the highways. Unorganized competition also leads to the wasteful use of motor equipment, as when an excessive number of vehicles operate between termini.

5. Motor vehicle owners are financially irresponsible.⁶

In the attempt to straighten out the confused situation which these criticisms reveal, the District of Columbia and forty-seven out of forty-eight states had laws regulating the business of common carriage by motor vehicle by January 1, 1939. Only in Delaware were automobile common carriers subject to no state regulation. Most of the states which had regulatory laws vested in a board or commission the power to grant or to withhold certificates of convenience and necessity, to fix rates, fares, charges, and classifications, to regulate service and safety of operation, and to require the filing of reports. In a number of states the commission prescribed or supervised the carriers' accounting systems. In California and New York the railroad commission supervised the fiscal affairs of motor vehicle common carriers. The right to inspect books and, generally, to make rules and regulations, was a common feature of state laws, while less frequently the right to order improvements was specifically reserved. Such systems of control attempted to secure more than safety of operation; they sought to eliminate discrimination, unreasonableness of charge, the irresponsibility of motor operators, and excessive and wasteful competition. These were the abuses which we have enumerated; most of the control work that was not concerned with safety may be classified under one or the other of these heads.

Benefits of Regulation of Motor Carriers.—It has been conceded by motor carriers themselves that regulation has been of great benefit to the industry. Mr. Howell, Vice-president and General Manager of the Motor Transit Company of California, has described conditions in his state, before regulation became effective, in a way which leaves no doubt as to the importance of regulatory control. Speaking with respect to the operation of motor carriers in California before the period of regulation, Mr. Howell says:

It was a chaotic condition, without responsibility, without inspection, a great menace to the public health and morals and to the pocket book of the community.

⁶S. L. Miller, *Inland Transportation*, McGraw-Hill, New York, 1933.

Anybody who could make the first payment down on a second-hand car would go into the business. The car would break down and the passengers were left stranded wherever they happened to be, and the driver disappeared. If there happened to be a fire and the car burnt up, that was all there was to it. He lost his investment, his first payment on the car, and under the contract the seller had no recourse for any salvage from the fire loss.

The game got so bad that cigar stores, bootblacks, newsboys, were selling tickets over stage lines, taking a commission of 10, 15, 20 or 30 per cent on the sale, and if the car which was to carry the passenger didn't show, the passenger had no recourse. . . . Some of these people found it was cheaper to have tickets printed and sell them over some fictitious name of a stage line and never make any attempt to find transportation for the passenger, and when he (*sic*) had collected several hundred dollars or a thousand or more he would close his cubby-hole window and go off with the proceeds, leaving the tickets lying around. . . . The City [of Los Angeles] passed an ordinance finally making it a misdemeanor to sell tickets over any stage line except through a permit of the Board of Public Utilities and the filing of a bond to protect the public against such misuse.

And it was by different little things day after day that we finally got the carriers down to responsibility and regularity, open fares, published fares, and schedules, and later that spread to the State when the State laws were passed.⁷

Private Carriers Make Regulation Difficult.—One fact which has always made regulation of the trucking industry difficult, however, is the presence of the private carrier. It is probable that the percentage of all trucks in common carrier operation does not yet exceed 10 per cent and that the inclusion of contract carriers will not raise the proportion beyond one-third. It follows that public regulation of the motor-freight common carrier is currently directed to a very small portion of a competitive field. If government requirements become burdensome, business will shift from common to contract carriage, or shippers will buy and use trucks of their own. The traffic will still not be regulated, although some carriers may be.

State Control over Private Carriers.—This leads us to refer at this point to attempts to control the private motor carrier. Some control can of course be exercised over the private operator without serious opposition. We have enumerated at the beginning of this chapter a number of rules relating to motor vehicle construction and operation and to these, private owners are compelled to conform. It may be said, in general, that local safety regulations can be applied to private and to common carriers alike, with only such distinctions as are reasonably appropriate to the different sorts of vehicles concerned. Nor will the courts scrutinize too closely the scientific basis of enacted rules. "To make scientific precision a criterion of constitutional power," the Supreme Court has remarked, "would be to subject the state to an intolerable supervision hostile to the basic principles of our government and wholly beyond the

⁷ *Motor Bus and Truck Investigation*, I.C.C. Docket No. 18,300, Vol. VIII, testimony Howell, pp. 1780-1782.

protection which the general clause of the Fourteenth Amendment was intended to secure."⁸

According to this principle, a state may fix maximum weights, dimensions, and safety equipment which private as well as public vehicles must respect, and it may limit the speed of highway operation. It may also do more than this. A state may, for instance, require all vehicle owners to take out licenses, and it may assess taxes graduated according to gross ton-mileage which private carriers must pay. This only voices a reasonable demand that vehicles which pound the highways must pay for the damage they inflict. Moreover, in order to collect such taxes, motor vehicle owners may be required to keep certain accounts and to make reports.⁹ And a carrier may be compelled to take out liability insurance.¹⁰ Insurance is a device by means of which injured persons may collect compensation for their hurts, and a state may protect its people as well as its roads. Indeed, in forty-three states common carriers of passengers by motor vehicles and in twenty-eight states carriers of property were already required to take out liability insurance in 1932.¹¹ The practice can be extended to private carriers when and where it is desired. Regulation of these various types is sometimes disputed, but it rests securely upon the police power of the state.

Contentious Questions with Respect to the Regulation of Private Carriers.—

Private as well as common carrier transportation agencies must, then, comply with all reasonable safety regulations which local or federal authority may see fit to impose. The law not infrequently, however, goes further than this, and attempts to force private carriers to apply for permits to operate on the same basis as common carriers, or even declares that persons who transport upon the public highways for hire thereby become common carriers and subject to all the responsibilities thereof.

Now it is clear enough that a state may not transform a private into a common carrier by fiat. The two leading cases in which this matter has been considered are those of *Michigan Public Utilities Commission v. Duke* and *Frost v. the Railroad Commission of the State of California*.

In *Michigan Public Utilities Commission v. Duke*, the automobile operator was a private carrier by truck, operating forty-seven motor trucks and trailers between Detroit, Michigan, and Toledo, Ohio. Duke had never undertaken to carry generally for the public, and he had never sought or exercised special privileges such as the right of eminent domain. However, Duke fell under the classification of the Michigan Public Utility Act of 1923, which declared: (1) that no person should engage in the business of transporting persons or property by motor vehicle for hire upon the public highways of the state over

⁸*Sproles v. Binford*, 286 U. S. 374, 388, 1932.

⁹*Continental Baking Co. v. Woodring*, 286 U. S. 352, 368, 1932.

¹⁰*Sprout v. South Bend*, 277 U. S. 163, 1928.

¹¹ "Coordination of Motor Transportation," report by Leo J. Flynn to the Interstate Commerce Commission, 72d Congress, 1st Session, Sen. Doc. 43, 1932, p. 100.

fixed routes or between fixed termini unless he should have **obtained from the** Michigan Public Utilities Commission a permit to do so; (2) that all persons engaged in the transportation of persons or property for hire by motor vehicle upon or over the public highways of the state should be common carriers; and (3) that all common carriers should carry insurance or furnish an indemnity bond for the protection of those for whom they hauled. Duke had taken out no permit and had filed no bond; he asked an injunction to prevent Michigan officials from barring him from the public highway.

On this state of facts, the Supreme Court was quite clear that **a** state could not make a private carrier into a public one by decree, for that, it said, would be taking private property for public use without just compensation, in violation of the due-process-of-law clause of the Fourteenth Amendment to **the** Constitution of the United States.¹²

The ruling in the Duke case did not answer the argument for state control of private carriers advanced in California and in Kentucky, which rested upon the right of the state to grant or to withhold the use of the public roads from carriers which declined to accept a common carrier status. Seventeen months later, however, the Supreme Court handed down a second decision in which this contention was carefully considered.

Frost v. Railroad Commission.—The case of Frost v. the Railroad Commission¹³ involved the validity of a California law which defined the term transportation company to include "every corporation or person . . . operating . . . any automobile, jitney bus, auto truck, stage or auto stage used in the business of transportation of persons or property, or as a common carrier, for compensation, over any public highway in this state between fixed termini or over a regular route, and not operating exclusively within the limits of an incorporated city or town or of a city and county," and required all transportation companies to obtain a certificate of convenience and necessity from the state railroad commission before beginning operations. The complainant in the case was a truck line, engaged under a single contract in transporting, for stipulated compensation, citrus fruits over the public highways of the state between fixed termini. The question was as to whether this truck line could be compelled to apply to the state railroad commission for a certificate of public convenience and necessity and to submit to regulation of its rates and fares. The Supreme Court of California defended the right of a state legislature to subject private automobile carriers to such legislative and commission control upon two grounds. The first of these was that the private carrier, like the common carrier, made use of the public highway. The right to use the highway was regarded as a privilege, which the legislature might grant or withhold at its discretion, or which it might grant upon such conditions as it might care to impose. The second ground was **that the private car-**

¹² 266 u. S. 570, 1925.

¹³ 271 U. S. 583, 1926.

rier competed with the public one, and both must be equally controlled if the public was to have reasonable rates and service that was adequate, regular, and reliable. The United States Supreme Court, however, ruled in the *Frost* case that the state had exceeded its powers, largely, apparently, because it regarded the argument advanced by counsel as a subterfuge. Doubtless, the court said, the state might impose conditions upon those who desired to use its roads; but it could not impose every kind of condition, or any condition at all which required the relinquishment of constitutional rights. Hence the state could not require an individual to assume the responsibilities of a common carrier as the price of the privilege of doing business upon the highway, for this would take property without due process of law. Nor was the apparent bargain a free one. Having regard to form alone, it was, indeed, true that the California act might be regarded as an offer to the private carrier of a privilege which the state might grant or deny, upon a condition which the carrier was free to accept or reject. In reality, the carrier was given no choice, except a choice between the rock and the whirlpool—an option to forgo a privilege which might be vital to his livelihood or submit to a requirement which might constitute an intolerable burden.

States May Regulate Private Carriers in Appropriate Ways.—In spite of these decisions the states, and the federal government also, may regulate private carriers in ways appropriate to that type of carriage, even though they cannot impose upon a private business the status of a common carrier. This distinction is not easy to interpret, because it cannot be said in advance what regulations are appropriate to a private carrier. Yet, at least in the leading case of *Stephenson v. Binford*,¹⁴ the Supreme Court held that a private carrier might be compelled to apply for a permit before it began to operate, and that this permit might be refused. And the Court even decided that a state might refuse a permit for the purpose of protecting its public roads.

The State [declared the court] has a vital interest in the appropriate utilization of the railroads which serve its people, as well as in the proper maintenance of its highways as safe and convenient facilities. The State provides its highways and pays for their upkeep. Its people make railroad transportation possible by the payment of transportation charges. It cannot be said that the State is powerless to protect its highways from being subjected to excessive burdens when other means of transportation are available. The use of highways for truck transportation has its manifest convenience, but we perceive no constitutional ground for denying to the State the right to foster a fair distribution of traffic to the end that all necessary facilities should be maintained and that the public should not be inconvenienced by inordinate uses of its highways for purposes of gain.¹⁵

Summary of State Authority over Private Carriers.—The conclusions from the Supreme Court decisions with respect to the regulation of private carriers may be summarized as follows:

"287 U. S. 251, 1932.

¹⁵ 286 U. S. 374, 394, 1932.

A state government may not compel a private carrier to* become a common carrier. It cannot force a contract carrier, for instance, to accept freight from all who demand service; nor can it require a contract carrier to assume the special liabilities of a common carrier. A state cannot subject both private and common carriers to a single, indifferentiated control. It cannot do these things directly, and it cannot do them indirectly by affixing conditions to motor vehicle operation on the public roads.

However, a state, in order to protect its roads, may regulate private, including contract, carriers, in ways appropriate to this kind of business. Such regulation will include provisions relating to the weight and speed of motor vehicles. But it may also include a prescription of minimum rates, at least for contract carriers. And the state may even refuse private carriers permission to operate, when existing rail or motor service is sufficient, because this also protects the public roads by lessening the amount of traffic which they have to support.

The Supreme Court has not yet said whether a state government can fix the absolute or maximum and minimum rates which private carriers may be allowed to charge. This power can hardly be derived from the state's right to protect its highways; and yet, unless it is exercised, competition between motor vehicles may lead to sharp fluctuations in rates, and thus to the same types of discrimination which characterized the railroads in their early days. Most people would agree that this should be avoided, even though opinions may differ as to how an improved condition should be brought about.

State Control over Interstate Commerce by Motor Carrier.—Before the enactment of the Motor Carrier Act of 1935 the only control over interstate motor carriage in the United States was that exercised by regulating commissions set up in the several states. This control was necessarily restricted even when applied to common carriers by the paramount power of Congress over interstate commerce. We have seen, in Chapter XXX, that the states are not entirely without jurisdiction to regulate interstate transactions, at least when the federal government has not acted and public interest does not demand the application of a single rule.¹⁶ This authority has been affirmed in numerous cases in the federal courts and has been sufficient to justify state safety regulations governing the operation of motor vehicles even when engaged in interstate commerce. But we have also seen in the *Wabash* case¹⁷ that state governments may not regulate interstate transportation rates, even when the federal government has not acted, and the courts have ruled that a state may not refuse a carrier permission to operate in interstate commerce because this, likewise, is a matter not primarily of local concern.¹⁸ This rule had the un-

¹⁶ The 21 st Amendment to the Constitution provides, an exception to the general rule laid down in the text, in that it sanctions the right of a state to legislate concerning intoxicating liquors brought from without, unfettered by federal power under the commerce clause (308 U. S. 132, 1939).

¹⁷ See chap. xxx.

¹⁸ 266 U. S. 570, 1925; 267 U. S. 307, 1925; 267 U. S. 317, 1925.

fortunate effect, before 1935, of enabling regulation of business which was really intrastate. Thus a representative of the United Electric Railways Company of Rhode Island testified, in 1926, to the success with which motor bus lines were evading local regulation in that state by assuming the guise of interstate carriers in traffic between the Rhode Island towns of Woonsocket, near the Massachusetts border, and Providence, in the southern part of the state.

Anyone who sees fit—and there are such—[said the witness] goes to the center of Woonsocket with their busses and stops directly across the street from the . . . street railway terminal, and sign their busses, "Woonsocket-Providence." They load their busses just ahead of the cars and trains right there, and then run one and one-tenth miles to that border [of Massachusetts], go over that border 250 feet where there is a cemetery and a freight yard, and nothing else, turn around and come straight down that highway to Providence with their passengers, and it cannot be stopped because under the law, as interpreted, it is interstate if the wheels of these vehicles go over the soil of another State.

A different procedure seems to have been equally effective on the Connecticut side of Rhode Island. The same witness says:

From Providence to Westerly, at the Connecticut border is some 38 miles over a brand new State highway. Over this route a lady named Mrs. Mooney invested in four busses and sought permission from the Public Utilities Commission of Rhode Island for an intrastate certificate of public convenience and necessity. She obtained it. She filed her bonds for the protection of her passengers and created a business between those two points and the villages *en route*. After she had created that business, one of these gentlemen said, "Well, how can we get in on that?" Very easily. There is a bridge which is located at the center of the business district of Westerly, which divides Rhode Island from Connecticut, and the middle line of the bridge is the boundary line. The bus of this man is taken to that bridge and is stopped on the Connecticut side of the bridge with the front wheels right at the border line. The man leaves the bus and goes ahead 150 feet where her bus is running on a scheduled time approved by the commission, and to which she holds, and he says, "Bus for Providence, express, right here, leaves at once." The people go down to this express bus and he carries the people from Westerly to Providence, and he is doing an interstate business with no interstate passengers. And you cannot stop it.¹⁹

Proposals for Federal Regulation.—Proposals for federal regulation were first presented to Congress in 1925, after Supreme Court decisions in that year had restricted state efforts to control interstate motor carriers. The first bills introduced were not passed, but similar legislation was laid before Congress in each of the next ten successive years. Opposition came from motor vehicle manufacturers, motor truck operators, and from shippers who feared that any restriction on the use of trucks would produce higher rates. Generally speak-

¹⁹ United States Congress, Senate, *Hearings before the Committee on Interstate Commerce on S. 1734* .1926, testimony Williams, pp. 90-91.

ing, federal motor vehicle legislation was desired by the railroads, by bus operators, by regulating authorities, both state and local, and by shippers who disliked the instability of rates which came from unregulated transportation. The reasons for these opposing views were presented with some vigor before committees of Congress. It became increasingly evident as time went on, however, that public opinion favored federal action, so that the passage of the act of 1935 hardly came as a surprise. Action was perhaps hastened by the organization of extra-congressional committees and conferences, which included recommendations for federal motor control in their programs for railroad reconstruction or transport reorganization.²⁰ Actually it was the submission of a report by the Federal Coordinator of Transportation and the introduction of a bill by Senator Wheeler in 1935 that started the train of proceedings which culminated in a federal law.²¹

Motor Carrier Act of 1935.²²—The Motor Carrier Act of 1935 was published as Part II of the Interstate Commerce Act. It followed, in general, the forms which Part I of the act had made familiar; the two parts were not, however, identical either in language or in substance. But the inclusion of motor with railroad regulation in a single statute made it possible to incorporate sections of Part I in Part II without confusion. The problem was also simplified by the fact that both Parts I and II were administered by a Commission—the Interstate Commerce Commission—which already existed. Part II of the Interstate Commerce Act was, therefore, shorter than Part I. Its terms may be summarized in the paragraphs which follow:

Preamble.—Like the Merchant Marine Act of 1936, the Motor Carrier Act begins with a preamble setting forth the general purposes of the law. The significant phrases in this preamble are those which declare that motor carriers are to be regulated "in such a manner as to recognize and preserve the inherent advantages of . . . such transportation," and that it is the purpose of Congress in regulating them to cooperate with the several states.²³ The second of these clauses justifies methods of collaboration between state and federal commissions which we have described in Chapter 31; the first repudiates the charge that motor carriers are henceforth to be controlled in the interest of other forms of transport.

²⁰ These included the Joint Committee of Railroads and Highway Users (1931), the National Transportation Committee (1933), and the National Transportation Conference (1933-1934). The Interstate Commerce Commission also approved additional regulatory legislation, though at first it would not indorse thoroughgoing regulation of motor trucks.

²¹ Warren H. Wagner, *A Legislative History of the Motor Carrier Act, 1935*, Rue Publishing Co., Denton, Md., 1936; United States, *Report of the Federal Coordinator on Regulation of Transportation Agencies*, 73d Congress, 2d Session, Sen. Doc. 152, 1934.

²² 49 Stat. 543, 1935.

²³ The Transportation Act of 1940 repealed this preamble and substituted therefor a declaration of "National Transportation Policy." This new formulation preserved the substance, however, of the statements quoted in the text

Classification of Carriers.—The act deals with four types of interstate motor carriers: common, contract, and private carriers, and brokers. Common carriers transport passengers or property for the general public; contract carriers transport under special and individual contracts or agreements; private carriers (of property) transport goods of which the carrier is owner, lessee, or bailee. Brokers are persons who make contracts with shippers on the one hand and with owners of trucks upon the other which result in the movement of freight. The act defines them as persons who are not common or contract carriers, but who nevertheless sell the service of transportation.

Accounts and Reports.—The Motor Carrier Act follows the Interstate Commerce Act closely in dealing with this subject, at least in so far as common and contract carriers are concerned. The Interstate Commerce Commission is empowered to prescribe the forms of accounts used by common and contract carriers and by brokers. It may require reports, specific answers to questions, and copies of contracts and arrangements. Its examiners have the right of access to carriers' buildings and accounts.

Bills of Lading.—Common carriers, like railroads, must issue bills of lading and are liable to shippers to the same extent, and subject to the same limitations, which govern the railroad business. Section 20 of Part I of the Interstate Commerce Act is incorporated in the Motor Carrier Act to accomplish this result. Section 20 is not made to apply, however, to contract carriers, or to private carriers, or to brokers.

Insurance.—Common and contract carriers alike must comply with such rules as the Commission may prescribe with respect to insurance. The act authorizes, although it does not specifically require, the Commission to establish regulations to govern the filing and approval of surety bonds and policies of insurance. It contemplates, also, the possibility of carrier self-insurance under proper safeguards.

Consolidation, Merger, and Acquisition of Control.—Consolidations, mergers, and acquisitions may take place if the Interstate Commerce Commission approves them after hearing. When one motor carrier desires to consolidate with another, the Commission may approve if it finds that the transaction is consistent with the public interest. If a carrier not a motor carrier (i.e., a railroad) desires to consolidate with a motor carrier, the Commission must also find that the proposed transaction will promote the public interest by enabling such carrier other than a motor carrier to use service by motor vehicle to public advantage in its operations and that the merger will not unduly restrain competition.

Unfair Practices.—The Motor Carrier Act declared it to be the purpose of Congress to promote efficient service without unfair or destructive competitive practices. This statement in the preamble is not enlarged upon in the statute except in Section 222(e); in this paragraph motor carriers are forbidden to disclose information concerning the traffic tendered or delivered

to them by their clients which might improperly disclose the business transactions of shippers to forms with which these shippers might compete.

Securities.—Common and contract carriers are subject to Section 20a of Part I of the Interstate Commerce Act—a reference which brings their security issues completely under Commission control. We have considered the provisions of Section 20a in Chapter XXVIII.²⁴

Certificates and Permits.—This subject has been somewhat discussed in Chapter XXVI. No common carrier may engage in highway operations without a certificate, no contract carrier without a permit, and no broker without a license. Certificates and permits and licenses are to be granted on a showing that the applicant (1) is fit, willing, and able properly to perform the services proposed and to conform to the provisions of the Motor Carrier Act; and (2) that the proposed service is or will be required by the present or future public convenience and necessity (in the case of common carriers) or will be consistent with the public interest and the policy declared in the preamble of the Motor Carrier Act (in the case of contract carriers and brokers). Private carriers as defined in the law need no permit. Common and contract carriers, however, who were in bona fide operation on June 1, 1935 (July 1, 1935, for contract carriers), are entitled to certificates or permits upon demonstration of this fact. No person may at the same time hold a certificate as a common carrier and a permit as a contract carrier authorizing operation over the same route or within the same territory unless the Commission finds this dual operation to be consistent with the public interest and with the policy declared in the preamble to the Motor Carrier Act.

Service.—The Commission may establish reasonable requirements with respect to continuous and adequate service for common carriers. Qualifications of employees and maximum hours of service may be set for common, contract, and private carriers. In the case of private carriers the act states that these last-mentioned regulations are to be for the purpose of promoting safety of operation; in practice the Commission has applied the same test in regulating the hours and qualifications of common and contract carriers also.²⁵ Reasonable regulations may be laid down with respect to the financial responsibility, accounts, records, reports, operations, and practices of brokers.

Rates and Tariffs.—Common carriers by highway must file and publish their tariffs and must collect the rates which they publish; contract carriers must file their contracts and charge at least the minimum rates which these contracts specify. Common carriers may not change and contract carriers may not reduce their rates except on 30 days' notice. In the case of common carriers the Commission may consider the lawfulness of any new rate, suspending the effec-

²⁴ Motor carriers are exempt, however, from security control when the par value of the securities to be issued, together with the par value of the securities then outstanding, does not exceed \$500,000.

²⁵ *Id.* see p. 652.

tive date thereof as long as 7 months, or it may investigate or **hear** complaints **directed** against an existing rate. For *common* carriers it may determine the lawful rate, fare, or charge, or the maximum or minimum or maximum and minimum thereafter to be charged. It may also establish through rates and prescribe divisions of through rates. In the case of contract carriers the Commission may prescribe the minimum charge. No authority over rates charged by brokers or by private carriers is vested in the Commission by the Motor Carrier Act. The clauses which we have just summarized, in so far as they relate to common carriers by road, do not differ essentially from the provisions of the Interstate Commerce Act, Part I, except for some directions intended to guide Commission policy which it is not necessary to discuss. Rates may be disapproved, of course, either because they are unreasonable or because they are discriminatory.

Discrimination.—The paragraph in the Motor Carrier Act relating to discrimination is somewhat shorter than the corresponding paragraph in the Interstate Commerce Act, but the substance of it is the same. Common carriers are forbidden to give undue preference to any particular person, port, gateway, locality, region, district, territory, or description of traffic.²⁶ Tariff rates must be collected when freight is delivered, except under rules governing the granting of credit which the Commission may prescribe. Rebates and concessions are forbidden. There is, however, no specific prohibition of rate structures in which more is charged for shorter than for longer hauls. Contract carriers are allowed to discriminate provided they do not charge less than the published minimum rate and provided their rates do not contravene the policy laid down in the preamble to the Motor Carrier Act (later changed to refer to the National Transportation Policy laid down in the Transportation Act of 1940).

Summary of Provisions of the Motor Carrier Act of 1935.—For convenient reference the provisions of the Motor Carrier Act are tabulated on page 799 as they apply to the different classes of motor carriers.²⁷

Organization of Federal Control.—Promptly on passage of the Motor Carrier Act of 1935 the Interstate Commerce Commission set up a bureau of motor carriers within its organization, and inside this bureau it presently organized sections on traffic, complaints, finance, accounts, law and enforcement, safety, and certificates and insurance; to which was later added a section on research. The new bureau was placed under the supervision of Division 5 of the Interstate Commerce Commission.²⁸ Motor carrier cases of all types were assigned to Division 5. This unusual segregation could be justified, perhaps, by the expected magnitude of regulatory work connected with motor carriage; more particularly it showed a desire to respect the

²⁶ The words "region, district, and territory" were inserted by amendment in 1940.

²⁷ Cf. Julius H. Parmelee, *The Modern Railway*, Longmans, New York, 1940, pp. 552-553.

²⁸ Division 5 was then composed of Commissioners Eastman, Lee, and Caskie.

Common Carriers	Contract Carriers	Private Carriers	Brokers
Accounts and reports prescribed by Commission	Accounts and reports prescribed by Commission	No control	Accounts and reports prescribed by Commission
Bills of lading. Commission may prescribe. Liability of carriers regulated	No control	No control	No control
Insurance. Commission may regulate	Insurance. Commission may regulate	No control	No control
Consolidation, merger, and acquisition. Commission must approve	Consolidation, merger, and acquisition. Commission must approve	No control	No control
Security issues approved by Commission	Security issues approved by Commission	No control	No control
Certificates of convenience and necessity are issued by Commission	Permits are issued by Commission	No control	Licenses are issued by Commission
Service. Commission may establish reasonable requirements with respect to service, qualifications, and maximum hours of service of employees and safety of operation and equipment	Service. Commission may establish reasonable requirements with respect to service, qualifications, and maximum hours of service of employees and safety of operation and equipment	Service. Commission may establish reasonable requirements to promote safety of operation, and to that end prescribe qualifications and maximum hours of service of employees, and standards of equipment	Service. Commission may establish reasonable requirements with respect to financial responsibility, operations, and practices
Rates. Must be filed, published, and adhered to. Commission may prescribe the lawful rate. 30 days' notice of change	Rates. Minimum rates must be filed, published, and observed. Commission may prescribe the minimum rate. 30 days' notice of reduction	No control	No control
Discrimination. Undue preference forbidden. No rebates or concessions. No credit to shippers	Discrimination. No concession below minimum rate	No control	No control

peculiar characteristics of motor transport, and for this reason commended itself to the motor carrier industry. In 1939, however, it was revised, and the subjects of rates and securities, the approval of consolidations, mergers, and purchases of motor carriers, the formulation of accounts and the enforcement of penalties were transferred from Division 5 to other divisions.²⁹ The change brought motor rate cases to Division 2, which also handled railroad rates, and motor finance cases to Division 4, which also handled matters of railroad finance. On the whole the later rather than the earlier organization would seem to have been preferable. Functional organization of the Commission promised more effective coordination in the regulation of different kinds of transport, while organization according to the subjects which were controlled threatened to bring into the Commission itself the competition which existed in the outside field.

Once organized, the Commission established contact with the motor carrier industry. This immediately required (1) the issue of a large number of certificates and permits to regularize the operations of existing carriers, and (2) provision for the filing of tariffs and the supervision of accounts. Between October 1, 1935, and October 31, 1936, there were filed with the Commission a mass of applications for certificates, permits, and licenses mostly from carriers who claimed the right to operate because they had been operating on June 1 and July 1, 1935. By the latter date there had been filed 52,979 tariff publications, 16,897 schedules, and 1967 copies of written contracts or memoranda of oral contracts, containing the rates, fares, and charges of common and contract carriers of passengers and property.³⁰ Accounting classifications for the motor industry were not made effective until January 1, 1938. Meanwhile the Commission had published regulations governing motor carrier insurance, the preservation of records, the safety of operation of motor vehicles,³¹ the transfer of operating rights from one holder to another, the rendering of monthly and quarterly reports, and rules fixing the maximum hours of service of employees. On February 25, 1938, the Commission submitted a report to Congress recommending amendments, mainly procedural, to the Motor Carrier Act. These amendments were adopted, substantially as recommended,³² and in the same year certain other minor changes in the law were made.³³ None of these alterations in the statute were important.

Commission Policies in Regulation.—The Interstate Commerce Commission not only issued administrative regulations of various sorts, but it early settled down to processes of motor regulation similar to those which it had long found useful in the railroad field. An important early problem was that of statutory interpretation. Following this, there were decisions to be

²⁹ *Traffic World*, June 10, 1939, p. 1299.

⁸⁰ Interstate Commerce Commission, *Annual Report*, 1936, p. 76.

⁸¹ 10 M.C.C. 533, 1938.

⁸² 52 Stat. 1236, 1938.

⁸⁸ 52 Stat. 973, 1938, Sec. 1003.

rendered in the granting of certificates, permits and licenses, proceedings which involved the fixing of rates, cases of discrimination, consolidation, finance, and a hundred other situations requiring the formulation and application of a guiding rule. This, after all, is the substantial activity of any public regulatory commission. The whole theory of the Motor Carrier Act was that motor vehicles should become subject to thoroughgoing control. In accordance with the law, therefore, the Commission proceeded to deal with the manifold aspects of the motor industry as they came before it on complaint or petition, or as problems were raised by the Commission's own investigations. We may examine a few of the motor carrier cases decided between June, 1936, and February, 1939, in the attempt to learn something of its policies; it will be understood, however, that the selection is to a considerable degree arbitrary, and that it is highly incomplete.

