Sayings and Writings About the Railways

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By Those Who Have Managed Them and Those Who Have Studied Their Problems

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Prefatory Note

The purpose of this publication is to assemble for easy reading and ready reference views and suggestions of men experienced in the management of railroads, or who have given attention to their problems. All observers of events realize that the American railroads have reached a new crisis in their development and that a temperate solution of their problems has a very close relation to the welfare of business and to the future prosperity of the country. In order that right action may be taken, it is necessary that the information on which this action is based shall be as complete as possible. "To do justice we must know the truth," is a sentiment ascribed to Mr. Clements, of the Interstate Commerce Commission.

This is a partial but representative collection of the expressions of railroad authorities and students for the reader who may be interested in them. Extracts have been taken from hundreds of pamphlets and magazine articles, scores of books and many legal papers. Even if these sources of information were at the reader's hand it would be a task for him to go through them.

As a rule, each extract has its date. It is important to bear this in mind because of the constantly changing statistics of transportation.

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WHAT RAILROADS HAVE DONE AND WHAT THEY MEAN TO CIVILIZATION AND PROSPERITY.

Nation's Growth Due to Railroads

This country cannot grow without adequate transportation facilities. The railroad is our common highroad; it is not a luxury; it is not a concern in which the farmer and the manufacturer alone are interested; it is an essential to the commercial life of our people, almost as necessary as the land itself, for we have grown up as a people to be physically dependent upon our railroads. No other people are so bound up as are we in economic interdependence. No one community in all this land lives to itself. We have grown as railroads were built. We have made a community of a continent. The freight rate determines where we shall mine and how we shall mine; where we shall manufacture and how we shall manufacture; where we shall plant and what we shall plant; what we shall eat and wherewithal we shall be clothed. With a national system of railways that penetrates into the remotest sections of the country, a service that is dependable and adapted to our industrial life, and rates so low as to make the least possible tax upon trade, the United States as a commercial and industrial entity will realize itself fully. If, on the other hand, we have too few railroads, giving meager service and following the false policy of exacting high tolls, the nation's growth will be by so much retarded.—*Franklin K. Lane: What I Am Trying to Do. World's Work, March,* 1913.

Wonderful Work of Private Enterprise

No other country is so dependent on railroads. The United States has 245,000 miles of line, 40% of the mileage of the world. Its tonnage of freight moving by rail is greater than that of any other two nations, not excepting our formidable industrial rivals, Germany and the United Kingdom. The average haul, about 250 miles, is four times the average abroad, so that the 255,016,910,451 ton-miles of 1910, the last year reported, constitute a freight traffic more than twice as great as that of all the rest of the globe. In population we have one-sixteenth of the world's total and one-fourth that of Europe. Freight transportation per capita in the United States is thirty times the world's average and nine times Europe's. With inland coal, iron, and grain, and land-bound cities scattered across a continent, we live by means of railroads that we have built. In our material development they always have been, and always will be, the prime force. The reclaimers of waste places, the builders of cities, the awakeners of opportunity, to our growth as a nation their growth is still essential.

Under private ownership the railroads of the United States, built and operated for profit, have grown far beyond the measure of the growth in other countries, where, for the most part, railroads have been the care of the government. Our mileage per capita is five times that of Europe and ten times that of the world at large. Stocks and bonds outstanding per mile of line are a little over half the average amount per mile on the foreign railways, and the freight traffic per mile is three times as great. Rates per ton-mile are lowest in the United States—less than half of the average charged in other lands. Private enterprise, dominated by ambition, has fostered the growth of

railways in this country not only in length and carrying capacity, but in the direction of cheapness and efficiency.—*Morrill W. Gaines: A Living Rate for the Railroads. Yale Review*, 1910.

Railroads as Creators of Wealth

We cannot count our wealth and greatness in terms that do not point for their significance to our lines of transportation. We say that we take annually out of the soil six billions of dollars. But these fabulous values result not so much from the fact that millions of bushels of corn and oats and wheat, of tons of hay and of bales of cotton, are grown and harvested, as from the circumstance that a system of transportation, unequalled on the globe for efficiency and cheapness of charge, is ready to carry these products to profitable markets. Our marvelous crops would count for nothing if forced to lie in the fields where they grow, or driven to seek such markets only as the farmer's team could reach. The cotton crop, which brings to our shores annually nearly half a billion dollars of foreign gold, would be but a fruitless burden on southern winds if there were no railways to carry it to the seaboard. We take from our mines and forests and factories twenty billions of dollars each year, but without means of transportation these costly products would be worthless junk.—*Robert Mather: The Railroad Problem. Address before Chicago Association of Commerce, October* 12, 1907.

Lincoln's Prophecy

I am here reminded of an incident that is recorded in the archives of the Rock Island Company. This company was the first to reach and bridge the Missis-

sippi River. There was much opposition on the part of the river shipping interests, who sought to prevent the bridge. Abraham Lincoln was at that time a Rock Island attorney, and in his argument said: "It is not at all improbable that the traffic crossing this bridge may, at some future time, be even greater than that passing up and down the river." How correctly he prophesied you will see when I tell you that the average number of freight and passenger cars now passing over this bridge is about 1,400 per day, and there are now some twenty railroad bridges over the Mississippi River.—*Address of H. U. Mudge, at reception and banquet given by the Commercial Club of Topeka, Kansas, April* 11, 1911.

Soundest Business in the World

The American railway industry, for its size, and considering the large number of companies operating it, is the soundest and strongest business in the world. Observe first the size of the plant and personnel: mileage, 359,000; cars, 2,408,589; locomotives, 65,310; employees, 1,699,420. Over 10,000,000 Americans draw their living from the railroads; and the business which is conducted by this great organization is worthy of it. In 1912 American railroads transported 1,817,562,049 tons of freight and 1,019,658,605 passengers. Expressed on a mileage basis, these figures are even more striking. Over every mile of American railroad in 1910 were carried 1,071,086 tons of freight and 138,169 passengers. This immense business was done, moreover, at a very moderate cost to the shipper and passenger, a fact proven by an average freight rate of .748 cent, and a passenger rate of 2.22 cents. No other industry, moreover, performs its service or furnishes its goods at so small a margin of profit. The pas-

senger business, in the opinion of the best informed railway men, is operated without profits, and out of the three-fourths of a cent received for each ton carried one mile, it is a safe estimate that not more than one-fourth cent represents profit.—*Edward Sherwood Mead: The American Railway Industry. Lippincott's Magazine, June,* 1913.

Next After Religion and the Public School

While the railways of the United States may have mistakes to answer for, they have created the most effective, useful, and by far the cheapest system of land transportation in the world. This has been accomplished with very little legislative aid and against an immense volume of opposition and interference growing out of ignorance and misunderstanding. It is not an exaggeration to say that in the past history of this country the railway, next after the Christian religion and the public school, has been the largest single contributing factor to the welfare and happiness of the people.—*James J. Hill: Highways of Progress.*

Largest Single Service

Of all the factors that have contributed during this century to the growth of wealth, to the increase of material comfort, and to the diffusion of information and knowledge, the railway plays the most prominent part. It has widened the field for the division of employments; it has cheapened production; it has promoted exchange, and has facilitated intercommunication. In its aggregate it represents a larger investment of capital than any other branch of human activity; and the service that it renders and has rendered to society is, both from industrial and commercial points of view, greater than is rendered by any

other single service to which men devote their activities.—*Simon Sterne: Article "Railways," in Cyclopædia of Political Science.*

An Industry Necessary to Life

Without the transportation industry life itself, except of the simplest sort, would be almost impossible. Everything on earth, even man himself, must be moved before it can have value, and the more highly developed the transportation facilities of a people, the more rapid their development industrially and socially. The rapid and cheap movements of products so increases their values that the workers and producers get more for their labor, while the consumers at the same time pay less—the carrier getting less than formerly for his services in moving the products from the producer to the consumer.—*W. L. Ross: Address before Transportation Association of Milwaukee, May* 22, 1909.

Magnitude of Our Railways

Consider the magnitude of this system [American railroad system]! Its mileage about equals the accepted distance of the moon from the earth. Its employees number one out of every twelve of our adult male population. The capital invested in it is estimated to represent one-eighth of the total wealth of the country, and its annual revenues to be three times those of the Federal Government. We should recognize that this system has not been superadded to long-existing means of internal transportation. It has not superseded other national highways, for there were none others before it. From the Atlantic coast, hemmed in by almost continuous ranges of mountains, it opened the way to the granaries of the Mississippi

Valley and of the Western prairies, and unlocked the treasure vaults hidden deep beneath the Rocky Mountains. It has reversed the order of nature by diverting the course of trade from those extensive regions, against the mighty currents flowing to the Gulf of Saint Lawrence and to the Gulf of Mexico, and has deflected that course to our Atlantic ports. It has undone the work of Vasco da Gama and of Magellan, and has given to the route across the North American continent that commerce with the Orient which the Portuguese won from Marco Polo and the Venetians.—*H. S. Haines: Problems in Railway Regulation.*

Great Purchasers of Materials

The railways are the great purchasers of materials of many kinds, and the moment they are forced to stop buying the effect begins to be felt in the forest, the mine, the mill, and the factory.—*Howard Elliott: Address at the Montana State Fair, Helena, Montana, September* 26, 1910.

Nation's Destiny in the Railway Problem

The railroads have a great problem to work out, and the destiny of this country is inextricably bound up in that problem. The only way to settle it is in fairness, rectitude, and righteousness. The people continually want better service, faster trains, more elegant accommodations, more safety—all of which are perfectly legitimate demands—but the carrying out of those demands costs money, and the people ought to be willing to pay for them. Everything the railroads use, just like everything every one else uses, costs more than it used to, and it costs the railroads more, just as it costs everybody else more.—*C. D. Kellogg, in Railway World, January*, 1913.

What the Railroads Handle

The general facts brought out in the brief survey of the main sources of traffic in the five large physical subdivisions of the United States may be illustrated and their effects noted by a summary tabular analysis of the principal classes of *commodities handled by typical railroad systems* located in different sections of the country. The data presented in the following table are taken from the annual reports of the carriers. The grouping of commodities is that required by the Interstate Commerce Commission:

CLASSIFICATION OF FREIGHT TONNAGE OF TYPICAL RAILROADS, 1908.

	Penna. R. R.	C. & O.	So. Ry.	C. of Ga.
Total tonnage	182,083,103	16,540,833	26,654,389	4,700,841
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Products of agriculture	5.94	4.56	11.04	22.39
Products of animals	1.78	.69	1.22	1.41
Products of mines	65.45	70.79	38.77	24.93
Forest products	4.78	10.27	17.76	19.11
Manufactures	18.51	5.99	31.21	32.16
Merchandise	.77	3.18		
Miscellaneous	2.77	4.52		
Total	100.00	100.00	100.00	100.00

	St. Paul.	Rock Island.	Santa Fe.
Total tonnage	26,189,853	15,877,646	16,610,910
	Per cent.	*Per cent.*	*Per cent.*
Products of agriculture	21.537	26.37	22.88
Products of animals	6.894	7.92	7.92
Products of mines	28.518	27.82	32.05
Forest products	12.944	12.26	12.41
Manufactures	17.267	17.92	17.95
Merchandise, Miscellaneous	12.840	6.87, .84	6.79
Total	100.000	100.00	100.00

—*Emory R. Johnson: Sources of American Railway Freight Traffic. Bulletin of the American Geographical Society, April,* 1910.

Traffic Actually Moved

To ascertain exactly what traffic is actually moved over a mile of railway in one day two railway companies were respectively asked to compile this information for their respective lines. One is an eastern trunk line having a greater density of traffic than any other in the United States, and its traffic is typical of the manufacturing region which it serves. The other is a railway of the Middle West whose traffic is naturally typical of the grain-raising, meat-producing, cotton-growing, lumber-producing region which it serves. Officers of these railways have furnished the information here set forth.

Over one mile of the eastern railway pass in one day 794 freight cars, 105 passenger cars, and 46 locomotives. Over one mile of the western road pass every day 198 freight cars, 27 passenger cars, and 12 locomotives.

Over one mile of the eastern road are hauled in one day 13,494 tons of freight and 1,170 passengers; over one mile of the western road in one day 2,654 tons of freight and 250 passengers.

By the application of these governmental statistics of average consumption to the per mile per day tonnage of the two railways we obtain the following results:

The eastern railway hauls on the average over each mile each day enough cement, brick, and lime to supply 1,976 persons for one year; enough coal and coke to supply 1,594 persons one year; enough cotton to supply 794 persons one year; dressed meat to supply 318 persons one year; fruit and vegetables to supply 1,176 persons one year; iron for 11,146 persons; ores for 329 persons; poultry, game, and fish for 650 persons; stone and sand for 1,308 persons; sugar for 825

persons; wines, liquors, and beers for 381 persons; wool for 1,270 persons for one year. The freight per mile per day thus expressed aggregated 10,552 tons, leaving 2,942 tons, or nearly 6,000,000 pounds, of other commodities not so classified that the average consumption can be ascertained.

The western railway hauls on the average over each mile each day enough cement brick, and lime to supply 302 persons for one year; enough coal and coke to supply 56 persons for one year; enough cotton to supply 1,698 persons for one year; enough dressed meats and other packing-house products to supply 1,045 persons for one year; enough flax and other seed for 17 persons for one year; enough flour for 455 persons; other mill products for 569 persons; petroleum and other oils for 633 persons; poultry, game, and fish for seven persons; fruit and vegetables for 249 persons; grain for 146 persons; hay and straw for 14 persons; iron for 110 persons; rice for 1,122 persons; salt for 1,896 persons; stone and sand for 16 persons; sugar and molasses for 1,089 persons; wines, liquors, and beers for 297 persons. The 1,106 tons of lumber which comprise about two-fifths of the daily traffic over one mile of this railway are enough to build 44 two-story, eight-room wooden houses of medium size. The lumber hauled by this road in the course of a year is sufficient in quantity to build over 45,000 such houses.

In order to conduct this daily transportation, which consists on the eastern railway of 1,170 passengers and 13,494 tons of freight per mile, to say nothing of the mail and express, there is required 90,600 pounds of coal as fuel for the locomotives, 3½ pounds of oil for lubrication, and ½ pound of waste for the journal boxes.

The similar performance of the western road calls

for the services of various classes of employees, officers, stationmen, trainmen, trackmen, and shopmen to an extent equivalent to the total service of 10 men for one day. For the 250 passengers and 2,653 tons of freight and the mail and express which it hauls over one mile in one day it receives $30.82, of which $19.10 is paid out for expenses of operation, $1.39 as taxes, $5.08 as interest, and $2.82 for dividends, the remainder going for miscellaneous items and services.

It is repeated that all the statements in this article are of averages, but they are carefully computed averages that give a fair indication of the work that the railways are doing mile by mile, day by day.

The average performance for each mile for each day multiplied by 365 days gives the total performance for each mile for the year. This multiplied by 240,000, the aggregate number of miles, gives the total performance of all the railways of the United States for the entire year. It will be perceived that a difference of one cent a mile a day in the earnings or the expenses makes a difference of $876,000 a year; a difference of 10 cents a mile a day a difference of $8,760,000 a year; a difference of $1 a mile a day amounts to $87,600,000 for the year, and this is very nearly one-third of the net dividends paid by all the railways of the United States for the entire fiscal year 1910.—*L. G. McPherson: The Times (London), American Railway Number, June* 28, 1912.

Western Development

Today the gauge of productive industry is the "T" rail. Seven distinct lines of railroad now span the continent from the Missouri River to the Pacific Ocean. Inclusive of Texas, the total length of main line is over 66,000 miles. The wonders they have worked in one generation is but an earnest of what

they, unaided, shall accomplish in the generation beginning with the current year. But there are fifty-nine hundred miles of additional main line of railroad, the projection of which, within this territory, is not only acknowledged, but much of the work has been contracted and is now largely in course of construction. To these confessed projections it will be safe to add from 1,000 to 1,500 miles which are unavowed. Much of this new construction will develop and serve virgin territory. If the promise of the future be measured by the accomplishment of the past, and due weight is given to the industrial energy awakened by the cognate force of electricity, what more need be said in exposition of my subject?—*J. C. Stubbs: The Railroads and Western Development. Railway World, May* 4, 1906.

Life of All Business

Agriculture, manufacturing, and merchandising, in the free and untrammeled rise and fall of prices to meet changing conditions, act promptly, almost automatically. The great business of transportation alone, vital to the prosperity, yea, the very life of all the others, is hedged about and restricted by legislative enactment and supervision of commissions, National and in almost every State. In addition to this, every act, every change in tariff, made or suggested by the railroads, is watched and questioned by hundreds of alert, aggressive associations in every city in the Union.

I do not dispute this right of the nation and the States to regulate the corporations they have created; I do not question the right and duty of these associations to most minutely scan and closely inquire into changes that may affect their interests; but I want

to urge upon these commissions, both of the nation and the States, the all-important necessity of exercising the great powers that have been conferred upon them with conservatism and wisdom. Samson possessed power—the ruins of the temple attest the fact—but I fail to find in any history, sacred or profane, a suggestion that that power was wisely exercised.—*William C. Brown: Address at annual dinner of Railway Young Men's Christian Association of Columbus, Ohio, February* 4, 1911.