Statutory Interpretations.—An early opinion of the Interstate Commerce Commission set up a classification or, more exactly, several classifications of motor carriers from the point of view of type of operation, nature of service rendered, and kind of commodity transported.³⁴ The groupings in this opinion are convenient for reference. We may notice at this place that in dealing with types of operators the Commission listed those mentioned in the statute and then added the "exempt" operator as an additional category. As a matter of fact Section 203b of the Motor Carrier Act listed no less than nine separate kinds of motor carriers which were not subject to the law except in so far as qualifications and maximum hours of service of employees and safety of operation were concerned. Using general terms, we may say that these exemptions included motor vehicles used by farmers and by cooperative associations, vehicles used in cities or in national parks, vehicles used to carry school children or newspapers, and vehicles only casually or occasionally engaged in transportation for a consideration. A substantial number of Commission decisions considered the inclusion or exclusion of specific undertakings from this exempted list.³⁵

There has been little important controversy over the exemptions provided in the Motor Carrier Act, nor have the definitions of terms such as private carrier, common carrier, contract carrier, and broker caused more difficulty than might have been expected. Mention should be made, however, of three important rulings by the Commission which may be classed as statutory definitions for our present purpose.

Contract, Carriers.—The contract carrier defined in the statute is a person, not a common carrier, who transports under special and individual contracts

⁸⁴ 2 M.C.C. 703, 1937.

⁸⁵ The Motor Carrier Act exempts motor vehicles used in municipalities "or between continuous municipalities or within a zone adjacent to and commercially a part of any such municipality or municipalities." These phrases have called forth decisions defining zones adjacent to or commercially a part of cities such as St. Louis, New York, Chicago, Washington, and Los Angeles.

or agreements. The difficulty with the definition is that it seems to include the case in which a carrier makes an individual contract for each shipment which it handles. A motor vehicle operator, carrying a hundred consignments for one or for a hundred people, may do so under a hundred contracts. But individual contracts of this sort are made by common carriers also; indeed we have previously observed³⁶ that every act of common carriage involves a contract, the terms of which the law to some extent controls. It is conceivable that either a common or a contract carrier might enter into a contract which each of its patrons and that the contracts would be indistinguishable in terms. The difference between the cases would be found in the real generality of the offering in one instance and its limitation in the other. In order, therefore, to avoid the necessity of difficult decisions and to prevent common carriers from masquerading as contract carriers at will, the Commission, in 1937, declared that henceforth the contracts executed by contract carriers should provide for transportation for a particular shipper or shippers and should cover a series of shipments during a stated period of time.³⁷ This decision considerably clarified the status of contract carriers. The Commission believed that it would facilitate administration of the Motor Carrier Act and, in the long run, inure to the advantage of common and contract carriers alike.

Forwarding Companies.—A freight forwarder is a person or corporation which collects individual small shipments, consolidates them into carload lots, tenders the carload for transportation to rail or motor or water carriers, and arranges for the receipt and delivery of the goods at point of destination. The forwarder issues its own bill of lading, assumes liability for the shipment while in course of transportation, and charges rates covering the entire service.³⁸ Such an undertaker is a common carrier. The disputed question in the *Acme Fast Freight* case, first decided in 1937,³⁹ was whether it was

³⁶ Chap. xii.

³⁷ "We find . . . that from and after the effective date of the order hereinafter entered, all contract carriers of property by motor vehicle, . . . shall transport under contracts or agreements which shall be in writing, which shall provide for transportation for a particular shipper or shippers, which shall be bilateral and impose specific obligations upon both carrier and shipper or shippers, which shall cover a series of shipments during a stated period of time in contrast to contracts of carriage governing individual shipments, and copies of which shall be preserved by the carriers parties thereto so long as the contracts or agreements are in force and for at least one year thereafter." (1 M.O.C. 628, 632, 1937.)

³⁸ A forwarder is not a "broker." Brokers are intermediaries between the shipper or traveler and the carrier who bring the two parties together, arrange for the transaction between them, and charge a commission for their service. Speaking of brokers, Commissioner Eastman has observed: "Such (motor) carriers, especially in the trucking field, are in general very small operators, and there are many thousands of them. It is not always easy for shippers or travellers to locate the carriers best able to provide desired service. Nor can each small carrier afford to employ its own soliciting force. Because of this situation, agencies have arisen which procure the services of motor carriers for intended customers or solicit business for groups of carriers, upon a commission basis." The broker does not assume liability for nor charge a rate which covers the transportation which ensues.

³⁹ 2 M.C.C. 415, 1937; 8 M.C.C. 211, 1938.

a common carrier by motor vehicle. If it was not such a common carrier by motor vehicle then, in arranging with motor companies or with railroads for the physical movement which the forwarder could not himself provide, it would be compelled to pay the full tariff rate for the rail or motor carriage. If it was a common carrier by motor vehicle, then it could contract for haulage at less than tariff rates on the theory that the hauling company was its agent or by the device of quoting a joint rate of which the hauling company's division might be less than the tariff charge. The Commission held that the definition of "common carrier by motor vehicle" in the Motor Carrier Act could not be properly construed to include indirect operations of the sort described. This decision, though technical, had two important results. One of these was that the integrity of motor carrier rates filed with the Commission was maintained; the other was that freight forwarders were removed from the jurisdiction of the Commission under the Motor Carrier law. The forwarding companies dislike exceedingly their exclusion from the category of common carriers by motor vehicle, not so much because they wish to be regulated as because they desire to quote joint rates with railroad companies. They have applied to Congress for legislation which will, in effect, overrule the Commission's views.

Pick-up and Delivery Service.—In *Scott Brothers, Inc., Collection and Delivery Service*, the Commission held that a motor vehicle operator who performed a pick-up and delivery service for a railroad, under contract, was subject to the Interstate Commerce Act as an instrument in the performance of a rail service, but that he was not subject to the provisions of the Motor Carrier Act. The operator under this ruling was not required to secure a separate certificate or permit from the Interstate Commerce Commission, and he was not subject to the wages-and-hours provisions of the Motor Carrier Act. A strongly worded dissenting opinion argued that all interstate motor carriers were subject to the Motor Carrier Act, including motor carriers employed by railroads in rendering service which those railroads had undertaken to provide,⁴⁰ but the view of the majority of the Commission was later confirmed by appropriate clauses in the Transportation Act of 1940.⁴¹

⁴⁰ 4 M.c.c. 551, 1938.

⁴¹ Section 17(c) of the Transportation Act of 1940 reads as follows:

Notwithstanding any provision of this section or of section 203, the provisions of this part shall not apply—

(1) to transportation by motor vehicle by a carrier by railroad subject to Part I or by a water carrier subject to Part III, incidental to transportation subject to such parts, in the performance within terminal areas of transfer, collection, or delivery services; but such transportation shall be considered to be and shall be regulated as transportation subject to Part I when performed by such carrier by railroad, and transportation subject to Part III when performed by such water carrier.

(2) to transportation by motor vehicle by any person (whether as agent or under a contractual arrangement) for a common carrier by railroad subject to Part I, an express company subject to Part I, a motor carrier subject to this part, or a water carrier subject to Part III, in the performance within terminal areas of transfer, collection, or delivery services; but such

Certificates, Permits, and Licenses.—While statutory interpretations are important, the most immediate of the duties of the Interstate Commerce Commission under the Motor Carrier Act was to issue certificates, permits, and licenses, in order that essential services by motor vehicle should not unnecessarily be disturbed. Fortunately, the Commission was authorized to grant certificates or permits to carriers which had been in bona fide operation on June 1 or July 1, 1935, without demonstration of the public need for these services.

MOTOR VEHICLE APPLICATIONS FOR CERTIFICATES AND PERMITS DENIED
OR GRANTED BY THE INTERSTATE COMMERCE COMMISSION BETWEEN
AUGUST 9, 1935, AND NOVEMBER 1, 1939⁴²

Applications Received	Number of Applications
Applications based upon prior operation	87,545
Applications for authority to institute new operations	11,189
Total applications received	98,734
Applications Disposed of or Pending	
Applications approved	14,302
Applications denied, dismissed, or withdrawn	60,965
Applications pending, November 1, 1938	13,467
Total applications disposed of or pending	98,734

Applications for certificates, permits, or licenses based upon the fact of operation prior to June 1 or July 1, 1935, were known as "grandfather" applications. Most of these were handled by informal conference and Commission action following the recommendation of field representatives of the Commission. Complicated or controversial cases, all applications for authority to institute new operations, and all applications for licenses were referred to joint boards or to examiners and were ultimately decided by Division 5 or by the entire Commission upon report. Applicants in such cases are entitled to a public hearing, but the Commission managed, nevertheless, to avoid public hearings in most instances by the use of a modified procedure accepted by the parties. The important fact to observe at this point is the speed with which the Commission handled its business. In general, applications for authority to carry freight and passengers upon the highways which are based upon the fact of prior operation provoke few decisions of perma-

transportation shall be considered to be performed by such carrier or express company as part of, and shall be regulated in the same manner as, the transportation by railroad, express, motor vehicle, or water to which such services are incidental.

⁴² Interstate Commerce Commission, *Annual Report, 1939*, p. no.

nent importance. Applications for authority to institute new operations may, on the other hand, have great significance, because these petitions compel the Commission to determine the conditions upon which new enterprises may begin the business of motor carriage. We do not need to consider cases of this sort again, however, because they have been discussed in Chapter XXVI and, to some extent, in Chapter XXXI.⁴³

Rates.—After the passage of the Motor Carrier Act groups of carriers combined in various territories and districts and published rates, each through a single agent. These tariffs were accepted by most motor companies in the different areas, but sometimes not by all. Dissenting carriers then filed rates differing from those approved by the groups, or conferences as they were called, and the Commission was called upon to decide the issues which were raised. While conference action by no means covered the entire motor carrier field, and minor cases also were brought to the Commission's attention, the indicated procedure brought a comparatively large number of motor rate problems to the Commission in a brief period of time. The Commission worked rapidly in 1937 and 1938; on the other hand, its haste and the newness of the tasks made its initial conclusions more than usually tentative in character. Doubtless very considerable changes in approved rates will be made in later years.⁴⁴

Between June, 1936, and February, 1939, the Commission issued orders in the following comprehensive rate cases:

1. Motor rates between New York and Philadelphia and adjacent territory on the one hand and Baltimore, Washington, and adjacent territory on the other. In 1937 the Middle Atlantic States Motor Carrier Conference published a tariff containing new class and commodity rates on traffic between a so-called Territory A—on the north, the chief points in which were New York and Philadelphia, and a so-called Territory B on the south, the chief points in which were Washington and Baltimore. Some 183 carriers concurred in the rates, 128 being conference members and 55 non-members. A few operators did not concur, but proposed to quote lower rates than those authorized by the Conference. The Conference rates had not been established by the Interstate Commerce Commission. The Commission concluded, how-

⁴³ Section 216(h) of the Motor Carrier Act provides that: "In any proceeding to determine the justness or reasonableness of any rate, fare, or charge of any such (motor) carrier, there shall not be taken into consideration or allowed as evidence or elements of value of the property of such carrier, either good will, earning power, or the certificate under which such carrier is operating; and in applying for and receiving a certificate under this part any such carrier shall be deemed to have agreed to the provisions of this paragraph, on its own behalf and on behalf of all transferees of such certificate."

⁴⁴ During 1937, 63,516 tariff publications of common carriers of passengers and property, 2053 schedules and 16,202 copies of written contracts and memoranda of oral contracts of contract carriers of property were received by the Interstate Commerce Commission (Annual Report, 1937). The Commission has ruled that contracts filed by contract carriers as well as the tariffs of common carriers are open to public inspection, on and after April 1, 1940 (*Transport Topics*, December 4, 1939, p. 1).

ever, that they were not in excess of a maximum reasonable level and directed that the new rates proposed should be withdrawn.⁴⁵

2. Motor rates in the Mid-west. This was a complaint directed against the rates charged by a particular carrier operating in Arkansas, Colorado, Illinois, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, Oklahoma, Tennessee, Texas, Wisconsin, and Wyoming. The Commission remarked that the territory covered by the complaint covered an area approximately one-third of continental United States. The case was brought by a non-profit corporation, composed of approximately 290 common carriers transporting property by motor vehicle in the area considered. The Missouri Public Service Commission intervened in support of the complaint. Rates charged by the defendant were said to be too low. The Commission observed that it must feel its way and proceed with caution; it nevertheless fixed minimum rates in Illinois, Iowa, Missouri, and parts of Kansas and Nebraska between points which the defending carrier had served.⁴⁶

3. Central territory motor carrier rates. In March, 1938, the Commission instituted an investigation into rates in Central territory,⁴⁷ on petition of the Central States Freight Bureau. This Bureau represented some 1300 carriers. It called the Commission's attention to the deplorable financial conditions of common carriers in Central territory, and asked for the issuance of a minimum rate order as the only means of preventing "internecine rate wars." The Commission found that the motor carrier industry in the territory was in a demoralized condition, due principally to conflicting rates and practices, lack of unity of action among respondents, and continuing rate wars. On the whole, common carrier motor operation was being conducted at a substantial operating loss. Some action fixing minimum rates was essential. The Commission therefore issued an order prescribing the rates in certain published tariffs then on file with the Commission as minima, except for rates on certain articles which the Commission listed in detail.⁴⁸

4. New England motor carrier rates. In New England sharp competition between motor vehicle owners had led, in 1937, to the organization of a conference. The conference distributed motor carriers in the area into twenty-seven groups. Each group voted on rates which were laid before it, and the rates approved by the groups were accepted as conference rates. Having built up general class and commodity tariffs in this way, the conference submitted schedules to the Interstate Commerce Commission with the request that the Commission prescribe the conference rates as the minimum reasonable rates which motor carriers in New England should be allowed to charge. The Commission examined the schedules, changed them in some

⁴⁵ 4 M.C.C. 68, 1937.

⁴⁶ 4 M.C.C. 755, 1938.

⁴⁷ Central territory included certain points in Iowa, Kentucky, Missouri, West Virginia, Pennsylvania, and New York.

⁴⁸ 8 M.C.C. 233, 1938.

respects, and prescribed them as minima. "Disaster threatens," said the Commission, "and the only remaining recourse is to the power of the Government. . . . What we are asked to do to meet the emergency is, substantially and essentially, to establish by force of law a firm foundation for the construction of a reasonably stable and well-designed rate structure by fixing a bottom, in the shape of minimum rates, which will set a limit to rate cutting."⁴⁹

Commission orders in these four general cases constituted a beginning in the establishment of rate structures for motor common carriage. In addition, the Commission rendered decisions on many more limited complaints, from which some principles guiding its action may be derived.

Principles Expressed in Motor Carrier Rate Decisions.—Motor rate cases appear, so far, to differ from railroad rate cases in the following respects. First, they have been initiated by or at the suggestion of motor carriers and not by shippers. Second, the complaint has generally been that rates quoted or proposed are too low, not that rates are unreasonably high. Third, the Commission's order has usually taken the form of a disapproval of new rates, or the Commission has adopted some specified carrier tariff or tariffs as minima for the traffic embraced within the scope of the complaint. There has not yet been time for the Commission to formulate schedules of its own. On the whole, it is the considered view of the federal agency that motor rates tend to be unreasonably low. This is shown by the trend of its decisions and also by its comments in many cases. It has declared repeatedly, for instance, that motor rates can be too low as well as too high. It has said that any rate which is less than compensatory will be condemned as unjust and unreasonable.⁵⁰ Compensatory rates should cover out-of-pocket costs, but they should also yield a profit to the carrier.⁵¹ The concept of "out-of-pocket" is an elusive and shifting thing. When traffic can be added without any increase in truck-miles or man-hours, such cost is one thing, but if sufficient traffic is attracted so that more truck-miles or man-hours are required, it becomes a very different thing. Furthermore, it is always necessary to bear in mind that the method is not a one-way affair, for competitors can use it as well, and when competition is widespread the result may be to beat down a very large part of the rate structure.⁵² Rates cannot be justified only on the ground of competition. The Commission has refused to permit a motor common carrier to establish a rate which was admittedly unreasonably low to meet the competition of a contract carrier. For if the contract carrier's charge was at or above a minimum reasonable basis, the effect of such authorization would be to permit one type of motor carrier to depress its rate below a minimum reasonable basis merely to obtain traffic which can be

⁴⁹ 8 M.C.C. 287, 320, 1938.

⁵⁰ 2 M.C.C. 530, 547, 1937.

⁵¹ 10 M.C.C. 275, 1938.

⁵² 4 M.C.C. 187, 189, 1938; 4 M.C.C. 589, 1938; **II M.C.C. 657, 661, 1938.**

more economically transported by the other. If, on the other hand, the contract carrier's charge was lower than a minimum reasonable basis, the *effect* of permitting the common carriers to go to this basis would be to allow both types to transport the property at unreasonably low rates.

Speaking in the New York-Baltimore case the Commission said:

The record shows plainly that the motor carriers here concerned found themselves in a competitive struggle which was undermining their rates and depleting their revenues at a time when costs of operation were rising rapidly. Their reserves, to the extent that they had any, were nearing exhaustion and financial ruin loomed ahead. In this situation they sought, with our encouragement, to confer over their difficulties, reach some common understanding of their problems, and take definite steps to improve their rate and revenue conditions. Taking up different territories and situations one by one, they were successful in accomplishing some improvement, until they came to the revision of the important rates between territories A and B. Those attending the meetings reached what appeared to be a general agreement and the revised rates were accordingly published, when respondent withdrew its cooperation and sought instead to reduce many of the rates which were being revised. . . . We believe that our power to prescribe minimum reasonable rates for motor carriers was given us for the primary purpose of preventing just such results as the evidence indicates will flow from the action which respondent has already taken, to say nothing of that which it proposes to take, and that this power can properly be exercised in the present case.⁵³

The Commission has had little occasion to consider the construction of motor tariffs as a technical problem. It has, however, observed that rates not based upon distance need to be justified. In calculating distance charges, rates should be based on the most direct routes over hard-surface highways, and rates to intermediate points on direct routes should at least not exceed those to more distant terminal points.⁵⁴ The Commission has also expressed the opinion that rates which are quoted at so much per hundred pounds without regard to classification rating of the individual characteristics of the commodity shipped tend to break down the class-rate structure and to render class rates a nullity. In a case in which so-called "all-freight" rates were presented to the Commission, these rates were disapproved.⁵⁵

Discrimination.—Few complaints of discrimination by motor carriers were brought to the Interstate Commerce Commission in 1936, 1937, and 1938. In general, the Commission was not disposed to lay much stress upon the relative adjustment of motor rates during these early years for reasons expressed in the New England case of 1938. "We are dealing," said the Commission in these proceedings, "with a situation very unlike any to be found in the case of railroads. . . . The very limited number of railroads jointly

⁵³ 4 M.C.C. 68, 78, 1937. There seems to be no disposition to question the legality of joint action by motor carriers in revising rates under the anti-trust law.

⁵⁴ 8 M.C.C. 287, 323, 1938.

⁵⁵ 10 M.C.C. 556, 563, 1938.

operate a homogeneous system of transportation. The motor carriers constitute no such system, but are in stead hardly more than a mere aggregation of hundreds of individual carriers whose operations, many of which are very small, are disconnected to a greater extent than they are connected. Because of the number and disassociation of the carriers the apparent incongruities in the proposed rates often furnish no legal basis for a charge of unlawful discrimination, and have their origin in the special conditions surrounding particular carriers."⁵⁶ In spite of this disclaimer the Commission took occasion to disapprove of higher rates to intermediate than to terminal points,⁵⁷ and it sometimes rejected, although occasionally also it approved, tariffs in which the same rates were charged for hauls of different lengths.⁵⁸

In order to guard against personal discrimination, the Commission promulgated rules, in July, 1937, determining the length of time during which motor carriers might extend credit to shippers in the payment of freight bills. These bills, it announced, must be presented within seven days from the first 12 o'clock midnight following delivery of the freight, and must be paid within seven days from the first 12 o'clock midnight following the presentation of the bill.⁵⁹ On another occasion, the Commission decided that it was improper for one common carrier to pay a commission to another common carrier as an inducement to turn over through shipments to the paying line. This device, said the Commission, might be used to cover instances of unjust discrimination, undue prejudice, and unfair and destructive practices.⁶⁰ Still again, the Commission found a motor common carrier to have been guilty of discrimination because it paid a shipper for the use of a garage erected on carrier property more than a fair compensation for the cost to the shipper of this structure.⁶¹

Consolidation.—Motor carrier consolidations have been already discussed in Chapter XXVI. Most applications for permission to consolidate in which railroads were not involved concerned small or moderate-sized truck or bus organizations which wished to buy or sell for any of the numerous reasons that cause transfers of ownership in business enterprise. The public interest

⁵⁶ 8 M.C.C. 287, 324, 1938.

⁵⁷ 2 M.C.C. 530, 547, 1937. The Motor Carrier Act does not specifically prohibit greater charges for shorter than for longer hauls; these cases can be handled, however, under general clauses of the act which forbid undue prejudice.

⁵⁸ 8 M.C.C. 287, 307, 1938; 10 M.C.C. 299, 302, 1938; 10 M.C.C. 691, 698, 1938. In the Middle Atlantic States Motor Carrier Rate case the carriers desired to establish a truckload commodity rate of 25 cents on flavoring syrup from Baltimore to Wilmington, 73 miles, and to Philadelphia, 103 miles. The reason was that some carriers went directly from Baltimore to Wilmington and stopped there; while others went to Philadelphia without touching Wilmington and served Wilmington by a back haul. The Commission refused, under these conditions, to permit the same rate to be charged to both Wilmington and Philadelphia. This case was reminiscent of many railroad controversies (10 M.C.C. 193, 205, 1938).

⁵⁹ 2 M.C.C. 365, 1937.

⁶⁰ 7 M.C.C. 549, 1938.

⁶¹ 4 M.C.C. 657, 1938.

was rarely affected, and the Commission readily enough approved most requests made in cases of this kind. In certain cases the advantages of a merger were evident, as when consolidation eliminated some out of a number of corporations already operating under common control. The Greyhound merger, for instance, which absorbed twenty-seven companies into seven without change in the aggregate of assets or liabilities of the system,⁶² was clearly a step in the right direction for this reason; and even in less important cases simplifications of corporate structure made it possible to budget expenses more effectively than before, to eliminate intercorporate records and accounts, to combine reports to regulatory authorities, and to economize in insurance, printing, and in federal taxes on undistributed corporate surplus.⁶³ Consolidation sometimes also permitted elimination of duplicate services, purchases of equipment and fuel in larger quantities at lower prices, more flexible use of trucks and trailers, better utilization of terminals, and less rehandling of merchandise.⁶⁴

Obviously it was desirable to realize possibilities like these. The Commission understood that large-scale operation might have disadvantages, but only experience could determine how great these offsetting defects might be; meanwhile it thought that experiments should be encouraged.⁶⁵ If, in spite of this, approval to consolidate was denied, the reason was most frequently that the price to be paid for acquired property was thought to be too high. It is true that the Commission sometimes approved transfers even when it thought the price excessive, but this was most likely when the total amount involved was small and the public interest did not seem to be threatened.⁶⁶ When the question was squarely presented, on a more sub-

⁶² 1 M.C.C. 342, 1936.

⁶³ 5 M.C.C. 309, 1937.

⁶⁴ 5 M.C.C. 94, 1937; 5 M.C.C. 120, 1937; 15 M.C.C. 654, 1939.

⁶⁵ The Keeshin Transcontinental Freight Lines applied, in 1936, for permission to acquire control of the Seaboard Freight Lines, in order to extend its operations into New England. The Keeshin system operated approximately 1400 motor vehicles and employed from 2100 to 2500 persons; the Seaboard operated 200 vehicles or more. In approving the acquisition the Commission said: "From a transportation-service standpoint the evidence indicates that the transaction proposed would, if consummated, result in benefit to the public. It would make possible substantial economies in both line-haul and terminal operations and also in the purchase of equipment and supplies, and at the same time the quality of the service would be improved. On one point there is, perhaps, room for doubt. An important reason for the success which motortrucks have often had in competing with the railroads for various types of traffic has been the great flexibility of motortruck service and its ability to adjust itself readily to the special needs of the shipper. There are those who feel that when motortruck operations conducted under a single management increase beyond a certain size there is a tendency to sacrifice this advantage of flexibility, because of the fact that contact with the shipper must more and more be maintained through subordinates acting under instructions. It is possible that for this and other reasons there is a limit to increase in efficiency with increase in size of motortruck operations and that beyond this limit efficiency tends to decrease. However, only actual experience can determine this, and from that point of view the test of large-scale operations which applicant is making is desirable" (5 M.C.C. 25, 35-36, 1937).

⁶⁶ 1 M.C.C. 309, 1936; 5 M.C.C. 177, 1937.

stantial scale, the Commission was less compliant, particularly when large sums were to be paid in a consolidation for intangibles. The Commission remarked, in an application which proposed to pay heavily for "operating rights:"

If transactions of this character are to be approved and become at all common and widespread, the burden which they will place upon the motor-carrier industry must be obvious. The investment in operating rights, which initially cost little or nothing, will vastly exceed the investment in the physical property actually used in conducting the operations. We are unable to believe that such a situation is healthy or should be allowed to develop. Suppose, for example, that a system of bus operations were built up by purchases at such prices and involving such obligations and that a competitor should come into the field seeking operating rights from us on the ground that, if they were granted, it could furnish better service at lower fares because of its freedom from similar obligations. Would we, in such circumstances, be justified in denying the public the opportunity for better service at lower fares?⁶⁷

Securities.—Motor carrier securities are not often sold to the general public. More frequently they are issued in payment for property acquired, purchased by owners of the enterprise, sold to banks or finance companies, or even disposed of among employees and patrons. The amounts involved are generally small, because the typical motor company has only a limited credit. These conditions reduced the burden of the Commission's work in regulating the finances of the motor carrier industry, although they did not, of course, deprive this work of all importance.

Omitting minor applications, we find that issues of motor vehicle securities during the first three years of Interstate Commerce Commission control were principally for the following purposes: (1) to finance the purchase of equipment; (2) to effect consolidations or mergers; (3) to refund outstanding bonds or notes, to meet impending maturities, or to replenish or increase working capital.

Almost all new equipment during the period was financed by the issue of notes, secured by a lien upon the equipment purchased and taken by the manufacturers or by banks or finance companies. This use of equipment notes was patterned upon practices long successful in the railway industry. Such notes are salable without much regard to the credit of the railroad or motor vehicle company which issues them because a creditor can always seize the equipment which secures the notes in the event of a default and dispose of it at a price which will protect him against loss. They are peculiarly adapted to use by industries which have lost their credit, as have the railroads, or to industries which have yet to establish a general market for their stocks and bonds. The motor vehicle industry falls within this second group. The chief difference between rail and motor practice in the handling of equipment **notes was**

⁶⁷ 5 M.C.C. 201, 206, 1937.

that the motor companies preferred to utilize the chattel mortgage and the railways the contract of conditional sale.⁶⁸ Only rarely during this initial period were motor companies in a position to purchase equipment for cash or by the issue of short-term promissory notes,⁶⁹ although some felt that better prices could be obtained upon this basis. The Commission approved equipment note issues very much as a matter of routine.

The effective regulation of motor vehicle securities which the Commission was able to accomplish occurred in connection with issues in consolidation or for refunding or for increase in working capital. We may notice separately its observations with respect to the character of securities that carriers proposed to issue and those regarding the permissible volume of stocks and bonds which should be put forth. On the first point, the Commission took favorable note of occasions in which companies retired indebtedness by the issue

⁶⁸ In the case of a conditional sale the vendor retains title to equipment until the series of payments which he expects under his sales contract is completed; in the case of a chattel mortgage the purchaser takes title when he buys but the seller can repossess himself of the goods sold if the purchase price is not paid in the manner contemplated.

The chattel mortgage contract was repeatedly used by the Greyhound companies, and was described by the Interstate Commerce Commission in the following terms:

"The notes to be given the bank will be issued in series of 20 notes of even date and of equal principal amounts, the aggregate principal amount thereof being equal to \$12,000 multiplied by the number of busses to which they pertain, will be dated approximately the same as the date of delivery of the busses, and will mature serially every three months over a period of five years after date, with interest at the following rates per annum, payable every three months after date until paid in full: First four instalments 15 per cent, next two instalments 2 per cent, next two instalments 2.5 per cent, next two instalments 3 per cent, next two instalments 3.5 per cent, and last eight instalments 4 per cent. Applicant will have the option to prepay at any time the principal of and accrued interest on any note or notes. Contemporaneously with issuance of each series of notes, it will execute and deliver to the bank a chattel mortgage which will be a first lien on the busses and equipment, except tires, to which such notes pertain. The tires are owned by the tire manufacturer and are rented to applicant on a mileage basis. After all of the busses have been delivered, applicant will execute and deliver to the bank, in substitution for the several chattel mortgages given at the respective delivery dates, a chattel mortgage which will be a lien on the total number of busses and appurtenant equipment, and will secure the payment of all the notes theretofore given" (5 M.C.C. 251, 252, 1937).

In contrast to the above, the Public Service Coordinated Transport used a conditional sales contract, summarized as follows:

"Under the terras of the conditional-sales contract, applicant is to pay the manufacturing company, upon delivery of each bus, one-third of the purchase price thereof in cash. In addition there will be paid, on the occasion of delivery of the first bus, a small sum to permit of the notes being issued in uniform principal amount. The remaining two-thirds of the purchase price of all busses is to be evidenced by 36 notes to be issued to the manufacturing company and dated the last day of the month in which delivery of the busses is completed, . . . each to be in principal amount \$34,000. . . . The notes are to mature monthly, the first to mature the last day of the month next succeeding the date of issue and one note on the last day of each month thereafter until the obligation is extinguished. Interest is to be paid monthly on the maturity dates of the notes and at a rate to be agreed upon when the notes are Issued, but in no event to exceed 4 per cent per annum. Title to said busses shall not pass to applicant until all amounts provided by the contract have been paid in full" (5 M.C.C. 768, 769, 1938).

⁶⁹ 5 M.C.C. 275, 1937; 15 M.C.C. 501, 1938; 15 M.C.C. 781, 1939.

of stock,⁷⁰ pointing out that such a substitution strengthened the credit of the company which proposed it and was in the interest of the public which the applicant served. In one case it required that the interest rate upon a note should be reduced.⁷¹ And it seized the opportunity, when offered, to remark that the issue of stock without voting power was, in general, against public policy, although it approved a particular issue for special reasons.⁷²

These were somewhat limited pronouncements. The more puzzling problem was that of regulating the total amount of securities to be put out, especially in transactions involving consolidation or the purchase of new properties. This was difficult, because the Motor Carrier Act excluded from the motor carrier rate base good will and earning power; and yet it was clear that earning power rather than physical investment determined the amounts which purchasers were prepared to pay for motor companies and earning power seemed to afford the natural justification for the issue of motor stocks and bonds. The Commission once remarked, incidentally, that one motor carrier could not buy the properties of another, unless the latter was bankrupt, without paying more than the net depreciated value of the vendor's tangible assets.⁷³ And it took notice, in another case, of the fact that the physical value of tangible property was not necessarily a criterion of the commercial value of the business or stock of a motor carrier. "The latter," said the Commission, "is dependent upon the earning power. Compared with the traffic handled and revenues received, the tangible property of a motor carrier is much less a factor than in the case of a railroad. . . . This is so, largely because it is unnecessary for a motor carrier to invest in and maintain the right-of-way over which it operates."⁷⁴ In this dilemma, the Commission pursued a conservative course. It refused to allow a motor carrier to issue stock against intangible assets described-as "organization, franchises, and permits,"⁷⁵ and it permitted another carrier to capitalize only a moderate proportion of such items.⁷⁶ It restricted security issues repeatedly to the aggregate of capitalizable assets made up of cash, inventories, and operating property, and it disallowed a "write-up" by reappraisal showing an increase in the value of physical property which had not been "realized."⁷⁷ It compelled a motor carrier to change the stated value of no-par stock, proposed to be issued for stock dividend purposes, from \$80.65 to \$1.00 per share because the data submitted indicated that applicant did not have a surplus sufficient to support a stock dividend as large as was intended.⁷⁸ It permitted a carrier, however, to in-

⁷⁰ 15 M.C.C. 117, 119, 1938.

⁷¹ 15 M.C.C. 501, 1938.

⁷² 15 M.C.C. 536, 1938.

⁷³ 15 M.C.C. 536, 541, 1938.

⁷⁴ 5 M.C.C. 25, 36, 1937.

⁷⁵ 5 M.C.C. 524, 1938.

⁷⁶ 15 M.C.C. 474, 1938.

⁷⁷ 5 M.C.C. 420, 1938. But sec 5 M.C.C. 225, 231, 1937.

⁷⁸ 15 M.C.C. 525, 527, 1938-

clude in its capitalizable assets amounts paid by its predecessors for properties over and above original cost less depreciation on the ground that inclusion of these figures would express investment facts more accurately than if the statement of such assets were eliminated.⁷⁹ Fair value for rate-making purposes, added the Commission in this last case, would be a different matter. These decisions may be interpreted as a recognition of the speculative element inherent in much motor vehicle operation, but also as a conclusion that public policy is adverse to the expression of hopeful anticipations in the carriers' capital accounts and to the capitalization for private advantage of the highway privileges which the public purse provides.

Bills of Lading—Insurance—Service.—The Interstate Commerce Commission exercised powers conferred upon it by the Motor Carrier Act with respect to motor carrier insurance and bills of lading, but these subjects have not assumed a sufficient importance to justify separate discussion at this time. In service regulation it concerned itself with the regulation of the wages and hours of employees and with the determination of adequacy in connection with the grant of certificates and permits. We have noticed, in summarizing the Motor Carrier Act, that the Commission conceived its authority over wages and hours to be limited to regulations designed to promote safety in operation, and that it dealt accordingly only with the maximum hours of drivers of motor vehicles and with these only from the point of view of safety.⁸⁰ This construction of the statute was supported by the Wage-Hour Division of the United States Department of Labor. Late in 1939, however, a three-court headed by Judge Groner of the United States Court of Appeals held that the Commission was in error in so limiting its jurisdiction. The court could find nothing in the statute which indicated an intention to distinguish between common carrier employees engaged in the actual operation of motor vehicles and employees engaged in other work.⁸¹ Doubtless the question of delimitation of the Commission's powers in these matters will be laid before the Supreme Court of the United States.

Conclusion.—The following table supplies information with respect to formal complaints, investigations, and investigation and suspension cases on the Commission's docket as of October 31 of each of the four years during which the Interstate Commerce Commission has regulated motor carriers.

Item	Year			
	1936	1937	1938	1939
Formal complaints filed	24	42		40
Investigations instituted	10	12	24	25
Investigation and suspension cases instituted	38	194	1298	338
Cases disposed of	9	186	275	352-
Cases reopened		1	10	7
Cases pending	63	125	211	169

⁷⁹ 15 M.C.C. 536, 1938.

⁸⁰ 3 M.C.C. 665, 1937.

⁸¹ *Transport Topics*, December n, 1939, p. 1.

The figures given in the table relate to the formal side of the Commission's work in the regulation of carriers under the Motor Carrier Act of 1935. They do not cover finance cases or certificate cases handled informally, nor do they suggest the administrative activity of the Commission in matters intrusted to its care. While the Commission is only fairly launched in this new enterprise, the basic law and the machinery for motor control, both state and federal, appear to be provided, and the objectives to be sought are reasonably clear.

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CHAPTER XXXIII

REGULATION OF WATER CARRIERS



In the United States, statutory control of carriage over inland waterways is and has been administered by several agencies, as follows:

Inland Waterways Corporation.—The Secretary of Commerce controls the federal service on the Mississippi and Warrior rivers. This is an instance of government operation of inland waterway facilities, operated, since 1924, through the "Inland Waterways Corporation."

Control by Executive Departments and Bureaus.—In addition to the Inland Waterways Corporation there are a number of bureaus or services in the Commerce, Treasury, War, and Labor Departments of the federal government which possess limited authority over inland waterways and their personnel. These agencies include the Bureau of Marine Inspection and Navigation, the Coast Guard, the Bureau of Public Health, and the Corps of Engineers of the United States Army. Of these, the last-named acts under the direction of the Chief of Engineers and the Secretary of War. Regulation of this type is concerned with the protection of public health through quarantine regulations, the policing of harbors, the marking and lighting of channels and routes, the hiring-and paying of seamen, and the protection of the lives and property of passengers, shippers, and crews. It does not directly attempt the control of rates and traffic, although it affects the conditions under which freight and passenger business is carried on.

United States Maritime Commission and United States Shipping Board 1916-1940.—Until quite recently the responsibility for the regulation of rates and traffic upon inland waterways was vested in the United States Maritime Commission, which was a successor to the older United States Shipping Board. This Shipping Board was first set up by the so-called Shipping Act of 1916; it was enlarged and strengthened by later legislation, especially by the Merchant Marine Act of 1920 and the Intercoastal Act of 1933, and its powers were transferred to the Maritime Commission by the Merchant Marine Act of 1936.¹

¹The Shipping Board in 1916 consisted of five members, appointed by the President for terms of six years at salaries of \$7500. Under the Merchant Marine Act of 1920 it became a body of seven members appointed by the President for terms of six years at salaries of \$12,000. The Maritime Commission, authorized in 1936, was again a commission of **five members appointed for six years, but the** salary rate of \$12,000 was continued.

Under the laws referred to, the Shipping Board and the Maritime Commission exercised regulatory control of a more or less standard kind prior to 1940. Their jurisdiction included interstate commerce from port to port upon the Great Lakes, as well as coastwise and, in some respects, foreign trade. Within this field they administered the clauses of the Shipping Act requiring reasonable rates and forbidding discrimination. They approved or disapproved agreements between water carriers. They compelled the filing of rates and, after 1938, the Maritime Commission had authority to prescribe maximum and minimum rates which common carriers might charge for the carriage of passengers or property in interstate commerce on the high seas and to prescribe maximum rates in interstate commerce on the Great Lakes. In intercoastal transportation the same Commission had jurisdiction over contract carriers as well as over common carriers.²

In actual practice the Maritime Commission and its predecessor, the Shipping Board, paid comparatively little attention to the regulation of inland waterways, except in so far as intercoastal shipping may be classed under this head. It is true that the exception relates to a matter of considerable importance. Intercoastal water service controls the level and affects the form of transcontinental railroad tariffs, and it provides a route for the flow of commerce between American points of origin and destination. By approving or disapproving conference agreements and by its power to fix intercoastal rates the Maritime Commission exercised substantial power. This jurisdiction, however, the Commission has now lost.

The Interstate Commerce Commission and Inland Waterways.—The Act to Regulate Commerce has long applied to common carriers engaged in the transportation of passengers or property partly by railroad and partly by water when both are used under a common control, management, or arrangement for a continuous carriage or shipment. The language used in the act does not mean, it is true, that a common carrier by water which enters into a joint arrangement with a carrier by rail on a particular business thereby subjects its entire business to Commission control. The Commission has broad powers of inquiry into the accounts of water carriers which enter into joint arrangements with railroad lines, for the reason that it needs complete information with respect to the entire business of a water carrier in order to exercise its limited statutory authority; but apart from accounts and reports, the Commission has ruled that the effect of a joint arrangement between rail and water lines is to

² The Maritime Commission had authority to require the submission of records and reports and the attendance of witnesses. It might make investigations and issue orders. It might approve or disapprove the sale of American vessels to non-citizens, or the transfer of vessels documented under the laws of the United States to foreign registry. And, of course, the subsidy and ship construction policy of the United States was administered by this Commission. The Maritime Commission was deprived of its general regulatory powers over waterways, in 1940, but it continued in existence, and its promotional responsibilities and powers were continued.

bring the traffic covered by the arrangement, and that traffic alone, under Interstate Commerce Commission control.

Yet even this restricted interpretation had the effect of vesting in the Commission, prior to 1906, the power to pass upon the reasonableness of rates charged for joint rail-and-water hauls, the authority to consider questions of discrimination to which a water line, in connection with rail carriers, might be a party, and the right to insist upon the publication of and the adherence to established rates. It would frequently have been impossible for the Commission to deal effectively with railroad rate adjustments unless it had had at least this much authority over the transportation service which railroad and waterway had undertaken jointly and successively to provide. And it could be argued that no hardship was imposed upon the water line, for there was nothing in the law under discussion which interfered with water transportation unless it was operated under some arrangement with a common carrier by rail which gave it an advantage over water carriers that had no rail connection at all.

Through Routes and Joint Rates under Section 15 of the Interstate Commerce Act.—The authority of the Interstate Commerce Commission was extended in 1906 by grant of power to establish through routes and joint rates and to prescribe divisions of rates, as well between rail and water as between different rail carriers. The Motor Carrier Act of 1935 extended its jurisdiction to motor carriers. After 1935 the Commission could prescribe maximum and minimum joint rates when two rail carriers, a rail and a motor carrier, or a motor carrier and a water carrier joined in a through route. It could also require the establishment of through routes (1) between rail carriers, (2) between rail and water carriers, and (3) between motor common carriers in so far as the transportation of passengers was concerned. Under the act of 1906 the authority of the Interstate Commerce Commission to prescribe through routes and rates was limited by the proviso that this power should be exercised only when no reasonable or satisfactory route existed between the points which it was desired to connect. In 1910, the Mann-Elkins Act removed this particular limitation but added a stipulation that, in prescribing a through route, no company should be compelled to short-haul itself. The 1910 amendment was again changed in 1912 and in 1920 by excepting from the last-quoted stipulation the case in which one of the parties was a water line. In 1940 it was finally provided that the Commission might require a railroad to join in a through route with another railroad, under any conditions, if the route were needed to provide adequate and more efficient or more economic transportation.³ Joint rates, whether established

³ Transportation Act of 1940, Sec. 10, par. 4. The act of 1940 read as follows: "In establishing any such through route the Commission shall not (except'. . . where one of the carriers is a water line) require any carrier by railroad, without its consent, to embrace in such route substantially less than the entire length of its railroad and of any intermediate railroad operated in conjunction and under a common management or control therewith, which lies

voluntarily or prescribed, must of course be filed with the Interstate Commerce Commission and kept open to public inspection to the same extent as other rates subject to the Act to Regulate Commerce.

Panama Canal Act of 1912L—This brings us to the Panama Canal Act of 1912. This important legislation, passed in anticipation of the opening of the Panama Canal,⁴ was primarily designed to organize the administration of the Canal and the Canal Zone, and to fix the tolls which should be charged for the use of the new waterway. The Panama Act, however, did two other things, both of which had far-reaching importance.

Mergers and Rates.—In the first place, the law forbade any railroad or other common carrier subject to the Act to Regulate Commerce to own, lease, operate, or control, or have any interest whatsoever in any common carrier by water operated through the Panama Canal or elsewhere with which the controlling company competed for traffic. To this sweeping prohibition exception was made of services not operated through the Canal which the Commission might hold to be operated in the interest of the public and not to prevent or to reduce competition.⁵ Such services, when approved, were to file their rates with the Interstate Commerce Commission, and were to be subject to the Act to Regulate Commerce in the same manner and to the same extent as were the railroads which controlled them.

Physical Connection Between Rail and Water Carriers.—In the second place, the act of 1912 gave additional jurisdiction to the Interstate Commerce Commission over interstate rail and water transportation from one point to another in the United States. The most important of the new powers so conveyed was the authority to require a physical connection to be established between the lines of a rail and those of a water carrier. The language of the act upon this point was as follows:

To 'establish physical connection between the lines of the rail carrier and the between the termini of such proposed route, (a) unless such inclusion of lines would make the through route unreasonably long as compared with another practicable through route which could otherwise be established, or (b) unless the Commission finds that the through route proposed to be established is needed in order to provide adequate, and more efficient or more economic transportation: Provided, however, That in prescribing through routes the Commission shall, so far as consistent with the public interest, and subject to the foregoing limitations in clauses (a) and (b), give reasonable preference to the carrier by railroad which originates the traffic. No through route and joint rates applicable thereto shall be established by the Commission for the purpose of assisting any carrier that would participate therein to meet its financial needs. . . ."

⁴ 37 Stat. 560, 1912.

⁵ Sec. 11. The language of the act of 1912 referred to "existing services"; it was not, therefore, clear that railroads might, after the law took effect, acquire an interest in competing water lines with which they had had no previous connection. But the Commission held that the act covered the case of new, as well as that of previously completed, acquisitions (77 I.C.C. 124, 128, 1923), and amendment to the law in 1940 (Transportation Act of 1940, Sec. 7, pars. 14, 15, and 16) clearly authorized the Commission to approve cases of common ownership which had taken form after July 1, 1914—the date mentioned in the act of 1912.

dock of the [water](#) carrier by directing the rail carrier to make suitable **connection** between its line and a track or tracks which have been constructed from the dock to the limits of its right of way, or by directing either or both the rail and water carrier, individually or in connection with one another, to construct and connect with the lines of the rail carrier a spur track or tracks to the dock. This provision shall only apply where such connection is reasonably practicable, can be made with safety to the public, and where the amount of business to be handled is sufficient to justify the outlay.

The commission shall have full authority to determine the terms upon which these connecting tracks, when constructed, shall be operated, and it may, either in the construction or the operation of such tracks, determine what sum shall be paid to or by either carrier. The provisions of this paragraph shall extend to cases where the dock is owned by other parties than the carrier involved.

The wording of the Panama Canal Act with respect to physical connection between rail and water carriers gave the Commission power to require the provision of adequate interchange facilities between rail and water lines. It represented, therefore, a substantial and probably a beneficial addition to existing law.

Regulation by the Interstate Commerce Commission—Reasonableness of Rates.—Under the laws in force, even prior to 1940, the active agent in the regulation of inland water transportation was the Interstate Commerce Commission, and the principal purposes of this regulation were, first, to secure reasonableness of inland water charges and equality of treatment between users, and second, to prevent the elimination of water carriage by means of certain forms of unfair competition in which competitors of waterways might indulge. The second purpose was, perhaps, more a matter of protection than of regulation, but it required the Commission to take action in cases in which water carriers are parties, and may properly be considered in this chapter.

In regulating rates, under these laws the Commission extended to waterway traffic subject to its jurisdiction the principles of reasonableness and equality of rates that it had long applied to railroad hauls. Most notably, the Commission acted in the case of a great variety of ocean and rail shipments passing between the north Atlantic seaboard and interior points in the South or West. Shipments of this type, where westbound, are carried by steamer from New York or New England to Norfolk, Savannah, New Orleans, or to some other port on the south Atlantic or Gulf seaboard, whence they proceed by rail to interior destinations. The traffic is handled under through rates, which are filed with the Commission and are subject to its control. Sometimes a single commodity is involved, sometimes a regional rate adjustment is prescribed **in** which rail-and-water are related to all-rail rates between the same points of origin and destination.⁶ Eastbound the routes are similar and the problem is essentially the same. The Commission also rendered decisions in a **number** of rail-and-Lake cases. Shipments by way of the Great Lakes, like **ocean ship-**

⁶ 211 I.C.C. 575, 1935; 222 I.C.C. 229, 1937.

voluntarily or prescribed, must of course be filed with the Interstate Commerce Commission and kept open to public inspection to the same extent as other rates subject to the Act to Regulate Commerce.

Panama Canal Act of 1912.—This brings us to the Panama Canal Act of 1912. This important legislation, passed in anticipation of the opening of the Panama Canal,⁴ was primarily designed to organize the administration of the Canal and the Canal Zone, and to fix the tolls which should be charged for the use of the new waterway. The Panama Act, however, did two other things, both of which had far-reaching importance.

Mergers and Rates.—In the first place, the law forbade any railroad or other common carrier subject to the Act to Regulate Commerce to own, lease, operate, or control, or have any interest whatsoever in any common carrier by water operated through the Panama Canal or elsewhere with which the controlling company competed for traffic. To this sweeping prohibition exception was made of services not operated through the Canal which the Commission might hold to be operated in the interest of the public and not to prevent or to reduce competition.⁵ Such services, when approved, were to file their rates with the Interstate Commerce Commission, and were to be subject to the Act to Regulate Commerce in the same manner and to the same extent as were the railroads which controlled them.

Physical Connection Between Rail and Water Carriers.—In the second place, the act of 1912 gave additional jurisdiction to the Interstate Commerce Commission over interstate rail and water transportation from one point to another in the United States. The most important of the new powers so conveyed was the authority to require a physical connection to be established between the lines of a rail and those of a water carrier. The language of the act upon this point was as follows:

To Testablish physical connection between the lines of the rail carrier and the between the termini of such proposed route, (a) unless such inclusion of lines would make the through route unreasonably long as compared with another practicable through route which could otherwise be established, or (b) unless the Commission finds that the through route proposed to be established is needed in order to provide adequate, and more efficient or more economic transportation: Provided, however, That in prescribing through routes the Commission shall, so far as consistent with the public interest, and subject to the foregoing limitations in clauses (a) and (b), give reasonable preference to the carrier by railroad which originates the traffic. No through route and joint rates applicable thereto shall be established by the Commission for the purpose of assisting any carrier that would participate therein to meet its financial needs. . . ."

⁴ 37 Stat. 560, 1912.

⁵ Sec. 11. The language of the act of 1912 referred to "existing services"; it was not, therefore, clear that railroads might, after the law took effect, acquire an interest in competing water lines with which they had had no previous connection. But the Commission held that the act covered the case of new, as well as that of previously completed, acquisitions (77 I.C.C. 124, 128, 1923), and amendment to the law in 1940 (Transportation Act of 1940, Sec. 7, pars. 14, 15, and 16) clearly authorized the Commission to approve cases of common ownership which had taken form after July 1, 1914—the date mentioned in the act of 1912.

dock of the water carrier by directing the rail carrier to make suitable connection between its line and a track or tracks which have been constructed from the dock to the limits of its right of way, or by directing either or both the rail and water carrier, individually or in connection with one another, to construct and connect with the lines of the rail carrier a spur track or tracks to the dock. This provision shall only apply where such connection is reasonably practicable, can be made with safety to the public, and where the amount of business to be handled is sufficient to justify the outlay.

The commission shall have full authority to determine the terms upon which these connecting tracks, when constructed, shall be operated, and it may, either in the construction or the operation of such tracks, determine what sum shall be paid to or by either carrier. The provisions of this paragraph shall extend to cases where the dock is owned by other parties than the carrier involved.

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⁶ 211 I.C.C. 575, 1935; 222 I.C.C. 229, 1937.

ments, most frequently begin or end with a railroad haul. Thus coal from Pennsylvania mines to the Northwest or iron ore from Lake Superior points to Pittsburgh move Under joint rail-and-water or water-and-rail rates which are subject to Commission control. The Interstate Commerce Commission considered the reasonableness of Lake-and-rail charges, their relation to all-rail rates and their relation to each other. It also occasionally discussed the reasonableness of joint rates to which river steamships are parties.⁷

Regulation by the Interstate Commerce Commission. Relative Rate Adjustments.—On the Great Lakes, Commission determination of relative rates to different termini has been of great importance. The competition between Lake ports is severe, and the rate relationships between ports as well as the relationships between interior cities which Lake ports serve have been, in the past, highly unstable. Duluth, for example, at the head of Lake Superior, is not much farther by rail-and-Lake than is Chicago at the head of Lake Michigan.⁸ This is because the Lake route to Chicago is roundabout, while that to Duluth is direct. But the rail haul to Chicago is much shorter than the rail haul to Duluth. There have been times when the rail Lake rate from points in New England and Central Freight Association territory has been the same to Duluth as to Chicago.⁹ Duluth demands this, both for competitive reasons and upon the basis of cost; but the Commission believes that the Duluth rate should be greater because, it says, the "value of service"¹ is greater when a shipment is delivered by Lake to Duluth than when it is delivered at Chicago. This means in fact that railroad competition is less insistent at Duluth, prices are higher, and a higher rate can be obtained.¹⁰ Ocean-rail rates as well as Lake-rail rates raise questions of relative charge. In cases involving ocean-rail shipments the long- and short-haul prohibitions of the Act to Regulate Commerce have especial significance. Obviously, if a water route, say, from New York to Norfolk, desires to participate in the haul of freight between New

⁷ The general view of the Interstate Commerce Commission is that joint rail-and-water rates should be lower than all-rail rates, partly because the cost of rendering the service is less, and partly because the value of the service is inferior. For rate-making purposes the Commission has sometimes reduced water distances to equivalents in rail-miles by the use of a factor. Thus a factor of 3 to 1 or 3.6 to 1 was used in the Consolidated Southwestern cases in 1927 to express the relative importance of water and rail mileage from the point of view of cost (123 I.C.C. 203, 370, 1927). Sometimes it has prescribed a percentage relationship or a differential. Thus in 1930 it declared that maximum rail-Lake class rates between New England, Trunk Line, and border territory should not exceed 90 per cent of the corresponding all-rail rates (164 I.C.C. 1, 1930). In 1935 the Commission prescribed a grouping of eastern and western points of origin and destination and set fixed differentials in cents below all-rail rates to a number of specified termini (205 I.C.C. 101, 1935; 214 I.C.C. 93, 1936). Before 1930 the percentage relationships between rail-and-water and all-rail rates in this area had varied widely at different times, ranging from 74 to 91 per cent.

⁸ 205 I.C.C. 101, 183, 1935. The Lake-rail distance from New York, via Buffalo, is 1293 miles and to Duluth 1386 miles. The shortest all-rail distances are 890 and 1233 miles.

⁹ 27 I.C.C. 639, 1913; 46 I.C.C. 585, 1917; 58 I.C.C. 220, 253, 1920; 205 I.C.C. 101, 182, 1935.

¹⁰ 205 I.C.C. 101, 1935; 214 I.C.C. 93, 1936.

York and an interior town such as Birmingham, Alabama, it must join with rail carriers between Norfolk and Birmingham in quoting a through water-and-rail rate which will attract business away from the shorter all-rail route between New York and Birmingham. Obviously, also, the associated water-rail line may not care to extend the competitive rate to all intermediate points upon its line. If it does not do so it will violate Section 4 unless the permission of the Interstate Commerce Commission is obtained. Precisely this case occurred in 1937 when carriers asked the Commission's consent to quote a through rate of 36.5 cents per pound on furnace lining from New York by way of Norfolk to Birmingham to meet a direct rail charge of 38.5 cents, while maintaining rates as high as 63 cents to intermediate destinations. The Commission permitted the proposed rates to become effective.¹¹

Traffic between New York and New Orleans supplies another instance of long- and short-haul rate-making in connection with water-rail movements which is reminiscent of the basing point system of rates formerly in general use in the southern states. Water carriers which operate between New York and New Orleans meet the competition of the direct rail lines between these points. No violation of Section 4 is so far involved. Rail rates from New York to points on the all-rail line from New York to New Orleans, however, increase on southbound movements as shipments proceed farther and farther from New York. The highest rail rate is that to New Orleans. Lower rail rates are charged to destinations north of that city. If the water route from New York desires to handle freight consigned to points north of New Orleans it must quote, in connection with its associated railroads, through rates to these points which are less than the rates it charges for goods delivered at New Orleans itself. It must, that is to say, charge less for a longer than for a shorter haul. It is curious that the Interstate Commerce Commission has generally approved this type of rate-making when proposed by the water lines, on the ground of competitive necessity,¹² in spite of its critical attitude in southern cases where the needs of railroads are involved. In all this we have instances of market competition, and of the rivalry of competing routes and competing cities which closely resemble other situations with which only rail carriers are concerned. The Commission is on familiar ground in dealing with such problems; indeed, it must regulate rail-and-water shipments with respect to rate relationships consistently with its action with reference to all-rail carriage if any considered policy of relative transportation charges is to be enforced.

Competition Between Rail and Water Carriers.—In addition to the rate provisions which we have discussed, laws passed prior to 1940, and still effective, contain clauses intended to prevent the elimination of water carriage by

¹¹ 220 I.C.C. 1, 1937- See also 220 I.C.C. 456, 1937; 218 I.C.C. 335, 1936.

¹² 123 I.C.C. 203, 1927; 204 I.C.C. 460, 1934; 218 I.C.C. 335, 1936; 220 I.C.C. 1, 1937; 220 I.C.C. 456, 1937.

certain forms of unfair competition. Competition of this improper sort is apprehended from rail carriers, and the forms it is expected to take are (1) localized reductions in railroad rates at points where rail and water services compete; (2) the purchase by railroads of financial control of competing water carriers; and (3) the refusal by rail carriers to cooperate with water carriers in handling traffic which seeks to move to destination over a combined rail-and-water haul.

Localized Rate Reductions.—The clause in the Interstate Commerce Act which attempts to prevent specialized and temporary reductions in railroad rates for the purpose of destroying competing water carriers reads as follows:

Wherever a carrier by railroad shall in competition with a water route or routes reduce the rates on the carriage of any species of freight to or from competitive points, it shall not be permitted to increase such rates unless after hearing by the Interstate Commerce Commission it shall be found that such proposed increase rests upon changed conditions other than the elimination of water competition.

In actual practice, the clause has proved unnecessary, especially since 1920, when the Interstate Commerce Commission received authority to fix a minimum railroad rate. Moreover, the difficulties inherent in its application have been so great that the courts and the Commission have failed to enforce it on several separate grounds.

In the first place, the Interstate Commerce Commission has pointed out that the primary purpose of the law itself is to encourage water competition. This being the case, the carriers are rather to be encouraged to raise their rates at competitive points than to continue them upon a level that makes the competition of boat lines impossible. It follows that a railroad which has reduced its rates at certain stations to destroy a competing water service should be urged to raise them, not prevented from ever doing so.

The Interstate Commerce Commission has also held that rail carriers not only are not required, but are forbidden, to continue low rates to points which have once enjoyed water competition when the competition has ceased, unless, indeed, they reduce their rates to other points so as to preserve a proper relationship, for the continuance of low rates under such conditions will produce a discrimination which the Act to Regulate Commerce makes unlawful.¹³

Finally, the United States Supreme Court has ruled that carriers which quote lower rates to water competitive points than to intermediate destinations with the approval of the Commission may subsequently raise these rates when water competition disappears, in spite of the section now under discussion, because the law does not apply to reduction made under Commission authority.¹⁴

The result of these various arguments and interpretations has been that the

¹³ *In the Matter of Reopening Fourth Section Applications*, 40 I.C.C., 35, 1916.

¹⁴ 249 U. S. 557, 568, 1919.

particular piece of legislation just described has **proved** of **negligible** importance.

Purchase of Water Lines by Railroad Carriers.—There are two federal statutes which relate to the purchase of competing water lines by railroad carriers. One of these is the Clayton Anti-Trust Act, which forbids corporations engaged in commerce to acquire the shares of other corporations also engaged in commerce, where the effect of the acquisition is to lessen competition.¹⁵ This statute has not yet affected rail-and-water relations to any significant degree. The other and more important statute bearing upon these matters is the Panama Canal Act of 1912. We have already stated the terms of this law; we may now return to the subject to describe its legislative history and to discuss its application.

Legislative History of the Panama Canal Act.—Section 11 of the Panama Canal Act of 1912, as originally introduced in the House of Representatives, contained two more or less extraneous clauses, one relating to the ownership of shipping lines passing through the Canal, and the other to the quotation of through rail-and-water rates.

The section relating to ownership read as follows:

From and after the first day of July, 1913, it shall be unlawful for any railroad company or other common carrier subject to the act to regulate commerce to own, lease, operate, control, or have any interest whatsoever (by stock ownership or otherwise, either directly, indirectly, through any holding company, or in any other manner) in any common carrier by water with which such railroad or other carrier aforesaid does or may compete for traffic; and in case of the violation of this provision each day in which such violation continues shall be deemed a separate offense.¹⁶

The section which we have quoted passed the House with only three minor changes. The Senate approved an amendment limiting the operations of the statute strictly to carriers using the Panama Canal,¹⁷ but this was taken out in conference. The conferences, however, added the following clause:

If the Interstate Commerce Commission shall be of the opinion that any such existing specified service by water other than through the Panama Canal is being operated in the interest of the public and is of advantage to the convenience and commerce of the people, and that such extension will neither exclude, prevent, nor reduce competition on the route by water under consideration, the Interstate Commerce Commission may, by order, extend the time during which such service by water may continue to be operated beyond July 1, 1914. In every case of such extension the rates, schedules, and practices of such water carrier shall be filed with the Interstate Commerce Commission and shall be subject to the act to regulate commerce and all amendments thereto in the same manner and to the

¹⁵ 38 Stat. L., 730, 731-732, 19M, Sec. 7.

¹⁶ *Congressional Record*, March 16, 1912, Vol. XLVIII, Part 4, p. 3492.

¹⁷ *Ibid.*, August 16, 1912, Vol. XLVIII, Part 11, pp. 11,132-11,133.

same extent as the railroad or other carrier controlling such water carrier or interested in any manner in its operation.

In this form, the clauses of the Panama Canal Act relative to railroad control of competing water carriers were enacted into law.