Growth of Interior United States

No fact among all the great politico-economical facts that have illustrated the world's history since history began to be written is so full of human interest, or deals with such masses of mankind, as the growth of the interior United States since the railway opened to the seaboard these immense solitudes. The irruption of the northern tribes upon the Roman Empire bears no proportion to it, and was destructive in its results; and we may say the same as to the Napoleonic wars. These are among the most celebrated events of commonwealths on our planet, beginning and ending in bloodshed and enormous waste of capital. But within fifty years over thirty millions of people have been transplanted to or produced upon vast regions of hitherto uninhabited and comparatively unknown territory, where they are now living in comfort and affluence and enjoying a degree of civilization second to none in the world, and greatly superior to any that is known in Europe outside of the capitals. And this could not have happened had it not been for the railway.—*Sidney Dillon: The West and the Railroads. North American Review, April,* 1891.

Ablest Men of the Day

The newspapers view the railroads as wonderful proofs of the highest degree of efficiency and ability. The biggest work of an age always attracts to itself the biggest men of the age. When the great work of the world was painting, in the days of the Medicis, the greatest men in the world were painters. Michael Angelo was the greatest engineer, the greatest architect, the greatest sculptor, of his day, and probably in every other way the greatest man. Leonardo da Vinci was the greatest military engineer, the greatest road and fort builder; with the power of two Jeffreys, he could take an iron bar and bend it in his hand. The greatest minds go in the greatest direction. Railroad building, industrial building, is the great work of today. And the men who would have been naval heroes in the days of Elizabeth, and explorers in the days of La Salle, and painters in the days of Michael Angelo, are railroad men today. Such men as Cassatt and Harriman and Hill are all benefactors of their country, and those benefactors are the greatest and probably the ablest men of today, not excepting the newspaper editors who criticise them.—*Arthur Brisbane, at the eleventh annual dinner of the Traffic Club of Pittsburgh, January* 13, 1913.

The Railroad Strike of 1894 at Chicago

Virile, resolute, full of resource, the railroads appear to have appreciated to the full the duties they owed to the public, and to have moved with steady determination to fulfil them. Involved in a quarrel in which they had no more interest than had any other bystander, set on by rioters led by a small but reckless squad of mutineers from their own forces, the

constituted authorities affording no bulwark of defense, their conduct may well be carefully examined as affording evidence that the salt of the earth hath not lost its savor. The country owes more to the railroads than it thinks, for the preservation of peace in 1894. Whether we regard the action of their management, dignified in the maintenance of their rights, disdainful of compromise with the wrongdoer, steadfastly holding their course through this troubled sea; or the conduct of their men, moving in small and isolated groups, quietly and indomitably to the performance of their duties, amid the howlings of the mob; there stands revealed an institution and a spirit that may well give heart to them that love the Republic, and that must be reckoned with by them that seek the destruction of the established order.—*L. F. Loree: Emergencies in Railroad Work. Bulletin of the University of Wisconsin, December*, 1895.

Railroads and Prosperity

Railway transportation is one of our largest industries. It employs over a million and a half of men, to whom have been paid over a billion dollars in wages in a single year. The concerns that make and deal in railway equipment and supplies, whose prosperity depends on that of the railways, employ perhaps as many more. Upon the amount their employers can pay these men depends the amount they can spend with the local merchant. Upon how much goods the local merchant can sell depends the quantity he can buy from the jobber. Upon how much the jobber can sell depends how much he can buy from the manufacturer. And upon how much the manufacturer can sell depends how much wages he can pay and how much raw materials he can purchase. Therefore, the prosperity of the entire coun-

try depends to a very large degree on the prosperity of the transportation industry. I do not take the narrow view that this is true only of the transportation industry. But how much all classes will be affected by the condition of any industry depends on how large and important it is, and how extensive are its ramifications; and the prosperity of all depends so much on the condition of the transportation industry because it is the largest, the most important, and the most extensive in its ramifications, except agriculture.—*E. P. Ripley: The Railroads and the People. Atlantic Monthly, January*, 1911.

More Beneficent than Philanthropy

The benefaction derived in Illinois and the great West from railroads is inestimable, and vastly exceeding any intentional philanthropy on record.—*Ralph Waldo Emerson: The Conduct of Life.*

Civilization's Largest Factor

The most important business in the world is farming.

Food is the primal need.

We get our food out of the soil, and the business of the farmer is to tickle the soil so it will laugh a harvest.

The second most important business in the world is transportation.

Things have no value unless they are at a certain place at a certain time.

Food separated from human bodies by an impassable gulf is absolutely valueless.

I have seen corn selling in Kansas for ten cents a bushel, wheat at twenty-five cents a bushel, and hogs at two cents a pound, simply because there was no

available transportation for these things from where they were plentiful to where they were needed.

The railroad cancels distance and annihilates space.

Railroads have only one thing to offer, and that is transportation.

The unit of transportation is the mile haul.

Railroads carry an adult human being a mile for two cents, and they carry a ton of freight a mile for a cent or less.

To carry a ton of freight on a wagon a mile, with average roads, costs thirty cents.

To carry a man on horseback or in a wagon, as was done in stage-coach times, costs ten cents.

The stage-coach fare from New York to Philadelphia, say one hundred miles, used to be ten dollars. If you walked the distance, as my grandfather did, it took three days, and the cost of board and lodging along the road was no inconsiderable figure.

George Washington, in his diary, tells of riding horseback from Philadelphia to Boston in a week, and he thought he was going some. Now the railroad carries you in two hours from New York to Philadelphia, and the fare, say, is two dollars, and on the route you need neither board nor lodging.

The railroad is the greatest factor in civilization. America holds her proud place among the nations on account of her railroads, because by the railroad the world's markets are brought to the doors of both producer and consumer.—*Elbert Hubbard: The Smile Habit. East Aurora, New York*, 1912.

Vital Force of the Century

The railroad is the expression of the vital force of the 19th century. For thousands of years the world had been plodding over beaten ways, climbing moun-

tains, toiling through valleys, fording streams, when suddenly the thought and study and knowledge of many generations burst into life, and Mr. Stephenson's little "Rocket" astonished mankind. The locomotive threw open vast regions of country until then inaccessible, and gave such an impulse to civilization, commerce, and education as had never before been known. Our own West long and patiently waited for its coming to bring life to her desolate places, to cultivate her fertile prairies, and send forth her produce to feed the millions.

Scarcely a generation has passed since the first railroad was built, between Liverpool and Manchester. It was nearly completed before it was decided by what motive power the cars should be propelled. A prize was offered for the best engine which could move a given weight ten miles an hour, and of several that were constructed, that of Mr. Stephenson was the only one that could accomplish the task. In our country travel was then by stage coach, and the mail was generally carried on horseback. Now, not only is nearly all travel by rail, and not only is three-fourths of the mail carried and distributed by railroad, but the supplies of our daily and multiplied wants, our very food and clothing, our books and papers, are brought to us over these iron roads.—*Gardiner G. Hubbard: American Railroads. Journal of Political Science*, 1874.

Railroads Created Land Values

We have some people now who fear the Government has been too liberal and has wasted its public land; but I can remember when the Government practically could not give away lands that are now worth two hundred dollars an acre. We have given away mil-

lions of acres of the public lands; but we have by so doing built up an empire in little more than half a century that could not have been developed in a thousand years under the old régime.—*Joseph G. Cannon: Followers After Strange Gods. Saturday Evening Post, May* 3, 1913.

Public Opinion and the Railways

The railway, as a corporation, has no voice in the selection of those who frame and administer the laws for its regulation. Its physical property—extending in part through sparsely settled sections and through wildernesses, perhaps—is the most defenseless property that exists. In the very nature of its existence, therefore, it can find safety only when, in the darkness of the night watches, in times of stress and peril, and in the enactment of laws for its regulation, the invisible sentinel of public opinion stands guard over its rights and property.—*W. W. Finley: Reply to a toast at the annual dinner of the North Carolina Society of New York City, at the Hotel Astor, New York, December* 7, 1908.

Mileage and Capital

These tables were compiled for *The Times* by the American Bureau of Railway Economics.

RAILWAY MILEAGE OF THE UNITED STATES, 1830–1910.

Year.	Miles of line operated.	Year.	Miles of line operated.
1830	23	1895	177,746
1835	1,098	1900	192,556
1840	2,818	1901	195,562
1845	4,633	1902	200,155
1850	9,021	1903	205,314
1855	18,374	1904	212,243
1860	30,635	1905	216,974
1865	35,085	1906	222,340
1870	52,914	1907	227,455
1875	74,096	1908	230,494
1880	93,349	1909	235,402
1885	128,987	1910	240,831
1890	156,404		

RAILWAY CAPITAL OF THE PRINCIPAL COUNTRIES OF THE WORLD.

Country.	Miles represented.	Capital outlay per mile upon road and equipment.	Date of information.
United States...	228,841	$63,631	June 30, 1910
Argentina	14,732	57,327	Dec. 31, 1908
Australian Commonwealth....	15,467	46,217	June 30, 1910
Austria	13,917	116,690	Dec. 31, 1909
Hungary	12,205	65,509	Dec. 31, 1908
Belgium	2,684	190,630	Dec. 31, 1909
Brazil (*a*).....	1,050	50,008	1906, Archiv.
British India...	32,099	44,402	Dec. 31, 1910
Canada (excluding Newfoundland).....	24,731	69,939	June 30, 1910
Denmark (*b*)...	1,218	55,032	1910, Archiv.
France	24,989	143,805	Dec. 31, 1909
Germany	35,475	109,277	Mar. 31, 1909
Italy (*b*).....	8,699	123,801	1907, Archiv.
Japan	4,807	44,852	Mar. 31, 1909
New Zealand...	2,753	52,183	Mar. 31, 1910
Norway	2,177	33,104	Mar. 31, 1909
Russia in Europe (excluding Finland).....	41,427	79,298	Dec. 31, 1907
South African Union.....	7,041	51,907	Dec. 31, 1910
Sweden	8,242	32,829	Dec. 31, 1908
Switzerland	2,825	115,049	Dec. 31, 1908
United Kingdom	23,387	274,364	Dec. 31, 1910

—*London Times, American Railway Number, June* 28, 1912.

(*a*) Central Ry. only. (*b*) State Railways only.

WHO OWN THE RAILROADS?

The Common People's Money

The general public is each year becoming more and more interested financially in our great railroads. I quote from the *Wall Street Journal* on this subject:

The number of individual stockholders in conspicuous incorporations in this country at three different periods is as follows:

1901	1906	1911
226,956	431,279	864,684 "

You will see that in ten years the number of shareholders has increased more than 375 per cent.

These individuals are more largely interested in railroads than in any other class of incorporations. The Pennsylvania Railroad is owned by 65,000 stockholders, and it is said that more than 48,000 of them are women or trust funds of decedent estates. The New York Central, Atchison, Topeka & Santa Fe, and many others are held in a proportionate manner. Instead of being owned and controlled by a small band of immensely rich Wall Street speculators, the railroads are rapidly becoming the property of the common people.

The savings banks, the people's institutions, in the States of Maine, Massachusetts, New Hampshire, and New York own and control more than a billion dollars of the stock of the leading railways and industrial incorporations. Add to this the insurance companies' reserves and you get more than a billion more, and all

of this vast sum is the people's money, the common people's money. The number of people that share in the prosperity of the railroads is increasing by leaps and bounds.

The question in the near future will be the relation of the people to *their* railroads.

The second class of people who must suffer by unjust persecution of the railroads is the general public. Show me the community through which a live, up-to-date, prosperous railroad runs and I will point to the community as a prosperous people. Its patrons are well served, its employees are well paid, the air of prosperity is apparent along every mile of its track. The reverse is true along the line of the bankrupt so-called jerk-water line.—*A. E. Reynolds: Relation of the Railroad to the People. Address before Transportation Club of Indianapolis, November* 28, 1911.

Owners of the Pennsylvania

There are some people who believe the railroads are owned by a few millionaires who could afford to sacrifice a portion of their interest on bonds or dividends on stock without feeling the effects. As a matter of fact, there are nearly 100,000 persons interested as investors in the stock of the different companies of the Pennsylvania Railroad system. It is likely that holders of this company's bonds number 200,000. A very large percentage of these investors are women. Enormous investments in American railroad securities are held by savings banks, insurance companies and trustees of estates.

Strike at the investor of railroad securities and you hurt depositors in savings banks, policy holders in life insurance companies, women investors, and many others least able to cope with the situation. The capitalist does not submit to a reduction of his divi-

dends to a point below what he can realize from some other investment in this country or in some other part of the world. Capital is liquid and it flows to where it is wanted and will be properly paid for.

If investments in American railway securities are to be denied a proper return, those who can do so will sell their holdings and the money will be put elsewhere, and when we want more money for improvements to handle the public business we cannot get it.—*Samuel Rea: Letter to Philadelphia Ledger, May 9, 1913.*

1,000,000 Owners Representing 4,000,000 People

Now, who is the owner of this enormous and complicated piece of machinery built up in the last 50 years? The best figures obtainable as to the number of stockholders show 440,000, and while the number of bondholders cannot be determined with the same accuracy, information about a few roads indicates that the number of bondholders exceeds the number of stockholders, and that 1,000,000 is not an unfair figure to represent those holding railway securities. Many of these holders are women and children, charitable and educational institutions, national banks, savings banks, trust companies, and insurance companies. The average for each owner of railway property in this country is $13,600. Of course, some individuals hold more than this, and very many hold much less, but the statement that railways are owned and controlled by a few very rich men is not correct. These 1,000,000 owners represent at least 4,000,000 people in the United States whose daily bread and butter depends more or less on the success or failure of the railways.—*Howard Elliott: Address at the Montana State Fair, Helena, Montana, September 26, 1910.*

Securities on Safe Foundations

There has been much wild talk as to the extent of the overcapitalization of our railroads. The census reports on the commercial value of the railroads of the country, together with the reports made to the Interstate Commerce Commission by the railroads on their cost of construction, tend to show that as a whole the railroad property of the country is worth as much as the securities representing it, and that in the consensus of opinion of investors the total value of stock and bonds is greater than their total face value, notwithstanding the "water" that has been injected in particular places. The huge value of terminals, the immense expenditures in recent years in double-tracking, improving grades, road-beds, and structures have brought the total investments to a point where the opinion that the real value is greater than the face value is probably true. No general statement such as this can be accepted as having more than a general value; there are many exceptions; but the evidence seems ample that the great mass of our railroad securities rest upon safe and solid foundations; if they fail in any degree to command complete public confidence, it is because isolated instances of unconscionable stock-watering and kindred offenses arouse suspicion, which naturally extends to all other corporate securities so long as similar practices are possible and the tendency to resort to them is unrestrained by law.—*Theodore Roosevelt on Railroad Investments. American Review of Reviews, June,* 1907.

People's Confidence Built the Railroads

We "plead the baby act" as a nation when we cry out against the alleged overcapitalization of our railroad corporations. The State and the Nation had

their opportunity, at the time of issue, to prevent the sale and consequent validation of these "watered" securities. Why was their issue not prevented? Because, as a people, we were willing to pay the price and to take the chance in order to get the railroads built and the country developed. Well, the railroads were built and the country was developed, because, by reason of this attitude of the people, the States, and the Nation, it was possible to sell the securities thus issued in the world's markets, and through their sale to obtain the money without which the railroads would not have been built and the country would not have been developed.—*Robert Mather: Railway Regulation. Speech before Traffic Club of Pittsburgh, April* 3, 1908.

Getting Closer to the People

Day by day the railroads are getting closer to the homes and the pockets of the people. It can no longer be asserted that five or six capitalists own or control the destinies of any railroad. They are now nearly all subject to the influence of an army of stockholders.—*James O. Fagan: The Industrial Dilemma. II: The Railroads and Education. Atlantic Monthly, March,* 1909.

Railroad Bonds and Life Insurance

On January 1, 1910, there were no less than 28,087,327 policies (including industrial insurance); and the insurance companies of the United States had pledged themselves to provide for beneficiaries sooner or later an aggregate sum of $15,480,721,211—a sum five times as great as the public debt of this country at its highest point, at the close of the Civil War, and fifteen times the present debt. Within ten years (1900–1909) the

amount of life insurance contracted to be paid has increased by $6,031,601,217 (excluding industrial companies), or six times the total of our national debt. The total current assets carried January 1, 1910, were $3,643,857,971. This sum is the ship which is carrying the hopes of millions of our people. Is that ship seaworthy? That is the question the people are asking—and which they have a right to ask. And an economist may well give thought to so grave a question. In what form are those assets carried, and what are the conditions affecting their safety now and in the future in this democracy?

These assets, of course, were placed in the productive investments of the country, and were grouped roughly as follows (35 companies doing business in New York):

30 per cent—Real estate mortgages.....	$1,084,345,817
12 per cent—Premium notes and policy loans.....	446,276,468
48 per cent—Bonds and stocks of all kinds.....	1,761,404,870

It thus appears that the largest item is that of bonds and stocks. This entry is resolvable into the following, as nearly as can be estimated:

Railway bonds (35 companies).....	$1,225,576,728
Corporation securities.....	250,000,000
State, county and municipal securities...	286,000,000

This analysis of the kind of investments in which the people's insurance savings are placed may thus enable us to discuss the fundamental issues in the situation as I find it today.—*James Laurence Laughlin: The People's Investments in Railways. Address at the fourth annual meeting of the Association of Life Insurance Presidents, at Chicago, Illinois, Saturday, December* 10, 1910.

Bond Investments

Railroad and other public-service corporation bonds appear to predominate in the investments of all banks except in private and national banks. Mutual savings banks have over one-half of their bond investments in railroad and other public-service corporation bonds, or about $845,000,000; loan and trust companies have about $472,000,000, or 47 per cent of their investments, in this class of bonds; State banks have about $114,000,000, or 37 per cent of their investments, in the same class of bonds; stock savings banks have about $59,000,000, or nearly one-half of their investments, in this class of securities, while private banks have in this class of investments only about $1,700,000. There are only about $35,800,000 United States bonds in banks other than national, while $737,600,000 are held by national banks. Of the $1,116,200,000 investments in State, county, and municipal bonds $714,800,000 are in mutual savings banks, $162,000,000 in national banks, $144,500,000 in loan and trust companies, $63,900,000 in State banks, $28,700,000 in stock savings banks, and $2,300,000 in private banks. Mutual savings banks hold $23,500,000 United States bonds, stock savings banks $8,500,000, State banks $2,100,000, loan and trust companies $1,300,000, and private banks about $400,000.

Stocks held to the amount of $166,100,000 are reported by loan and trust companies, $39,400,000 by mutual savings banks, $37,600,000 by national banks, $29,800,000 by State banks, $7,700,000 by stock savings banks, $2,800,000 by private banks, or a total holding of $283,400,000.—*Report of the Comptroller of the Currency*, 1910.

EFFICIENCY AND SAFETY.

American Roads First in the World

It has always been my opinion that in actual economy of operation the railways of the United States are first in the world. In the number of tons per car, cars per train; in the fullest utilization of locomotives; in the obtaining of the greatest measure of result for each unit of expenditure, they are not equalled by the railways of any other nation. When the Greek commanders after the battle of Salamis voted who should receive the prize for valor each put his own name first, but all put the name of Themistocles second. And Themistocles received the prize. So, too, though German, French, and English railway men would, I dare say, all put their own railways first in efficiency they would all, I am sure, put yours second, and on the voting of the experts your railways would come out first.

But, further, your nation as a whole is not in other matters pre-eminently efficient. No one would say that your farmers were more efficient than those of France and England or that your Government is more efficient than the government of Prussia. Your railways have reached a higher standard in international comparison than your farmers or your Government, and under greater difficulties, for in England and on the Continent employment with a railway company is a prize and man hopes to remain in the service of the same company throughout his life. He is, therefore, obviously more amenable to discipline than the

shifting and often even foreign force employed on your railways.—*W. M. Acworth, said by President Hadley to be "the highest authority on the railways of Great Britain."*

Practicable Efficiency

Efficiency from the standpoint of the railway may consist in loading cars and trains to their capacity and moving only the minimum number of cars and trains necessary to handle the business. Efficiency from the manager's standpoint may involve a relatively slow movement of trains, because the faster engines are driven the greater the amount of fuel they consume and the smaller the load they can pull, the result being that the cost of running the train is increased while the revenue derived from running it is reduced. On the other hand, as I have said, speedy, frequent, and regular service is a very important factor in efficiency from the standpoint of the public. Now, when the public insists on a kind of transportation which is incompatible with the most economical operation no one can justly criticise the railway managers for complying with the public's demands and for that reason failing to operate the properties with the maximum possible economy. If the railway managers operate the properties, not with the maximum economy that might be *possible* under certain *conceivable* conditions, but with the maximum economy that is *practicable* under the *actual* conditions with which they have to deal, they do all that they reasonably can be asked to do. I think that the railway managers of the United States are approximately much closer to the maximum *practicable* efficiency and economy of operation than most people believe.—*Julius Kruttschnitt, before the Graduate*

School of Business Administration, Harvard University, Cambridge, Massachusetts, April 26, 1911.

Railroads Lead in Efficiency

As they stand today, I believe that the railways, with all their faults, exhibit the highest industrial efficiency attained in this country. The regularity and punctuality necessary in the performance of a railroad man's duty, the seriousness entailed by the safeguarding of lives and of property, elicit respect for the railroad man's calling. This regularity and punctuality have been said to enhance the development of those qualities in the population in general of a railroad town. That station men and trainmen average at least as high as their fellow-citizens in forbearance and self-control I think is beyond question. Is it the statement of an impossible ideal to hope that they may develop these qualities to a standard admittedly far above the average? The term "railroad man" is a worthy designation now. Can it not be made so to stand for the manly virtues that it may be honored through coming years as we now honor the Knights of the Round Table and the Samurai of Old Japan?—*L. G. McPherson: Address before annual meeting of station agents of the Delaware & Hudson Railroad Company, Bluff Point; September* 21-23, 1911.

High Efficiency Needed

Next to agriculture our railroads are the greatest single industry. In their ordinary maintenance and operation great numbers of laborers and vast quantities of supplies are used. Railroad extension would mean the employment of additional laborers and the

purchase of additional material and equipment. Now, the thought seems to be that to permit these advances would induce larger expenditures in the maintenance of our present roads, and would lead to extensions and improvements which would in turn employ additional labor, put into circulation additional money, and thereby improve general business conditions.

So far as such expenditures are legitimate, they ought to be encouraged. Our railroads should be kept in a high state of efficiency, and railroad charges should be sufficient to permit this. Necessary extensions and improvements should be made, and the treatment of our railroads by the public should be such as will inspire that confidence in the investing public necessary to obtain the funds for such additions.—*Evidence taken by Interstate Commerce Commission in the matter of proposed advances in freight rates by carriers, August to December*, 1910, *v.* 10: 5445.

A Labor Leader on Efficiency

Recently the papers were filled with the statements made by a new star that had risen in the labor world. "The railroads can save a million dollars a day;" think of it! 365 millions a year. When a man comes forward with such a startling statement as that made by Mr. Brandeis, we commence to look around and ask questions we have a right to ask. Did he ever manage a railroad? No; he never did. Place him in the general manager's chair in charge of one of these great railway systems and he would be lost. You would have to put a bell on him to find him. Did he ever design a locomotive or draft one? No; he never did. I have. I have shoveled more coal into locomo-

tives than you could pile on a city block. Mr. Brandeis has had no practical experience. and knows nothing about the subject. Yet only yesterday he stated we could save $500,000 a day on fuel alone. No railroad at the present time is throwing away a dollar, and, regardless of Mr. Brandeis' statements to the contrary, the American railroads are the best managed in the world. The men in charge of these great systems stand head and shoulders above the railroad men of the world. There is no other class of business that is operated on so close a margin; no other business where the details are watched so closely as on the average railroad. And yet Mr. Brandeis says they can save 365 millions a year. He must have got this fairy-tale out of some story-book. But who is Mr. Brandeis? Who's Who in America states that he is a very able, highly accomplished attorney of Boston. A short time ago the daily press announced that he, having acquired enough of this world's goods, would devote his future time and ability in philanthropic work, would give his talents and service, free of charge, to help the down-trodden and oppressed. Next thing we heard he was in Washington filing a brief in behalf of the Shippers' Association, protesting against an increase in freight rates; perhaps he thought they were the oppressed. Before any association or individual brings a case before the bar of public opinion and expects their support they should at least come with clean hands. The individual shippers of the country are the very ones who reap the benefits of all rebates ever given and cause the present drastic laws for the regulation of interstate traffic to be enacted.

In the end who pays the freight? The most superficial study of the question will prove to any one that the consumer pays the freight. The shipper does not

pay a dollar of the freight; he is simply a parasite who lives off the consumer and the producer, one of the middlemen who take their toll and increase the cost of living.—*Warren S. Stone: Efficiency as the Employé Sees It.* 11*th annual meeting National Civic Federation*, 1911.

The Pick of All Industry

In something less than three generations there has been built up in the railroad service of this country a practice and a personnel that for efficiency and character stands without parallel in the world. Men entering the service are subjected at the outset to a careful physical examination; they receive systematic instruction, and are held to a high state of discipline. In the main, they are subject to be called upon for duty at all hours of the day and on all days of the year. They are under control not only as to the disposition of their time, but as to their personal habits. They are engaged in a hazardous occupation. Having in mind the character of the force so assembled, the restrictions imposed and the service rendered, it is of the highest importance that relatively the rate of wages paid and the conditions of employment should be such as to attract and retain in this service the pick of the industrial community.—*L. F. Loree: Address at the annual dinner of the Alumni Association of Rutgers College, June*, 1908.

A Premium of Efficiency

The complexity of the problem of determining whether the railroads are able or unable to devote an increasing share of their income to higher wages for their employés is illustrated by the question: What

rate of return should be allowed on capital? It seems plain that no fixed percentage can be named. If this were done, there would be no strong incentive, when a road once reached the degree of efficiency requisite to give this percentage of interest, to a further increase of efficiency and economy. But competition in this respect should not be eliminated, and if it is to be encouraged great care will have to be taken not to limit too closely the dividends on the stocks of roads which are managed with exceptional efficiency. Commissioner Lane in the Western rate-advance case, decided February 22, 1911, gave it as his opinion that "some method must be found under which a carrier by its own efficiency of management shall profit. A premium must be put upon efficiency in the operation of the American railroad. * * * Society should not take from the wisely-managed railroad the benefits which flow from the foresight, skill, and planned cooperation of its working force."—*Commission in Arbitration between the Eastern Railroads and the Brotherhood of Locomotive Engineers, Charles R. Van Hise, chairman; Oscar S. Straus, F. N. Judson, Otto M. Eidlitz, Albert Shaw, D. Willard,* 1912.

Tonic Effect of Good Service

This intensive growth of a railroad system is the most powerful stimulus possible to a manufacturing country. I think that a purely agricultural community needs rather new mileage, no matter how poor. The farmer, whose freight is mostly grain, does not care particularly whether it goes out today or next week. He sells it on contract any way, and it will move only to the elevators, and go to the final market long after it has been gathered in from the fields and local markets. He may fret a little over

the fact that he has to order his new machinery and seed months earlier than his cousin in the next State, who lives on a better railroad; but it will not make any material difference in his bank account.

The manufacturer, on the other hand, must have good service. The jobbers in New York, Chicago, St. Louis, Philadelphia, or Cincinnati, who buy his goods, or who sell them on commission, keep a record of the length of time that he takes to make deliveries. Two men, both manufacturing the same grade of furniture, are located at an equal distance from New York. Both get orders on the same day, from the same jobber, for a similar amount of similar goods, known to be ready for shipment in their sheds. The first has a poor railroad service. He makes his delivery of the goods in twenty-two days. The other, with a good service, makes delivery in fifteen days. The ultimate result is obvious. The factory on the better railroad will outstrip its rival in the New York trade, other things being equal.

And the town on the better railroad will outstrip the similar town on the poorer railroad. All industries will flourish better in the town with the better service. The plants will add hundreds of men to their staffs, while the plants in the other town will add dozens. Capital will follow where the greatest successes have been won. The man with a fund to put into business studies very carefully the records of men already in business. He searches for ultimate causes. In a great many cases he finds the ultimate cause in the difference between poor railroad service and good railroad service.—*C. M. Keys: An Era of Better Railroads. World's Work, February,* 1909.

Modern Freight Cars

Contrasted with what may be called the extravagance of the passenger service, the modern freight car, as we have seen, carries two-and-a-half times its own weight, and a train of the largest freight cars will transport to the seaboard the product of 5,000 acres of wheat fields. The mammoth steel cars which are seen in long trains in the vicinity of the coal mines are little less imposing than an array of battleships, which name the trainmen have aptly applied to them. And the economy accomplished by enlarging the cars is no less striking than that due to the increase in the sizes of the locomotives. Where the Mallet compounds are used, one engine moves a train twice as long as the usual train hauled by locomotives of the former standard, and the number of trains is correspondingly reduced, with a great saving in the wages of conductors and brakemen. On one division of the New York Central, where the traffic consists largely of coal, all of the 60 consolidation locomotives formerly used to move the freight trains have been transferred to other divisions and 26 Mallet compounds, less than half the number of engines formerly employed, now handle the whole of the trains and do it at much better average speeds. The consumption of fuel per mile is 35 per cent less than with the old engines.—*London Times, American Railway Number, June* 28, 1912.

Growth of the Passenger Car

The same growth has characterized the American passenger car. From a length of between 40 ft. and 50 ft. it has increased to 75 ft. and 80 ft., and with the increase in length has come a more than corre-

sponding increase of weight. The seating capacity of an ordinary day coach 70 ft. long is about 88 passengers, and its weight is about 135,000 lbs. If the passengers are averaged at 140 lbs. each, this gives a dead load of about 11 lbs. for each pound of passenger.—*London Times, American Railway Number, June* 28, 1912.

Units of Railway Performance

The pressure for lower rates, the steady increase in taxes of all kinds, the rapidly increasing wages, and the mounting prices for all material used by the railroads forced great economies in methods of operation. These were made possible largely by the powerful locomotives and the capacious freight cars. The traffic units carried per dollar of capitalization, which had increased 38 per cent from 1885 to 1895, increased 91 per cent from 1895 to 1905. The number of traffic units carried per mile of track increased 13 per cent from 1885 to 1895 and 66 per cent from 1895 to 1905. The number of traffic units carried per locomotive increased 21 per cent from 1885 to 1895 and 59 per cent from 1895 to 1905. The number of traffic units carried per employee increased 22.59 per cent from 1895 to 1905. This greater performance per unit of plant is also reflected in the ratio of the capitalization to the earnings. In 1885 it took $10.15 of capitalization to produce one dollar of gross earnings; in 1895, $8.84; in 1905, but $5.36. The capitalization per unit of traffic was 13.4 cents in 1885, 9.7 cents in 1895, and but 5.3 cents in 1905. This result was attained, notwithstanding that the average rate per ton per mile in twenty years had decreased 27.5 per cent.—*L. G. McPherson: The Needs of the Railroads. Political Science Quarterly, September,* 1908.

More Burdens on the Railways

The public should know exactly what is meant by the proposal to increase freight rates 5 per cent. The annual revenue from freight in the territory concerned is about $800,000,000. Five per cent on this is $40,000,000. There are about 40,000,000 people in this portion of the country. The proposed increase therefore means an average of $1 per year per head of population—eight cents a month.

Everybody knows that the railroads have been put to greatly increased expense in recent years. On the Pennsylvania Railroad System lines east of Pittsburgh the added cost of new legislation from August, 1906, to December, 1912, was nearly $11,000,000. Question is not here raised as to the propriety of the legislation; the fact is that it has cost $11,000,000 in six years to comply with it.

Recently many more laws have been enacted. These will cost still more. The New Jersey grade-crossing bill alone involves an ultimate cost to this company's system of more than $60,000,000, for that law imposes upon the railroad companies the entire burden of the cost of removing all grade crossings. Extra-crew laws, drinking-water laws, railroad-valuation laws, all are adding to the cost of running a railroad.

Now managements of railroads seek to obey the law. If the public, through constituted authority, demands certain measures of safety, certain improvements, certain conveniences, it is entirely within the right of this public to express that demand in the form of law. But certainly such measures of safety and comfort must be paid for by somebody. The railroads are only too happy to remove all grade crossings, to equip every mile of track with automatic block signals, to make every car of all-steel construc-

tion, but to do these things is utterly impossible without the money with which to pay for them.—*Samuel Rea: Letter to Philadelphia Ledger, May* 9, 1913.

Economy of Operation

On the occasion of the last rate controversy an attorney from Boston said, in arguing the case of his clients, that the roads of this country could save almost one million dollars each day by applying the "science of management" to their operation. It seems unfortunate to his cause that the gentleman omitted domestic and Christian Science, for they are about equally applicable to railroad operation and are more clearly understood by the general public. However, it is no doubt true that that statement, coming as it did at the psychological moment, artfully diverted public attention from the question of rates to the possibilities of a vague theory. That was its effect, at least. While the gentleman from Boston was no doubt sincere in his opinion, we must not forget that he was inexperienced and incompetent, as we know him, in practical railroad operation, and not therefore competent to pass judgment on the thing of which he spoke.

Compare his statement with the opinion of W. M. Acworth, an accepted English authority on railroads, as expressed in an interview in the *New York Evening Sun* prior to his departure for his home in England in February last, in which he said:

"It has always been my opinion that in actual economy of operation the railroads of the United States are first in the world."

Compare the Boston gentleman's opinion also with that of the Hon. Franklin K. Lane, of the Interstate Commerce Commission, as published in the *Chicago*

Evening Post, September 7, 1910, following his return from the International Railway Congress at Berne, Switzerland, where he represented the United States, in which Mr. Lane is quoted as saying:

"The conference established beyond question, I think, the supremacy of the American railroads from the standpoint of efficiency."—*Charles D. Trueman: Railroads and the Citizen; Their Relation. From the Railway World, October* 6, 1911.

Capitalization and Service

The suggestion that a superabundant issue of capital securities would lead to higher charges for railway services might seem to be of more practical importance if there were any real and general overcapitalization of American railway property. But, as has been proven over and over again, the contrary is the fact—on the whole, the value of the railway system of the country is actually and greatly in excess of the par value of all the securities outstanding. Examining the suggestion as it stands, however, it plainly involves the assertion that charges can be advanced at will and that the desire to earn a return upon all outstanding securities is a sufficient incentive to such advances. But between the desire for more revenue and its satisfaction by means of advancing rates to unreasonable figures or the substitution of inferior service stands (first), the regulative power and established agencies of the Federal and State governments, and (second) the fact that the commodities moved must be sold in competitive markets, where they meet the same and substitutable articles produced locally and brought from other sources of supply, and that, in consequence, exorbitant rates or inferior service will invariably produce

less, and not more, net income.—*W. H. Williams: Letter to Railroad Securities Commission, January* 18, 1911.