Act Not Limited to Traffic Through the Canal.—This summary of legislative history shows that Congress consciously undertook, in 1912, to regulate the relations between railroads and water carriers generally in interstate commerce, and not merely to confine itself to cases in which use of the Panama Canal was involved. Not only this, but Mr. Adamson, in reporting the original bill to the House of Representatives, expressed the same point of view when he said that the apprehension of railroad-owned vessels driving competition from the Canal might or might not be exaggerated, but it was certain that the evil already existed in the coastwise trade upon both coasts, as well as on our lakes and rivers.

Administration of the Panama Canal Act by the Interstate Commerce Commission.—The most striking instance of a railroad-owned water service operated in competition with the intercoastal lines that use the Panama Canal is that of the Morgan Steamship Company. This company, as early as in 1917, operated 23 ocean-going steamers, of which 20 maintained services between New Orleans or Galveston and New York. It functioned as part of the so-called "Sunset Route" in connection with the Southern Pacific railroad service between New Orleans and Galveston and the Pacific coast. By 1935 the ports of call on the Gulf and Atlantic coasts had been considerably increased. The Commission found that the Morgan Steamship Company was being operated in the interest of the public.¹⁸ The Interstate Commerce Commission has also assumed jurisdiction over a considerable number of services which have nothing at all to do with the Canal. Little has been accomplished upon the Pacific, but on the Atlantic coast the Commission has permitted the establishment of a considerable coastwise service by corporations controlled by the Central of Georgia Railway¹⁹ and by the New Haven Railroad Company,²⁰ as well as a line operated by a subsidiary of the Atlantic Coast Line Railroad from Miami to Havana.²¹

In addition to the foregoing the Commission has had occasion to assume regulatory control over the so-called Seatrain Lines, one of the most interesting innovations in ocean transport of recent years. The Seatrain Company was organized in 1931 to carry loaded railroad cars in coastwise service, thus avoiding transfer of lading. It described itself as a sea-going railroad. It was characterized by some as a ferry, but its vessels differed from the ordinary ferry by their ability to operate upon the high seas. The Interstate Commerce Com-

¹⁸ 43 I.C.C. 168, 1917; 45 I.C.C. 505, 1917; 206 I.C.C. 427, 1935.

¹⁹ 203 I.C.C. 155, 1934.

²⁰ 50 I.C.C. 634, 1918; 183 I.C.C. 323, 1932.

²¹ 37 I.C.C. 432, 1915; 204 I.C.C. 142, 1934. This company originally maintained services to the Bahamas also.

mission ruled that the Seatrain was not a railroad nor an extension of a railroad, but a common carrier engaged, with its connections, in the carriage of goods partly by railroad and partly by water. The Seatrain was controlled through stock ownership by the Missouri Pacific and the Texas and Pacific Railroads, and consequently needed Commission approval under the Panama Canal Act of 1912.²² This approval was given.

Besides ocean services such as those described in the preceding paragraph, the Commission has dealt with various lake and river operations. It has, for example, allowed the railroads to continue their control over boat lines on certain lakes and rivers where the public interest seemed to require coordinated management of segments of rail and water routes.²³ It has permitted rail carriers to continue to operate a number of car ferry lines, principally upon the Great Lakes, although it has compelled the railroads to dispose of their interests in boat lines through which the former dominated, at one time, water carriage on the Lakes. In general, an examination of the Commission's decisions under the Panama Canal Act of 1912, shows that it has felt free to recognize diversity of conditions in different sections of the country and to permit the continuance of railroad control over competing water lines in certain instances where the evidence of public interest was clear, while forbidding it in others. Meanwhile, rates, schedules, and practices of the water carriers are required to be filed with the Commission, wherever continuance of railroad control is authorized, and the Commission exercises the same control over these schedules as it exercises over railroad rates. Cases have, on the whole, especially in later years, been few, and the effects of the legislation moderate.

Physical Connection Between Rail and Water Carriers.—Great as the public interest has been in preventing the direct suppression of water competition through control by rail carriers, there is reason to believe that the power which the Canal Act gave the Interstate Commerce Commission to establish through routes by rail and water and to compel physical connection between rail and water routes may, in the long run, prove at least equally important. The law on the latter of these points has been applied in several instances, of which one deserves special mention because of its importance to the Erie Canal. This was the case of *State of New York v. New York Central Railroad Company*,²⁴ in which the state of New York complained that the New York Central Railroad refused to provide rolling stock or to furnish a transportation service between the terminal of the Erie Canal near Buffalo and the tracks of the New York Central in that city.

There was, it appeared, continuous track connection between the Erie Canal basin terminal and Buffalo, partly over New York Central rails and partly

²² 206 I.C.C. 328, 1935; 195 I.C.C. 215, 1933.

²³ An application for the operation of two steamboats on the Columbia and Willamette rivers by the Spokane, Portland, and Seattle Railway was, however, denied (33 I.C.C. 462, 1915).

²⁴ 95 I.C.C. 119, 1924; 191 N.Y. Suppl. 637, 1921.

over rails owned by the complainant, but the state owned no locomotives or cars and could not economically own and operate them under* the circumstances. Relief was sought from the New York Public Service Commission, Second District, but without success; and the Interstate Commerce Commission was therefore asked to require the railroad to render the service essential to an interchange of freight between railroad and canal. Plainly the case was important, because it involved the relations between a railroad and one of three major waterway routes for inland transportation. Plainly also the interests of the railroad and of the waterway were different. The New York Public Utility Commission argued that the public interest was involved. The rail carrier objected that a favorable order would divert to the canal much traffic then moving by railroad, including traffic to and from industries located upon the New York Central itself, and that the railroad would be compelled to perform switching movements at relatively small charges in lieu of enjoying remunerative line hauls.

With these conflicting views before it, the Commission held: (i) that it might require an installation of physical connection between a rail carrier's line and a dock; (2) that it might determine which carrier should build; (3) that it might prescribe the terms and conditions upon which the connecting tracks should be operated, and fix the sum which should be paid to or by either carrier in connection with either construction or operation; and (4) that it was in the public interest that defendant should perform the operating services which the state prayed the Commission to require.²⁵

This ruling represented a striking victory for the Erie Barge Canal, although it did not alter the fundamental difficulties which the canal has to overcome.

Control and Division of Through Rates.—Under its power to require the installation of through rates the Commission has been able to extend assistance to many water carriers.

The reasons why through rates are essential to the successful development of water, and especially of river, traffic in the United States were concisely set forth by the Mississippi-Warrior Service in 1923. These reasons were explained as follows:

First.—There were no facilities left on any river for doing a local business. Industries on these rivers had been systematically developed to use rail transportation to the virtual exclusion of the river. Shipment by water entailed an additional cost over shipment by rail from these river-bank city industries.

Second.—Every important watercourse had been paralleled by one or more rail lines, and lateral railroads which formerly fed the river trunk lines had been merged with the competing railroads and could not be relied upon to adjust their local rates so as to act as feeders to the barges.

²⁵ The Commission's order in the Barge Canal case was sustained in *United States v. New York Central R.R. Co.*, 272 U. S. 457, 1926, See also 160 I.C.C. 227, 1929.

Third.—Most of the important rail rate structures had been devised to comprise great blanket areas of origin or destination in which rates to and from interior points one hundred or more miles from the river were slightly if any higher than the rates to the river cities. Local rates operating from river points over rail lines reaching laterally from the river cities into these blanket areas were built up sharply on mileage and no series of proportional rates which a barge line could afford to make would enable the public in these cities and towns in interior blanket areas to get any substantial benefit from the savings of water transportation.²⁶

The conditions explained in the three preceding paragraphs are most clearly evident along the rivers and canals of the country and less so along the Great Lakes, but they have some significance in all parts of the country.

Reasons for Reluctance of Rail Carriers.—Rail carriers are slow to respond to the request of the water lines for an extensive system of through rates and routing. It is probable that this reluctance is, in part, evidence of a wish to restrain the growth of inland water transportation. In addition to this general motive, however, rail carriers sometimes find it more expensive to transfer freight to water than to rail connections, and not infrequently the delivery of freight to a connecting water carrier deprives the rail carrier of revenue that it would ultimately receive if the shipment in question rested upon the rails.

This is obviously true when the rail carrier is able to carry a shipment to destination over its own rails, but it may also be the case in less obvious situations. Thus, the Chicago, Burlington, and Quincy and connecting carriers proposed, in 1924, to restrict the application of proportional joint rates on grain and grain products from Missouri River cities to Cairo, Illinois, for beyond, to shipments moving beyond Cairo via rail lines. This action would have implied the collection of local railroad rates to Cairo on grain there delivered to barges on the Mississippi River.²⁷ Similarly, the southern and northern Alabama railroads proposed to charge local rates on pig iron from Sheffield to Florence, Alabama, on the Tennessee River, when the movement beyond Florence was by water, although they were willing to quote through rates when the movement beyond Florence was by rail.²⁸

In each instance the carrier which handled the inbound movement to Cairo or to Florence, as the case might be, hoped, as partial recompense for a low inbound rate, to participate in a subsequent outbound haul. It could not expect participation in the carriage of freight that moved out of Cairo or Florence by water, and was unwilling to quote low inbound rates without an inducement of this sort.

• **Rules Governing the Installation of Through Rates.**—In passing upon applications for through routes presented by carriers upon the Mississippi River,

²⁶ 77 I.C.C. 317, 324-325, 1923.

²⁷ 91 I.C.C. 365, 1924.

²⁸ 89 I.C.C. 324, 1924.

the Interstate Commerce Commission has been obliged to decide three questions. The first is when rail carriers shall be required to enter into through routing arrangements with connecting river lines. The second is what relationship shall exist between rates charged for transport that uses only the rail lines and rates charged when the river lines participate in the haul. The third question concerns the division of the approved through rate, whatever it may be, between participating rail and water carriers.

It has already been remarked that water carriers upon the Mississippi must have through rates if they are to develop business. The Denison Act of 1928 recognized this fact by authorizing common carriers on the Mississippi River and its tributaries to apply to the Interstate Commerce Commission for certificates of convenience and necessity. Water carriers could then operate upon the Mississippi River without a certificate. If, however, they did apply for and were granted a certificate, then the law instructed the Commission to require connecting and common carriers to join with water carriers to which certificates were issued, in through routes and joint rates under such reasonable rules and regulations as the Commission might prescribe.²⁹ This section of the law established a policy, but the qualifying clauses allowed the Commission some discretion, and the Commission used its powers to refuse through routing arrangements when unreasonably circuitous routing would result. An extreme illustration of circuitous routing was cited by the Commission in 1929. In an application decided in 1929, the Inland Waterways Corporation asked, among other things, for a through route from Mobile, Alabama, to Columbus, Georgia. Transportation was to take place over the barge line from Mobile to Birminghamport, thence over the rails of the Warrior River Terminal Company to Birmingham, and thence by way of the Southern Railway to Columbus. The short route from Mobile to Columbus was 269 miles in length and employed the services of two railroads, the Louisville and Nashville and the Central of Georgia. The distance by water from Mobile to Birminghamport was 419 miles, and from there the distance by rail to Columbus over the terminal line and the Southern was 301 miles. This meant that after moving 419 miles by water, traffic following the proposed route would have been 32 miles farther away from its final destination than when it started at Mobile.³⁰ The Interstate Commerce Commission usually finds all-rail hauls that are more than a third longer than the direct route to be contrary to the public interest, but in the case of ocean-rail movements this rule is not applied. The most that it does in such instances is to prescribe a

²⁹ There is some question as to whether the Commission can issue an order requiring rail carriers to join in through rates with water carriers upon the Mississippi without a hearing. The implication of a decision of the United States Supreme Court in 1934 (291 U. S. 457, 1934) is that railroads are entitled to a hearing before the issuance of a final order, although a preliminary and tentative order may be published without a hearing.

³⁰ 151 I.C.C. 126, 132, 1929. See also 201 I.C.C. 613, 1934.

minimum car-mile rate. It has, however, formulated rules which are intended to prevent economic waste when one of the carriers is a river line. The necessarily complicated character of these regulations makes it advisable to relegate them to a footnote, but the object of the provisions will be easily understood.⁸¹

Twenty Per Cent Differential Allowed Mississippi River Carriers.—Through rates in which river lines participate are fixed on the theory that the charge for that part of the haul which takes place upon the water shall be 80 per cent of the rail rate between the port where the river line receives and the port where it relinquishes the freight. This so-called differential of 20 per cent was established by the United States Railroad Administration for port-to-port water transportation upon the inauguration of river service.³² The differential was apparently based not so much upon estimated economy in operation compared with rail service as upon the difference in the value of water service to the shipper. Barge service was less convenient and much slower than rail carriage, and was supposed, therefore, to be worth less. The Interstate Commerce Commission has since remarked that from the standpoint of public policy the important factor is the lesser cost of the service rather than the lesser value, for there can be no justification for encouraging an inferior service having a

³¹ The rule which governs the action of the Interstate Commerce Commission in establishing through routes between rail and river carriers is quoted in the following clauses. The reader will understand by "barge-rail route" a route which begins or terminates at a river port, though one terminal is at a rail point not situated upon the river. Both termini of a "rail-barge-rail route" lie upon railroad lines, but part of the intermediate movement in this case* is conducted upon the river.

The statement of the Commission is as follows:

"(a) No barge-rail route need be established where the shortest all-rail distance via the lines of the said rail carriers from point of origin to point of destination through the port of interchange with the barge line exceeds by more than 40 per cent the shortest all-rail distance between such points of origin and destination;

"(b) No rail-barge-rail route need be established where the shortest all-rail distance from point of origin to point of destination through the ports of interchange with the barge line exceeds by more than 33 1/3 per cent the shortest all-rail distance between such points of origin and destination;

"(c) No barge-rail route need be established where the shortest all-rail distance between the inland point of origin or destination, as the case may be, and the port of interchange exceeds three-fourths of the shortest all-rail distance between point of origin and point of destination;

"(d) No rail-barge-rail route need be established where the sum of the shortest all-rail distance from the point of origin to the port of interchange where the shipment is delivered to the barge line, plus the shortest all-rail distance from the port of interchange where the shipment is relinquished by the barge line to the point of destination exceeds two-thirds of the shortest all-rail distance between origin and destination;

"(e) No barge-rail or rail-barge-rail route need be established except over the shortest "working" route (*i.e.*, the shortest route regularly used for the transportation of freight traffic in general) between the inland point of origin or destination, as the case may be, and the port of interchange over which the lowest corresponding rate between such points applies; and

"(f) No barge-rail or rail-barge-rail route need be established if the barge line and the interested rail carriers agree that it shall not be established" (172 I.C.C. 525, 529, 1931).

³² Except that upon coal from points on the Warrior River the differential was **made 20 cents per ton**, or substantially less than 20 per cent.

higher cost; but the old Railroad Administration differential has been retained.⁸³

Division of Rates—The essential principles laid down with respect to the division of rates between rail and river lines are as follows:

i. In dividing the revenue on rail and water shipments, the rail lines should receive the same revenue as they would receive if the traffic moved by rail via the same gateway.

2. The expense of transfer of freight, over and above that which would occur as between rail carriers, is to be assumed by the water line.⁸⁴

These principles, when carried into effect, are expected to make it a matter of indifference to the railroad whether it interchanges traffic with the barge line or with another railroad carrier. Incidentally, they have also the effect of placing upon the water lines the entire burden of any differential rate which the water carrier sees fit to quote in order to attract traffic, because these differentials do not affect the rail carrier's division up to the gateway in the event that the traffic moves beyond by rail. There is some disagreement expressed by the barge line with rules which lead to this result. Further discussion would involve the reader, however, in highly technical rate controversies, and this we shall avoid.

Accomplishments of the Federal System of Inland Waterway Regulation Prior to 1940.—Rate and traffic regulation of inland waterways before 1940 was based, we have seen, (1) upon a series of statutes vesting authority in the United States Shipping Board and in its successor, the Maritime Commission, and (2) upon other laws which empowered the Interstate Commerce Commission to regulate joint rail and water services and to protect water carriers from destructive attack by railroads which operated generally under Interstate Commerce Commission control. On the whole, this system of control had many desirable characteristics. These features may, for convenience, be listed as follows:

1. Maximum and minimum water rates were subject to regulation along the coast and in intercoastal commerce. Maximum rates were regulated upon the Great Lakes. The maximum rates of water lines controlled by competing railway services, and maximum water-rail and rail-water rates applied to shipments handled under common management or control by rail and water agencies were adequately supervised.

2. The provisions of the Interstate Commerce Act relative to discrimination

³⁸ 77 I.C.C. 317, 322, 1923; 151 I.C.C. 126, 144, 1929; 172 I.C.C. 525, 528, 1931.

Barge Line differentials which differ somewhat from those described in the text have been applied (1) on sugar from points in Louisiana to points in Arkansas (167 I.C.C. 710, 1930); (2) on traffic between Kansas City and Missouri or Illinois River ports (192 I.C.C. 663, 667, 1933); (3) and on freight carried upon the Willamette and Columbia rivers between Portland and the Dalles (218 I.C.C. 393, 403, 1936). In the last instance the railroads argued that the water-rail rates should be as high as the all-rail rates.

³⁴ 77 I.C.C. 317, 325-326, 1923; 83 I.C.C. 742, 1923; 92 I.C.C. 528, 1924; 100 I.C.C. 491, 1925; 69 I.C.C. 389, 1922; 151 I.C.C. 126, 145, 1929.

extended to traffic handled under common management by rail and water carriers. The Shipping Act of 1916 and the Intercoastal Act of 1933 also protected shippers against discrimination, to some extent.

3. Water rates were required to be filed and schedules adhered to except by carriers engaged in port-to-port river business.

4. Federal agencies might call for reports from water carriers, although their authority to prescribe accounts was limited.

5. Destructive competition between rail and water routes was restrained in a number of ways, to the general advantage of the water lines. An account of influences which worked in this direction properly should mention the power of the Interstate Commerce Commission to compel physical connection between rail and water lines, Commission authority to require joint rates and a fair division of resulting revenues from rail and water business, the obstacles placed in the way of railroad ownership of water services, and the moderating effect of regulation upon competitive railroad policies.

Weaknesses of Federal Inland Waterway Regulation Prior to 1940.—We may place alongside of this list of merits ascribed to the system of federal waterway control before 1940 a summary of apparent defects.

1. The federal system provided no control of minimum rates on rivers or on the Great Lakes even when water carriers joined with railroads in the quotation of through rates. In the case of river port-to-port navigation there was no control of rates at all.

2. River lines were not required to publish or to adhere to published tariffs except tariffs published jointly with rail lines.

3. Contract carriers were not regulated except in intercoastal commerce.

4. There was no adequate governmental control over the accounts of water carriers. Section 21 of the Shipping Act required common carriers by water to file with the federal agency any account appertaining to the business of the carrier which the Shipping Board (later the Maritime Commission) required, in the form and within the time prescribed. This section did not convey the general power to prescribe accounting systems. The authority of the Interstate Commerce Commission over carriers' accounts extended only to the accounts of water carriers which were operated under a common control or arrangement with rail lines for continuous carriage in interstate commerce and to the accounts of railroad-controlled water carriers which came within the terms of the Panama Canal Act of 1912.³⁵

5. Water carriers were not required to apply for certificates of convenience and necessity. Water carriers on the Mississippi, Columbia, and Willamette Rivers might apply for certificates, but they might operate whether they obtained them or not. Moreover, in granting certificates for river operation and in the establishment of joint rates which ordinarily followed, the Inter-

³⁵ 1. L. Sharfman, *The Interstate Commerce Commission*, Commonwealth Fund, New York, 1931, Part II, p. 37.

state Commerce Commission did not feel itself at liberty to consider the general adequacy of transport facilities in the area to be served because of the implications in statutory language.

6. The regulation of inland waterways in the United States was divided between the Maritime Commission and the Interstate Commerce Commission. The former supervised coastal, intercoastal, and Great Lakes water carriers from port to port; the latter controlled water traffic carried under common arrangement with railroad lines, traffic handled by certain railroad-owned steamship lines and, in some respects, traffic on the inland rivers. It seemed obvious that the regulation of inland waterway transport would have been more effective if this division had not occurred.³⁶

Analysis by the Federal Coordinator of Transportation.—In 1934 the Federal Coordinator rendered a report to the Interstate Commerce Commission for transmission to Congress in which he stressed the general lack of prosperity, due to uncontrolled competition, which characterized the water industry, and emphasized the need for reorganization and extension of federal regulation in this field. Government supervision, he thought, should include control over the amount of competitive services afforded, control over minimum charges, control over the operations of contract and private carriers, and the requirement that published rates should be adhered to and unjust discrimination avoided. He proposed that regulatory authority should be vested in the Interstate Commerce Commission for these purposes and that the jurisdiction of other agencies or departments of the government should be at the same time reduced.³⁷ A bill to make these changes was considered by Congress in 1935, but no serious attempt to pass new waterway legislation occurred until 1939. In this year Mr. Lea in the House and Mr. Wheeler in the Senate introduced general transportation bills which proposed, among other things, to amend existing legislation relating to waterways and to transfer to the Interstate Commerce Commission the responsibility for regulatory control. These bills failed to pass in the second session of the 76th because of the combined opposition of waterway, labor, and farming interests; they were reconsidered in slightly altered form when Congress reconvened, and were quickly passed in 1940.

Transportation Act of 1940.—The Transportation Act of 1940 added a Part III to an amended Interstate Commerce Act, of which Part I included sections regulating railroads and Part II sections regulating motor carriers. Part III, together with some paragraphs elsewhere in the act which affected water transport, may be summarized as follows:

⁸⁶ See *Report of the Federal Coordinator of Transportation*, 73d Congress, 2d Session, Sen. Doc. 152, 1934. There is a convenient summary of the regulatory powers of the Maritime Commission and of the Interstate Commerce Commission, prior to 1940, in a brief prepared by the Maritime Commission and published in the *Hearings before the House Committee on Merchant Marine and Fisheries on H. R. 4307*, 76th Congress, 1st Session, 1939, pp. 250-260.

⁸⁷ United States Federal Coordinator of Transportation, *op. cit.*, pp. 10-11.

Preamble.—The entire act passed in 1940 was introduced by a preamble announcing the policy of Congress with respect to all forms of transportation. This preamble was referred to in the chapter on motor carrier regulation, and may now be given in full.

It is hereby declared [said the preamble] 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 by other means, adequate to meet the needs of the commerce of the United States, of the Postal Service, and of the national defense. All of the provisions of this Act shall be administered and enforced with a view to carrying out the above declaration of policy.

Classification of Carriers.—Common and contract carriers were distinguished in the act of 1940. The act specifically excluded from the categories of common and contract carriage services of floatage, car ferry, lighterage, or towage, rendered in terminal areas as a part of a rail or motor movement, or rendered for a common carrier by railroad, express company, or motor carrier. This adopted an interpretation of existing legislation described in Chapter XXXII. Services of this sort were to be regulated under sections of the law which dealt with railroads or with motor vehicles. There were, also, the following additional and important exceptions:

1. Transportation by water carrier (common or contract) of commodities in bulk when the cargo space of the vessel was used for the carrying of not more than three commodities.

2. Transportation by water of liquid cargo in bulk in tank vessels.

3. Transportation by a contract carrier by water of commodities in bulk in a non-ocean-going vessel on a normal voyage during which (a) the cargo space of such vessel was used for the carrying of not more than three such commodities, and (b) such vessel passed within or through waters which were made international for navigation purposes by any treaty to which the United States was a party.

4. Transportation by common carriers by water which, by reason of the inherent nature of the commodities transported, their requirement of special equipment, or their shipment in bulk, was not actually and substantially competitive with transportation by any common carrier subject to Parts I or II

of the Interstate Commerce Act. The Interstate Commerce Commission was to pass upon applications for exemption under this paragraph.

5. Transportation in interstate commerce by water solely within the limits of a single harbor or between places in contiguous harbors.

6. Transportation by vessels below a specified size,³⁸

7. Water carriers engaged solely in transporting the property of a person which owned all or substantially all of the voting stock of such carrier. The Interstate Commerce Commission was to issue certificates of exemption under this paragraph.

These exemptions appear to have been the result of determined opposition by carriers and shippers to regulation of bulk shipments on the Mississippi River and the Great Lakes, of the objection by port authorities in several cities to interference with local control in ports and harbors, and of the recognition of the peculiar status of the oil tanker. In the aggregate they exempted so large a fraction of inland water transport as to threaten the effectiveness of the proposed law. It is worth observing, in this connection, that the proportion of private and bulk transport in inland water carriage is very large. According to the Federal Coordinator of Transportation, 31 per cent of the traffic on the Mississippi River in 1932 was handled by common carriers, 39 per cent by contract carriers, and 30 per cent by private carriers; on the Ohio and Monongahela Rivers the common carrier accounted for only 3.6 and .3 of one per cent of the business, the contract carrier for 8.4 and 2.7 per cent, and the private operator for 88 and 97 per cent. On the Great Lakes about 95 per cent of the traffic was bulk cargo carried by private and contract operators, and of the tanker traffic, perhaps 95 per cent was transported by private carriers. In the intercoastal trade, however, about 90 per cent of the traffic, other than tanker traffic, was handled by common carriers.³⁹

Accounts, Reports, Bills of Lading, Insurance.—The new act authorized the Interstate Commerce Commission to require reports from and to prescribe the form of accounts to be kept by water carriers,⁴⁰ and to inspect accounts, records, and memoranda. The Commission might require the filing of true copies of contracts, charters, or agreements, but was not to make public the terms of a contract, charter, or agreement between a contract carrier by water and a shipper except as part of the record in a formal proceeding and when it considered such action to be consistent with the public interest. The liability of water carriers was left subject to maritime legislation, regulation, or custom, which already compelled the issue of bills of lading and determined the extent of responsibility in case of loss. Insurance was not required for water carriers, but current practice was adequate in this respect.

³⁸ Craft of not more than 100 tons carrying capacity of not more than 100 indicated horsepower, or carrying passengers only and equipped to carry not more than 16 passengers.

³⁹ United States Federal Coordinator of Transportation, *Report on Regulation of Transportation Agencies*, 73d Congress, 2d Session, Sen. Doc. 152, 1934, p. 7.

⁴⁰ The term "water carrier" included common and contract carriers.

Consolidations, Mergers, Acquisitions of Control, Pooling.—The Transportation Act subjected water carriers to the same revised rules which were applied to rail and motor carriers. They were allowed, that is to say, to consolidate with other water, rail, or motor carriers if the Interstate Commerce Commission should consent. The special rules which were first formulated in the Panama Canal Act of 1912 were continued in revised form., These regulations have been discussed in this same chapter, on a previous page.

Securities.—The act did not provide for the regulation of security issues of water carriers. Provisions in earlier proposed legislation which established this control did not appear in the final version of the law.

Certificates and Permits.—Common carriers by water were required to obtain certificates of public convenience and necessity before they engaged in operation; contract carriers subject to the act had to secure permits. No carrier might hold both a permit and a certificate unless the Commission should find that dual operation was consistent with the public interest and with the national transportation policy which the preamble declared. The original suggestion of the Coordinator had been that private carriers, also, should register, but the act did not require private registration. The conditions which the Commission had to find to justify the issue of a certificate or a permit were substantially the same as those listed in the Motor Carrier Act; the innovation was that water carriers were now forbidden to operate without a document of this kind. Common or contract carriers which had been in bona fide operation on January 1, 1940, were to be entitled to certificates or permits upon demonstration of this fact.

Service.—Carriers by water were required to render the service which they held themselves out to perform, upon reasonable request. Their practices with respect to transportation were to be just and reasonable. They had to establish reasonable through routes with other carriers of the same sort and with common carriers by railroad. They might establish reasonable through routes with common carriers by motor vehicle. There was no general declaration that water carriers should provide a safe and adequate service, and there was no provision for Commission regulation of the qualifications or hours of service of water carrier employees.

Rates and Tariffs.—Common carriers by water had to file and publish rates and collect the rates which they published. Changes might be made on 30 days' notice. Contract carriers were to file, establish, and observe reasonable minimum rates and these rates might not be reduced except on 30 days' notice. We have already pointed out that the Commission might require contract (and common) carriers to file copies of contracts with shippers providing for the transportation of property, but that the Commission was forbidden to make these contracts public except as part of the record in a formal proceeding, and then only when this action was consistent with the public interest.

Rates charged by common carriers by water were required to be reasonable. The authority of the Interstate Commerce Commission to prescribe maximum and minimum rates for common and minimum rates for contract carriers was extended to the field of water transportation. Minimum contract rates were to be such, however, as to give no advantage to any contract carrier in competition with any common carrier which the Commission might find to be undue. The Commission might suspend for seven months rates filed by common or by contract carriers. It might fix through rates on shipments handled by rail and water lines—not merely maximum rates as heretofore. It might establish divisions of through rates to which water and rail or water and motor vehicles were parties. The rule of rate-making was substantially identical with that prescribed for railroad and motor carriers under existing law. It was proposed to insert a paragraph in the bill permitting each type of carrier to reduce rates so long as these rates should maintain a compensating return after taking into consideration overhead and all other costs. The purpose of this last paragraph was obviously to protect water carriage against railroad competition; Congress properly omitted it as unsound.

Discrimination.—Common carriers by water might not give undue preference to any person, port, port district, gateway, transit point, locality, region, district, territory, or description of traffic. Rebates were forbidden. Contract carriers might charge different rates to different people, but might not ask less than their minimum scheduled rates. Water carriers were made subject to the long- and short-haul provisions of the Interstate Commerce Act; the so-called "equi-distant" clause of Section 4 was at the same time removed.

Summary of Changes Effected by the Transportation Act of 1940.—Part III of the Transportation Act of 1940 enlarged the regulatory authority of government in three principal respects: First, it gave to the Interstate Commerce Commission power to fix the actual or maximum and minimum rates on joint hauls to which a water line was a party. Up to 1940 the Commission had only had authority to fix a maximum rate in such a case. Second, it required common carriers by water to secure certificates of convenience and necessity and contract carriers to secure permits. And third, it subjected contract carriers to minimum rate regulation and both common and contract carriers to accounting control. The bill changed the machinery of federal regulation in one respect. It did this by transferring to the Interstate Commerce Commission regulatory power previously exercised by the Maritime Commission, leaving to the latter only promotional activities connected with the expansion of the American merchant marine and its use in foreign trade. It is evident that these suggestions, along with the more detailed provisions which have been summarized in preceding pages, eliminated the striking weaknesses in the statutory scheme for waterway regulation which troubled Congress in 1939. The defects of the act were in its exceptions, for these removed a considerable portion of water carriage from statutory control—so

considerable a part, indeed, that the plan of regulation remained seriously incomplete even after the assertion of increased authority over water carriers which were subject to the law.