Value of Large Systems

In addition to the benefits pointed out as consequences of consolidation in industrial growth, especially as affecting the workingman, many others have accrued to the public by reason of the grouping of railroads into large systems. In Europe, where the population is dense, this fact has long been recognized, and the paralleling of a railroad is forbidden by law. Good service can be given only by a road that is making money. The people are the chief sufferers wherever a railroad is operated at a loss. Formerly every small railroad that began nowhere and ended at the crossroads had its president, vice-president, and full complement of other officers, all drawing good salaries. For these there is now one series of officers and one set of salaries. Economy has marked every stage of the welding of these little railroads together; but all other gains are insignificant when compared with the enormous increase of efficiency in operation and the decrease in cost to the public.—*James J. Hill: Highways of Progress.*

The Experience of 1907

If you increase the size of a bottle without enlarging the neck, more time and more work are required to fill and empty it. That is what has happened to the transportation business. In 1907 traffic was blocked on nearly all the principal Eastern railway lines. It took months to convey an ordinary shipment of goods from one domestic market to another.

The deadlock was broken partly by a panic that lessened the volume of business and partly by the efforts of railway managements to add, by increased efficiency, to the moving power of facilities at command. We neither anticipate nor desire perpetual business depression. While the limits of efficiency have not been reached, we know that it cannot be made to cover the demands of our growth in population and production. The records of any large city will prove this. The tonnage of the Pittsburgh District, for example, by railroad alone, grew from 64,125,000 to 152,000,000 in the ten years between 1901 and 1911. It is both practical and patriotic to ask, What is to be done?—*James J. Hill: The Country's Need of Greater Railway Facilities and Terminals. Address at annual dinner of Railway Business Association, New York, December* 19, 1912.

Value of Statistics

One of the subjects which had exercised my mind a good deal before I went to America was how the large undertakings now operated under one organization were managed and controlled, since personal supervision by the higher officers was no longer practicable. I asked the question of several presidents, vice-presidents, heads of departments, and district officers whom I met. Without exception they gave me the answer that the control was exercised through statistics. Equally without exception they said they could not possibly conduct their business efficiently without statistics; that without them they were working in the dark; and that they could not understand how any railroad could be efficiently and economically operated without statistics. The president of the railroad which has made the most scientific

study of the subject told me that at one time his railway kept only the most meager statistics. Beyond knowing in a general way that he ran so many train miles and carried so many passengers and so many tons of goods, and that he earned so much revenue and expended so much money in the service, he had no information. He had no means of knowing what the income from any particular service was, nor had he then any idea of the cost of providing it. He had no standards of any kind to guide him. He felt this was not right, and that if he was to operate his railway economically and with profit, he must know exactly where the money went, and what income was being received for a particular expenditure. He accordingly proceeded to devise some form of statistics which would give him the necessary information, and, after many trials and errors, he arrived at his present system. * * * I was assured that both he and his officers were quite satisfied that the money was more than well spent, and that by means of these statistics they had been enabled to introduce reforms and economies the necessity for which would otherwise never have been known, and that generally the outlay which they incurred in the compilation of the statistics represented only a very small percentage of the saving effected by their aid. * * * Of course every one recognizes that experience and reflection are necessary for the intelligent application of all statistics, and that statistics used without intelligence may be not only of no value, but very harmful. But it is contended that, when used with intelligence, they help to impress all with the money value of the service performed and to bring sharply to their attention the cost of inefficient service, helping thereby to cut out a proportion of the numerous things that militate against an economical perform-

ance—*Neville Priestly, Under Secretary for India, appointed by the British Government to make an investigation of the methods of American Railways.*

The System of Statistics

The early railroads were rarely more than one or two hundred miles long. The officer responsible for maintenance and operation was personally familiar with every mile of the track, the characteristics of every locomotive, and of almost every employee on the pay roll. By continual travel over the road and incessant personal supervision this officer, the man immediately responsible to the owners of the road, could immediately direct the application of material and the performance of the employees. As many of the roads were extended and as there was amalgamation of the smaller roads, this minute direction of the one responsible officer passed beyond the limits of any one man's capacity. Certain measures of authority had to be delegated to others, the operations not often being so extensive as to baffle the personal inspection of the responsible manager. As, however, the larger railways have been extended over thousands of miles and there has been amalgamation of large roads into systems, each penetrating many States, traversing both lowlands and mountains, with traffic increasing in density and variety, there has arisen that complicated organization the results of whose co-ordinated performance are absolutely beyond unaided physical perception. By way of exhibiting the results of the details of different phases of operation, of comparing the performance of one division with that of another, the accounting department began to collect and record figures, not simply with a view of making bookkeeping debits and credits, but with a view to aid in the

scrutiny of any detail of performance, by placing in comparison the results obtained here with the results obtained there, the results obtained at one period with those obtained during another and corresponding period, thereby enabling analysis of the causes producing variations, the elimination of idiosyncrasies and inefficient practice, and the intelligent outline of a policy for the future. This practice has developed into a system of statistics which by universal consent has been a foremost factor in contributing to the efficiency of the American railroads.—*L. G. McPherson: The Working of the Railroads.*

Eleven Thousand a Year

Nobody was ever struck by a railway engine except upon a railway track, or, at any rate, so near to it that he was poaching on its preserve. Between the rails of a railroad there are, ordinarily, just four feet eight inches and a half, and the balance of the unsafe space does not exceed three feet; yet with all the rest of the world to stand and walk on, some eleven thousand people every year find it necessary to their employment to end their days, or their health, on this narrow strip of land. It is not, as I before intimated, that I am so much worried about these curious people as I am annoyed that they should be the means of giving my friend such a bad reputation. It is rather to protect his reputation against their assaults that I would make it, as near as possible, impossible for them to get within a destructive distance of him.—*George A. Rankin: An American Transportation System.*

Accidents to Trespassers

Fourteen people were killed yesterday while trespassing; fourteen will be killed today; fourteen will be killed tomorrow—if the record of recent years is being and shall be maintained. It is not often that as many as fourteen passengers are killed in a wreck; but every bad wreck causes numerous investigations and reports, often resulting in orders by commissions or legislation. The greatest number of passengers ever killed in a single year from all causes was in 1907, when they numbered 610, and even in that year the number of trespassers killed—5,612—was over nine times as great as the number of passengers killed. In 1911, the last year for which we have complete statistics, the number of passengers killed was only 356 and the number of trespassers killed 5,284, or fifteen times as great. And yet newspapers agitate, commissions issue orders, and lawmakers legislate to reduce accidents to passengers, and almost no one in a position of public authority does anything to reduce the slaughter of trespassers.—*From article entitled "Why* 5,000 *Trespassers Are Killed Yearly." Railway Age Gazette, December* 20, 1912.

Most of the Killed Trespassers

In the five-year period from 1905 to 1909, inclusive, 31,091 other persons were killed; 26,201 of these were trespassers. In the same period 49,786 other persons were injured, of which number 28,205 were trespassers. A significant feature connected with these figures is the surprisingly large number of trespassers killed by being struck by trains, locomotives, or cars at "other points along the track." Of the 26,291 deaths to trespassers during this five-year period,

17,469 were due to this cause. The extremely fatal nature of this class of accidents is indicated by the fact that while more than 17,000 persons were killed, less than 10,000 were injured, the deaths exceeding the injuries in a ratio of 1.76 to 1. * * * In England and on the continent of Europe walking on railroad tracks is forbidden by law, and it should be here; furthermore, vigorous measures should be undertaken to make people understand that railroad tracks cannot be used as footwalks with impunity.—*Hon. C. C. McChord, Interstate Commerce Commissioner, at Milwaukee, October* 1, 1912.

What Safety Means

On a busy line a stoppage of traffic for sixty seconds means a loss of $250. In an hour this loss may reach $25,000. It is more than trebled the second hour, and goes on increasing until in the third hour the blocked railroad is losing a thousand, two thousand, five thousand dollars a minute—no one can calculate how much.

The railroads appreciate better than the public that safety is cheaper than wrecks, and do not hesitate at the expenditure of great sums for block-signal systems. These investments have saved many times their cost, but they do not put an end to wrecks. They have decreased the human element in railway operation, which is the weakest spot, but there is still a huge margin left for further improvement.—*Thaddeus S. Dayton: The Wreckless Railroad. Harper's Weekly, February* 22, 1913.

INCREASE IN TAXATION AND OTHER COSTS.

The Public Milch Cow

Another item of expense which grows out of all proportion to railway revenue or national development is taxation. In 1890 the taxes paid by all the railroads aggregated $31,207,469; in 1910 they had risen to $103,795,701; for 1911 they are estimated at $109,000,000, and may be a couple of millions more. The increase in twenty years up to 1910 is 233 per cent. This is by direct act of the people. The extravagance of all modern legislative bodies, the doubling of State and National expenses within a few years, and the continuous issue of bonds for all sorts of public purposes formerly met by general taxation have drained the ordinary sources of revenue. The railroad treasury has come to be looked upon as the public milch cow, from which a new supply of nourishment may always be obtained. So railway taxes have risen by leaps and bounds. Each mile of line in the country paid $199 in taxes in 1890 and $431 in 1910.—*James J. Hill: The Country's Need of Greater Railway Facilities and Terminals. Address at annual dinner of Railway Business Association, New York, December* 19, 1912.

The Tax Increase of Thirty Years

The following table shows the aggregate amounts paid in taxes to the State and Federal governments

by the railways of the United States in 1880, as shown by the census of that year, and in 1888, 1893, 1898, 1903, 1908, and 1910, as shown by the statistical reports of the Interstate Commerce Commission:

Year.	Taxes paid.
1880	$13,283,819
1888	25,435,229
1893	36,514,689
1898	43,828,224
1903	57,849,569
1908	84,599,992
1910	103,853,576

These figures show that in 30 years the amount collected from the railways for the support of the Federal and the various State governments has increased almost eight-fold.—*London Times, American Railway Number, June* 28, 1912.

Some of the Higher Costs of Railroading

The coal bill of the Baltimore & Ohio Railroad Company amounts to approximately $6,000,000 per year, and within the last two years there has been an advance in the price of coal of upward of 10 per cent. The increase in price of ties has also been considerable. Prices asked and paid for locomotives, freight and passenger cars are also higher today than was the case three years ago for equipment of the same kind.

Legislation of various kinds—both State and Federal—has had an important influence upon expenses. The so-called Full Crew Bill, which has become a law in many of the States, requires the railroads to employ an extra man on all trains of more than certain length, regardless of the local conditions.

The hours of service law, boiler inspection law, laws in various States prescribing standards of construction for caboose cars, laws with reference to the construction of postal cars, revised orders with reference to safety appliances upon new equipment, as well as upon existing equipment; laws with reference to grade separation, etc., etc.—all have tended to very greatly increase the cost of operation.

Taxes have increased largely during the last three years. In the case of the Baltimore & Ohio Company, the increase in that one item since 1909 amounts to more than $900,000 a year. I think it is perhaps not a matter of common knowledge, although one of public record, that the American railroads, as a whole, pay each year in taxes more than $120,000,000, a sum nearly two and one-half times as much as the total amount received by all the railroads for carrying the mails.

Another very important element to be considered is the rate of interest which railways are obliged to pay upon new capital raised for improvements and betterments. It may be said that the interest basis on all investments has been raised within recent years, and that the very best securities must pay higher rates today than ever before, and that the railroads are not peculiar in this respect; but even so, they are still required, in common with others, to pay a much higher rate of interest than was the case some five or ten years ago. Ten years ago, for instance, if a railroad company with well-established credit, decided to increase its capital for improvement purposes—we will say $1,000,000—it was customary to assume that the interest charge on that account would be approximately $40,000 per year. Under existing conditions, the interest charge would be between $50,000 and $60,000 per year as a minimum, and in some cases, even

in excess of $60,000. This item alone, as you will see, becomes very important when large systems—like the Baltimore & Ohio—are spending upward of $20,000,000 a year, and ought to do so, for betterments, extensions and new equipment made necessary by the growing demands of a constantly expanding commerce.

Further the public demands, expects and receives a higher standard of service in all directions than has ever been the case before.—*Daniel Willard: Before the Boston Chamber of Commerce, June* 12, 1913.

THE RAILROAD'S DOLLAR.

Problem Critical and Urgent

In the railway industry of America today the stockholders' narrow margin of profit and the constant clamor for higher wages make the problem a critical and an urgent one. Of every dollar earned by the railway companies, 42 cents is disbursed in the form of wages, and 33 cents is available for improvements and the satisfaction of interest and dividend requirements. The latter in 1910 were on the modest basis of 3.79 and 3.64 per cent, respectively, compared with 4.27 and 2.44 per cent in 1900. Recent governmental discouragement of proposed rate increases makes it clear that if the rights of capital are to be protected, there can be no further increases of wages which are not offset by corresponding economies in other directions.—*Francis Lyster Jandron: Efficiency and the Railway Wage Problem. Engineering Magazine, November*, 1912.

How the Dollar is Divided

The revenue of the railroads is collected in the main from the handling of property and passengers, and it cannot pay out more than it takes in. In 1912, out of every dollar that the railroad received, the following disposition was made:

Labor direct	44.17	cents
Fuel and oil, 70 per cent labor	8.93	"
Material, supplies and miscellaneous expenses	14.06	"
Loss and damages	2.20	"
Taxes	4.21	"
Rents for leased roads	4.41	"
Interest on debt	13.43	"
Total	91.41	"
Balance	8.59	"
	100.00	"

Of this balance 3.75 cents were for betterments and deficits, and 4.84 cents for dividends. In other words, of the dollar collected there had to be paid out 91.41 cents for those things that were absolutely necessary for maintaining and operating the property, paying taxes and interest, leaving only the small balance of 8.59 cents for improvements and dividends.—*Howard Elliott: Address before the Minneapolis Chapter, American Institute of Banking, April* 26, 1913.

The Value of a Postage Stamp

If you should write a letter to an American railroad official, his corporation will have to haul a ton of freight—two thousand pounds of average freight—coal, ore, silks, ostrich feathers, and everything—for more than two and one-half miles to get money enough to buy a postage stamp to send you an answer. Out of that kind of service the corporation must pay its employees, buy its materials, pay its rents and taxes, interest on its debt, and make its living.—*Frank Trumbull: Address, March* 14, 1911, *Canadian Club of New York.*

WAGES AND LABOR.

The Highest Wages and the Lowest Rates

The American railway pays the highest wages in the world out of the lowest rates in the world, after having set down to capital account the lowest capitalization per mile of any of the great countries of the world.—*James J. Hill: Highways of Progress.*

Compulsory Arbitration

Compulsory arbitration, about which a great deal is very glibly said and written, seems to me as much a misnomer as a white blackbird, because the very idea of arbitration implies the voluntary submission of a controversy.—*Martin A. Knapp, before the National Civic Federation, March,* 1912.

Labor's View of Wage Arbitrations

There is no such thing as absolute justice in the arbitration of wage disputes. Those who agree to the principle cannot in the nature of things hope always to be fully sustained. Arbitration points to compromise of extreme views, and this is particularly true when human welfare or social justice is a factor.—*From Minority Report of P. H. Morrissey, representing the Brotherhood of Locomotive Engineers in Arbitration with Eastern Railroads.*

Sixteen Million People

In addition to the 1,525,000 employees working directly for the railways, there are 2,500,000 in coal

mines, steel mills, manufacturing plants, all supplying what is necessary for the railways in their operations, who represent at least 10,000,000 of our total population. So the railway employees and the employees of the industries dependent more or less on its maintenance on a sound basis represent approximately 16,000,000 people whose rights must be considered.—*Howard Elliott: Address at the Montana State Fair, Helena, Montana, September* 26, 1910.

Labor Holds Balance of Power

In the opinion of the Board the balance of power in the control of wages, which was first with the railroads, has now passed to organized railway labor. The railroad operators, under the control of national and State commissions, and under the control of public opinion, are weaker than strongly organized unions. The latter, without any control through commissions, are of course also affected by public opinion, but not so directly.

Never in the history of the United States has there been a concerted strike on all the railroads of a great section of the country. The strikes have usually been upon individual roads, although in some cases strikes have taken place upon a number of roads at the same time.—*Commission in Arbitration between the Eastern Railways and the Brotherhood of Locomotive Engineers, Charles R. Van Hise, chairman.*

Labor's Large Share

No one thing, perhaps, so embitters as a sense of injustice, and I am satisfied that much of the resentment of the workman is due to his belief in the assurances that have been made him by his leaders that

he was not getting his fair share of the joint product, and it is highly important that the facts with regard to this be determined and be widely diffused. I am not aware of any considerable body of information regarding the relative contributions to value by the property owners, the brain workers, and the manual workers. It would seem desirable to undertake a physical valuation of labor. Were this done it would probably be found that in most industries the wages of labor are substantially in excess of the contribution made by labor to the value of the product. * * *

If we reflect that the total maintenance of way expenses of the roads of the country are about $300,000,000 annually, and that of these expenses the moneys paid out for labor amount to 56 per cent, while all the other expenses amount to but 44 per cent, it would seem to justify the suggestion that your association devote at least a substantial part of your work to the study of labor. I would, therefore, urge that, to the present list of regular committees, there be added a committee on maintenance of way labor, whose duties shall be to investigate the conditions of employment of and the relation of maintenance of way labor to seasonal supply and demand.—*L. F. Loree: Address at annual linner of American Railway Engineering Association, Chicago, March,* 1912.

No Serious Strike Since Erdman Act

There has not been a railway strike of any serious consequence since the Erdman act has been made effective. The organizations have availed themselves of this act as often as have the companies, and there is but one instance where a strike occurred after mediation had begun, and that strike resulted disastrously to the organization responsible for it. In the contro-

versy which resulted in the present arbitration neither side showed a disposition to take advantage of the act. The engineers were prepared to strike and the railways were willing that they should strike; or, if they felt differently about it, they at no time made this known. Their position did not indicate any fear of the power of the organization or any lack of ability to handle a situation which might grow out of a strike. Fortunately for the public's interest the intervention of Judge Knapp and Commissioner Neill, although without authority under the law, did that which neither the railways nor the engineers appeared disposed to do, and thus averted a test of strength.—From *Minority Report of P. H. Morrissey, representing the Brotherhood of Locomotive Engineers in Arbitration with the Railroads*, 1912.

Canadian Disputes Act

The Canadian Industrial Disputes act, passed in 1907, is broader than the Erdman act in that it provides not only for the settlement of disputes between railroads, but industries in general. This act is a distinct advance over the Erdman act in that no strike or lockout can be made by a party to a controversy until the difficulties have been investigated and recommendations made. For each case of arbitration a separate board is appointed. Of these there has been 109 to the end of 1911. During the five years of the existence of this law, from 1907 to 1911, inclusive, there have been only twelve industrial disputes in which strikes have not been averted or ended, and this for all of Canada for all industries.—*Commission in Arbitration between the Eastern Railroads and the Brotherhood of Locomotive Engineers.*

Prosperity and Railroad Progress

The business man has still another interest in the prosperity of his railway partner. There are on the payrolls of the railways of the United States more than a million and a half of employees. The purchasing power of each member of this vast army is dependent upon the maintenance of the wage-paying power of the railways. The money received by railway employees finds its way through all the channels of trade and is a factor of local business importance in practically every community in the United States. The railways are also large purchasers of the products of industries which in turn support another vast army of employees. Through these channels, the benefits of the maintenance of wage-paying and purchasing power are so widely distributed as to reach directly or indirectly practically every individual in the United States, whatever may be his business or occupation. This interest of the business man in the railways was very well expressed in an address by one of the most prominent merchants of the United States, in which he said:

"Let any merchant look over his records for years; let him note the fat years and the lean years; let him then mark the years of railroad extension and railroad improvements—of railroad spending. Let him mark on the other side the years of railroad retrenchment, and he will find that the years when his prosperity has waned have been the years when the railroads were not progressing."—*William W. Finley: The Railway as the Business Man's Partner. One of a series of lectures prepared for the Alexander Hamilton Institute, New York City,* 1911.

Labor's Demands on Railroads

But railroad corporations are not, primarily, manufacturers or miners. They produce no articles for sale. They are carriers by land for hire, just as the wagoner or the carriage-driver is, but with the further difference that in return for the exercise of the sovereign power in their behalf they are bound to a public service which they cannot evade. They are engaged, by day and night, in the constant performance of a personal service to each passenger who travels and to each shipper of freight. They have, too, a special contract with the Post-Office Department affecting every one who reads a newspaper or writes a letter.

With this public burden to carry, an obligation essential to their corporate existence, they are at a disadvantage when they come to trying conclusions with their employees. The lockout is forbidden to them as a measure of defense. They can neither close up their stations nor stop their trains. If the railroad management cannot agree with the men as to the terms and conditions of its employment, it must, at its peril, find competent men to replace them and in numbers sufficient to maintain its service without inconvenience to its patrons. The public will be satisfied with nothing less, and so long as the men abstain from violence, the corporation and its representatives are alone held to account by the laws, by the many persons inconvenienced, and by the newspapers. Under such a pressure, what wonder that railroad managers yield to demands to which their judgment does not give assent, or that employees gain from each successful step the assurance of submission to yet further demands? And when may we expect these demands to cease? Are they to be limited only by the desires of those

who are in a position to enforce them? There is another limit—the financial ability of the corporations to satisfy them.—*Henry Stevens Haines: American Railroad Management.*

A Tribute to Railroad Men

The men who actually operate our railroads, who keep the intricate wheels of this mighty machine constantly in motion and always at our service, receive too little public acknowledgment for the work they perform. They are among the most skilled, capable, and honest of our business and professional men. They have an enthusiasm in their work and a loyalty to their companies that is a constant satisfaction, and their delinquencies too often may be traced to policies which purely as railroad men they would not countenance. With these men we can work, and through them we may hope for the realization of a national system of railroads that will be fair as to rates, profitable as to income, and adequate as to service.—*Franklin K. Lane, World's Work, March,* 1913.

The Labor Organization

Perhaps the greatest barrier to the introduction of any system designed to accomplish savings which will diminish the number of employees is the labor organization. Practically every branch of the railroad service is strongly organized and militant. The manufacturer has his labor problem also; but he can close down his plant or lock out his men if he sees fit. With railroads, resistance to demands considered by them as unreasonable must not be allowed unduly to affect service. Trains must be kept moving at any cost, and if men cannot be had to take the place of striking

employees, or if, before a strike is declared, it is plain that resistance is useless, the company must make the best terms it can, and maintain peace.—*William J. Cunningham: Scientific Management in the Operation of Railroads. Quarterly Journal of Economics, May,* 1911.

Responsibility of Labor Organizations

Organized labor is constant in its endeavor to benefit its members, and has done good; but it should guard against the danger of unlimited power. Great power, unrestricted and constantly successful, requires a broader control, consideration, and direction, and there is constant danger that in the exercise of such power it may encroach upon the right of those not possessed of equal power and strength.

Stating my own personal views, it is proper to regulate the common carrier; but it is equally as essential to regulate labor organizations engaged in public transportation, the purpose being to maintain the principles of property rights and the continued prosperity of this country under our immediate civilization.—*J. C. Stuart, before Board of Arbitration in Engineers' Controversy, July* 26, 1912.

Wages and Rates; Their Increases Compared

The increase in the wage scale has been a prominent factor in the demand for an advance in rates; yet the relation of this advance, in total amount, to the total increase in the cost of service from that cause varies widely in the estimates made by nineteen companies that were to be benefited by it. These estimates totaled the yearly increase in wages at $22,843,000, and the increased revenue from the advance

in rates at $21,527,000; so that the totals approximately balanced each other. Yet the separate estimates were far from doing so. Some examples of this difference were as follows:

Increase in wages.	Increase in rates.
$7,000,000	$3,000,000
1,480,000	1,954,000
1,069,000	1,797,000
910,000	1,244,000
372,000	84,000
288,000	699,000
186,000	14,000
160,000	228,000
153,000	71,000

With such disparities as these, how is it practicable to base a reasonable rate upon the cost of service as applied to different classes of freight?—*H. S. Haines: Problems in Railway Regulation.*

No Doctrine of Hatred for Labor

I believe it will be accepted as a principle of democracy that the interests of the whole people are greater than those of any class, even its largest class, and that the interests of any class shall predominate only when shown to be identical with the welfare of the mass. Organized labor cannot advance the interests of the worker by holding itself aloof from the other groups which go to make up society. It should be able and prepared to state its principles and defend them anywhere. It cannot, in my judgment, ultimately succeed by preaching the doctrine of hatred, or encouraging labor to withhold its recognition of these great public questions, because, perchance, labor

would be associated with some of its enemies, past or present.—*P. H. Morrissey: Speech at Railway Employés' Picnic at Galesburg, Ill., June*, 1911.

If Wages Are Increased, Why Not Rates?

Suppose organized railway labor makes a further demand for increased wages, and that the railroads accede to this demand. The increased wage adds to the expense of operation and reduces net revenue. The railroad applies to the Interstate Commerce Commission for leave to advance its rates on this account. What now is to be the answer of the Commission?

The railway rate is paid by the whole body of the public. If, therefore, this increase in wages was unjustifiable, and if on that account an increase in rate is allowed, it results that the general public, including all other forms of labor, is required to pay what is unreasonable. Must not, therefore, the Government be satisfied, not only that the added wages are paid by the railroads, but that they are necessarily and properly paid? And is not the railroad thus placed in a most unfortunate and embarrassing dilemma?—*Chas. A. Prouty: Address, March* 28, 1912, *at tenth annual banquet of the Traffic Club of Pittsburgh, held at Fort Pitt Hotel, Pittsburgh, Pennsylvania.*

Clearing House for Labor and Supplies

The railroads are not only the great transportation agencies of the country, but I invite your attention to the more intimate fact that they are in a large sense but a clearing-house for labor and supplies. They collect, to pay out again.—*Wm. Sproule, at the annual dinner of the Chamber of Commerce of San Francisco, December* 9, 1912.

Ten Millions Supported by Railways

You get some idea of the immensity of the railway business when you understand that roughly there are two million men on the payrolls of the railway companies of this country, including everybody, from the president, who sits at a mahogany desk, to the office boy, who answers the president's bell; from the chief engineer, who supervises the plans for a million-dollar bridge, to the man who works in overalls, seeing that every bolt in that bridge is in place; and the men in overalls form the great army of railway employees, while the presidents and chief engineers constitute only a fractional percentage. Two million men represent ten million persons, for statisticians assume that every man is the head of a family, and the average family consists of five persons, which is fairly accurate on a large scale; so that ten million persons, or one-tenth of the entire population of the United States, are dependent upon the railways for their support. There is no other industry to compare with it in this country—none other, in fact, in the world. If it were possible to imagine all the railroads suddenly compelled to cease doing business, one can conceive the distress and suffering that would follow.—*A. Maurice Low: The Railways and the Public. Harper's Weekly, August* 31, 1912.

Ultimate Wages

The firemen's vote on the strike question is bringing to the fore the query whether there is an ultimate limit above which railroad wages will not go, or whether the rise is to keep on absorbing the total railway income until there is little or nothing left for

dividends and interest. In view of the anti-corporation sentiment which actuates both legislators and voters, railway managers may be pardoned for what might otherwise be their cowardice in shrinking from calling a halt. The following exhibit, however, makes it clear that it is only a matter of time when a halt will necessarily have to be called in order to protect the capital which stock and bondholders have already invested:

Year.	Gross earnings.	Aggregate R. R. wages, U. S. A.	Per cent of wages to gross earnings.
1912.....	$2,895,690,325	$1,243,677,738*	42.95
1911.....	2,841,190,738	1,193,701,522	42.01
1910.....	2,817,721,735	1,143,725,306	40.59
1909.....	2,468,734,760	988,323,694	40.03
1908.....	2,457,821,131	1,035,437,528	42.13
1907.....	2,649,731,911	1,072,386,427	40.47
1906.....	2,386,285,473	900,801,653	37.75
1905.....	2,134,208,156	839,944,680	39.36
1904.....	2,024,555,061	817,598,810	40.38
1903.....	1,950,743,636	757,321,415	38.82

*Estimated.

Reflection upon the fact that it now requires 42.95 per cent of gross earnings to cover the wage bill against 38.82 per cent in 1903, and even less in 1906, disposes of all doubt as to the necessity to call a halt. How long is it physically possible for this absorption of gross earnings to keep on increasing? The proportion absorbed by wages has grown by 10.64 per cent of itself during the past nine years, and a similar rate of increase must be expected so long as railway managers, however excellent their reasons, continue yielding to the demands made.

It requires 57.5 per cent of gross earnings to cover wages, dividends, and surplus after dividends combined; but at the rate wages are absorbing gross earnings these wage payments alone by 1938 will consume 57.5 per cent of gross. Moreover, it requires 71.7 per cent of gross to cover wages, dividends, surplus and interest combined; and by 1958, at the present actual rate of increase, wages alone will absorb this 71.7 per cent.

The compensation of railroad employees has seemingly increased faster than that of other workmen in the United States, and, indeed, even more rapidly than that of the whole people, including the income-receiving classes. During the past ten years, for example, engineers' pay has increased about 26.9 per cent, as compared with 21 per cent for the general average of all wages, and with about 22.8 per cent for the average per capita wealth of all the people.

However, the most striking fact is that at the present actual rate of increase railroad wages would leave nothing for dividends by 1938, would put all the railroads into receivers' hands by 1948, and would leave nothing for interest payments by 1958.—*Wall Street Journal, January* 25, 1913.

Permanent National Wage Commission

One of the recommendations made by the board which arbitrated the recent controversy between the Eastern railways and their engineers—and which, if carried out, should result in a most radical change for the better from the present unsatisfactory conditions—was in respect to the creation of a permanent national wage commission to arbitrate differences between the railways and their employees in order to prevent strikes, effect equitable adjustments of working condi-

tions and wages, and, at the same time, protect the rights and interests of the roads, their employees, and the public.

This particular arbitration case is probably the most important, and the result will doubtless be the most far-reaching of any that has yet been presented in the history of organized labor in this country, involving as it did, the Brotherhood of Locomotive Engineers, representing 31,840 locomotive engineers; fifty-two railroads, representing 56,876 miles of main track—or over 25 per cent of the total main track mileage in the United States—handling from 42 to 47 per cent of the total traffic of the country, and affecting a population tributary to these fifty-two roads of over 32,000,000 people. In this controversy, of course, the public did not directly participate; but, as can be easily appreciated, and as is so lucidly set forth in the remarks of the board of arbitration, the interests of the public are most vitally concerned—indeed, their interests are paramount.

If 31,840 engineers, through their organization, can inaugurate a strike, thereby jeopardizing the business interests not only of the 32,000,000 people in the district directly affected, but also indirectly a still greater number, it is apparent that some measures must be taken to protect the rights of the public, and this can only be done through the establishment of a commission such as is recommended by the board of arbitration. Capital need have no apprehension from the establishment of such a commission, and, to judge from the results of their political activity in the past, organized labor should have no hesitation in indorsing the plan proposed.

The present restrictive policy in respect to the regulation of railroad rates and operation has been

adopted, and is being carried out with the hearty support of the public. This policy has already resulted in limiting the earning power of the railroads, and, if persisted in, will ultimately impair the credit of the railroads, rendering them incapable of expansion and of making much-needed improvements to keep up with the commercial and agricultural development of the country. If the public continues to indorse this policy of regulation, it should be willing at least to protect the railroads in so far as possible from the excessive and unreasonable demands made upon them by their employees and enforced through their various organizations by threats of strike, which affect not only the district directly involved, but also indirectly those districts far distant from the actual scene of controversy.

The establishment of such a national commission as recommended would prove economical, undoubtedly would result in a more equitable adjustment to all the parties concerned, and, this being a Federal commission, all the proceedings would be spread broadcast, and in this way the general public would be kept fully informed as to the points in controversy and the justness of the demands made.

Until, however, such a commission shall be established, these wage questions must necessarily continue to be handled as heretofore, and the public will sooner or later be brought to realize what an unsatisfactory method it is, for in the end the public is the party most vitally affected.—*B. A. Worthington, President Chicago and Alton Railroad: Wages Board Needed. New York Times, January* 5, 1913.

Wages Here and in Europe

The engineers pulling the train between Paris and Cherbourg receive two dollars and seven cents, in contrast to ten dollars and twenty-five cents paid the engineers handling the trains between Cincinnati and Cleveland; and the conductors one dollar and thirty-one cents, in contrast to seven dollars and twenty-three cents paid on the run in Ohio.

In other words, while the passenger fare in France is sixty-nine per cent greater, the wages paid here to engineers and conductors are four hundred per cent greater than those paid in France.

Between London and Liverpool, a distance of two hundred miles, the first-class passenger fare, including one hundred and fifty pounds of baggage, is seven dollars and eight cents, while from Cincinnati to Toledo, a distance of two hundred and eleven miles, the fare, including a parlor-car seat and one hundred and fifty pounds of baggage, is only four dollars and seventy-five cents.

The engineers handling the train from London to Liverpool receive two dollars, in contrast to eight dollars and twenty cents paid engineers for the run between Cincinnati and Toledo, and the wages of conductors and firemen bear approximately the same relation.—*W. C. Brown: Address at annual dinner of Railway Young Men's Christian Association at Columbus, Ohio, February* 4, 1911.

SOME OF THE PRESSING NEEDS.

J. J. Hill's Famous Predictions

It was in January, 1907, that James J. Hill sent his famous letter to the Governor of Minnesota, telling of the need of the railroads of the country to spend at least $1,100,000,000 annually on construction for the next five years if they would handle the business of the country adequately. Three years and a half later he was telling the railroad men that without more extensive terminals the traffic of the country would be blocked. Both predictions were borne out by facts. It has been proved that the railroads are falling behind in the country's progress. Beset by legislatures and railroad commissions, they find it increasingly more difficult to sell the securities that will give them the needed improvements in the way of additional tracks and terminals. That they didn't spend a billion dollars annually in new construction, or anything like it, after 1907 is well known. The result is that now they must raise the average of expenditure or fall still farther behind. That is one of the points they are trying to impress upon their regulators, but without much success. "The men who are making the laws," Mr. Hill said, "do not know the effects of their own acts, and they do not know what they are legislating about. They think, as one of them expressed it, that the railroads are there and cannot get away."—*Railway Record, April* 19, 1913.

Why Railroads Require More Money

We have today the lowest railroad capitalization per mile of any great country in the world, much lower than in any of the great European countries.

It is impossible to continue this building and developing of railroads without more capital. To obtain that capital, the railroads must have credit; credit that will withstand the scrutiny of the banker of Lombard street, as well as appeal to the investor in Philadelphia. That credit cannot be assured and maintained unless the railroads are permitted to earn sufficient revenue to have left over at the end of the year a surplus out of which to make the necessary improvements which do not add to the earning power of the company, and which yet assure the investor of the productive value, both now and prospective, of the enterprise in which he proposes to put his money.