Attitude of Water Carriers and Shippers.—For the most part water lines objected to the proposed extension and reorganization of federal authority, either because they were opposed to regulation upon principle or because they disliked any increase in the effectiveness of government control. Thus the American Merchant Marine Institute, which represented 49 per cent of all American tonnage of ships registered more than 1000 tons, insisted that there were no abuses in shipping which called for regulation. The Lake carriers, the smaller Mississippi River companies, the intercoastal and coastwise lines, especially those handling lumber or oil on a contract basis, the American Association of Tramp Operators, and the owners of tank steamers were especially emphatic in their resistance to increased governmental interference. These shipping interests were supported by farm organizations such as the National Grange, the American Cotton Shippers' Association and the National Farmers' Union, by shippers represented through the National Industrial Traffic League, the Mississippi Valley Association, and other commercial and industrial bodies, and by some labor groups such as the International Longshoremen's Association.

On the other side the American-Hawaiian Steamship Company, the Merchants and Miners Transportation Company, the Ocean Steamship Company, and the Eastern Steamship Lines among the intercoastal and coastal operators favored regulation, as did the Inland Waterways Corporation, the Mississippi Valley Barge Lines and the American Barge Lines upon the Mississippi River; and some labor groups supported a program for transferred control.⁴¹ It is perhaps worth noticing also that in 1933 the United States Chamber of Commerce conducted a referendum among chambers of commerce and commercial organizations throughout the United States in which a large majority of votes were cast in favor of the regulation of rates charged by common carriers by water and in support of the proposition that all vessels which are not common carriers and which accept cargo for hire should be required to charge the established common-carrier rates.

Arguments Against Increased Regulation.—The following assertions were made in opposition to the further regulation of shipping and the transfer to the Interstate Commerce Commission of all regulatory control:

1. There is no public demand for further regulation of water transport. On the contrary, shipping, business, and some labor opinion is against it.

⁴¹ The Brotherhood of Railroad Trainmen and the Brotherhood of Locomotive Engineers, appeared in favor of water carrier legislation, and the Marine Engineers and the National Organization of Masters, Mates, and Pilots supported control of the water carrier industry by the Interstate Commerce Commission because of observed conditions favorable to labor in the railroad field.

2. Competition in shipping is more necessary to the public welfare than is coordination.

3. Regulation will mean higher rates. This conclusion was based upon a number of grounds. In part higher prices were thought to be the natural result of regulation as an institution. Control is expensive, both to the government and to the enterprises which are controlled, and increased cost to carriers in this instance will mean, in the long run, increased rates to shippers. But principally, higher shipping rates were expected to be produced by the deliberate policy of the Interstate Commerce Commission. The Commission would, it was said, be inclined to protect the existing railroad rate structure for which it is responsible, against the water lines. The whole purpose of proposals for regulation, indeed, was alleged to be an increase in water rates to levels where they cannot attract business from the rails. Experience under the Motor Carrier Act of 1935 was referred to in support of this contention.

4. Higher rates and less flexible conditions of operation will destroy the usefulness of the Mississippi River system, and will embarrass water carriers elsewhere in their competition with other agencies of transport. Or, in the alternative, they will force industries to develop their own private means of transport.

5. Provisions governing the issue of certificates for common carriers and especially permits for contract carriers by water, together with limitations upon the equipment, routes, and rates of such enterprises, will hamper and restrict the operation and development of inland transportation. The whole program was regarded by many as an attack upon the contract carrier; and opponents emphasized accordingly the unique services which contract carriers rendered in supplying special equipment, in meeting the needs for seasonal operation and, by skillful organization, in rendering efficient and economical service. In this last case particularly, it was urged that even publicity in rates would handicap the contract operator—this time in competition with Canadian vessels upon the Great Lakes.

6. The Interstate Commerce Commission is overburdened, and cannot perform additional tasks effectively.

Arguments in Favor of Increased Regulation.—The following replies justified increased waterway regulation in the eyes of the advocates of pending legislation.

1. Regulation is required to prevent destructive competition in the water carrier industry.

2. Experience has shown that uncontrolled water carrier competition is contrary to the public interest. This is partly because competition leads to instability in rates and to discrimination. Unrestrained intercompany warfare also destroys water carrier credit and makes coordination between water carriers and other agencies of transport most difficult. The Coordinator, in

1934, described the precarious financial condition of water lines at length, and little change in this respect has occurred during recent years.

3. Effective regulation must provide control over private and contract carriers, at least in so far as this is necessary to protect common carriers against unfair competition. It is on this theory that the proposal to regulate the minimum rates of contract carriers is based.

4. The average of water rates may be raised by regulation, but these rates should be compensatory, in the public interest as well as in the interest of the carriers themselves. It is not proposed, however, to raise water rates in order to protect other forms of transport. Water charges should be responsive to conditions affecting water carriage. It is doubtful if railroads have much to gain from any system of waterway control.

5. Regulation of all forms of transport should be in the hands of a single agency. The use of separate commissions duplicates administrative machinery; there is also a tendency for each agency to become a partisan of the particular form of transportation which it regulates.

Conclusion.—It may be concluded that the Transportation Act of 1940 considerably improved the system of inland waterway regulation in the United States, both because it supplied regulating authority with some additional powers and because it integrated the machinery of waterway control with that used in supervising other forms of transport. Certainly reasonableness and discrimination are concepts which should be defined in the same terms for all carriers, and competitive rights should be adjudicated by a single body or they should not be adjudicated at all. This simple reflection, together with attention to details which we have mentioned in describing the waterway clauses of the law, is sufficient to justify what is, at the moment, recent legislation. On the other hand, the large exemptions which the act contains lead one to suspect that the effect upon waterway rates and services will not be very great. Further comment must await experience in the administration of the law.

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CHAPTER XXXIV

REGULATION OF AIR TRANSPORT



State Regulation of Air Transport.—State legislation affecting air carriers was classified by the Federal Coordinator of Transportation in 1934 as follows:

1. Statutes which fix the legal status of all aircraft as to contracts, crimes, and torts, define the rights and liabilities of parties affected by aircraft operations, and require federal registration and licensing as a prerequisite to operation within the state.

2. Statutes of the character above described that also create a supervisory tribunal with authority to make rules and regulations concerning registration, licensing, and operation of aircraft. These aircraft, in most instances, are required to conform to federal laws and regulations. Such tribunals have power to enforce the provisions of state laws.

3. Statutes which class aircraft engaged in the transportation of persons or property, for hire, as common carriers and make them subject to the same character of regulation as is applied to other kinds of common carriers.

4. Statutes enabling the state aviation authority, or municipalities, or other political subdivisions of the state to acquire, maintain, and operate airports, landing fields, and other air navigation facilities.

Seventeen states, according to the Coordinator, had, by 1934, adopted legislation of the kind described in paragraph 1 above, and thirty-one had adopted the more complete form described in paragraph 2.¹

In general, state law has the same force with respect to crimes and torts in airplane operation as in the case of like offenses elsewhere. Controversies which require the definition and delimitation of the liabilities of common carriers for loss and damage are usually also decided under state statutes, although it is conceivable that Congress might legislate with respect to air liability as it has in connection with the liability of marine carriers upon the high seas or the liability of rail carriers on land. The authority of local political units to acquire and maintain airports can only be derived from state legislation. In these fields the states exert unquestioned power. With reference to other matters listed in our preliminary enumeration, the au-

¹ United States Federal Coordinator, *Report on Regulation of Transportation Agencies*, 73d Congress, 2d Session, Sen. Doc. '152, 257-258, 1934.

thority of the various states is, however, sometimes restricted by the paramount power of the federal government. At the beginning, of course, in spite of this possibility, the states were compelled to take action. Information had to be supplied. Private parties had to be restrained from imprudences which might have been dangerous to aircraft such, for instance, as the placing of beacons on the roofs of buildings where lights might be mistaken for the signals of landing fields. Airplanes were being used which were unsafe, airports were improperly built and insufficiently maintained, and pilots flew who were inadequately trained. State laws were passed to control these abuses, and they were moderately successful. The considerable body of legislation which grew out of these conditions supplied the body of local regulation referred to in paragraphs 2 and 3 *supra* and in the last sentence in paragraph 1. Much of it has been or will be superseded by federal rules and enactments.²

Need for Uniformity in State Laws.—The difficulties which states encounter in regulating air transportation are partly of a practical and partly of a legal character. Practical difficulties arise, obviously enough, when the regulations of adjoining states conflict. We have already discussed a similar situation affecting motor transport. The average haul of freight and the average journey of passengers is greater in air than in motor transportation, and as a result the proportion of movements which have to reckon with the rules of several states is larger. If the requirements established by one state differ substantially from those of its neighbors, carriers flying in the two jurisdictions must comply with two sets of regulations. It will always be expensive to do this and sometimes it will be impossible. When federal regulations exist, the simple way to secure uniformity is for all states to adopt the federal rules for application within their jurisdictions; this has been done extensively in requiring licenses for aircraft operation, and with respect to traffic rules. States may also, however, harmonize their various laws by conference and compromise. The National Conference of State Commissioners on Uniform State Laws has worked upon this subject during many years, and has produced a series of model acts which most states, it hopes, will eventually adopt.

² In Illinois, to take a single example of state legislation, there was an Aeronautics Commission provided, to be appointed by the governor under an act passed in 1931. This Commission consisted of five members serving terms of four years each. It had power to prescribe reasonable air traffic rules, not inconsistent with federal legislation, and rules for the designing and laying out of airports and for the location and management of other air navigation facilities. It could grant or refuse licenses for airports, landing fields, and air schools, and it could investigate accidents. The Illinois Commission did not license aircraft or pilots, but it required both to possess licenses issued by the United States Department of Commerce, and these licenses were to be registered with the Commission. No attempt was made to regulate air carrier rates, and individuals were not restrained from entrance into the business of flying by the institution of certificates of public convenience and necessity. The Commission had no direct promotional duties, but its regulatory activities were expected to be of service to aviation, and it interested itself, actually, in educational and promotional work. Encouragement, so far as was possible within the limits of safety, and restrictive control, were the purposes of such state laws (*Journal of Air Law*, January, 1934, pp. 51 *iff.*).

This is another solution of the problem, but not one which is necessarily inconsistent with the first because many of the prescriptions in the model acts are the same or similar to those in federal law. Up to 1936 the National-Conference had produced four acts:

1. The Uniform Aeronautics Act. Adopted, by 1936, by 21 states, either entirely or with minor modifications.

2. Uniform Air Licensing Act, 1930. Adopted, by 1936, by 7 states.

3. Uniform Aeronautics Regulatory Act, 1935. Not yet adopted by any state in 1936.

4. Uniform Airports Act, 1935. Not yet adopted by any state in 1936.³

The subject matter of most of these model laws is indicated by their names. The Uniform Aeronautics Act, which is not so readily understandable, covered originally subjects such as sovereignty in space, the ownership of space, liability for damage resulting from airplane operation, and jurisdiction over contracts, crimes, and torts. Continuing effort in the development of this particular model has produced three subsidiary proposals, together known as the proposed Aeronautical Code. These include a Uniform Aviation Liability Act, a Uniform Law of Airflight, and a Uniform Air Jurisdiction Act. Progress has been made in the study and perfection of these laws, but uniformity of opinion with respect to their provisions has not yet been attained.⁴

State Control and Interstate Commerce—State legislation regarding aircraft is limited by the authority of the federal government even more than by the need for coordinating the rules prescribed by different states. The legal principles involved are of long standing; they are those which we have already discussed in Chapters XXX and XXXI. The only peculiar features in the air situation are (1) the long average haul characteristic of air transport, and (2) the lack of precise limitation of airplane routes. We have just mentioned the first of these peculiarities, and will not dwell upon this matter further. As for the second, the fact that air highways are not exactly defined is noticeable enough; it is the legal result of this diffuseness which requires determination. It may be, indeed, that the entire airspace of the country above a certain height can be regarded as a single federal highway which Congress can regulate under its authority to establish post roads. Whether the highway be one or many, it seems certain that Congress can protect the freedom of interstate commerce through the air; the ease with which planes in local service can interfere with through transport will also justify a much more rigid federal regulation of local flying than can be defended in the case of

³1936 U. s. Av. R. 376.

⁴The American Bar Association, the American Law Institute, and the National Conference of Commissioners on Uniform State Laws have collaborated in the preparation of the Uniform Aeronautical Code, and aviation insurance underwriters and commercial air lines have been consulted. While progress has been made, a special study committee of state aviation officials opposed, in 1938, the adoption of the Uniform Aviation Liability Act and the Uniform Law of Airflight, although it recommended the adoption of the Uniform Air Jurisdiction Act. (See Wm. Schnade, "Uniform Aviation Liability Act," *Journal of Air Law*, October, 1938, p. 664.)

rail or motor transport.⁵ This so works to limit the freedom of action of state governments that Clarence M. Young, one-time Assistant Secretary of Commerce for Aeronautics, has frankly declared that it is for the federal government to formulate rules in the regulation of air transport, and that states should occupy themselves with questions of promotion and enforcement.⁶ Some such division of the field has largely, though not yet entirely, taken place.

Federal Control—Influence of the Post Office Department.—Apart from some attempts to develop aviation for military purposes, the federal government took no official interest in aviation until 1918, when the Post Office Department first made use of a service for the transport of mails between New York and Washington. We have discussed the growth and the importance of air mail transport in the United States in Chapter 6. From the point of view of regulation, the significant fact is that in these early days the profitableness of air mail contracts enabled the Postmaster-General to control, or at least to influence, the types of planes which were to be used in commercial aviation by his power to grant or to refuse contracts for the carriage of the mails. This control was still more effective in the selection of routes, for few air companies could finance service on routes on which no mail was carried. The initial air service across the Allegheny Mountains and the inauguration of through transcontinental lines were later asserted by the Postmaster-General to have been due to Department initiative. It is interesting also to recall that Postmaster-General Brown, under President Hoover, insisted that bidders for air mail contracts should develop facilities for the carriage of passengers, in the hope of securing planes which could ultimately pay their way without subsidy. The carriage of passengers would produce revenue, argued Mr. Brown, and after people had begun to fly themselves there would be more likelihood that they would send their express shipments by plane.⁷ In this same connection, bidders were required to submit evidence that they had had at least six months experience in operating night schedules on a route twenty-five miles or more in length, because night service was

⁵ Edward A. Harriman, "Federal and State Jurisdiction with Reference to Aircraft," *Journal of Air Law*, Vol. 2, July, 1931, pp. 299-324.

• Clarence M. Young, "The Province of Federal and State Regulation of Aeronautics," *Journal of Air Law*, Vol. 1, October, 1930, p. 423; Fred L. Smith, "Cooperation between the Federal Bureau of Air Commerce and State Aviation Officials," *ibid.*, Vol. 7, October, 1936, p. 503. In discussing the proposed Uniform Aviation Liability Act it was argued that a variation in state requirements for air carrier insurance or state laws which imposed different liabilities in case of accident would cause air carriers to avoid states in which the laws were most severe (*Journal of Air Law*, Vol. 9, October, 1938, pp. 679, 685). See United States Congress, Senate, Committee on Interstate Commerce, *Hearings before a Subcommittee on S. 2, 75th Congress, 1st Session, 1937*, testimony Benton, pp. 363 ff., for arguments supporting a restriction of federal control over intrastate rates by air carriers.

⁷ United States Congress, Senate, Special Committee on Investigation of Air Mail and Ocean Mail Contracts, *Hearings pursuant to Sen. Res. 349, 73d Congress, 2d Session, 1934*, testimony Brown. PP. 2351, 2569.

thought to be essential to satisfactory freight and passenger **operation, as well** as desirable from the point of view of mail transport.⁸ Even **the** organization of the companies was considered in allotting contracts, for **the** Post Office sought to encourage the consolidation of short, detached lines **into** larger systems. This seemed especially important upon the trans-continental **route**, but a similar policy was pursued elsewhere.

Federal Statutory Regulation of Air Mail Carriage.—Not only did the Post Office Department exert influence upon aviation in its capacity as purchaser of airplane service, but federal statutes presently provided for the regulation of **air** mail carriage. These statutes stated the terms on which air mail contracts could be awarded.⁹ They did, moreover, more than this, for they conferred specific regulatory authority upon the Post Office and upon other government departments with reference to air mail carriers, and they laid down certain rules by which these carriers should be governed. The statutes here referred to are the Air Mail Acts of 1934 and 1935.

Air Mail Acts of 1934 and 1935.—The Air Mail Act of 1934, as **amended** in 1935, granted the following powers to departments and boards:¹⁰

Post Office Department.—The Postmaster-General was given authority to prescribe the number and frequency of schedules, intermediate stops, and the times of departure of planes carrying mail. All persons holding air mail contracts were required to keep their books, records, and accounts under such regulations as might be promulgated by the Postmaster-General, and this officer was authorized, whenever he deemed it desirable to do so, to examine and audit these books and to require contractors to submit full financial reports in such form and under such regulations as he might prescribe.

Secretary of Commerce.—The Secretary of Commerce under the acts of 1934 and 1935 determined the speed, load capacity, safety features, and safety devices of planes which were used on air mail routes; he prescribed the maximum flying hours of pilots in air mail service, and he was authorized **to** approve agreements between air mail operating companies and their pilots and mechanics regarding retirement benefits.

Interstate Commerce Commission.—The Interstate Commerce Commission fixed rates of contract compensation for the transportation of mail within the limitations of the act of 1935. It might terminate an annual contract, after the initial period expired, on sixty days' notice and hearing.¹¹ Like the Post Office, it had authority to examine and audit the books, records, and accounts of air mail contractors. When the Commission conducted an **audit**,

⁸ *Ibid.*, p. 2380.

⁹ Sec chap. vi.

¹⁰ 48 Stat. 933, 1934; 49 Stat 614, 1935.

¹¹ F. D. Fagg, "National Transportation Policy and Aviation," *Journal of Air Law*, Vol. 7, April, 1936, pp. 155-201; see also R. G. Curry, "New Powers of the Interstate Commerce Commission over Air Transportation," *ibid.*, Vol. 6, January, 1935, pp. 94-109.

it was required to render a full report to the Post Office Department within thirty days; this report was to specify all instances in which the contractor had failed to comply with provisions of the uniform system of accounts which the Post Office had prescribed. The law was objectionable because it required one agency of the government to police carriers, accounts, and business transactions recorded under rules and regulations prescribed by another agency. In 1938 the Civil Aeronautics Act put an end to this division of responsibility.¹²

National Labor Board.—Rates of pay and working conditions of persons employed by air mail contractors must conform to standards set in decisions of the National Labor Board or of its successors in authority. The power vested in the Department of Commerce to prescribe maximum flying hours of pilots in air mail service could not be used to establish higher maxima than the National Labor Board prescribed.

The Air Mail Act also laid down certain rules with which air mail contractors were expected to comply. In general, these rules (1) prohibited the intermingling of air mail operation and aviation manufacturing activity; (2) prohibited interlocking directorates as between air mail concerns and other branches of the aviation industry; (3) fixed a maximum salary of \$17,500 annually for employees of air mail concerns; (4) required each bidder for an air mail contract to file complete financial information with respect to his business organization and operations; (5) prohibited mergers of competing air lines; and (6) forbade unfair competitive practices.¹³ Clearly the sum of these regulations, together with the authority exercised by government departments under the acts of 1934 and 1935 amounted to a substantial

¹² *Hearings on S. 2, op. cit.*, 1937, p. 40. The act of 1934 as amended in 1935 directed the Federal Radio Commission to give equal facilities in the allocation of radio frequencies in the aeronautical band to airplanes carrying mail and/or passengers while mail contracts were in effect.

¹³ Section 15 of the Air Mail Act of 1935 deserves special mention. This section read as follows: "Upon application of the Postmaster-General or of any interested air-mail contractor, setting forth that the general transport business or earnings upon an air-mail route are being adversely affected by any alleged unfair practice of another air-mail contractor, or by any competitive air-transport service supplied by an air-mail contractor other than that supplied by him in the line of his prescribed air-mail route, or by any service inaugurated by him after July 1, 1935, through the scheduling of competitive non-mail flights over an air-mail route, the Interstate Commerce Commission shall, after giving reasonable notice to the air-mail contractor complained of, inquire fully into the subject matter of the allegations; and if the Commission shall find such practice or competition or any part thereof to be unfair, or that such competitive service in whole or in part is not reasonably required in the interest of public convenience and necessity, and if the Commission shall further find that in either case the receipts or expenses of an air-mail contractor are so affected thereby as to tend to increase the cost of air-mail transportation, then it shall order such practice or competitive service, or both, as the case may be, discontinued or restricted in accordance with such findings, and the respondent air-mail contractor named in the order shall comply therewith within a reasonable time to be fixed in such order."

This was the first mention of public convenience and necessity in federal air legislation. For a summary of the general rules laid down in the Air Mail Acts see United States Congress, Senate, Select Committee to Investigate the Executive Agencies of the Government, *Preliminary Report*, 75th Congress, 1st Session, Sen. Rep. 1275, 1937, p. 378.

interference with the private management of air service in so far as air mail contractors were concerned; since, moreover, most operators of scheduled services held mail contracts, this legislation which we have summarized applied to a large portion of all regular air carriage which was being carried on. Its effectiveness ceased, of course, when the air mail contract system was abandoned in 1938.

Federal Act of 1926.—Unlike the air mail legislation, this act applied to all air carriers engaged in interstate and foreign commerce. It was primarily a promotional rather than a restrictive measure, directing the Secretary of Commerce, who already supplied many facilities for ocean navigation, now to extend support to air operation. Thus the act of 1926 declared it to be the duty of the Secretary to foster air commerce, and ordered him in particular to encourage the establishment of airports, civil airways and other air navigation facilities, to study the possibilities for commercial and technical improvement, to investigate accidents, and to make recommendations to the Secretary of Agriculture with regard to meteorological service. Congress added regulatory clauses to these promotional features of the act, to promote safety in air operation and because it believed that general regulation of the industry would inspire public confidence; it seemed, at least, ridiculous to permit a freedom of navigation to ships in the air which was denied to ships upon the sea. This explains the following provisions of a supervisory sort: •

Under the act of 1926,¹⁴ the Secretary of Commerce was empowered to provide for

1. The registration of aircraft.
2. The rating of aircraft of the United States as to their airworthiness,
3. The periodic examination and rating of airmen serving in connection with aircraft of the United States.
4. The examination and rating of air navigation facilities for the use of aircraft of the United States.
5. The establishment of air traffic rules for the navigation, protection, and identification of aircraft, including rules specifying safe altitudes for flight and rules designed to prevent collisions between vessels and aircraft.
6. The issuance, suspension, and revocation of aircraft and airman certificates and of such other certificates as the Secretary of Commerce might deem necessary in administering the functions vested in him by the law.

The act was amended at this point, in 1934, to provide for the rating of air lines as well as of aircraft and airmen.¹⁵ It was declared to be unlawful to navigate any aircraft in the United States which was not registered and to which an air certificate had not been assigned, to navigate any aircraft otherwise than in conformity with the air traffic rules, or to serve as an airman

¹⁴ 44 Stat. 568, 1926.

¹⁵ 48 Stat. 1113, 1934.

without an airman's certificate.¹⁶ The Secretary of Commerce issued elaborate regulations under these provisions governing the registration and licensing of aircraft and the licensing of mechanics. He likewise rated airports and promulgated traffic rules controlling aircraft operation. All civil and commercial aircraft, licensed or unlicensed, were required to conform to these traffic rules at all times, whether flown privately and whether engaged in interstate or in intrastate commerce.¹⁷ These regulations and rules were later amended—a natural process in a developing system of control.

Railway Labor Act, Amendment of 1936.—We have already mentioned the labor controls provided in the Air Mail Act of 1934 as amended in 1935. Under this special legislation the Secretary of Commerce prescribed the maximum flying hours of pilots on air mail lines. The same law declared that rates of pay and working conditions of persons employed by air mail contractors must conform to standards set in decisions of the National Labor Board, at least in so far as rates of pay and specifications governing working conditions were included in air mail contracts. The practical effect was to incorporate a particular decision of the National Labor Board—Decision No. 83, rendered on May 10, 1934—by reference. This was a decision which established maximum hour limitations and prescribed, in effect, minimum wages for air mail pilots.¹⁸

In addition to these regulations, an amendment to the Railway Labor Act, approved in 1936, applied the provisions of the Railway Labor Act to common carriers by air engaged in interstate commerce and to air carriers transporting mail.¹⁹ This extended the jurisdiction of the National Mediation Board to the adjustment of labor disputes in the air mail service. In this manner the federal government assumed the same obligation relative to air line employees that it had previously assumed relative to rail employees; it guaranteed, that is to say, the employees' right to organize for the purpose of collective bargaining without employer interference.²⁰ These various grants of authority were the cause of some confusion, especially with respect to the relative juris-

¹⁶ Canadian aircraft, properly licensed in Canada, might carry passengers and cargo between points in Canada and points in the United States without an American certificate. They might not, however, pick up traffic at one American point and deliver it at another American destination (1929 U. S. Av. R. 273).

¹⁷ 1928 U. S. Av. R. 365, 414.

¹⁸ The text of the Labor Board decision is reprinted in *Hearings before the House Committee on Interstate and Foreign Commerce on H.R. 9738*, 75th Congress, 3d Session, 1938, pp. 231-232. See also the discussion of the Civil Aeronautics Act of 1938 in the text, *supra*.

¹⁹ See chap. xxvii.

²⁰ United States Congress, Senate, Select Committee to Investigate the Executive Agencies of the Government, *sup. cit.*, p. 377. Representatives of the air line pilots pointed out, however, that collective bargaining in the air carrier industry was more than usually difficult because pilots were so scattered, in the course of their normal activities, that no considerable number could meet to discuss pending issues at any one place or time (*Hearings on S. 2, op. cit.*, 1937, testimony Behncke, p. 57).

dictions of the National Labor Board and of the National Mediation Board; for it could be argued that the Railway Labor Act, as amended in 1936, substituted the processes of collective bargaining for the power of regulation which the National Labor Board had possessed under air mail legislation. The cancellation of mail contracts, however, and the passage of the Civil Aeronautics Act of 1938 clarified the law in these respects.

Defects in **the** System of Air Carrier Control.—There were several defects in the system of air carrier regulation in the form which it had assumed by 1936. In general, authority was vested in too many supervisory organizations—a diffusion of power which was possibly expensive and which might easily lead to conflict between different controlling bodies. This was a difficulty in organization that was easy to understand, although not entirely easy to remove. Besides this, the system was incomplete because it did not provide for the regulation of non-mail carriers except with respect to labor conditions and the safety of air operations; and there were objections raised also to specific provisions in the Air Mail Acts, particularly to clauses which hampered mail carriers in undertaking new freight and passenger services. Other weaknesses were that existing statutes made no provision for the regulation* of rates charged for air passenger and express service, and that there was no requirement that air companies proposing to serve as common carriers should demonstrate that public convenience and necessity justified their entrance into the common carrier field.²¹ These defects aroused little general public interest. Representatives of the air industry declared, however, that the result of governmental inaction was unbridled competition between air lines, insufficient earnings, and impending financial collapse. According to the president of the Air Transport Association of America, which represented 99 per cent of all flying done by scheduled air lines, \$120,000,000 of private capital had been invested in air transport, of which \$60,000,000 had been lost. Since the beginning, 100 scheduled lines had been organized, and of these scarcely more than a score remained. The credit of the air carriers was gone, just at the time when access to new supplies of money was critically needed. Anti-trust legislation prevented air carriers from agreeing among themselves. The companies demanded, therefore, legislative restraint which they were themselves unable to provide, and their complaints attracted congressional attention in due course.²² The situation was curiously unlike that which had provoked the extension of government control over railroad opera-

²¹ Edgar S. Gorrell, "Rationalization of Air Transport," *Journal of Air Law*, Vol. 9, January, 1938, pp. 41-47.

²² *Hearings on H.R. 9738, op. cit.*, 1938, testimony Gorrell, pp. 298, 309, 338. On this last matter Col. Gorrell, President of the Air Transport Association of America, testified: "A major element [in diverting capital from the air transport industry] is unbridled competition. . . . The only agency or agent in America today that can stop it is myself; and the moment I stick my neck out to stop it, if I did, I would face a jail sentence and a fine for violating the anti-trust laws. Our companies today cannot lawfully agree on prices.*"

tion,²³ and it differed also from the conditions which had led to water and motor carrier legislation. In one of these cases the shippers, and in the other competing carriers had asked for government protection and support; the air carriers, on the other hand, asked for federal action almost entirely to remedy the industry's internal ills.

Civil Aeronautics Act of 1938—Legislative History.—A bill was introduced into the Senate in 1935 embodying suggestions for new legislation which had been proposed by the Federal Aviation Commission earlier in that year.²⁴ Other bills were presented to House and Senate in 1937, which were referred to committees and considered,²⁵ but none of all these were passed, possibly because of the opposition of government departments which proposed legislation would affect.²⁶ In August, 1937, however, an interdepartmental committee was organized by the Secretary of Commerce at the request of the President, with a membership that represented the Departments of State, War, Navy, Commerce, Treasury, and Post Office; this committee was expected to study pending bills and to make recommendations for legislation which the departments would support.²⁷ Hearings followed, new legislation was formulated, there were then conferences with Mr. Lea of the House of Representatives, and a second draft was prepared for congressional discussion. During all this time representatives of the air industry were fully consulted, although the committee's hearings do not seem to have been published for general public inspection. Out of the deliberations of the Interdepartmental Committee and Mr. Lea, H.R. 9738 presently emerged. Shortly afterward, Senator McCarran introduced S. 3845 into the Senate; this was a bill generally similar to H.R. 9738, but differing in details. The McCarran bill was passed by the Senate in May, 1938. The House amended the Senate legislation by striking out all after the enacting clause and substituting H.R. 9738 for the provisions which had been eliminated. So amended, the bill went to conference where it was

²³ Mr. Eastman testified in 1937 that when the Interstate Commerce Commission was created one of the chief and perhaps the main reason for creating it at the time was the disturbance of business conditions and the peril to the stability and financial prosperity of the railroads themselves which uncontrolled competition had brought about (*Hearings on S. 2, op. cit.*, 1937, testimony Eastman, p. 67). Students of railroad history would hardly agree, however, that this generalization was correct.