The railroads of this country pay the highest wages of any country in the world. They pay more to the support of the Government in taxation, proportioned to the capital invested, than is paid in any country in the world. They do their work upon less capital, and they do more work upon their capital, than is done in any country in the world.

In addition, the railroads of this country haul freight cheaper than is done in any other country in the world. Confronted, therefore, with such costs as have been noted, not to speak of the growing cost of materials and wages, is it not absolutely proper that the railways should ask, on their own behalf as well as on behalf of the public they seek to serve, that a small increase be made in the rates of freight?—*Samuel Rea: Letter to Philadelphia Ledger, May* 9, 1913.

Labor's View of the Railroad's Great Need

I believe that the masters of finance, such as represented by Mr. Morgan and others, are absolutely right when they say they have reached the limit of economy in railroad operation. I don't believe it is possible to do any more along that line, and I agree with them that anything in the future toward improvement will have to be by addition or increase to freight rates. There never was a time in history of the railroads when so much was demanded as now. There never was a time when so much was demanded along the line of fast traffic, high speed, splendid roadbeds and a thousand and one other things, and there never was a time when the railroads were in need of more money to make improvements, build terminals and other things needed as now, and the only hope for them is in an increased freight rate.—*Warren S. Stone: Efficiency as the Employé Sees It. 11th annual meeting National Civic Federation.*

Increased Service and More Money

In a growing country, such as the United States, there is a constant demand for increased transportation service, calling for additional facilities on existing railways and the construction of new lines. It is transportation which has, more than any other one agency, made the United States the wonderfully progressive and prosperous country it is. Transportation companies have, in the face of steadily lowered rates, increased the extent and raised the quality of their service, and at the same time steadily increased their expenditures and the work for the development of the country. Without transportation facilities its development would have been retarded and its progress slow.

* * *

A growing railway has constant need of money. The provision of additional facilities will call for the investment of large amounts of new capital in railway enterprises. Investors naturally seek those fields in which the prospects for returns are fair and reasonably assured. They will put their money into railway enterprises, therefore, only if the returns from investments in railway properties are approximately equal to the returns secured from capital invested in other kinds of business. Whether or not this shall be true, and railway development, with its advantages for railway men, affording an ever-widening field for employment and promotion, is to continue will depend in large measure upon the efficiency with which the properties are operated.

This is particularly true in the present era of railway regulation by State and Federal authority. I should not be construed as criticising the policy of governmental regulation within its proper field. I am speaking of it on this occasion merely for the purpose of directing attention to its bearing on the subject I am discussing. If the demand for the product of a farm or a manufacturing establishment is such as to make an advance in price possible, the margin between the cost of production and the selling price can be increased by the simple method of advancing the latter. But the railways of the United States are not free to advance the price of their product. Whatever may be the demand for transportation, the price cannot be increased without first securing governmental approval, which will always be a difficult thing to do. As a result of this condition, substantially the only way in which a railway can increase the margin between the cost of producing transportation—the expense unit—and its selling price—the earning unit—is by greater efficiency of operation—by more efficient

solicitation, whereby a larger volume of traffic may be secured, and by greater efficiency, whereby the traffic may be handled at a reduced cost.—*W. W. Finley: Address before Richmond Railroad Club, Richmond, April 4, 1912.*

Looking to the Future

Economy of Management.—It has been urged before the master with reference to the lines of railway under consideration that the evidence discloses want of economical management, in that limited portions of the business were unremunerative and not infrequently resulted in loss.

If the convenience and demands of the public were disregarded, greater economy could doubtless be exercised. Full cars and long trains at fewer intervals would be a great saving of cost, and to this end produce could be stored in elevators awaiting shipment under the most economical conditions. Needless to say that this would result in great public inconvenience and dissatisfaction, and recourse to such methods is unthinkable. The carrier must properly yield to public demand and recoup for loss on other portions of its business.

It is also urged that as to some of the roads surplus lands and equipment are disclosed much beyond present needs. But it is good business sense to anticipate and prepare for the requirements of the near future. Readiness to serve is of the highest importance to those requiring service, and an efficient management will, if practicable, take advantage of the markets and buy what will soon be needed when it can be obtained at a reasonable price, and not wait until it must be had regardless of cost. Present patrons are not to be burdened for the benefit of those to be acquired in the

distant future, but they can well afford to pay a somewhat higher rate, that they themselves in the near future may enjoy a cheaper and better service. It is proper for the carrier not only to provide itself with ample facilities for the efficient conduct of its present business, but also to anticipate demands soon to be made as the country becomes more prosperous, and it is entitled to revenue sufficient for such purpose.—*Extract from Judge Otis's report in the Minnesota Rate Case.*

More Expenses and More Laws

Consider the position of the railroads of the country for the past few years, and in no district is this more apparent than in the eastern section of the United States, where the railroads are at present asking for a slight advance in rates. The Pennsylvania Railroad Company is as good an example as can be found. In 1901 for every dollar we earned it cost us, including taxes, 67.7 cents to operate and maintain the road; for every dollar received in 1912 it cost us over 78 cents for actual operation and maintenance.

This is largely the result of increased wages and taxes, and apparently the end of these increases has not yet been reached. Wages and taxes are not the only cause, for the railroad company, by the increase in its efficient operation, which is shown in heavier trainloads and by public requirements, is compelled to have a higher standard for road-bed, equipment, stations, signaling, etc., and pay the cost of new capital, labor, and materials to produce them. With these demands all railroads are pleased to comply, but we cannot ignore the result that it costs more.

We are, further, under governmental supervision and regulation, required to observe extra-crew laws, laws for grade-crossing abolition, which in some States

is exclusively at the expense of the railroads, compensation acts, etc., regarding which we may not complain, as the public has the right to impose burdens short of confiscation upon the railroads, but as a practical matter we must realize that eventually outgo must be governed by income.

The estimated annual cost to our company for three States of the extra-crew laws alone amounts to $756,000 per annum, for which no increased return will come to the company. In the six and one-half years ending December 31, 1912, our company paid over $10,000,000 to comply with the new regulations, Federal and State.—*Samuel Rea: Letter to Philadelphia Ledger, May* 9, 1913.

What is to be the Answer?

Suppose organized railway labor makes a further demand for increased wages, and that the railroads accede to this demand. The increased wage adds to the expense of operation and reduces net revenue. The railroad applies to the Interstate Commerce Commission for leave to advance its rates on this account. What now is to be the answer of the Commission?

The railway rate is paid by the whole body of the public. If, therefore, this increase in wage was unjustifiable, and if on that account an increase in rate is allowed, it results that the general public, including all other forms of labor, is required to pay what is unreasonable. Must not, therefore, the Government be satisfied, not only that the added wages are paid by the railroads, but that they are necessarily and properly paid? And is not the railroad thus placed in a most unfortunate and embarrassing dilemma?—*Charles A. Prouty: The Commission Above the Courts. Address before the Traffic Club, Pittsburgh, March,* 1912.

Terminal Facilities

The ability of the railroads to render service is absolutely dependent upon the matter of terminal facilities; and those are conditioned, not upon the length of the yards, but the number of tracks and the capacity of the cars.

For instance, if you have a hundred cars on a limited number of tracks, and you want to pick out any twenty cars to move out somewhere, it is necessary in practice to move virtually the entire hundred; but if you have the total amount of freight distributed among fewer cars of larger capacity, or have the hundred cars distributed over a greater number of tracks, there is a proportionate reduction of the number of cars that will have to be moved in order to pick out the twenty.—*E. H. Harriman: The Railroads and the People. Independent, March* 28, 1907.

Many Costly Improvements

The railroads are in crying need of more adequate terminal facilities. For the greater safety of the traveling public, wooden passenger cars soon must be relegated for steel. The capacity of our freight equipment must also be increased, to produce a lower unit cost of transportation. Equipment must be reconstructed, or substantially strengthened, to sustain the heavier load and the increased strain of the ponderous locomotives that are now displacing the eight-wheelers of yesterday. This, in turn, entails heavier rail, more substantial ballast, more and better ties, stronger bridges, larger round-houses and turn-tables, new machinery throughout the shops, reduction of grades, double-tracking in places, etc., etc.—*B. A. Worthington: The Railroad Question.*

Whole Railway System Behind Requirements

This is written in December, 1908. This otherwise unimportant fact is mentioned because to raise the question of the adequacy of our railway system at this time seems to smack of irony. With from 300,000 to 500,000 freight cars standing idle during the past twelve months, the system would seem to be rather overloaded with adequacy. But how short are our memories! We should not forget that during the two years preceding the panic of 1907 our railway freight system literally broke down under the enormous loads of freight offered it. Or, if you wish your memories refreshed, turn to pages 16, 17, 18 of the Report of the Interstate Commerce Commission for 1906, wherein you will find it stated as a fact by the highest authority, that "a car famine prevails which brings distress in almost every section and in some localities amounts to a calamity." Likewise, that in the Northwest farmers could not ship their grain; that in the Southwest and trans-Missouri region "tens of thousands of live animals are denied movement to the consuming markets," "while throughout the Middle West and Atlantic seaboard the shortage of cars for manufactured articles and miscellaneous merchandise has become a matter of serious concern."—*G. A. Rankin: An American Transportation System.*

Intelligence and Co-operation

It is a favorite theme with a certain class of politicians to tell of the fabulous profits of railroads. They do not tell of the fortunes that have been lost in railroads—of the frequent reorganizations, nor of the wiping out of capital actually invested. Because we are a hopeful nation, and because there is always a

fresh crop of investors coming along, there is always new money to be found to re-finance an old property or to float a new one; but there has been a marked checking of the enthusiasm in this direction.

Few people, apart from those engaged in finance, comprehend the constant requirement of railroads for cash for development work. The needs of this country in normal years are not far from five hundred millions per year. Now, this money must be drawn from the investor—the banker, the trustee, the insurance company, and the savings bank—by the issuance of securities, backed by a valid promise of repayment of the principal and a fair rate of interest on the investment. The railway cannot sell securities—that is to say, *borrow money*—without credit; it has no credit unless its operations show a fair profit; it cannot show a fair profit if starved and strangulated by legislation. And who suffers most? The public, whose servants the legislatures and the commissions are. In this endless chain of circumstance, what is the answer? To my mind, more intelligence and better co-operation.—*F. A. Delano, before Convention of Commercial Associations, State of Michigan, Detroit, April* 17, 1912.

Public Confidence

In the matter of improvements the railroads of the country, almost without exception, have been pursuing a hand-to-mouth policy which has proved costly to themselves and irritating to the public—costly to themselves because, before improvements necessary to relieve existing conditions have been completed their capacity has been exceeded by the growth of traffic; irritating to the public because at no time in recent years has the public been able to get free from

the delays and annoyances of a continual state of congestion. The result is that today, when the railroads are confronted with conditions requiring more comprehensive improvements than ever before in their history, and consequently greater utilization of money than ever before, they are confronted also with a state of public mind extremely hostile to themselves; so that the raising of money to provide facilities so urgently needed is, under present conditions, well nigh impossible, although many of the corporations have sought to do so at the risk of almost imperilling their credit.—*Theodore P. Shonts, at annual banquet of the Iowa Society, February* 15, 1907.

Unfair Attacks on the Railroads

For a number of years the railroads have been subjected to a great concerted attack. The skill of the employees, the character of the officers, and the honesty of the capitalization have alike been impugned. Back of all stands the sinister threat to segregate from all other forms of investment the investment in railroad securities, to assert over such investment a high-handed control, assuming no responsibilities for losses, but limiting any possible gains to a savings-bank rate of interest. Should this effort be successful, it is certain to degrade the employees, to drive out the capable officers, and to lead to the refusal of investors to make new contributions to capital. If such an effect were brought about, the consequences to the community would be more far-reaching than one likes to contemplate.—*L. F. Loree: Address at annual dinner of the Alumni Association of Rutgers College, June,* 1908.

The Legislative Handicaps

No improvement work of moment is now under way. The roads cannot much more than merely "mark time." Neither the courage nor the money necessary for railroad construction is to be found under existing conditions. What can be reasonably expected when we say to a body of men that we want them to go right ahead with their construction of new railroads and additional facilities, so as to be prepared for any increase of traffic which may be offered for movement, but, at the same time, we put them on notice that after their money has gone into property which they cannot remove and cannot cease to operate after its creation, some or all of the 40 State railroad commissions, more than 40 State legislatures, the Interstate Commerce Commission, and the National Congress will decide what rates shall prevail; what practices shall obtain in more or less minute detail; how many men shall be employed on each train; how old or young these men shall be, and how many hours they shall work, if at all; upon what plans new stations shall be built, as well as when and where; how fast stock trains shall move over the rails; what sort of headlights shall be bought; what sort of signals shall be installed, and when; how many new securities may be issued and sold, if purchasers can be found, and, failing to get authority for an issue of securities for the purchase, let us say, of equipment; or, failing to induce the owner of money to exchange his money for such securities, penalties will be enforced for failure to furnish any shipper whatever cars he may want at any time.—*B. L. Winchell: Address before Commercial Club of Council Bluffs, Iowa, March* 18, 1909.

Greater Movement of Cars

The public assumes that if enough cars are provided they can be moved on schedule time from point of origin to destination, wherever these may be. This is not the real trouble. What is really needed is the greater movement of cars. The average movement of a freight car is about 24 miles, or two hours, per day. Delays in loading and unloading by shippers are partly responsible, but much of the lost time is consumed in getting into, out of, or through terminal points where there is not room to handle the cars. More cars intensify instead of reducing the trouble. No other business could endure the loss of the use of its machine plant for twenty-two hours out of twenty-four. One thousand cars will cover nearly eight miles of track. Each car must be switched, loaded, or unloaded, or all three. This multiplies the trackage requirement.—*James J. Hill: Address, The Country's Need of Greater Railway Facilities and Terminals.*

New Cars Cost More

Steel cars are a good illustration of this kind of expense. They are coming into general use, and it has been proposed to make their purchase and employment compulsory even before their benefits have been fully proved. To buy them is a big expense, but that is only the beginning. A train made up of them is sixty-five per cent heavier than one composed of old-style cars. More trains must be run to render the same service. Tracks and bridges must be strengthened.—*James J. Hill: Address, The Country's Need of Greater Railway Facilities and Terminals.*

Railway Management

The public is interested not only in rates, but in service as well. It demands that service shall be adequate. * * * It requires that proper provision be made for the health, comfort, and convenience of passengers, and for the humane care of live freight. * * * It is in response to these demands that steel coaches are being introduced, and all-steel passenger trains are becoming increasingly common upon our most progressive lines; that block-signal systems are gradually being extended; that rules governing the operation of trains are being more strictly enforced; that temperate habits are being required of employees; that hours of labor for despatchers and trainmen are being reduced; and that full crews are being required on all trains. Congress has required that all equipment used in connection with interstate commerce shall be equipped with power brakes, automatic coupling devices, and suitable grab-irons; that proper care be observed in the handling of explosives; and that locomotive boilers shall be rigidly inspected.

These legitimate demands of the public create a strong tendency toward increasing the expense of railroad operation. We find, therefore, that the railroad manager of today is strictly limited in the exercise of discretion; that there are limits beyond which he may not increase earnings through an increase in rates; and that expenses are becoming constantly greater—*Fred. Wilbur Powell: Les Chemins de fer Américains, Revue Economique Internationale, November*, 1912.

Immense Outlay of Money

It is urgently necessary at the present time, in order to relieve the existing congestion of business and to

do away with the paralysis which threatens our expanding industries, because of limited and inefficient means of distribution, that our railway facilities should be so increased as to meet the imperative demands of our internal commerce. The want can be met only by private capital, and the vast expenditure necessary for such purpose will not be incurred unless private capital is afforded reasonable incentive and protection. It is therefore a prime necessity to allow investments in railway properties to earn a liberal return, a return sufficiently liberal to cover all risks. We cannot get an improved service unless the carriers of the country can sell their securities; and therefore nothing should be done unwarrantedly to impair their credit nor to decrease the value of their outstanding obligations.

I emphatically believe that positive restraint should be imposed upon railway corporations, and that they should be required to meet positive obligations in the interest of the general public. I no less emphatically believe that in thus regulating and controlling the affairs of the railways it is necessary to recognize the need of an immense outlay of money from private sources, and the certainty that this will not be met without the assurance of sufficient reward to induce the necessary investment. It is plainly inadvisable for the Government to undertake to direct the physical operation of the railways, save in wholly exceptional cases; and the supervision and control it exercises should be both entirely adequate to secure its ends and yet no more harassing than is necessary to secure these ends.—*Theodore Roosevelt: American Review of Reviews, June*, 1907.

Better Transportation

The great need of the hour, from the standpoint of the general public—of the producer, consumer, and shipper alike—is the need for better transportation facilities, for additional tracks, additional terminals, and improvements in the actual handling of the railroads; and all this with the least possible delay. Ample, safe, and rapid transportation facilities are even more necessary than cheap transportation. The prime need is for the investment of money which will provide better terminal facilities, additional tracks, and a greater number of cars and locomotives, while at the same time securing, if possible, better wages and shorter hours for the employees. There must be just and reasonable regulation of rates, but any arbitrary and unthinking movement to cut them down may be equivalent to putting a complete stop to the effort to provide better transportation.—*Theodore Roosevelt: American Review of Reviews, June,* 1907.

A Reasonable Return

Resolved, That the Chamber of Commerce of the State of New York, in the interest of shippers and of the well being of the country as a whole, urges upon the Interstate Commerce Commission and all State railway commissions the importance, for the future, of so carefully weighing and considering the effect to be produced upon the railways in the making of any necessary readjustments of freight rates that the same may be accomplished without further curtailing the total revenue of the railways, upon which their borrowing credit depends, bearing in mind, as stated by the Railroad Securities Commission, that "a reasonable return is one which under honest accounting and responsible management will attract the amount of

investors' money needed for the development of our railroad facilities," and also bearing in mind that the development and prosperity of the railroads means development and prosperity of the country.—*Chamber of Commerce of the State of New York, Railroad Rates and Railroad Credit. Report adopted April* 4, 1912.

Cannot Force Private Capital

While we can provide by legislation the sort of cars which a railroad shall use and the rates which it shall impose, we cannot by legislation force one single dollar of private capital into railway investment against its will.—*Charles A. Prouty, Chairman of the Interstate Commerce Commission, Yale University, September* 13, 1912.

Loading and Unloading Facilities

Up to the present time the terminal facilities of the principal carriers have kept pace approximately with the growth of traffic. The loading and unloading facilities of shippers and consignees have fallen far short of doing so. The explanation of shipper and consignee for this situation in all large business centers is the expense involved. The railways are today face to face with this same insurmountable obstacle. The property purchased with wise foresight years ago is being utilized to the maximum extent, and the value given to the adjacent property through the transportation thus afforded makes prohibitive any further purchases on an extended scale in the congested district, except for union passenger facilities or some similar special purpose, where the expense can be divided among a number of companies.— *Abstract from statement of E. D. Sewall before the Committee on Interstate and Foreign Commerce, United States House of Representatives, February* 6, 1913.

"WHAT THE TRAFFIC WILL BEAR."

An Unfortunate Expression

It has always seemed to me that the expression, "What the traffic will bear," has been a most unfortunate one for all of us. If we would say, "What the traffic can afford," it would represent a great deal more than we get and would sound much pleasanter. The fact is, we are all trying to make rates on our respective lines that will "move the business," and I think I could not express it in a few words better than that. Probably hardly any general freight agent knows what the capital of his company is, but he is anxious to move business to, from, or over the line he serves, and to build up its industries. So long as the Sherman Anti-Trust Law is in effect he is anxious to move it, and the shippers are pressing him to move it, as against some competition somewhere; so that, while we now have uniformity of rates, we still have competition in service and real competition in the matter of fostering business in competitive communities and districts.—*Frank Trumbull: Statement before Federal Railroad Securities Commission, New York, December* 22, 1910.

Tendency of Rates Downward

Our experience is that not only have expenses and taxes and other expense outlays been increased, but the tendency of the rates themselves has until recently been downward, so that the present rates do not produce a fair return upon the capital employed. This

return on the capital employed solely for railroad purposes has during the past ten years in the history of our company been continually reduced.

On the total cash invested in railroad tracks, equipment, and facilities, the president of our company testified in the rate hearings in 1910 that 5.01 per cent was earned in the year 1909. In 1912 the return upon the amount similarly invested on our lines east of Pittsburgh and Erie was 4.83 per cent, while in 1900 the return was 9.39 per cent.

Our problem is: Is this a fair return, and can the company continue to render an effective service and raise new capital for future growth on that basis?

We are sure that unless this margin over a fair return to the stockholders is earned, everything above bare maintenance of the property must be provided out of capital account, and this in turn means that new capital for betterments and improvements of our facilities and service will be exceedingly difficult to raise, and it must be at measurably higher rates than have heretofore prevailed. We cannot raise that money except in competition with other forms of corporate and private enterprise, and without public approval and co-operation in securing the payment of a fair transportation rate by the shippers.—*Samuel Rea: Address at a meeting of shippers, Boston, Mass., June* 12, 1913.

The Distribution of Rates

There is evident need of clarifying the general conception of the meaning of the phrase "What the traffic will bear," especially in view of the insinuating use of the phrase "All the traffic will bear" on the part of demagogues and of some attorneys for the Interstate Commerce Commission. The best recog-

nized authorities on both the economics and the practice of railroading are generally agreed that railway freight rates should be fixed according to what the traffic will bear. All this means, however, is that since freight charges are virtually a form of tax upon the general movement of merchandise, and therefore upon the commerce of the nation, this taxation, like any other, should be distributed according to ability to pay. It probably costs about as much to govern one man as another; but a system of levying taxation according to the cost of government is manifestly absurd and unjust. Likewise a system of levying railroad freight charges according to the cost of the service rendered would act as a restraint to trade.

Commodity.	Ton mileage, carload lots.	Rev. per ton-mile.	Approximate value per ton.
Grain	6,928,262,616	0.595	$30.00
Hay	827,579,088	0.957	22.00
Cotton	711,041,421	1.743	300.00
Live stock	2,220,764,548	1.182	145.00
Dressed meats.....	851,025,602	0.889	195.00
Anthracite coal....	4,772,992,507	0.611	5.00
Bituminous coal...	14,981,599,184	0.498	3.40
Lumber	7,937,958,258	0.727	37.00

Of these principal commodities, the one bearing the lowest freight rate is bituminous coal, which also has the lowest value per ton, while the one bearing the highest freight rate is cotton, which also has the highest value per ton. In brief, the freight rates, or taxes on transportation, are distributed roughly according to ability to pay. It probably costs no more to move a ton of anthracite than a ton of bituminous coal, but the higher transportation tax on anthracite is just, not only because the higher value of hard coal enables

it to pay the higher tax, but also because an even distribution of this taxation upon all commodities would absolutely halt the movement of low-grade freight, such as coal and lumber; overstimulate the movement of high-grade freight, such as cotton and live stock, and at the same time reduce the traffic of our railroads to such an extent as to put many of them out of business.—*Wall Street Journal, editorial, September 7,* 1910.

The Underlying Principle

"What the traffic will bear"—that the foremost authorities on railway economics in the country unite in declaring the true measure of the value of the service rendered. A railroad, for instance, which hauls a ton of cotton, worth $300, a mile, renders a service of greater value to the cotton shipper than it renders to the owner of a coal mine when it hauls a ton of coal, worth perhaps $3, a corresponding distance. That principle is well recognized. Last year the average revenue per ton-mile derived by the railroads from hauling soft coal was only 0.498 cents. For hauling a ton of cotton a mile it was 1.743 cents. To haul the cotton probably cost the railroad very little more than to haul the coal, but the greater service rendered the cotton dealer made it right and just that the railroad should charge him more.

That is the underlying principle on which the transportation men claim that freight rates should be based. The value of the service rendered, they say, is accurately measured in what the traffic will bear. A coal mine, for example, would be put out of business in a day were the rates applying to the transportation of cotton or of meat to be applied to coal. Business simply could not be done under those conditions.

To charge *more* than the traffic would bear would consequently only react upon the railroads themselves. Just as manufacturing or other industrial plants are dependent upon the railroads along the lines of which they are located, so it is upon these very industrial plants that the railroads themselves are dependent for the traffic without which they cannot live. To charge rates too high or to do anything else which will lessen the volume of traffic is exactly in opposition to the railroads' own best interests. What they want to see is traffic stimulated to the highest possible point.—*Franklin Escher: The Reasonable Basis of Railway Freight Rates. Harper's Weekly, September* 24, 1910.

A System in the Public Interest

The phrase "charging what the traffic will bear" has, for some not very obvious reason, undoubtedly acquired an ill repute. On the face of it, it surely seems to represent a principle, not of extortion, but of moderation. To charge what the traffic can bear is, in other words, not to charge what the traffic cannot bear. * * * The real meaning of the phrase is that, within the limits already described—the superior limit of what any particular traffic can afford to pay and the inferior limit of what the railway can afford to carry it for—railway charges for different categories of traffic are fixed, not according to an estimated cost of service, but roughly on the principle of equality of sacrifice by the payer. So regarded, "what the traffic will bear" is a principle, not of extortion, but of equitable concession to the weaker members of the community. Had railway managers in the past declared that their principle was "tempering the wind to the shorn lamb," their descriptive accuracy would have been equally great, while their popularity might

have been even greater. * * * Translated into railway language, the principle means this: the total railway revenue is made up of rates which, in the case of traffic unable to bear a high rate, are so low as to cover hardly more than actual out-of-pocket expenses; which, in the case of medium class traffic, cover both out-of-pocket expenses and a proportionate part of the unapportioned cost; and which, finally, in the case of high-class traffic, after covering that traffic's own out-of-pocket expenses, leaves a large and disproportionate surplus available as a contribution towards the unapportioned expenses of the low-class traffic, which such traffic itself could not afford to bear. This, in principle and in outline, is the system of charging what the traffic can bear. It is the system which—the point must be reiterated—is, always has been, and, as far as we can see, always must be adopted on all railways, whether they be State enterprises or private undertakings. It is a system * * * in the interest of the public, because traffic is thereby made possible which could not come into existence at all if each item of traffic was required to bear not only its own direct expenses, but its full share of all the standing charges.—*W. M. Acworth: The Elements of Railway Economics.*

The Evolution of Rates

To decide between all these varied interests, the railroads of the nation have employed, on a conservative estimate, over 5,000 experts dealing with traffic and rate adjustments. Each railroad usually has one vice-president in charge of rate affairs, a traffic manager, several general freight agents and assistants, and all the way from ten to one hundred highly expert rate-clerks—whose brains, through years of training,

have become perfect compendiums of rate and traffic statistics. Upon this body of men rests the highly difficult task of building the rate structure of the country.

In the early days of the railroad the rate was fixed exactly as it was on a turnpike—a regular toll: for so many miles, so much of a charge. If five miles cost ten cents, then ten miles cost twenty cents, twenty miles forty cents, and so on—a simple method of distance tariffs. But the growth of competing railroads and the desire to build up distant business led to the adoption of a wholly new principle, that of "charging what the traffic will bear"—in other words, getting all the money possible out of every kind of goods transported. Supposing under the old system the rate was five cents for carrying a ton one mile. A man who was shipping silk, or shoes, or hats, or other high-priced goods could afford to send them a long distance, because a ton of hats would be so valuable that the freight rate would count for next to nothing in the selling price. On the other hand, the man who was making brick, which are both heavy and cheap, could not afford to ship his product at all, because five cents a ton a mile would soon eat up the entire profit. Consequently the brick man went to the railroad owner and said:

"See here, you give me one cent a ton a mile and I can give you a great deal of business. You have got your roadbed and your investment; you have got to run your trains anyway, and one cent a ton a mile will pay you a profit on your actual running expenses."

The railroad man saw that while hats would *bear* a charge of five cents a ton, brick would bear only one cent. And the fundamental principle of all railroading is that "*whatever happens, traffic must move.*" Well, the railroad soon found that coal, wheat, build-

ing stone, and other heavy, cheap commodities, would move, and move long distances, if the rate was low enough. More and more changes were therefore made in the direction of "charging what the traffic will bear."—*Ray Stannard Baker: The Railroad Rate. McClure's Magazine, November*, 1905.

What the Service is Worth

What the service is worth—there we have the basis on which freight rates are really fixed. Not what the railroad would like to get or what the capitalization makes it necessary to get in order to pay dividends, but simply what is the money equivalent of the service rendered. Selling railroad transportation is really no different from selling anything else. Imagine a merchant, about to fix a price on a lot of goods, saying to himself: "Here, I and my associates have capitalized this business at more than it is worth, and now we have got to make enough money to keep up our dividend. I'll just put such a price on these goods as will allow us to make the amount of money we need." Would that be likely to accomplish the desired result? Hardly. What does the consumer care about the amount of money the merchant considers it necessary to make? The goods, presumably, have a certain value, and that value, or something approximating it, is all the purchaser is willing to pay. Let the merchant arbitrarily mark up the price, and one of two things will surely happen—the purchaser will either go somewhere else or will refuse to buy entirely.—*Franklin Escher: The Delicate Question of Railway Credit. North American Review, February*, 1913.

RATES AND RATE MAKING.

Present Rate Very Small

The present freight rate is very small. How small it is can be better understood when one realizes that for 25 cents, what it costs according to the United States Department of Agriculture for the farmer to move a one-ton load by wagon one mile, the Northern Pacific Railway, at its average rate last year, will move the one-ton load 27.2 miles. For the cost of a two-cent postage stamp it will move a ton about two and a quarter miles. For the cost of ten pounds of ten-penny nails it will move a ton 44 miles; for the price of a No. 2 Ames shovel, 166 miles; for the money it takes to buy a good milk pail, 138 miles; and for the price of an ordinary lantern globe, 16 miles—*Howard Elliott: How the Railroads Help the Farmer. Leslie's Weekly, April* 3, 1913.

Rates for Grain and Other Produce

There has been a cry against the railroads for their high freight rates. But close examination reveals the fact that the great economies of modern transportation have made possible the carrying of grain and other produce at ridiculously low cost. For instance, it costs the farmer on an average forty cents per ton mile to haul his corn to the railroad. The railroad, on the other hand, carries it at an average rate of approximately three-quarters of a cent per mile. More efficient means of getting the grain from farm to railroad should be devised. The auto-truck should find

its way to the farmer.—*D. Miller: America's Greatest Crop. Harper's Weekly, December* 28, 1912.

What a Slight Increase Would Do

Can the railroads meet this serious situation with which they are confronted? Yes, if allowed to charge a fair compensation for their services. The railroads now receive on an average per mile 7½ mills for hauling a ton of freight and less than 2 cents for carrying a passenger. If this average compensation could be increased even one mill, or the equivalent of the price of a postage stamp for twenty miles' service, it would extricate them from all further trouble and anxiety. It is scarcely conceivable that such a slight advance would injuriously affect any trade, industry, or person. yet it would be the means of conferring untold benefits upon the entire business of the country. —*Benjamin F. Bush, before the Economic Club, New York, April* 29, 1913.

American Rates the Lowest

The freight rates in the United States are, in general terms, only five-eighths of those charged on the continent of Europe and a little less than one-half of those which prevail in Great Britain. But it will be seen that in reality our charges are relatively even lower than stated by the above figures, when we consider that in the passenger service vastly superior accommodations are furnished in the way of heating, lighting, ventilation, ice-water, lavatories, and free carriage of baggage; and that in the transportation of merchandise greater advantages are afforded by running freight trains at higher speed, making longer hauls without breaking bulk, and allowing cars to remain a greater length of time in the hands of ship-

pers for loading and unloading, there being usually employed from the latter cause from 20 to 25 per cent more cars than would be necessary for the strict hauling of the traffic.

In this connection we must also recollect that the cost of fuel, wages, and all construction material is considerably higher here than in Europe, while the population from which the railways derive their support is much more sparse, the United States having 166,000 miles of railway with a population of 63,000,000, while Europe has only 135,000 miles with a population of 335,000,000.—*Horace Porter: Railway Rates. North American Review, December*, 1891.

The Economic Principles

The economic principles involved in fixing railroad charges are not radically different from those involved in fixing the price of bread; it is only that their operation is slower and more obscure, and that the public has learned the lesson less completely. There was a time when it was thought necessary to have the public authorities fix the price of bread. People feared that, if matters were left to themselves, the sellers would have a monopoly, and take every advantage of the needy buyers. But, as time went on, it was found that such laws did more harm than good. If the price was fixed too high, it was useless; if it was fixed too low, the supply of bread fell short of the demand, and while some people got their bread cheap, others got none at all. The suffering of the latter class was greater than the advantage to the former. A new system gradually superseded the old. Sellers were allowed to get what price they could, buyers to pay what price they would. In that way, and in that way only, was there an adjustment of quantity of service

to public demand.—*Arthur T. Hadley: Railroad Problems of the Immediate Future. Atlantic Monthly, March*, 1891.

Rates Not Based on Value of Railroad

It is perfectly obvious that the railroad rates of this country are not based on the value of railroad property. No railroad company has ever undertaken to base rates on the value of its property, and no railroad man has ever attempted to make rates according to the value of the railroad. * * * Rates must of necessity be the same on all competing railroads; and yet we know that the value of such railroads varies greatly. If the more valuable should raise its rates because of its investment or value, it would simply drive the competitive business to the cheaper line. * * *

In short, it is just as plain that railroad rates are not and never have been based upon the value of railroad property as that they are not and never have been based upon the stock and bonds outstanding. Nor do I understand that Congress has ever authorized or required the Interstate Commerce Commission to base rates on the value of railroad property.—*R. S. Lovett, Statement before Railroad Securities Commission, December* 21, 1910.

Variations in Rates

While the Supreme Court has undertaken to point out "certain elements" to be considered in determining the reasonableness of an entire system of rates, it has not named any as shedding light upon the reasonableness of a rate on a single commodity, like lumber. It is evident that such elements are widely variant in the

two cases. Where an entire system of rates is involved, the principal, if not the only, question is, whether the revenue yield by the rates on all traffic is a fair return on the value of that which is "employed for the public convenience"—a question, the determination of which, as we have shown, can have only a very remote, if any, practical bearing on the reasonableness of a rate on a single article of traffic. On the other hand, where the rate on a single article is in issue, the question (which could not arise in the former case), whether the rate is unjustly discriminatory or unduly preferential, may be presented, and the reasonableness of the rate depends upon the value, volume, and other characteristics affecting the transportation of the particular commodity to which it is applied. * * *

The rate on one article of traffic may be reasonably high and the carrier fail to earn a fair return on the value of the entire property employed for the public convenience because of unreasonably low rates on other traffic; and, vice versa, the rate on one article of traffic may be unremunerative or unreasonably low and the return to the carrier from its entire business may be fair or reasonably high, the deficiency under the rate on the one article of traffic being made up by the rates on the balance of the traffic.—*Interstate Commerce Commission*, 539, *Central Yellow Pine Association vs. Illinois Central Railroad Company et al.*

Other Prices that Enter into Cost

A railroad rate is a fluctuating thing in the cost of its production, and from an economic standpoint no law can fairly fix a future rate which does not fix those material elements upon which the rate depends. As was pertinently asked by Mr. Benton, an able law-

yer of my own State, If the State fixes the price that railroads are to receive for transportation, would it fix also the prices that go into the making of the cost of that transportation?—*Hon. Samuel W. McCall, speech in House of Representatives, February* 2, 1906.