²⁴ The Federal Aviation Commission had been appointed by the President in 1934 to outline a broad policy covering all phases of aviation for the guidance of the national government. Its responsibilities for outlining legislation with reference to aviation somewhat resembled those imposed upon the Federal Coordinator of Transportation in 1933 with respect to all forms of transportation. As a matter of fact, the Coordinator had authority to submit a program for air control but refrained from doing so because the Federal Aviation Commission had been established. The Commission's report was printed as Sen. Doc. 15, 74th Congress, 1st Session, 1935.

²⁵ United States Congress, Senate, Committee on Interstate Commerce (Subcommittee), *Hearings on S. 3027*, 74th Congress, 1st Session, 1935; *Hearings on S. 2 and S. 1760, op. cit.*, 1937, testimony Eastman, esp. p. 336; testimony McCarran, p. 344.

²⁶ *Congressional Record*, 75th Congress, 3d Session, May 7, 1938, p. 6403.

²⁷ *Hearings on H.R. 9738, op. cit.*, 1938, testimony Hester, p. 48.

somewhat changed; the conference report was then accepted by both **the House** and the Senate, and the proposed law was finally enacted on June 23, **1938**. This was the statute now known as the Civil Aeronautics Act of 1938.²⁸

Terms of the Civil Aeronautics Act of 1938.—The Civil Aeronautics Act was a distinct and independent statute, not a portion of the Interstate Commerce Act, as was the Motor Carrier Act of 1935 and the legislation proposed for further control of inland waterways. Its terms may be summarized **as** follows:

Preamble.—The Civil Aeronautics Act contained, in Section 2, what amounted to a preamble, setting forth the general purposes of the legislation. In this section the "Authority" established in the act was directed to consider the following objectives:

1. The encouragement and 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.

2. The regulation of air transportation in such manner as to recognize and preserve the inherent advantages of, assure the highest degree of safety in, and foster sound economic conditions in, such transportation, and to improve the relations between, and coordinate transportation by, air carriers.

3. The promotion of adequate, economical, and efficient service by air carriers at reasonable charges, without unjust discriminations, undue preferences or advantages, or unfair and destructive competitive practices.

4. Competition to the extent necessary to assure the sound development of an air transportation system properly adapted to the needs of the foreign and domestic commerce of the United States, of the Postal Service, and of the national defense.

5. The regulation of air commerce in such manner as to best promote its development and safety.

6. The encouragement and development of civil aeronautics. These phrases in the preamble were reminiscent of similar expressions contained in the Motor Act and in the Merchant Marine Act of 1936. They indicated, at least, an intent to encourage the independent development of air transport, and at the same time the wish to regulate the industry in ways consonant with the public interest. The reference in paragraph 3 to destructive competition was significant in the light of conditions which led to the enactment of **the** law.

Organization of Control.—The striking feature of the act was the creation of three agencies called respectively, the Civil Aeronautics Authority, **the** Administrator, and the Air Safety Board. All three formed part of the same organization, but they had in each case an independent existence. Of **these**, the Civil Aeronautics Authority consisted of five members, appointed by **the**

²⁸ 52 Stat 973, 1938.

President of the United States for terms of six years at salaries of \$12,000. In preliminary legislative discussions the House had proposed a board of three and the Senate one of five members; the latter's view prevailed. Legislative and judicial functions of regulation were concentrated in the Authority. The Administrator was a single person, appointed by the President at a salary of \$12,000 and holding office at the President's pleasure. He was charged with executive and promotional functions. The Air Safety Board consisted of three members, appointed by the President for six years at salaries of \$7500. Its duties were confined to the study of accident prevention. It had no power except the power to investigate and to recommend. The establishment of such a board had been urged upon Congress by the Air Line Pilots' Association in 1938.²⁹

Classification of Carriers.—The act did not classify air carriers, though it authorized the Authority to do so; it merely recognized common and other carriers. The operations of contract carriers, however, clearly came under the term "air commerce," which was defined to include the carriage of persons or property for compensation or hire as well as the operation or navigation of aircraft in the conduct or furtherance of a business or vocation. Both common and private carriers were subjected to regulation by the Aeronautics Authority, but this regulation took different forms in the two cases, and in the latter case was limited to prescriptions related to the safety of air operation.

Accounts and Records.—The Authority was empowered to prescribe the forms of accounts used by common carriers and carriers transporting mail. It could require reports, specific answers to questions, and copies of contracts and arrangements. Its auditors had the right of access to carriers' buildings and accounts. It was authorized to inquire into the business of any air carrier, and to obtain from such carrier, and from any person controlling or controlled by, or under common control with, such air carrier, full and complete reports and other information.

Consolidations, Mergers, Acquisitions of Control, Interlocking Directorates, Pooling Arrangements.—Consolidations, etc., were permitted, but only after approval by the Authority. The act envisaged the following possible operations:

1. Consolidation of aircraft manufacturing companies with companies engaged in the business of common carriage. The phrase used to designate the manufacturing group was "persons engaged in any other phase of aeronautics"—"aeronautics" being defined as the science and art of flight, and "other" distinguishing these persons from individuals engaged in common carriage. Such persons, so engaged, were forbidden to consolidate with or to purchase, or to acquire control of, or to interlock directorates with air common carriers without the assent of the Authority; and air common carriers were cor-

²⁹ *Hearings on H.R. 9738, op. cit. testimony Bchncke, p. 252.*

respondingly forbidden from entering into activities not connected with
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 carnage.

2. Consolidation of rail, water, or motor common carriers with air common carriers. The statute here accomplished its purpose by forbidding consolidation, interlocking directorates, and pooling arrangements between air common carriers and "any other common carrier without the approval of the Authority." Representatives of shipping lines suggested that power to authorize the joint control of water and air services be vested in the Maritime Commission rather than in the Civil Aeronautics Authority; Congress did not, however, embody this suggestion in the law.

3. Consolidation of foreign with domestic companies. It was made unlawful for any foreign air carrier or person controlling a foreign air carrier to acquire control, in any manner whatsoever, of any citizen of the United States engaged in any phase of aeronautics.

4. Consolidation of two or more air common carriers. The prohibition was extended to cover all the methods which have been mentioned in preceding paragraphs. In this, as in the three other cases, approval by the Authority relieved the carriers from the statutory rule.

Persons seeking approval of a consolidation, merger, purchase, lease, operating contract, or acquisition of control were to apply to the Authority. There was to be a public hearing. The Authority might then approve the application unless it found that the proposal would not be consistent with the public interest; except that it could not approve a merger which would result in monopoly or jeopardize another air carrier not party to the plan. Public hearings were not necessary preliminaries to the approval of interlocking directorates or to the sanction of pooling and traffic agreements; in these cases the Authority acted in the manner which it might deem appropriate. Consolidations, etc., which had been approved were immune from attack under the provisions of the anti-trust laws. The importance of this immunity has already been mentioned.³¹ There was not much in these merger provisions of the Civil

³⁰ An example of manufacturing-company ownership was, in 1934, the control by General Motors of Transcontinental and Western Air and of Eastern Air Lines. There was no evidence that the controlled air carriers suffered by this particular arrangement, but the intermingling of manufacturing and common carrier interests was one of the indictments which the Black Committee had brought against the air industry in 1933-1934. The obvious danger was that manufacturing companies might compel air carriers which they controlled to buy equipment at high prices (*Hearings on S. 2, 1937, op. cit.*, pp. 126, 152). A similar situation had arisen in the light and power industry and had led to similar complaints.

³¹ Section 407, pars. (b) and (c) were designed to assist the Authority in preventing unlawful combinations. These paragraphs required each air carrier to submit to the Authority annually, a list showing the names of each stockholder holding more than 5 per cent of its stock; and each officer or director of an air carrier was required to report the shares of stock or other interest which he held in any air carrier, any person engaged in any phase of aeronautics, or any common carrier, and in any person whose principal business was the holding of stock in or control of such enterprises. The word "person" here obviously referred to artificial persons, such as corporations. It may be observed also that the wording of Sections 408 and 409 was such as to make difficult the use of holding companies to bring about consolidation. Not only were

Aeronautics Act which was new in federal common carrier legislation, nor, indeed, was the substance of the new requirements different from those already applied to mail carriers under the act of 1934. These last-mentioned provisions were, however, repealed by the act of 1938, and the new and more inclusive clauses took their place.⁸²

Rates and Tariffs.—Common carriers by air were obliged to file and to publish their tariffs, and they were required to collect the rates which they established. Changes in published rates could be made only on thirty days' notice, except that the Authority might permit changes after a shorter interval. The power conferred upon the Authority to suspend rates pending investigation and to fix rates was substantially that which the Interstate Commerce Commission then possessed with respect to the rates of motor carriers. The Authority could, that is to say, suspend rates for 180 days, fix rates, including through rates, and prescribe divisions.⁸³ Air carriers objected to rate control, except perhaps to regulation designed to prevent excessive competition,³⁴ but their objections were overruled.

Discrimination.—The paragraphs in the Civil Aeronautics Act relating to discrimination were patterned upon those of the Motor Vehicle Act of 1935. Rebates were prohibited, as was the carriage of persons or property for less than the published rate. And in general, no air carrier might subject any person, port, locality, or description of traffic to undue prejudice.

Unfair Competition.—The Authority was empowered to investigate and determine whether any air carrier or foreign air carrier was engaged in unfair or deceptive practices or unfair methods of competition in air transportation. If it found that any air carrier was so engaged it might issue an order to cease and desist. It may be recalled that the Motor Carrier Act also had referred with disapproval to unfair and destructive competition. The statute did not define the terms "unfair" or "deceptive," but the words doubtless indicated prac-

carriers forbidden to have officers or directors who were officers or directors of or who held a controlling interest in any person whose principal business was the holding of stock in any person (corporation) engaged in any phase of aeronautics, but the phrases prohibiting consolidations referred to persons controlling air carriers as well as to air carriers themselves. Thus a person controlling an air carrier was forbidden to acquire control of another air carrier. Air holding companies were not themselves declared to be illegal, but only their use in an objectionable way.

⁸² *Congressional Record*, 75th Congress, 3d Session, May 12, 1938, p. 6728.

³³ The general power conferred was to prescribe the lawful rate, fare, or charge (or the maximum or minimum, or the maximum and minimum). On overseas air transportation the Authority had only the power to prescribe maximum or minimum or maximum and minimum rates, fares, and charges. Strictly speaking, there was no difference between these two powers; we may suppose, however, that Congress intended that the Authority should have an area between the maximum and the minimum rates prescribed for overseas transport in which carriers might adjust charges at their discretion.

³⁴ *Hearings on S. 2, op. cit.*, testimony Gorrrell, p. 365. It was suggested at one time that the regulatory body should regulate rates only when complaint was made by a competing air line (*ibid.*, p. 428).

tices contrary to the spirit of the regulatory law which were not specifically forbidden in other portions of the act.

Hours and Wages.—Representatives of labor desired that the statute should preserve and clarify regulations already embodied in the air mail and other laws, and that these regulations should be extended to air carriers which did not transport mail. The air companies raised no objection to the continued application of mediation machinery to the air industry, and they favored the continuance in the Civil Aeronautics Authority of the power to regulate flying hours which the Department of Commerce had possessed. They did, however, question the wisdom of maintaining inflexible maxima for pilot hours and inflexible minima for wages, preferring in this matter to vest an authority in the regulating body which should be exercised without statutory limitation. The discussion went back, of course, to Decision No. 83 of the National Labor Board, because the terms of this decision were actually controlling under the Air Mail Acts. The companies contended (1) that rates of pilot pay herein prescribed took no account of differences between large and small or between freight and passenger lines; (2) that these rates were so high as to prevent the development of light feeder services; (3) that the method of computation used made it impossible to pay pilots salaries upon a monthly basis; (4) that the classification of all pilots into two groups only from the point of view of compensation was improper; and (5) that the rates prescribed crystallized a relationship between pilot pay and the pay of employees who were not pilots which was unfair to other personnel. The companies desired that Congress should grant the Aeronautics Authority the power to use its judgment in these matters.³⁵ There was some force to these company objections from the point of view of sound legislative procedure; on the other hand, the pilots believed that the removal of statutory maxima and minima would be harmful to their interests, and Congress assented without much discussion to this view of the case.

Actually, the statute declared that every air common carrier should maintain rates of compensation, maximum hours, and other working conditions and relations of all of its pilots and copilots who were engaged in interstate air transportation within the continental United States so as to conform with Decision No. 83 made by the National Labor Board on May 10, 1934. This regulation, in so far as wages were concerned, was extended further to cover pilots of American carriers engaged in overseas or foreign air transportation or in transportation wholly within a territory or possession of the United States. The hours of flight of pilots employed abroad were not related to Decision No. 83. Besides this, and finally, the Civil Aeronautics Authority was empowered to prescribe reasonable regulations governing, in the interest of safety, the max-

³⁵ *Hearings on H.R. 9738, op. cit., testimony Gorrell, p. 364; Hearings on S. 2, op. cit., testimony Gorrell, p. 447.*

imum hours or periods of service of airmen and other employees of air carriers. This authority, with respect to air mail pilots only, had previously been exercised by the Department of Commerce.

To summarize: The act of 1938 empowered the Authority to prescribe maximum hours worked by air employees, in the interest of safety. It continued to protect collective bargaining by subjecting all air common carriers to the appropriate provisions of the Railway Labor Act. And it fixed minimum hours for pilots engaged in domestic service and minimum wages for pilots employed by American air lines either within or without the United States. Careful comparison will show that these provisions extended the rule of earlier statutes to employees of air carriers who did not transport mail, to employees of American air carriers operating outside of the United States, and to air carrier employees who were not pilots. These extensions were reasonable, although the form which the legislation took was, in some respects, unique.

Service.—The duty was imposed upon air carriers of providing safe and adequate service, including through service, upon reasonable request. This included an obligation to establish joint arrangements with railroad and motor carriers. Since arrangements of this sort involved two regulatory bodies, the Civil Aeronautics Authority and the Interstate Commerce Commission were directed to cooperate by setting up a board to consider questions with which both were concerned. Matters relating to through service and to joint rates, fares, or charges when air and land carriers were parties, might be referred by the Authority or by the Interstate Commerce Commission to this board. We have already observed that the Authority had power to prescribe reasonable regulations governing the maximum hours of air carrier employees. These regulations had some bearing upon service, although their principal purpose was to promote the safety of air carriage.

Certificates and Permits.—The Civil Aeronautics Authority, under the act of 1938, took over the general licensing powers exercised by the Department of Commerce under the act of 1926. It was, therefore, charged with the responsibility of issuing certificates of registration to owners of aircraft, of airman certificates to airmen, of airworthiness certificates for aircraft, and of air carrier operating certificates to air carriers. It also issued type and production certificates for aircraft, aircraft engines, propellers and appliances. These various documents were required by law in the interest of safety. In addition, the Authority had the duty of issuing or refusing certificates of convenience and necessity to air carriers. In these last cases, before taking favorable action the Authority was required to find (1) that the applicant was fit, willing, and able to perform the transportation service properly which he undertook to supply, and to conform to prescribed rules and regulations, and (2) that the transportation was required by public convenience and necessity. No carrier could engage in interstate, overseas, or foreign common carrier air transportation

without such a certificate,³⁶ and no carrier which held a certificate could abandon its route unless and until the Authority had found the abandonment to be in the public interest.

These provisions for air certificates of convenience and necessity were of the type well known to rail and motor vehicle operators. Their desirability in the case of air transport had been discussed before 1938,⁸⁷ and many state statutes had provided for their local issue and administration.³⁸ The state statutes had never, however, been able to control the entry of air carriers into the common carrier transport field because they did not apply to interstate carriage. There is some difference of opinion with respect to the need for certificates of convenience and necessity in air transportation. The argument against such certificates stresses the danger of monopoly and the possibility that control of this kind may throttle the progress of aviation. The contrary view is that some restriction of the freedom of entry into the business of air carriage will protect the safety of the traveling public and the interests of capital invested. Rail and motor carriers have never taken an active part in this discussion of air regulation; the demand for air certificates did not come from techniques which competed with air transport but from representatives of the industry who believed that the competition of air carriers with each other ought to be restrained. Congress was easily convinced in 1938, that certificate control formed part of a reasonable scheme of air regulation. The only practical difficulty seems to have been that of fitting the certificate plan into the requirement of air transport between the United States and foreign countries. This was adjusted (1) by requiring foreign air carriers which desired to operate between points in the United States and points in other countries to obtain certificates from the Authority; (2) by exempting foreign aircraft and foreign airmen from the necessity of obtaining airworthiness, air operating, and airman certificates; (3) by subjecting the issuance of certificates authorizing air carriers to engage in overseas or foreign air transportation to the approval of the President of the United States; and (4) by requiring the Authority to exercise its powers, including the power to grant certificates, consistently with any obligation assumed by the United States in any treaty, convention, or agreement.³⁹

³⁶ A "grandfather clause" in the statute directed the Authority to issue certificates to applicants which had been in operation on May 14, 1938, and continuously thereafter.

³⁷ Thomas H. Kennedy, "The Certificate of Convenience and Necessity Applied to Air Transportation," *Journal of Air Law*, January, 1930.

³⁸ Howard C. Knotts, "Certificates of Convenience and Necessity for Aircraft Carriers," *Journal of Air Law*, January, 1932; Fred D. Fagg, and Abraham Fishman, "Certificates of Convenience for Air Transport," *ibid.*, April, 1932.

³⁹ Commerce by rail and motor vehicle to and from foreign countries is simply **regulated** by subjecting each carrier to the jurisdiction of the appropriate sovereignty when the instruments of carriage cross the international line. It is obvious, however, that a foreign **airplane**, **after** it has entered a country, is more difficult to supervise than is a vehicle passing **along a highway** or a railroad right of way. Since it does not stop at the boundary station, customs **and immigration** problems may be involved. Finally, the doctrine of sovereignty in space which **permits a nation**

Civil Aeronautics Authority v. the Interstate Commerce Commission.—An important decision embodied in the Civil Aeronautics Act was the conclusion that regulation of air transport should be intrusted to a board created for the purpose, and not to a preexisting agency. The board in question was, of course, the Civil Aeronautics Authority. On this point of organization there were three alternatives. The oldest suggestion was that contained in the report of the American Aviation Mission, in 1919, to the Secretary of War. This Commission had recommended concentration of all aviation activities of the federal government—civilian, naval, and military—in a single department with a cabinet officer at the head. In so far as civil flying was concerned, the duties of this department were to be purely promotional. This recommendation received little public support and need not be enlarged upon. Much later, in 1934, the Federal Coordinator of Transportation had occasion to consider the regulation of air transport. The Coordinator did not elaborate upon the need for air regulation because Congress was already considering the subject and, later, because the Air Mail Act of 1934 provided for the appointment of a special commission to propose a broad federal policy which should cover all phases of aviation; but he recorded his "carefully considered belief" that regulation, when undertaken, should be placed in the hands of the Interstate Commerce Commission.⁴⁰ In contrast to the conclusions of the Coordinator, the Federal Aviation Commission in 1935 concluded that the task of regulating and also that of aiding the business of air carriage—for the Aviation Commission believed that these duties should be handled together—should be cared for by a new and independent commission not already charged with other duties, although it proposed that the President of the United States should have power at any time to transfer the functions of such an organization, by executive order, to such other body of similar nature as he might direct. The Aviation Commission therefore opposed the suggestion of the Coordinator in so far as the Interstate Commerce Commission was concerned.⁴¹ These three alternatives, and especially the latter two, were debated at length during the preparation of the Civil Aeronautics Act of 1938. The influence of the President, it may be said, was at the beginning exerted in behalf of Interstate Corn-

to grant or to withhold the privilege to foreign carriers of flying through its air is jealously insisted upon at the present time; and governments are inclined to distinguish, for military or other reasons, between routine commercial intercourse by land and the new forms of transport through the air. The one seems adequately regulated by private negotiation subject to routine governmental control; the other is regarded as more properly a subject for diplomatic negotiation..

⁴⁰ United States Federal Coordinator of Transportation, *Report on the Regulation of Transportation Agencies*, Sen. Doc. 152, 73d Congress, 2d Session, 1934; *ibid.*, Third Report, 1935.

⁴¹ United States Federal Aviation Commission, *Report*, Sen. Doc. 15, 74th Congress, 1st Session, 1935. The chairman of the Federal Aviation Commission was Clark Howell, of Atlanta. Three of its four associate members were experts in various phases of aviation; the secretary was a member of the Bureau of Air Commerce, and the Commission retained two legal advisers versed in aviation law. The Aviation Commission spent two months in a 13,000-mile travel tour of the United States; the chairman visited four European countries; between September and November it heard some 200 witnesses.

merce Commission control; but in this matter the **President later changed his mind.**⁴²

Arguments in Favor of Regulation by the Interstate Commerce Commission.—The principal arguments for Interstate Commerce Commission regulation were the following:

i. The assignment of regulatory control over air transport to the Interstate Commerce Commission would be a logical and consistent development of policies already expressed in Parts I and II of the Interstate Commerce Act. These parts were the sections of the act relating to railroad and to motor vehicle transportation.

2. All forms of transport were related by competition, or they were interrelated by opportunities for cooperation and coordination.⁴³ They should, therefore, all be subject to a single regulatory control. This was important at the beginning, and would become more important as the volume of air express and air passenger movements increased. Experience with rail, motor, and water transport had already illustrated the interaction of different instrumentalities of carriage.

3. It was bad policy to build up independent commissions, each working against the other in the interest of the industry committed to its care. Only a single body, with comprehensive responsibility, could coordinate all forms of transport in the public interest.

4. A multiplication of commissions was expensive. Agencies grow like toadstools. It was also inefficient, for many problems are common to all varieties of carriers, and experience in one is of value in other fields.

5. The Interstate Commerce Commission was already organized and could undertake additional duties promptly and at small added cost. If necessary, it could distribute its work among divisions, one for each type of transport regulated, with a single supervisory control, although there were some objections to reorganization along these lines.

Arguments Opposed to Interstate Commerce Commission Regulation and in Favor of Regulation by a New and Independent Board.—The most important arguments presented in defense of a new and separate commission were those listed in the following paragraphs:

1. The Interstate Commerce Commission was said to be already overburdened. Speed in action was essential in dealing with an art such as that of aviation, which underwent constant and rapid change. Speed could only be attained by placing authority with a group that specialized in a particular field; it could not be secured if Congress should pile a new and highly specialized mass of questions upon a docket concerned with problems of quite a different order.

⁴² *Hearings on S. 2, op. cit., 1937, p. 66.*

⁴³ *Hearings on H.R. 9738, op. cit., 1938, testimony Eastman, p. 139.*

2. The present importance of coordination could easily be overstressed. In any case, the grant of additional power to the Interstate Commerce Commission would **not** achieve coordination. To coordinate is to assign to each of several competitive agencies that class of transportation which it can handle to the greatest economic advantage. The Interstate Commerce Commission could not be trusted to develop a new form of transport fully because of its prior association with other forms with which the new service would compete.

3. Promotional duties were outside of the experience and interest of the Interstate Commerce Commission, and would not be well conducted under its control. The same could be said of the regulation of private flying. If the Commission were charged with the regulation of air transport it would probably be necessary to divide authority to prescribe safety regulations between the Commission and the Department of Commerce, the former body dealing with air line safety and the latter with the safety of private flying.⁴⁴

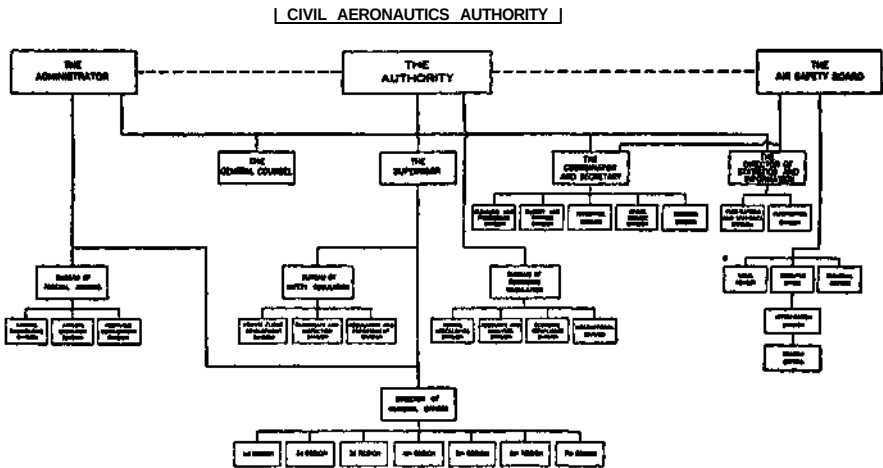
4. The transfer of jurisdiction over air carriage was opposed both by the air lines and by the government departments which, before 1938, had controlled air service.

5. It was true that the Commission had authority to regulate railroad and motor transport. It did not, however, in 1938, have power to regulate water transport or communications. The policy which Congress had followed in these last-mentioned cases was more suited to the conditions of air carriage.

Strength and Weakness of the Civil Aeronautics Act.—It is probably unfortunate that Congress failed to utilize the facilities of the Interstate Commerce Commission when it planned air regulation in 1938. The arguments for such a policy appear definitely more forceful than those opposed to centralized control of all forms of public transport. The Aeronautics Act was defective also, in that it contained no provision for the supervision of stock and bond issues by air carriers. It may be observed, in this last connection, that legislation presented to the Senate in 1935 had proposed to make air companies subject to the appropriate paragraphs of Section 20a of the Interstate Commerce Act and that the bill subsequently considered in 1937 included language which would have accomplished the same result. When, however, it was decided to vest power over air carriage in the Civil Aeronautics Authority instead of in the Interstate Commerce Commission, the provision for security regulation was dropped except as the issuance of air carrier securities might be subject to registration under the Securities Act of 1933. The reason given was that it was thought unwise to require the Authority to take responsibility for approving the financial expediency of the issue of securities; but it may be assumed that the decision would have been different if the Authority, like the Interstate Commerce Commission, had possessed a functioning organization with long

⁴⁴ Representatives of the Interstate Commerce Commission appeared before an Interdepartmental Committee and made it very clear that the Commission did not wish to regulate private flying. *Hearings on H.R. 9738, op.cit.*, testimony Hester, p. 50.

Modification of the Civil Aeronautics Act—Explanation of the Organization of 1938.—Since 1938 the Civil Aeronautics Act has been modified in some



ORGANIZATION OF THE CIVIL AERONAUTICS AUTHORITY, 1938
(Source: Civil Aeronautics Authority, *First Annual Report*, 1939.)

important respects. In order to explain these changes it will be necessary to return to the organization of the Civil Aeronautics Authority, a subject which we have already briefly discussed.

⁴⁵ C. M. Hester, "Civil Aeronautics—The State and the Nation under the Civil Aeronautics Act of 1938," *Journal of Air Law*, October, 1938.

⁴⁶ E. S. Gorrell, "The Civil Aeronautics Act of 1938 and Democratic Government," *Journal of Air Law*, October, 1938. Representatives of air transport naturally call attention to the clauses of the act of 1938 which promise protection and financial aid. **Mr. Harlee Branch, Vice-Chairman of the Civil Aeronautics Authority**, recently remarked, rather wickedly, **that when he was a little boy and came running in to supper from a hard afternoon of play, the savoury kitchen odors always made him wonder whether it might be pie, and then at supper when his mother presented a luscious cream pie, his chief concern was how big a piece he would get** (*Journal of Air*, January, 1940).

The accompanying chart describes the organization of the Civil Aeronautics Authority as it was established by the act of 1938.

Reference to the chart will show the relative position of the three segments of the Authority as we have described them in our analysis of the law. It will be observed that these three portions of the organization—the Authority itself, the Administrator, and the Air Safety Board—were coordinate, and we have seen that they were independent of each other in the sense that the membership of each segment was separately appointed by the President and that its duties were, for the most part, stated in the law. Congress had attached some importance to the independence of the Air Safety Board and of the Administrator from Authority control, for different reasons in each case. The simplest reason was that given for distinguishing the Air Safety Board. This was a body primarily charged with investigating accidents, and with the making of recommendations to the Authority which would tend to prevent accidents. Congress argued that a board of this kind would inevitably be called upon to criticize regulations which the Civil Aeronautics Authority had previously prescribed and that it should, therefore, for its own protection, be given independent status. Failure to do this, Congress believed, would check the free comment which the Board was expected to provide.

In the case of the Administrator, the problem was believed to be more complicated. We have already stated that the Administrator was charged with executive and promotional functions. In more detail, these duties as set forth in the act were (1) to designate and establish civil airways; (2) to recommend to Congress upon the subject of airport construction; (3) to certify that projects for the construction of landing areas, with federal funds, or the construction and operation of navigation facilities in such areas, were reasonably necessary for use in air commerce or that these projects were in the interest of national defense; (4) to recommend to the Secretary of Agriculture with respect to the provision of meteorological service; (5) to undertake or to supervise developmental work tending to the creation of improved air facilities and equipment; (6) to collect and disseminate information; and (7) to make plans for the orderly development and location of landing areas, airways, and all other aids and facilities for air navigation. These duties resembled, in part, those imposed upon the Secretary of Commerce by the act of 1926. They were, of course, important; the only question was as to why they were intrusted to an independent official and not to the Civil Authority itself. The answer is that the arrangement described was adopted in order to protect the independence of the Authority in the exercise of its legislative and quasi-judicial functions. The principle upon which Congress acted was that the President could control the personnel of a commission charged with executive duties, but that he lacked authority to dismiss a member of a commission which had no executive responsibilities. It followed that the Authority must be stripped of executive duties in order to be safe. Hence the device of an Administrator, con-

cededly subject to presidential removal, to whom were assigned **those activities** which, if exercised by the Authority might have placed that body under presidential control. The division of work which the law prescribed might have been defended from the point of view of sound administrative organization; actually, it was inspired by a distrust of the influence of the President **and** by the wish to maintain congressional prestige.

Presidential Reorganization of 1939.—The tri-partite regulatory organization set up in 1938 is to be explained by the reasoning described in the two preceding paragraphs. Unfortunately for the congressional intent, this somewhat cumbrous machinery attracted the unfavorable attention of a President who was concerned to simplify departmental organization and who was also impatient with extra-departmental tribunals which he could not effectively control. It happened also that the President had been granted, in 1939, extensive powers to consolidate and to transfer the functions of government agencies which he could use in the given case.⁴⁷

Under this last-mentioned power the Executive presently issued two orders. Of these the first transferred the general licensing powers of the Civil Aeronautics Authority to the Administrator. While the Authority was still to prescribe general rules and while it was to continue to consider applications for certificates of convenience and necessity, the Administrator was made responsible for the issue of certificates of registration to owners of aircraft, or airman certificates to airmen, or airworthiness certificates for aircraft, of air operating certificates to air carriers, and of type and production certificates for engines, propellers, and appliances. The second order did two things. In the first place it eliminated the Air Safety Board as a separate organization, transferring its duties to the Civil Aeronautics Authority, now renamed the Civil Aeronautics Board; and in the second place it transferred both the Administrator and the Civil Aeronautics Board to the Department of Commerce. Here the Administrator was to administer his functions under the direction and supervision of the Secretary of Commerce. The Civil Aeronautics Board was to exercise its functions independently of the Secretary of Commerce, but its budgeting, accounting, personnel, procurement, and related routine management functions were to be performed under the Secretary's direction.⁴⁸

Discussion of the Presidential Orders.—The debate which followed upon the presidential orders of 1939 was partisan in character, but the main differences in opinion were easy to understand. On the President's side it was assumed that the Executive should control agencies such as the Aeronautics Authority. Granting this, it seemed obviously better to group the agencies which were to be controlled within departments than to leave them separate and so compel the President to acquaint himself with their many individual reports. Defenders of the orders argued also, in particular: (1) **that the three**

⁴⁷ Public No. 19, 76th Congress, 1st Session, 1939.

⁴⁸ United States Congress, House, Docs. No. 288 and 692, 76th Congress, 1st Session, 1939.

members of the Air Safety Board had been unable to agree with each other; (2) that the Civil Aeronautics Board and the Administrator would gain by their transfer to the Department of Commerce because they would acquire a spokesman in the President's cabinet and because they would be more intimately associated with the Weather Bureau and with the Geodetic Survey; and (3) that the economic regulatory work of the Aeronautics Board would be better done when the Board had been relieved of certain technical and administrative duties, and that its independence could be preserved. Opponents insisted: (1) that accidents had decreased in number after the Air Safety Board had taken hold; (2) that the division of responsibility between Board and Administrator prescribed in the orders would cause confusion; and (3) that the transfer of the Civil Aeronautics Authority to the Department of Commerce was a successful attempt to subject the Authority to political control. Critics of the plan did not believe that a claim upon the time of a busy Secretary would benefit either the Administrator or the Civil Aeronautics Board, nor did they feel that improved relations with the Weather Bureau and the Coast and Geodetic Survey would offset the disadvantages which the President's scheme entailed.

Not unnaturally proponents of the Civil Aeronautics Act of 1938 such as McCarran and Truman in the Senate and Lea in the House were opposed to the President's orders, as were the Air Pilots, at whose instance the Air Safety Board had been set up. On May 8 the House of Representatives disapproved of the proposed reorganization by a vote of 232 to 153; but the Senate refused to take like action by a vote of 34 to 46, so that the orders took effect.⁴⁹

The controversy reviewed in the preceding paragraphs caused some bitterness, but the result is not likely to affect the Air Administrator or the work of accident investigation during the next few years. This is because there is no real reason to suppose that the Civil Aeronautics Board will not study accidents and their prevention as efficiently as a Safety Board would have done, or that the assignment of the Administrator to the Department of Commerce will impede his work. The real question is whether the recent reorganization will help or hinder the Aeronautics Board in its task of general regulation. What the presidential orders have clearly done has been to withdraw certain administrative duties from the Board and to subject the Board's budget and subordinate personnel to departmental control. The first of these changes may turn out to be a gain; but it is quite possible that the second may impair the quality of the Board's technical staff and that it may in the long run make it hard for the Board to develop a considered policy based upon economic grounds. On the other hand, the Board's major powers under the act of 1938 have been left unchanged, and there is no suspicion that the President will desire, even if he should have the authority, to relieve air carriers

⁴⁹ *Congressional Record*, May 8, 1940, p. 8838; May 14, 1940, p. 9272.

from public control. The present organization is not ideal, but we may be confident for the present that the Civil Aeronautics Act will be systematically applied.

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CHAPTER XXXV

NATIONAL TRANSPORTATION POLICIES



Inadequacy of Carrier Revenues.—At the present moment neither our motor vehicles, nor our waterways, nor our railroads are earning sufficient revenue to cover their reasonable expenses.¹ This is a serious situation. It is due to the increase in facilities and decline in business already mentioned, and doubtless it is the result of other factors also, including substantial increases in government taxation, higher wages, and contributions to security and welfare programs designed to protect the employed personnel. Whatever the cause, the effects are made still more destructive by the uneven pressure to which some types of carriers have been exposed. The worst sufferer here has been the railroad, which not only has shared in the difficulties that have affected all agencies of transport, but has suffered additionally by a decline in the share of the total traffic which it has been able to retain.

Attitude of the Public Toward the Financial Difficulties of the Transport Industry.—Now it would be perfectly feasible for the public to concern itself little or not at all with the financial condition of transport undertakings. It might take care only to avoid grants of privilege or impositions of burdens upon any type of carriage which were not equally granted or imposed upon that carrier's competitors and refuse to interest itself further in results; and it might be, indeed, that this would be the wisest policy the public could pursue. It is actually the policy which the railroads would prefer. Thus Mr. Fletcher, Counsel for the Association of American Railroads, testified in 1939:

"I have always believed . . . that if we could put all these forms of transportation on an equality with respect to regulation, subsidies, taxation, and the like, and then let the American public decide which one of these forms of transportation they want to use . . . we would have a system which would be as good as we would possibly obtain."²

¹ An Interstate Commerce Commission examiner recently supported a recommendation that motor vehicle rates be increased in New England territory by the observation that the operating ratio of all New England motor carriers was then (February, 1940) more than 95 per cent, and the average operating ratio of Class I rail carriers was about 100 per cent (*Transport Topics*, February 19, 1940).

² United States Congress, Senate, Committee on Interstate Commerce, *Hearings on S. 3009* etc., 76th Congress, 1st Session, 1939, p. 105.

Under ordinary circumstances and with an ordinary industry, failure of a business to pay its way does not give rise to general concern, nor does the public occupy itself with proposals to increase the revenues of such a business or to reduce its expenses, although it may seek to prevent the adoption of expedients which would cause the public harm. Shifts in demand, alterations in technique, destructive competition between producers, are common in industrial life. They inevitably cause loss, but the system of private enterprise has much flexibility, and these losses are absorbed. It may even be that frequency of change encourages alertness and resourcefulness on the part of the directing personnel of industry, so that costs of progress are to some extent offset by indirect advantages associated with this same advance, though this cannot be assumed to be the case. By and large private business works out its own salvation in times of trouble, except when large numbers are involved as in the case of recent agricultural distress, or when industrial difficulty is connected with conditions of general depression which it is expedient to remove. Historically, moreover, the public has expected even the transport business to extricate itself from its perplexities also. Railroads were the principal carriers in earlier days, and there is little evidence that railroad deficits ever caused the general public much alarm. In rejecting a proposal in 1882 to permit railroads to pool their earnings in order to reduce interrailroad competition and to preserve railroad solvency, Judge Reagan of Texas exclaimed :•

Is it not manifest that as competing lines, when they can make the rates high or low as they choose, they would carry the freight cheaper than they would if these lines were allowed to pool their freights . . . ? To this [continued Judge Reagan] they reply that unless they are allowed to pool their freights the result will be a war among the roads, with the ultimate wreck of some, and the survival of the strongest. That must mean that their present management rests on a species of morality which makes it necessary for them to war on and destroy each other, or to combine and rob the people. This being the case, if somebody must be ruined or robbed, would it not be better that 50,000 railroad men should rob each other, in the ways most agreeable to themselves, rather than that the 50,000,000 people of this country should deliberately consent to be robbed by the railroad men?³

The peculiarity of the present problem is that the public appears to admit in principle that conditions in the transport industry are of general interest, so that government action is justifiable in order to stabilize this business and to place it upon a basis that will endure. This is a contrast to the position taken in 1882 which can be explained in several ways. It may be due in large part to an increase in the habit of regarding economic problems from the point of view of social welfare. Likely enough, it is in part the result of vigorous and long-continued agitation by transport men themselves and it certainly grows

•United States Congress, House, Committee on Commerce, House Misc. Doc. No. 55, 47th Congress, 1st Session, 1882, Ser. 2047, p. 248.

out of a quickened appreciation of the importance of particular forms of transport which seem likely to be curtailed. At the same time the fear of a 'transportation monopoly which existed fifty years ago has largely disappeared, so that expedients are accepted which would formerly have been disapproved. The new public attitude is not, of course, to be overemphasized. The public has no sentimental attachment to the transportation industry as such. It does not prefer it to the farming industry or to the manufacturing industry; it merely is disturbed at a very considerable pending disorganization and loss in a large and important enterprise, and is willing to do what it can, in moderate measure, so that the amount of this disorganization shall be reduced and future transport service be maintained. What it desires is a program which will give relief and, in so far as possible, one upon which transportation men can agree. Such a program should be moderate in its demands upon the general public, it should offer a reasonable likelihood of securing results, and it should be couched in terms which will lessen the possibility of emotional attack. To be successful, the plan must be authorized by legislation; it must, however, be carried out by administrative and judicial agencies, and it is desirable that it shall receive business support.

Reports and Recommendations.—During the past few years transportation in general, and the plight of the railroads in particular, has evoked a number of studies and reports. The more important of these may be listed and summarized as follows:

i. National Transportation Committee, 1933. The National Transportation Committee was organized at the request of a group of insurance companies, the Investment Bankers' Association, and four universities—Chicago, Columbia, Harvard, and Yale. Invitations to serve were accepted by Calvin Coolidge, Bernard M. Baruch, Alfred E. Smith, Alexander Legge, and Clark Howell. Harold Moulton, of the Brookings Institution, was secretary.⁴ The Committee urged economy in railroad operation, railroad cooperation and consolidation, the participation by railroads in the newer forms of transport, the revision of the statutory rule of rate-making, financial reorganization, the repeal of the recapture clause, government regulation of water and motor transport, and the limitation of waterway projects to those which should be self-supporting.

2. Joint Committee of Railroads and Highway Users, 1933. This committee was composed of six railroad presidents,⁵ the chairman of General Motors Corp., and representatives of the Atlantic Greyhound Lines, the American Automobile Association, the American Petroleum Institute, the National

⁴ Only three members signed the majority report. Mr. Coolidge **died before the report was rendered**, and Mr. Smith rendered a separate report. The participation of universities in organizing the inquiry is to be explained by large university holdings of railroad **bonds**.

⁵ **Actually there were five railroad presidents and, in addition, Mr. Paul Shoup, Vice-Chairman of the Southern Pacific.**

Chain Stores Association and the National Grange. The secretary was Professor W. J. Cunningham of Harvard University. The Committee represented, therefore, railroads, motor lines, and shippers. It recommended the extension of federal control to highway carriers engaged in interstate commerce with respect to certificates of convenience, accounts, security issues, and safety provisions. It also proposed that railroad carriers should be allowed to engage freely in motor carriage service, that charges against railroads for grade-crossing elimination should be restricted, and that highway carriers should be charged with the entire annual cost of the state highway system, including administration, maintenance, interest charges on highway debts, and amortization of capital expenditure.⁶ The Committee divided on the subject of regulation of motor vehicle rates. The railroad members favored rate regulation of motor common carriers; the highway users dissented from this view on the ground: (1) that there was substantially no ground for motor rate control; (2) that the number of motor truck operators was so large that rate control would be impracticable; and (3) that the federal government was inexperienced in this field of regulation. With respect to contract carriage, the railroads desired that minimum rates should be regulated and the highway users believed that contract rates should not be controlled.⁷

3. Transportation Conference of 1933-1934. This was a special conference attended by representatives of fifteen national associations, including the American Bankers Association, the National Association of Manufacturers, the Railway Business Association, the Institute of American Meat Packers, the American Short Line Railroad Association, the Association of Railway Executives, the Association of Regulated Lake Lines, the National Industrial Conference Board, and the Security Owners Association. Professor Sorrell of the University of Chicago was secretary. The Conference declared in favor of private ownership, a revised rate-making rule, loans to railroads on good security, some relaxation in the rigor of rate control to enable railroads to meet competition, a revision of the long- and short-haul clause, the coordination of existing transport agencies, a balanced rate of growth between transportation and industry, limitation in taxation, equality in regulation, with extension of regulation to motor and water carriers and to contract as well as to common carriers, and the unification of regulation in the hands of the Interstate Commerce Commission, except for government promotion activities, which it desired to have placed in the hands of a separate individual or board. It recommended against compulsory consolidation, but also against

⁶ The Committee also recommended that motor vehicles should pay a part of the cost of country highways and should contribute to the cost of arterial routes through cities. Taxes for the purpose should, the Committee thought, be apportioned among motor vehicles of different types on the basis of use and with consideration of the special costs of road construction which might have to be incurred for the accommodation of vehicles of special kinds.

⁷ Joint Committee of Railroads and Highway Users, *Report on 'Regulation and Taxation of Highway Transportation*, January 30, 1933.

the continuance of laws restricting railway ownership of competing water lines.

4. Federal Coordinator of Transportation, 1934. The duties and powers of the Federal Coordinator have been described in Chapter XXX. A representative of the Coordinator reported that investors were beset with fears with respect to railroad investments. They feared the competition of motor trucks and other transportation agencies, the obsolescence and probable abandonment of much railroad property, the operation of the Securities Act, the construction of the St. Lawrence Waterway, the neglect of railroad maintenance, increase in taxation, domination of labor, the possibility that underlying securities would not be sufficiently protected in reorganizations, the delay in effecting consolidations, regulation by the Commission, and a host of other things.⁸ To restore stability the Coordinator recommended vigorous action by the railroads to increase efficiency in operation in specified ways, but especially by coordination and consolidation; he also proposed loans from the federal government, reorganization of railroad finance, the extension of regulation to all forms of transport, the concentration of regulatory authority in the Interstate Commerce Commission, and the reorganization of the Commission to permit of more effective control. The Coordinator favored government ownership and operation in principle, but rejected this policy as an immediate expedient.⁹

5. Presidential Committee of Three, 1938. This was a committee of three members of the Interstate Commerce Commission¹⁰ which the President called upon for an emergency report on the subject of immediate relief for railroads. The Committee of Three divided its recommendations into two parts: (1) Means for Immediate Relief; and (2) Long Time Program. For immediate relief it proposed government loans on more liberal terms with respect to security, the underwriting by the government of bonds issued in voluntary reorganizations designed to reduce the burden of railroad fixed charges, the further improvement of the Bankruptcy Act, and the surrender of government contractual rights to subnormal rates for the movement of government traffic on land grant railroads. Under the head of "Long Time Program" it argued that all important forms of transportation should be subjected to equal and impartial regulation by a single agency. It favored some change in existing statutes relative to consolidation and coordination, and, in particular, it proposed that a body of three members, to be known as the Federal Transportation Authority, should be created for a period of two years, with power in

⁸ United States Federal Coordinator of Transportation, *Report on Regulation of Railroads*, United States Congress, Senate, 73d Congress, 2d Session, Sen. Doc. No. 119, 1934, p. 6.

⁹ United States Federal Coordinator of Transportation, *Report on Transportation Legislation*, United States Congress, House, 74th Congress, 1st Session, House Doc. No. 89, 1935.

¹⁰ The Committee was composed of Chairman Splawn of the Interstate Commerce Commission and Commissioners Eastman and McHaffie. (See House Doc. No. 583, 75th Congress, 3d Session, 1938.) It really acted as a subcommittee of a larger and more representative committee appointed in the spring of 1938.

the President to extend its life to five years, for the purpose of planning, encouraging, and promoting action by railroad companies with a view to eliminating waste caused by the fact that the railroad system of the nation was owned and operated by a large number of independent companies. The Authority was to be directed to investigate the relative economy of rail carriers, motor carriers, and water carriers for transportation service in order that the use of each might be encouraged for purposes for which they were specially fitted and discouraged for purposes for which they were not well fitted, and to promote the joint and cooperative use of these different types of carriers and the abatement of wasteful and destructive competition.

6. Presidential Committee of Six, 1938. Conditions having changed for the worse after the April report of the Committee of Three, the President appointed another committee in September, 1938, to submit recommendations upon the general transportation situation. The new group consisted of three railroad labor executives, including George M. Harrison, Chairman of the Railway Labor Executives' Association, and three railroad management executives, including C. R. Gray, Vice-Chairman of the Union Pacific Railroad. This Committee made a comprehensive report. It recommended the adoption by the government of a transportation policy providing for the fair and impartial regulation of all modes of transportation, a revision of the rate-making rule, repeal of the long- and short-haul clause, tolls for inland waterways, loans to railroads on more liberal terms, reduction of taxes, relief from special burdens such as charges placed upon railroads for grade-crossing eliminations, amendment of bankruptcy procedure, and changes in the statute governing railroad consolidation. On the side of organization the Committee desired that the regulation of rates, services, valuation, and accounting should be intrusted to the Interstate Commerce Committee with respect to all forms of transportation. It proposed, however, that a new Transportation Board should be created which would regulate new construction and abandonment, the issue of securities, and consolidation, and should exercise functions of a research and promotional sort.

The reports of these six committees or conferences, including the Coordinator's recommendations which may be treated for the moment as a committee report, may serve as a reference list for the study of current proposals relating to transport legislation. They do not provide a complete list, however, because they do not refer to possibilities of administration which do not require new legislation except as the Coordinator's report dealt with matters of this kind, and they do not, in the form in which we have summarized the findings, organize proposals into a minimum number of related groups. These deficiencies we shall attempt to remedy briefly in the remarks which will bring our treatise to an end.

Emergency Recommendations.—Any program for transport relief under present circumstances must include suggestions for emergency action on the

part of legislative bodies. That the six committee reports do this is evident, especially with respect to railroads. The measures of this sort which are proposed include the extension of additional credit to railroad companies, the postponement of the maturity date of loans heretofore made by the Reconstruction Finance Corporation, the extension of the period during which railway securities shall be legal investments for savings banks, trust funds, and insurance companies in spite of failure of railroad earnings to meet the requirements of state laws, the underwriting by the government of railroad bonds issued in the course of reorganizations, the repeal of the recapture clause, the abolition of special costs such as those for grade-crossing elimination and costs incurred in the relocation of railroad bridges and facilities which are made necessary by government projects for reclamation and flood control, the surrender of government privileges under the Land Grant Acts, the reduction of taxes, and the limitation of the shippers' right to reparation in rate cases to instances in which the claimant has suffered a direct pecuniary loss. An additional suggestion elsewhere made by the Railway Business Association, but not indorsed by the railroads nor by any of the committees mentioned, was that the government should grant a subsidy to railroad companies in amounts constituting some proportion of carrier outlays for maintenance of way and structures. A subsidy as large as 25 per cent of such outlays for a limited period of time was tentatively suggested.¹¹

Opinions may differ with respect to the wisdom of these emergency proposals, but it will probably be agreed that they are of minor consequence and offer no more than a temporary remedy in most cases for any troubles which may exist. Some of these methods of relief, like the repeal of the recapture clause, have already been accepted without noticeable influence upon the railroad situation. Others, such as the plan to extend additional credit to rail carriers, are by their very nature temporary. Still others, such as those which involve amendment of the Bankruptcy Act, may produce more enduring effects, but it is not obvious that they meet the fundamental difficulties to which the distress of carriers is now due. Proposals for the further regulation of carrier finance may be mentioned along with revision of the Bankruptcy Act, and this regulation is desirable, although the measures which are proposed are not entirely of an emergency sort. The regulation of financial practice is most important in the case of the railroads because of the volume of railroad security transactions and the wide distribution of railroad issues. This regulation is, however, already effective, not only for railroads but also for air and motor carriers. The pressing need is to extend financial regulation to water carriers, especially, though not exclusively, to the intercoastal lines.

¹¹ *The Present Status of Railroad Credit in the United States in Relation to Railroad Rehabilitation*. Railway Business Association, Chicago, 1939. This idea is reminiscent of the traditional relationship between railroads and government in France. More immediately it has in mind the expenditures which government makes for maintenance of highways, and proposes a rough balance against these payments.

It is unfortunate that such an extension has not already occurred. It should be emphasized, however, that financial regulation, although desirable, is not a remedy for the present ills of the transport industry, though it may protect future investors and lessen the disorganization of transportation companies which is caused by repeated periods of financial collapse. This is because the underlying difficulty with transport is, now, inadequate earnings, and not the peculiarities of the legal claims of securityholders upon the earnings which exist. A better-devised and more flexible capital structure will save some companies, especially railroads, unnecessary expense, but it will not restore their credit and enable them to compete with other bidders in the capital market for funds. This is not an objection to the financial regulation which we have just approved but merely a warning that too much must not be expected from this particular device.¹²

Is the Management of Transport Inefficient?—Thoughtful discussion of transport problems has not confined itself to emergency measures but has concerned itself with other questions also, among which may be mentioned the efficiency or inefficiency with which transport operations are now conducted. Efficiency in operation is not a guarantee of net earnings; but elimination of waste in a regulated industry may provide a margin for relief without changes in the price level, and this possibility needs to be explored. Now, of course efficiency is not a quality which can be imposed by legislation. Inefficiency may be due to a lack of imagination, faulty leadership, laziness, indifference, or to lack of a sense of workmanship on the job, and these defects cannot be cured by decree. What laws and administrative officers can do is to provide incentives, punish cases of obvious misconduct, and remove barriers to enterprise where these barriers can be observed and described; especially laws can remove types of inefficiency which other laws have produced.

It is not certain that transportation is inefficient. Indeed, if it is, and to the degree that is sometimes alleged, it is curious that constructive suggestions for the improvement of present practice have been so few. So far as the railroads are guilty of the charge, the reason may, perhaps, be found in three conditions. The first of these relates to the personnel. Railroad labor history was for years a history of conflict. Wages were low and the position of the in-

¹² Reference may be made to one particular proposal for financial regulation which, it is to be hoped, will not be accepted. This plan contemplates loans to the railroads from government funds which are to be used in buying railroad bonds at depreciated market prices. It is argued that this plan has the merit of simplicity, that it involves substantially no risks in connection with the money used, that the expense of administration will be small, and that no harm will be done anyone (Paul Shoup, "Government and the Transportation Problem," *Proceedings of the 21st Annual Meeting of the American Association of Collegiate Schools of Business*, 1939). It is quite possible that the government might secure a profit and that the railroads would be relieved of some of the burden of their fixed charges if the plan were adopted, but it is possible also that the transaction would finally destroy railroad credit. Public opinion justly condemns managements which use corporate funds in buying or selling the securities of the companies which they direct, and the policy is no more attractive when the government takes a hand.

dividual laborer insecure. Out of organization the employee obtained a sense of security and of independence of his employer; and at the same time he developed institutions including a rigid seniority system and a complicated set of working rules which made it hard for management to adjust the enterprise to new circumstances even when it was clear that readjustment was imperatively required. A second condition has to do with government regulation. Emphasis upon fairness between customers, the restriction of competitive practices, government resistance to changes in rates and service because of the effects upon the communities concerned, and emphasis upon the public character of their enterprise have slowed down railroad reactions to outside business influences which should have altered their line of conduct. A third condition is relative inflexibility in management. This inflexibility may be partly due to regulation, as we have just implied, and it represents in part, also, the effect of railroad seniority upon the composition of the railroad official staff. Positions are relatively secure in railroad employment in the middle and upper ranks, but advance is slow and the maximum rewards for successful enterprise are less than in other great private business occupations. These circumstances seem to have produced two effects. In the first place, they have made it impossible for railroads to attract young men of unusual self-reliance and resource; and secondly, they have tended to place in positions of responsibility men who are older, as a rule, than similar executives in large private corporations, who have a narrower training, and who have not been exposed to as severe a competition in the course of their careers. Statements with respect to the quality of railroad management must be cautiously made and generalizations must provide for notable exceptions; but there is reason to believe that seniority, regulation, and limited rewards to outstanding leaders have combined to reduce the alertness of railroad management in the new and peculiar circumstances in which it is now placed.¹³

Consolidation and Efficiency.—Most of the inefficiency which might be charged to transportation enterprise is not considered in current discussions of the subject, either because it is politically inexpedient to deal with the ramifications of this topic in the fields of labor and of regulation or because improvements in existing methods are not desired when they seem likely to produce unemployment or otherwise to cause dislocations in an economy, as increases in efficiency often do. It is natural that this should be so. Transport is not a function by itself, operating in entire independence, to which standards can be applied without reference to their effects upon other parts of the body social. Nevertheless efficiency is desirable in transport, and actions or proposals for action which impair it should be constantly called upon to justify themselves, in whatever relations they occur. It is not unlikely, if this were done, that some present practices would not appear to be so essential that

¹³ Cf. Julius H. Parmelee, *The Modern Railway*, Longmans, New York, 1940, chap. xi.

they would be continued; specifically, it is possible that some labor and government control could be withdrawn.

Opportunities for increased efficiency in transport connected with consolidation have, more than any others, attracted general attention. Here we owe particularly to the Federal Coordinator of Transportation an exploration of the possibilities of economy through increased cooperation between railroads and the publication of results for public inspection. Consolidation of terminals, national car pooling, central clearing-houses for the settlement of accounts, joint agencies for the handling of less-than-carload freight—all these parts of the Coordinator's program in 1934 and in 1935 contemplated agreements between carriers. It seems likely, in fact, that there are possibilities of economy in some or in all of these ways. On the other hand, there is resistance to innovation on the part of carriers, explainable by inertia, by a desire to maintain competitive advantages, and also by adverse judgments which may be justified in the case of particular proposals. Such resistance should not be allowed to interfere with changes which can be shown to be in the public interest; matters like these which we are considering are, however, debatable, and in any case they do not lend themselves easily to legislation. Where savings are possible they can be accomplished only by painstaking attention to detail, and this is an administrative or an executive rather than a legislative job. There is reason in these reflections to believe that recommendations such as those of the Committee of Six have merit. A "Transportation Board," or an "Authority," or a "Coordinator," or even a branch of a government department such as the Department of Commerce might, if clothed with adequate authority, be able to accomplish much. Experience has shown that such a board must have power to issue orders and this power should be conferred, although the objectives to be reached should, at the same time, be carefully defined.¹⁴

Practical Questions with Respect to Consolidation.—The demand for railroad consolidation is based upon the belief that properly devised mergers will increase efficiency. This expectation is reasonable, although the extent of probable savings can easily be overestimated. Nor does it make much difference from this point of view whether consolidations proceed according to a published plan—although this is to be preferred—or whether each case

¹⁴ The Transportation Act of 1940 established a Board of Investigation and Research to be composed of three members appointed by the President. The board was to investigate:

1. The relative economy and fitness of carriers by railroad, motor carriers, and water carriers for transportation service, with a view to determining the service for which each type of carrier is especially fitted or unfitted.

2. The extent to which rail, motor vehicle, or water carriers have been subsidized from public funds.

3. The extent to which taxes are imposed upon carriers of each of the three types mentioned in preceding paragraphs.

The Board was to render preliminary reports and findings on or before May 1, 1941. But useful results can hardly be expected from an additional investigation of the kind which the new Board is equipped to make."

is considered on its merits as the case arises. As a matter of fact a commission which passes upon consolidations must evolve principles for its own guidance, and these will amount to a plan Whether they are published or not. On the other hand a plan such as the outline the Interstate Commerce Commission prepared in 1929, which could be changed at will, is flexible, and so offers no serious obstacle to alterations which a commission may desire to make. Railroad consolidations within limits, and with suitable safeguards to protect the public interest, may be a means of increasing efficiency and should, for this reason, be approved. It is appropriate to point out, however,¹⁵ that consolidation practice, largely considered, requires more than a decision upon railroad policy for its determination. Twenty years ago the chief issue was whether railroads should be allowed to consolidate with other railroads. Now it is necessary to inquire whether railroads should be allowed to consolidate with highway, air, and water carriers, and whether these different kinds of transport agency should be permitted to consolidate with each other. Ultimately, the point at issue is whether the transport system of the country is to be organized according to the type of machinery which is employed, so that railroads shall remain distinct from highway carriers and motor companies from air lines, or whether the division shall be by geographical region or shall be based upon differences in the service rendered. The advantage of segregation according to type of equipment used is that this is likely to insure full exploitation of the possibilities of each new mechanical device. The disadvantage is that this classification, like most classifications that depend upon method or character of plant, is likely to impair the quality of the service the public receives. Transportation is a service which should be rendered everywhere by that type or combination of types of carriers which is best suited to the local and immediate demand. In the long run there is no more reason to prevent the merger of corporations operating over rails with other corporations operating over highway or water routes than there is to object to common ownership of companies using coal-burning locomotives and companies which obtain tractive power from burning oil. Both the language of the present law and its administration put peculiar limitations upon railroad acquisition of air lines, of water lines and of motor lines. These limitations should be removed, and all questions of transport consolidation should be adjusted under uniform and comprehensive rules.

¹⁵ Practical problems with respect to railroad consolidation include the question whether mergers should proceed according to a predetermined plan and also the two following matters: (1) whether consolidation should set up regional monopolies or whether competition should be retained; and, (2) whether there are opportunities for economy through joint action by railroad companies in ways that do not destroy their corporate identity. These problems cannot be solved offhand; indeed, there is probably no single solution which will be everywhere the best. Thus it seems reasonably clear at least that policies should be applied to great eastern railroad systems such as the New York Central and the Pennsylvania which are not necessary, say, in the Northwest, where progress toward regional grouping has already been made. These and other differences should make us wary in announcing a rigid policy in advance.

If, of course, increased efficiency displaces labor or capital, and so imposes special hardships upon owners of transportation facilities or on the workmen who are employed, these costs should be recognized and properly diffused among the persons who benefit from the improvements which have been introduced. Complete relief from the costs of progress cannot, in most instances, be given, and it is likely to be a mistake to limit consolidation, as has been proposed, or any other promising innovation, to cases in which the entire working force in use before the change can be retained. Nor can a policy of retaining in the capital account of merging corporations the undiminished investment in obsolete equipment be easily defended. But partial protection can and should be given. In the second case this protection can take the form of permitting the accumulation, out of rates, of adequate reserves; and in the first it may find expression in unemployment and dismissal allowance systems and in adequate pensions for displaced employees who are too old to adjust themselves to new tasks either in the merging corporations or in other forms of employment. This is the theory behind much recent legislation, and there is no doubt that this theory is sound. It is an essential part of any transport policy which sets up efficiency as its goal.

Equality Between Transportation Agencies.—We have now to consider the question of equality. Inequality of burden, and especially inequality due to government action, may intensify the difficulties of some individuals in any group of transportation enterprises. There are today no complaints more frequent than those which allege inequality, and there are none that are more difficult to judge.

In general, the concept of equality is hard to define, and this is a persistent cause of confusion and perplexity. All transport undertakings are created equal only in the sense that all men are created equal; that is, all alike are entitled to equal opportunities, but equal accomplishments are not to be expected from all. Even this, however, means that government should not accord to one, treatment which is denied to others unless the difference can be justified upon grounds of public policy. It is alleged that government action is, actually, preferential in several indicated ways to which current discussion continually refers.

Declaratory Statements.—The first allegation is based upon a difference in statutory language used in preambles or statements of policy in regulatory acts. Until the passage of the Transportation Act of 1940 it could be pointed out that the statement of purposes in the water, air, and motor vehicle laws announced a policy of support which was not duplicated in statutes regulating railroads! We need not discuss the extent or importance of this alleged discrimination, because the difference in treatment, great or little, was removed by the adoption, in the most recent statute, of a preamble applying to all forms of transport alike.

Other Kinds of Government Preference—When the notion of "equality" is considered without reference to special language, the inquirer finds himself immediately engaged in a complicated task of evaluation. In general, government characteristically influences the activity of its citizens, increasing rewards for some kinds of effort and reducing rewards for others. Frequently, it even deliberately subsidizes occupations in which labor is ineffective and puts these occupations upon a level with other tasks—not in this case an equality in opportunity but an actual equality in the payments which participants are able to command. The charge is, first, that government does precisely this in the field of commercial transport when it builds roads for some people but not for others, or taxes some heavily and others lightly, or regulates some strictly and leaves others free. Secondly, it is alleged that such a policy of preference is unwise. These allegations are the center of the dispute between rail and motor and between rail and water carriers at the present time. The case seems to be proved in so far as canal and river transport is concerned. The facts with respect to motor vehicles are not yet clear.

The Breed-Older-Downs and the Federal Coordinator Reports.—Two recent studies have attacked one part of the question by attempting to compare the aggregate of taxes which motor vehicles pay with the cost of providing the highway facilities which these vehicles use. The first, the Breed-Older-Downs report, was submitted to the Association of American Railroads in January, 1939. The second, a report prepared by the staff of the Federal Coordinator of Transportation, was released for publication in 1940. The Breed report concluded that motor vehicles had paid in taxes, during the period 1921-1937, about 13 billion dollars less than the capital and operating costs attributable to highways in these years. This deficiency the authors regarded as a subsidy. The Coordinator report arrived at the conclusion that motor vehicles, during the same twelve years, had paid 526 million dollars more than the costs with which they should have been charged. The difference between these two results, each defended by competent investigators, deserves attention.

The differences between the Breed and the Coordinator reports, when we examine them closely, may be seen to derive from four major factors. In the first place, there is a difference in the valuation of the facilities which motor vehicles use. The variation here is mainly due to different estimates of the capital value of highways, especially county and local roads, at the beginning of the motor vehicle period (1920). Annual highway costs are affected because the lower estimates used by the Coordinator reduce interest and amortization charges. The second cause is the assumption by the Coordinator of a higher average highway life and a greater salvage value than is admitted by the Breed report. This also operates to reduce annual expense. Thirdly, the Breed report charges taxes on highway capital values as an annual cost of the national highway system, and the Coordinator denies the validity of such a charge in the calculation of public aid, although he is

willing to consider it in certain other connections. Of these explanations of the contrasting conclusions presented by the reports which we are considering, two represent differences in engineering judgment upon which the public can hardly pass. The third raises a question of principle, but although it is important, we shall pass it by because this third cause is not the most significant explanation of the differences which interest us.

The final and considerably the most important reason for the contrast between the two recent estimates of highway costs and payments is accounted for by the Coordinator's belief that a very large part of road expense should be charged against the general taxpayer and not against the motor vehicle user, and by the refusal of the Breed report to accept this decision except in part and for reasons of expediency. The relief afforded motor vehicle owners by the Coordinator's disposition of this matter may be inferred from the following table:

PERCENTAGE OF TOTAL ANNUAL HIGHWAY COSTS ASSIGNED TO MOTOR
VEHICLE USERS AS A CLASS, 1921-1937¹⁶

	State Highways	County and Local Roads	City Streets	Total
Breed Report	90.2.	90.0	48.25	76.1
Coordinator's Report	81.3	27.4	23.9	40.6

If the Coordinator, in 1940, had been willing to charge against the motor vehicle user the same proportion of estimated highway costs which the Breed report had recommended in 1939, the excess of motor vehicle payments over costs which he discovered would have been changed into a deficit of nearly 9 billion dollars, a figure not too different from the estimate of the railroad engineers.

Land and Community Uses.—Whether the costs of highways which are principally used by motor vehicles are to be covered by levies upon the users or whether they are to be met from the proceeds of taxation is a question of general policy, not to be settled by mere classification. The Coordinator's report has much to say of "community" and "land use" of the nation's roads; but in the last analysis a land or community use is only a use which it is convenient to provide from tax revenues, and while it is possible to set up categories, they do not aid us in determining what is convenient in any case. In general, it is advisable for a government to recover the costs it incurs from the users of facilities which it supplies, if only to avoid the likelihood of wasteful use of government funds, although there are cases in which this policy is not wise. There is inequality, in any case, when a government puts facilities at the command of, let us say, a particular form of transport

¹⁶ United States, Office of the Federal Coordinator, *Public Aids to Transportation*. Vol. IV. 1940, p. 290.

and does not either charge for the use of these facilities or give equivalent support to another agency which is supplying the same demand. Careful examination of the detailed studies of motor vehicle costs and payments which are now available make it seem probable that the railroad complaint in these matters is justified. The government could remedy the difficulty by recognizing a "land" or "community" use incident to railroad service if it desired to use these terms. In practice, sound policy would seem to require the imposition of heavier burdens upon motor transport than motor vehicles now bear. '

The Rule of Rate-making.—Is there a possibility of relieving the present transport crisis by legislative adoption of a rule of rate-making which may serve as a notice of government intent and as a direction to administrative agencies charged with railroad control? The idea that this may be done is again recent. The old Interstate Commerce Act contained no rate rule, but only the general declaration that rates should be reasonable and non-discriminatory. The beginning of the sort of pronouncement now referred to as a "rate rule" began in 1920, when the Transportation Act of this year instructed the Interstate Commerce Commission to prescribe rates which would afford the railcarriers as a whole or in rate groups a fair return upon the aggregate value of their properties. Railroads hoped that this direction would be taken seriously and that it would result in rates which would enlarge their earnings. We have seen that it did not, for various reasons, have this desired effect.¹⁷ In 1933 the fair-return provisions of the Interstate Commerce Act were repealed and a new rate rule was formulated in more general terms. This new type of rule was also adopted in the Motor Carrier Act of 1935 and, for water carriers, in the Transportation Act of 1940. The Commission is now instructed, in fixing railroad rates, to give due consideration to the effect of rates on the movement of traffic by the carrier or carriers for which the rates are prescribed; 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 rule for water carriers is nearly the same as this, and that for motor carriers differs, principally, from the others in that it instructs the Commission to give due consideration to the inherent advantages of transportation by motor vehicle—an admonition which does not appear in the rail or water paragraphs.

Recent debates relating to the rate-making rule have considered a special implication which is believed to be conveyed when the Interstate Commerce Commission is directed to give consideration in fixing rates to the effect these rates will have upon the movement of traffic. The Committee of Six in 1939

¹⁷ See chap. xxx.

recommended the deletion of the phrase on the ground that it projected the Commission too far into the field of railroad management. When a carrier proposes an advance in rates, the phrase seems to authorize the Commission to form a judgment upon the volume of business which will move at the suggested charge as well as upon the reasonableness of the price itself. Thus the Commission may and has refused to assent to rates which it has held otherwise reasonable because of their alleged effect upon traffic and ultimately upon carrier finance. This, it is argued, is unwise, and the argument has force. Rail carriers believe, apart from this, that some reversion to the old rule of 1920 would be reassuring to their industry; and they support particularly such a declaration as will refer to a rate base and order rates to be adjusted to yield a fair return upon the base which is set up.

Rule Proposed by the Interstate Commerce Commission.—The best recent formulation of a rate-making rule is probably that devised by the Interstate Commerce Commission in 1932 for use in the regulation of railroad carriers. After providing for the calculation of a rate base for the carriers considered as a whole, the Commission then suggested to Congress the adoption of the following clauses:

As a guide in adjusting the general level of rates, in the exercise of its power to prescribe just and reasonable rates, the commission shall from time to time determine and make public what percentage of the aggregate of the contemporaneous rate basis of the operating carriers constitutes a fair return thereon. In making such determination it shall give due consideration, among other things, (1) to the present and reasonably prospective transportation needs of the country, (2) to the necessity, in the public interest, that the carriers shall be able to establish and maintain a credit sufficient to attract the capital required to meet these transportation needs, and (3) to the necessity, in the public interest, that the carriers shall furnish transportation service to shippers and carriers at the lowest rates consistent with adequate service and meeting of the transportation needs. Having determined such fair return, the Commission shall endeavor to adjust the general level of rates so that operating 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 normal conditions and under honest, efficient, and economical management, and reasonable expenditures for maintenance of way, structures, and equipment, earn an aggregate net railway operating income equal, as nearly as may be, to such fair return. The fact that such aggregate net railway operating income falls below such an amount in times of economic depression shall not be regarded as a reason for raising or reducing rates as the case may be; but the duty of the Commission in the exercise of sound discretion shall be to maintain as far as possible a general level of rates which over a period of years will produce earnings consistent with the principles above set forth, to be observed in the determination of the fair return; and the Commission shall initiate, modify, establish, or readjust rates to the extent that it may find necessary in the full performance of the foregoing duty.

If a rate-making rule is to be enacted for railroads, the form chosen may well be that which the Interstate Commerce Commission recommended in 1932, although this form would not, clearly, be suited to motor vehicles or perhaps to other kinds of transport because the concept of a rate base has not much significance outside of the railroad field. Experience under the act of 1920 makes it seem probable, however, that even railroads would profit little from such a formulation. The policy contemplated in recent versions of a rule is sound enough, but it has significance only when the attitude of the government toward shippers and toward other kinds of transport has been revealed. What the railroads really need is an announcement that government will allow their revenue needs a preferential position when the various factors are assembled that lead to a conclusion on the subject of reasonableness of rates and no solution is obvious that will satisfy all the parties who are concerned. They are not likely to get this pronouncement, and until they do, rate rules will not help them very much.

Limitation of Competition.—Our discussion has now reached the stage at which we may consider possible limitations of competition. Such a control of competition is no necessary part of a transportation program. The underlying reason for attempting to limit transport competition at the present moment is the belief that neither improvement in efficiency nor equal treatment by government will establish the solvency of the American transportation system.¹⁸ This is because of the great recent increase in transportation facilities, especially for highway operation, the tendency of carriers of all types to quote rates on the basis of out-of-pocket costs, the decline in business due to the depression, and changes in industrial organization which reduce the demand for transport.¹⁹ There is sufficient reason to believe that because of this development not only railroads but all major forms of transportation—rail, motor vehicle and water transport—are earning too little to maintain themselves. The evidence seems also to show that this failure to earn a profit is not due entirely to the depression but is the result also of intense rivalry among the carriers themselves.

Specific Proposals.—Proposals for legislation to limit competition include the following:

1. Amendment of the Sherman Anti-Trust Act to exempt transport enterprises from its prohibitions.

¹⁸For a contrary view see I. L. Sharfman, "The Elements of a Railroad Program," Address before the Academy of Political Science, March 25, 1938.

¹⁹"Other adverse influences which have operated against railroad traffic . . . have been a tendency toward the decentralization or spreading of industrial operations, with consequent decrease in the amount of transportation required for inbound raw materials and outbound manufactured products; the substitution of natural gas, hydro-electricity, and fuel oil for coal and the improved use of coal itself; the substitution, particularly in building operations, of products requiring short hauls, like cement, for products requiring long hauls, like steel, stone, or lumber; and the decline in tonnage of our exports and imports" (Interstate Commerce Commission, *Annual Report*, 1938, pp. 2-3).

2. Amendment of the Panama Canal Act of 1912 to permit the ownership of water lines freely by any other form of transport.

3. Grant to a Transportation Authority or to some other government board the power to require railroad consolidations, the pooling of traffic, and the unification of terminal operations.

4. Extension of "certificate" requirements to government projects.

5. Inclusion of water transport in the general scheme of regulation, with **the** stipulation that water operators shall secure certificates and that they shall be subject to rate control. This proposal was adopted by Congress in 1940 but with exemptions which reduce the effectiveness of the new law.

Additional matters to be considered are the possibilities of minimum rate control in limiting competition and the implications of "certificate" regulation. The comments which follow will deal with these last-mentioned topics and, besides these two, we shall take up again, briefly, the subject of consolidation.

Competition and Consolidation.—We have already discussed consolidation with reference to efficiency. Consolidation does not necessarily reduce competition; the theory of the act of 1920, on the contrary, was that consolidation may sharpen competition. For two strong railroad systems or two strong systems of any type, for that matter, may compete more vigorously than four weak ones. In order to eliminate rail competition by consolidation it is necessary to resort to mergers of the English or regional variety; and even when this is done and all the railroads in each large section of the United States are brought together there may still be conflict because rivalries between distant markets and producing areas will persist. Speaking only of railroads, it is clear that only consolidation in the hands of a single corporation or in the hands of the government itself could control railroad competition with reasonable completeness. This drastic measure would not relieve the railroads from the strain imposed by unequal pressures from outside, but it might enable the system to adopt an attitude which would take into account the effect upon the railroads as a whole of rate concessions demanded by shippers in particular areas. It might, indeed, make it possible to consider the effect of such concessions upon the entire national economy. European writers emphasize the importance of government railroad management from this last point of view. It is inconceivable to statesmen who desire to focus the entire energies of their country upon the attainment of politically defined ends that so important an organization as the railroad should be free from direct government management and control. Yet, on the other hand, the strength of the argument based upon these special grounds depends upon the character of the objectives which a nation may have in mind. While particular and immediate government purposes can probably be best fulfilled when the entire economic organization of a country is subject to political direction, it does not follow that the ultimate ideals of well-being which a

community may entertain can be best realized by so extensive a grant of power to agencies selected through political channels. These problems, however, carry us far beyond the boundaries of the question we are now attempting to discuss.

The prevailing view appears to be that the arguments based upon efficiency which justify some degree of further consolidation can be strengthened by reference to the need of limiting competition. But the consolidation which is popular is that between railroad companies alone, and it is not plain that public opinion will yet support extensive consolidation between rail and motor or between rail and water lines to restrain competition or for any other reason. So long as this remains true national policy is not likely to deal with mergers in a helpful way because the competition most significant at the present time is the rivalry of railroads with other forms of transport and not the competition of railroads with each other. Programs which do not limit rivalries of the former sort will do little to protect the earnings of the companies engaged in carriage. For this purpose it is necessary to turn to quite another device, the fixation of a minimum rate.

Minimum Rate Control.—The Interstate Commerce Commission has had power to fix minimum railroad rates since 1920 and minimum motor carrier rates since 1935. The act of 1940 enables it to set minimum rates for all common and contract carriers by water except in the case of certain bulk carriers and in the case of water contract carrier movements which do not substantially compete with rail or motor common carrier transport. Now the easiest way to limit competition is, quite simply, for the Interstate Commerce Commission to exercise its powers and to fix minimum rates generally which competing carriers shall be forced to respect. This solution may require new legislation to extend adequate control to water carriage, but existing statutes sufficiently cover rail and motor transport, and many minima have actually been set, especially in the motor field.

The simplest form of minimum rate regulation is the requirement that new forms of transport, such as the motor vehicle, shall charge rates at least as high as those collected by older forms, such as the railroad. This goes to the heart of the matter so far as the railroads are concerned. If we may assume that railroad rates are relatively high, such regulation would increase the average charge which other agencies could obtain; it would, however, at the same time reduce the volume of motor vehicle and water business. Under present conditions all parties might well profit from this kind of regulation for a while except, perhaps, the shipper who would be deprived of the rate advantages which he expected from the newer forms of transport. There are some countries in which parity of rail and motor rates on certain hauls is now prescribed; this particular variety of minimum prescription has not, however, received much popular support. If railroad tariffs are not to be used as the standard in a "managed" price system, the obvious alternative is cost. Cost is

now to be understood as the expense incurred by the enterprise which **docs** the work—water, motor, rail, or air company—so that under this system each agent enjoys the advantages due to the inherent character of his technique and shippers benefit from the results of progress. The Interstate Commerce Commission has accepted the view that transport rates should not fall below the level of cost, as so defined, and has repeatedly issued orders preventing the application of rates which it has considered unduly low. Accountants will appreciate the difficulty of determining transport costs; the Commission does seem, however, to have contributed by its policy to the stability both of railroad and of other transport'service.

Advantages and Disadvantages of Minimum Rate Control.—Minimum rate control is a policy ready to hand if the public desires to place the transport industry upon a stable basis, but it is at the same time a form of regulation which must be administered with great care. It is a weak policy in that it substitutes for the optimism and initiative of private management the skepticism and rigidity which often characterize bureaucratic control. It is dangerous because it induces shippers to provide and operate transport facilities for their private and individual needs. It has, on the other hand, the advantage that it tends to prevent certain forms of wasteful competition which carriers cannot, apparently, agree to avoid. Competition that is wasteful or excessive in the sense in which the word is here used occurs: (1) when carriers do not know their costs and so charge rates that do not maintain their capital intact; (2) when carriers voluntarily incur loss in order to eliminate dangerous competitors; and (3) when carriers extend unwisely the practice of charging prices which cover only out-of-pocket costs. In this third case the danger is that a carrier may accept business at prices containing no margin of contribution to his overhead expense, while the complementary traffic which is expected to bear the burden of his general costs may never actually be found.²⁰ Taken by itself, a policy of minimum rate control can never provide a permanent remedy for an unsatisfactory revenue situation in the transport or in any other industry because its effect is exhausted when it has produced a margin between cost and income in an individual transaction. Financial solvency does not depend upon this alone but also upon a satisfactory volume of sales. But on special occasions, of which the present is perhaps one, for limited periods, and in conjunction with other measures it may be a valuable resource. Even here, of course, to be successful minimum rate control must be administered upon a single set of principles over the whole range of transport. This is the reason for the importance properly attached to the concen-

²⁰The third case may be further subdivided. Thus carriers' costs may be (a) those incurred if a given increment of traffic is accepted which will not have to be met if that traffic is not taken; (b) costs as just defined plus a full proportionate share of common operating expenses, such as maintenance of way outlays; (c) costs which include both of the elements mentioned above and in addition some proportionate share of non-operating costs, such as taxes. See the discussion of "reasonably compensatory" rates in chap. xx.

tration of jurisdiction over water, air, motor, pipe line, and railroad transportation in a single controlling body. There are practical reasons why this should presently be done, but the reasons based upon underlying principle are still more compelling, and appear most clearly when the policy of minimum rate regulation is discussed.

Certificate Regulation as a Means of Limiting Competition.—Along with minimum rate regulation, an effective use of the government's power to grant or refuse certificates of convenience and necessity is, as has just been said, of very great importance. We have considered the practical operation of certificate administration in the United States in Chapters XXXI and XXXII with reference to railroads and motor vehicles. Since the law has vested in a government body the authority to fix minimum rates and to grant or withhold certificates in the case of water carriers, and water carrier operation without a certificate has been forbidden, national legislation upon this subject has become reasonably complete, with one exception. The exception relates to transport undertakings initiated or fostered by the government itself. There can, of course, be no legitimate complaint when the government takes action affecting transport because it believes that some public need other than a need for transport has to be supplied, at least so long as the burden of the decision is distributed with some rough regard to equity. Thus the government may build roads to provide employment for labor, and the fact that traffic over these roads is diverted from the railroads will not be a ground for protest except when, as has just been said, disproportionate and uncompensated sacrifices are required from special groups of citizens. But when the government enterprise is planned as a transport undertaking, then it would seem to be sound practice that the proposed improvement should be subject to the same technical examination which private proposals for new construction should receive. Naturally, the examination could not result in a decision binding upon the President and Congress, because such superior legislative and executive bodies cannot be controlled by inferior agencies which they may set up, but Congress could voluntarily act in accordance with the technical report which it had invited and, in any case, the judgment would be available for its consideration.²¹

How Far Certificate Control Has Been Effective.—During recent years the power to grant or refuse certificates has not meant much in the case of railroads because rail carriers have not been able or inclined to expand their facilities. It has meant even less in the case of inland waterways. The power has

²¹ The report of the Presidential Committee of Six (1938) referring to waterway improvements contained the following paragraph:

"We therefore recommend the adoption by the Congress of a definite policy restricting such projects hereafter to those which, after thorough consideration by a competent and disinterested tribunal, have been found to be consistent with the principles embraced in the general declaration of policy hereinbefore recommended, to have sound economic justification and therefore to be in the public interest."

been more important in the field of motor service, but even here we may doubt whether state and federal commissions have much reduced competition in transport by denying applications for permission to operate. It is true that a very considerable number of motor carrier applications have been denied, but there are three reasons why these denials have not restricted competition to any noticeable degree. The first and most obvious of these is to be found in "grandfather" clauses in the Motor Carrier Act exempting motor common and contract carriers which were in bona fide operation on June 1, 1935 (July 1 in the case of contract carriers), from justifying their operations on the ground of public convenience and necessity. The second reason is that current legislation does not limit the number of vehicles which a certificate holder may employ, but only the routes on which he shall operate. And the third cause of failure to restrict is the refusal of Congress to subject private motor carriers to certificate control. We may observe in passing that if certificate regulation should actually limit common and contract carrier competition in transport it would do so by driving would-be operators into other kinds of business and would tend to produce conditions in these other occupations similar to those from which the transport industry desired to be relieved. At this point we come, of course, to the general problem of government direction of the employment of national resources in capital and labor. On principle the control is admissible where the overcrowding of a particular occupation is clear and the solvency of that occupation is peculiarly a matter of national concern. These are the apparent and immediate facts with respect to transportation. Ultimately, however, national prosperity cannot be achieved by restricting but only by encouraging productive effort; and the certificate system like the quota system, when the attempt is made to apply it widely, becomes a counsel of despair.

Organization of Government Machinery for Regulation.—Last upon our list of topics is the subject of government organization for regulation. The Transportation Act of 1940 and the Motor Carrier Act of 1935 have accomplished a desirable consolidation of machinery for federal control, but the first law is still new, and the opposition to centralization has been strong. A few words will be devoted, therefore, to matters of principle which are here involved.

The advantages of regulating all branches of transportation through the medium of a single commission are obvious when the objective of equality of treatment of different agencies is held in mind; it is especially evident that only a single body can define and apply a comprehensive system of minimum rates and certificates without distortions and preferences which make it difficult to realize the purposes the public may entertain. Johnson has well observed that railroads, pipe lines, waterways, and airways are inseparately related, and that they should all be regulated according to like principles. The danger in regulation by a number of coordinate authorities is that different

policies may be contemporaneously applied and that each governing board may seek to develop the type of carriage over which it has jurisdiction at the expense of carriers of another sort.²² This may be the outcome of the natural wish of each board to expand its own power and prestige. It may also result, however, from the character of the influences to which a board with partial authority is exposed. Inevitably a commission which regulates motor vehicles alone, or water carriers or railroads alone, is in constant contact with an industry which has specialized purposes and ambitions not related to the progress of the transportation system of the country as a whole. The data it is authorized to collect and the arguments it continually hears reveal the necessities of a single form of carriage. It is difficult, although it may not, of course, be impossible, for such a commission to maintain an inclusive point of view. Besides this, unified regulation is relatively inexpensive because the fund of experience and the organization for control which it develops in one field serve almost equally well in dealing with other carriers. And it is relatively effective because it avoids the possibility that direction of one agency, such as the railroad, may be nullified by contrary direction of another agency with which the former is compelled to compete. One need only refer to the experience of the Interstate Commerce Commission in regulating rail and inland water transport to see how intimately railroad rate decisions are related to decisions concerning rates to be applied in water hauls.

Obstacles to Unified Regulation.—Experience shows that different forms of transport usually desire, when regulation appears inevitable, that their destinies shall be intrusted to new organizations specially created for this purpose. The air lines were successful in securing a separate authority in 1938, water carriers did this for a while also, and the motor carriers managed, at least for a time after 1935, to obtain a separate division of the Interstate Commerce Commission charged with the supervision of motor carrier affairs. The primary charge leveled at commissions at any moment is that they are prejudiced in favor of the agencies which they control. Prejudice is human, but there is no reason to suppose that a board with comprehensive authority need show preference to any of the techniques which it directs.

The advantages of unified regulation are so great and the likelihood of undue government preference is so small that the advice of the Transportation Conference, of the Federal Coordinator, and of the Presidential Committees of Three and of Six may be followed with confidence in this disputed matter. It is necessary to consider, however, some rather serious questions that this solution of the problem presents. The immediate difficulty which consolidation of government control in a single body presents is the large scope of the resultant organization. In so far as judicial functions of regulation are concerned, this embarrassment may be met by appropriate **changes**

²² E. R. Johnson, *Government Regulation of Transportation*, Appleton-Century, New York, 1938, chap. 27.

in the structure of the regulating body. More serious, however, is the fact that either a consolidated commission must take over from other boards types of work which have not hitherto been associated with regulation or separate bodies must be set up which may again interfere with the unity of governmental control. Such additional types of work are those principally associated with promotion and subsidy; they are only slightly judicial in character, although acts of judgment are frequently involved. Examples of this kind of activity are the subsidy and shipbuilding duties of the Maritime Commission, which we have not found it necessary to mention in the text, and the promotional work assigned to the Civil Aeronautics Authority. There are also transport functions such as the promulgation of rules for private flying and the granting of licenses to pilots which the federal government finds necessary in order to protect the operation of interstate common and contract carriers but which go beyond any regulations which the Interstate Commerce Commission has attempted to enforce. The difficulty here is due either to the fact that direct government aid is an alternative means of reaching results which regulation may also envisage or to the circumstance that the division between public and private carriage breaks down so that a commission with complete jurisdiction over public carriage still finds itself in control of only a portion of the transport field.

Proposed Transfer of Functions to Special Boards,—Faced with this situation, Congress has repeatedly considered the assignment of specified transportation functions of a non-judicial type to administrative departments or to special boards. Sometimes the suggestions have gone so far as to propose the transfer of the entire Interstate Commerce Commission to the Department of Commerce, where it would function with more or less independence under the jurisdiction of an Assistant Secretary of Transportation. Sometimes it has been proposed to transfer only certain bureaus of the Commission such as the Bureaus of Statistics, Accounts, Service, Locomotive Inspection, and Finance. Sometimes a new board or authority has been demanded, which might be given independent jurisdiction over carrier facilities, including construction and finance, or might be charged only with the duty of investigating and reporting, and—sometimes it has been proposed only to maintain organizations such as the Maritime Commission or the Civil Aeronautics Authority, stripped of their rate-making functions but remaining free to subsidize, to promote, and to advise. An incidental result of any of these transfers would be to bring activities formerly handled by independent commissions within the President's authority. This would certainly be the consequence if the transfer were to be a government department; it would probably follow also if duties were assigned to a board which exercised only administrative powers. In any case, however, the reorganization would reduce the size of the controlling regulative body, and might make such a unified commission more secure in the possession of the powers it retained. The

practical problem would be to separate the functions which a board of control must have in order to remain efficient from those which might be regarded as secondary. Doubtless it would be difficult to agree upon a principle in such a matter, but easier to discover a number of useful things which might be done.

Conclusions With Respect to National Policy.—The conclusions with respect to national policy which emerge are hardly new or striking. It would be scarcely possible, indeed, to find a solution of present ills that had not been advocated by someone during the campaigns of the last twenty years. For the moment some immediate financial assistance, direct or indirect, may well be afforded to railroad enterprise. There is undoubtedly a crisis in this industry which justifies some form of temporary government support. Beyond this, there are a number of matters which we have already mentioned, distributed over a considerable field. Certainly the need for effective financial regulation exists, and extension of financial control to waterways is desirable. We need, perhaps, a fuller and franker discussion of the efficiency of transport than we have had during recent years and the discouragement of practices in any of the fields and by any of the parties engaged in transport enterprise which cannot be justified upon the ground of public interest. A discussion of this kind will not limit itself to the subject of consolidation, but some further progress in consolidation will probably be found helpful, not only between railroads but also between railroads and other forms of transport. The ideal unit of the future will be a transportation unit, not a rail or a highway or a water or an air unit, and this should always be borne in mind. Equality of opportunity must be kept open to all techniques. If the government does not treat different agencies of transport with impartiality, then two sorts of losses will appear. In the first place, the community will suffer because it will be induced to use an inferior rather than a superior device. In the second place, persons who have invested labor or capital in some enterprises will suffer loss. Others will gain some part of what these workers and investors have sacrificed, but not all of it; and no public interest will be served by the transfer from one to another group. Rules of rate-making have their place because commissions endeavor, on the whole, to conform to the spirit which these legislative rules express. Competition in transport may well be limited for a while. The most effective methods we know for this purpose are the fixing of minimum rates and the refusal of certificates to operate. Each method has its defects; thus, neither reaches the private carrier, and neither restrains the government from multiplying facilities for transport. The administrative possibilities of neither method, however, have as yet been realized. Government regulation should be centralized in a single commission—this is, perhaps, the most important of all the improvements in the scheme of things which Congress can be asked to make—but this commission should under-

take only those functions which imperatively demand unified control. Thus promotional and many routine activities may be transferred to departmental or other administrative bodies whose members the President will be free to appoint and to dismiss and whose duties the President may, in general, prescribe.

The most important elements of a national transportation policy looking to early results may be finally summarized in a sentence. They include temporary financial assistance to transport, unified government control, temporary restriction upon the further enlargement of the transport plant, and the promotion of flexibility and efficiency in transport organization. If we can have these, joined with a moderate degree of business recovery and a reorganization of the capital structure of our large railroad corporations which will render them less sensitive to sudden shocks, then we shall be able to resume a development in transport to levels which are not yet known. In the long run the business of transport will take its chances with other parts of our productive organization, and will rely upon its own abilities for prosperity within whatever general boundaries the public sees fit to prescribe. It is only upon special occasions such as the present that it can expect any extraordinary tolerance or support.

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