On the Lines of the Common Law

The policy of governmental control and limitation of profits through regulation of rates does not seem well adapted to secure any of the main objects of regulation of railways. It appears to be more apt to injure than to benefit the public. The most equitable, effective, and beneficial way to determine and fix reasonable rates is to proceed in much the same way that the courts determined what was a reasonable rate under the common law. When an individual rate or a schedule of rates is in question, whether that rate or schedule is fair and reasonable cannot be determined merely by reference to how much profit the railway is making in the aggregate; for if the road's profits were small, it might be held that the rate or schedule was reasonable; whereas the fact might be that the particular rate or schedule in question was excessive, and that the smallness of the road's profits was due to the excessiveness of this rate or schedule, or to the lowness of its other rates, or to bad management. And if its profits were large it might be held that the particular rate or schedule in question was excessive; whereas the fact might be that that rate or schedule actually was unfairly low, and that the road's profits were all derived from other and higher rates. Similarly, if the large profits of a single road were considered, it might be held that its rates were excessive; whereas investigation might disclose that other roads hauling the same kinds and amounts of traffic, under

substantially similar conditions, for the same rates, were making small or no profits; which would show that the differences in profits were mainly or entirely due to differences in the skill of the managements.—*S. O. Dunn: Shall Railway Profits be Limited? Journal of Political Economy, October*, 1910.

Freight Rates on Food Products

Secretary Wilson shows that the proportion of the consumer's price that goes to the retailer as his compensation for delivering milk from the railway station to the residence of the consumer is more than six times as great as that received by the railway for carrying it from the dairy station to the city. When the farmer receives 50 per cent of the consumer's price, the freight charge on butter is about five-tenths of one per cent of the consumer's price; on eggs, six-tenths of 1 per cent; apples, 6.8 per cent; beans, 2.4 per cent; potatoes, 7.4 per cent; grain of all sorts, 3.8 per cent; hay, 7.9 per cent; cattle and hogs, 1.2 per cent; live poultry, 2.2 per cent; wool, three-tenths of one per cent. These percentages given by the Secretary are averages for the United States, and, of course, do not hold good as to all shipments of the commodities mentioned, as there would necessarily be wide differences due to variations in the distances shipped and to other circumstances. They demonstrate, however, that, generally speaking, railway freight charges are relatively a small factor in the margin between the price received by the farmer and that paid by the consumer, and that the greater proportion of this margin goes to those who handle the products after they leave the hands of the carrier.—*W. W. Finley: Address at a Meeting of the Agricultural Societies, Baltimore, Md., November* 22, 1912.

Excessive Rates Injurious to Railroads

It is the duty of the railway not only to make its rates fair as between different commodities, shippers, and communities, but also to make them reasonable—that is, not excessive. I believe the railways of the United States have fully discharged that duty. Traffic cannot grow rapidly on excessive rates, and industry and commerce cannot thrive on them. But traffic and industry and commerce have increased in an unprecedented and unparalleled degree on the rates made by American railways.—*E. P. Ripley, Atlantic Monthly, January*, 1911.

General Principle of Rate-making.

You gentlemen are entirely familiar with the general principle of how rates are made, I think it can be illustrated, very briefly, by a situation which arose in western Kentucky a great many years ago, when coal mines were first opened on the Henderson Division of the Louisville and Nashville Railroad. At that time the only fuel in that country was wood. These coal mines were opened. The railroad company wanted to make rates to haul this coal, which was a new traffic. Strange to say, the railroad company did not select anybody who knew anything about its capitalization to do that. It selected a very wise man who was operating coal mines down in that country, and said: "You find out what rates will move this traffic." And this gentleman went to work to find out what wood cost in the various towns on the road, and what was the equivalent in coal of a given amount of wood. He figured out, from that, what consumers of fuel in those towns would be willing to pay in order to get coal instead of wood to burn. He figured out what the coal

could be put on the cars for at the mines, and he figured out that the difference was the rate that the railroad company would have to charge to move the traffic.

That is typical of the way in which rates are made. The rates are made to move the traffic. They are made with no reference to dividends on stock.—*Walker D. Hines: Statement before Railroad Securities Commission, December* 22, 1910.

Passenger Rates

The passenger trains of the United States earned on the average for the year ending June 30, 1908, $1.27 per train mile, and the average cost per train mile for expenses, not allowing anything for taxes, using the total freight and passenger train miles, was $1.47.

From this it is plain that there is no margin in the passenger business for taxes, interest, and dividends, and that passenger train service, as a whole, is furnished without profit, and often to the detriment of the freight business, which must be moved promptly for the development of the country.—*Howard Elliott, address at the Montana State Fair, Helena, Mont., September* 26, 1910.

The 2-Cent Maximum Fare

This country, as it grows in population and wealth, wants more and better passenger train service and better stations, just as it wants more and better hotels and more and better street paving and lighting, more and better restaurants; but in the case of the hotels, paving, lighting, restaurants, and many other things, the public are willing to pay more and do pay more for the better facilities. Not so with the railways.

With more trains, heavier trains, faster trains, more luxurious trains, and better track, there has swept over the country a wave of legislation for a 2-cent fare. The 2-cent maximum fare is unjust, and retards the development of the very things the railway user wants, because it is obvious the railway owner must sooner or later stop doing so much work without any margin of profit at all.

In England the first-class passenger rate is 4 cents; second-class, 2½ cents, and the third-class, 2 cents.

In Germany, the first-class is 3 cents; second-class, 2.55 cents; third-class, 1.79 cents; but the second and third-class accommodations in England and Germany are nowhere near as good as those furnished the traveler in the United States.—*Howard Elliott, address at the Montana State Fair, Helena, Mont., September* 26, 1910.

Importance of Fair Rates

The capital required for this progressive development must come as the result of the sale of securities whose attractiveness and safety will depend upon the earning capacity of the railroad rather than upon the value of the property as a salable asset. This earning capacity must be shown to be uniform and progressive, year in and year out. Its sole foundation rests upon fair, reasonable, and suitable rates. When the investing public is satisfied that a policy which will permit such stability has been adopted as the result of deliberate judgment of the people of this country, I feel safe in predicting that the necessary capital will be available to the railroads on such terms as will enable them to perform a far greater service to the people than they have been able heretofore to render.

In the creation of this public sentiment, the shippers must take the leading part, and I appeal to thoughtful men that it is absolutely to the interest of the shippers that this condition may be brought about. These facts are the basis of a legitimate appeal for the consideration and co-operation of all shippers, both large and small. The American House of Industry is of imposing strength, but even with harmony and co-operation its strength is not greater than is needed in the contest that is in progress. Divided it cannot stand, much less could it continue in prosperous development.—*L. E. Johnson, President Norfolk & Western Railway Co., before the Traffic Club of Pittsburgh, November* 9, 1911.

How the Present System of Rates Grew

I have been rather intimately connected with the management of railroads for over twenty-five years, and during that period have had occasion to specially study rate-making problems. During all that period I have not known a single rate to be increased or in anywise changed on account of, or with a view to, the bond interest or stock-dividend needs or requirements of the company, or indeed with any regard to the financial necessities of the company. Traffic men as such have nothing to do with the financial management of railroads. Their thought is not in that direction, but is toward the traffic and the commercial conditions affecting the railroads. I doubt if there are a dozen traffic managers or general freight agents in the whole country who know the amount of stock or bonds or the fixed charges or annual dividend payments of their companies. If they have such knowledge it is acquired, not by reason of any official use they have to make of it, but merely as a matter of general

information. Not only from my own experience, but from observation, I feel entirely warranted in stating that the railroad rates, both passenger and freight, prevailing throughout the United States today were not made, and were not in anywise influenced, by the bonds and stocks outstanding; and that the needs of the companies for interest on bonds and dividends on stocks had nothing whatever to do with the fixing of such rates. If you ask me to state all the factors that entered into, and that still enter into, the making of rates, it is impossible for me to do so. They are as innumerable as the transactions in the commercial and business life of the nation. They grew out of the needs of each community, each station, each industry, each commodity, and each individulal; and as the needs of one of these were met the rate resulting would often, and I may say generally, affect a different community and different individuals in such other community, and require the readjustment of the rate there; and so on almost without limit. Out of such considerations as these the present system of rates grew. I know of no better way to illustrate or define their character than to say that they developed much like the common law of England. They grew up with conditions, just as the common law of England did; and they will go on growing and requiring change from time to time just as the common law of England has required change by statutory enactments in order to adapt the system to modern needs and progress. Such changes in rate schedules must be made from time to time; and the method of making them must be very flexible, so as to respond to the needs and requirements of business in each community and in each industry, if our commercial, industrial, and agricultural development is to continue naturally. The one fact, however, that I wish to affirm with entire assurance is that the

rates we have, and under which the business of the country has hitherto been done, were not dictated or influenced to any extent or in any degree by the amount of stocks or bonds outstanding or the rates of interest or dividends paid thereon. Perhaps the best evidence of the truth of this is that all competing railroads maintain, and must of necessity maintain, the same rates, whilst the amount of their stock and bonds and their annual interest and dividend requirements vary to the greatest imaginable extent—some paying large dividends, some small dividends, and others no dividends at all, although serving the same territory, seeking the same traffic, and necessarily charging the same rates.—*R. S. Lovett, Statement before Railroad Securities Commission, December* 21, 1910.

Development of Railway Tariffs

I am the manager of a railroad extending 250 miles from A to B. At C, a distance of 50 miles from A, is located a coal mine, at which the cost of placing the coal upon the cars is one dollar per ton. Coal of that ling of that coal for a distance of 50 miles.
grade sells in the open market at A for $2.25 per ton. I establish a rate of one dollar per ton for the hand-

This is certainly a liberal rate; but the earnings of my road as a whole are not excessive; nor can the rate itself, five cents per 100 pounds, be regarded as extortionate. The owner of the mine is perfectly satisfied, for he is making a magnificent profit upon the operation of his property. A is a prosperous community, buying its coal cheaper than most communities.

I resign as manager of this road and become the manager of another road extending in the opposite direction from A, 250 miles to X. The two roads are in

all respects identical, the cost of construction, capitalization, business—everything is substantially the same.

At X is located a coal mine precisely similar to that at C. The cost of producing coal upon the cars is one dollar per ton, and the coal will sell in the market at A for $2.25 per ton. I establish a rate for the haul of 250 miles of $1.15 per ton.

Now, have I in these two cases been guilty of any wrong? In the first instance everybody is satisfied; everybody is prosperous. In the second case, the mine at X is not as prosperous as the one at C, for the profit of the miner at C is two and one-half times as great; but still the miner at X operates to advantage upon a profit of ten cents per ton. The return to my railroad is not satisfactory under the rate of $1.15; but that figure is better than nothing at all. In other words, the traffic will bear one dollar in one case and $1.15 in the other; therefore, I impose one dollar in the first case and $1.15 in the second case. Nor does it seem to me that the traffic manager can be accused either of inconsistency or of moral dereliction who establishes rates as suggested in this illustration.

The case which I have put is an extreme one; but it illustrates the principles under which the railroad tariffs of this country have been developed. The study of the traffic manager has been to get business, and he has made such rates as were necessary to secure that business. The rates actually made in pursuance of this idea have been often inconsistent and have provoked severe criticism. It does not seem to me that the application of the principle is of necessity wrong. Upon the contrary, its application, within reasonable bounds, is healthy both for the railway and for the community.—*Hon. Charles A. Prouty: Transportation. Address before Senior Class, Sheffield Scientific School, Yale University*, 1910.

What is a Reasonable Rate?

It is even difficult to say what constitutes a reasonable rate, and more difficult to give in detail the reasons that lead to that conclusion. Although the Supreme Court of the United States has furnished certain rules by which to test the reasonableness of transportation charges, and although this Commission has endeavored to apply these rules, yet, whenever it has interrogated railway officials as to whether or not they are governed by them in making rate schedules they have invariably answered in the negative and said that to do so would be impracticable.—*The Interstate Commerce Commission.*

All railways alike, whether they be in State or in private hands, must base their rates on what the traffic will bear. * * *

Further, the great bulk of the cases which make up the practical work of a railroad: "What is a reasonable rate, having regard to all the circumstances, present and prospective, of the case? Would it be reasonable to run a new train or to take off an old one? Would it be reasonable to open a new station, to extend the area of free cartage, and the like?"—all these are questions of discretion, of commercial instinct. They can only be answered with a "Probably on the whole," not with a categorical "Yes" or "No," and they are absolutely unsuitable for determination by the positive methods of the law court, with its precisely defined issues, its sworn evidence, and its rigorous exclusion of what, while the lawyer describes it as irrelevant, is often precisely the class of consideration which would determine one way or other the decision of the practical man of business.

What we need is a system under which the responsibility rests, as at present, with a single man (let us call him the general manager), and he does what he on the whole decides to be best, subject, however, to this: that if he does what no reasonable man could do, or refuses to do what any reasonable man would do, there shall be a power behind to restrain, or, as the case may be, to compel him. And the power may, I think, safely be simply the minister—let us call him the President of the Board of Trade. For, be it observed, the question for him is not the exceedingly difficult and complicated question, "What is best to be done?" but the quite simple question, "Is the decision come to which I am asked to reverse so obviously wrong that no reasonable man could honestly make it? * * *

A reasonable rate is a rate which an expert manager would fix, or, as the case may be, would maintain, having carefully considered all the relevant circumstances and being actuated solely by judicial and avowable motives.—*W. M. Acworth.*

A just rate does not mean a rate which a particular shipper can pay for particular goods, but rather a rate which, when enforced and maintained, entails in a community just and commendable results.—*Prof. H. C. Adams.*

Whether any specific rate is too low can only be judged by knowing the cost of transportation, a difficult fact to determine. Whether any specific rate is too high can only be judged by whether it interferes with the movement of the traffic.—*Frederick A. Delano.*

Railroad companies are not entitled to a reasonable return on the value of the property used. They are

entitled only to what they can earn, be it much or little, by charging rates that are just, reasonable and undiscriminatory, the reasonableness of such rates being determined by commercial and competitive conditions and the value of the service to the shipper and to the railroad.

Rates adjusted on the value of the service principle, intelligently and fairly applied, are just alike to the railroad and to the shipper.

The reasonableness of rates can only be determined by the facts bearing upon each particular case. Reasonableness of revenue is a legal fiction.—*Henry Fink.*

The only just method of determining the reasonableness of transportation charges is to measure them by the services performed, and neither capitalization nor cost of railway construction, either as a matter of economics or practice, can have any controlling bearing on the fixing of any specific rate.—*W. W. Finley.*

A reasonable rate is a point the lower line of which is the constitutional minimum. "The upper boundary line is the rate which is just and reasonable under all the circumstances which honest business men would have the right fairly to consider."—*Walker D. Hines.*

This requires a great number of factors to be taken into account, just as they have always entered into the making of railroad rates, such as the cost of the service to the carrier; the value of the service to the shipper; the previous rate on the same article; the rate elsewhere on the same article; rates on similar articles in the same or other localities; the competition of markets; the intrinsic value of the commodity; the risk of breakage or other injury in transit; the insurance

risk; "what the traffic will bear" (a much-abused phrase); or, in somewhat less offensive form, "what the traffic can afford"; and a great variety of other circumstances and conditions which cannot be enumerated abstractly.—*R. S. Lovett.*

First and foremost, there never was any better definition of a reasonable rate than that which was given many years ago by somebody and which has been used as a byword and a reproach ever since, namely, "what the traffic will bear." That is the best definition that ever was given of it. That does not mean all the traffic will bear; it does not mean all that can be extorted or squeezed out of it, but what the traffic will bear having regard to the freest possible movement of commodities, the least possible burden on the producer and on the consumer.—*E. P. Ripley.*

While it is possible some rates are too high, there is no question but what it can be proven, with reasonable diligent effort before a competent and impartial tribunal, that most of the rates are low in and of themselves and not *commensurable to service performed*, and on the merits should be advanced.—*Y. Van den Berg.*

It is the demand for a commodity and the price of it which mainly determine the freight rate for it.—*F. W. Whitridge.*

The question of what is a fair and reasonable freight rate is also a difficult one to determine. Certain it is, as I view it, that the sum of all such rates must at least be sufficient, when combined with efficient management, to furnish such net earnings as will enable the individual road to obtain the necessary new capital when needed on a favorable basis.—*Daniel Willard.*

Rates for railway service must be fixed at such a level that the service obtained by the shipper is worth to him something more than he is asked to pay for it.—*W. H. Williams.*

Railroad Rate Not a Tax

One ground upon which specific governmental control of the prices charged for transportation is urged is that a railroad rate is a tax. A tax primarily is a levy for the support of a government, laid sometimes upon people and sometimes upon commodities. A price is a measure of the services embodied in a commodity. The disposition of the revenue derived from taxation is mainly for the preservation of peace and order and the public health, the maintenance of the conditions under which the people may carry on their vocations. The aggregate of price measures that aggregate of service which constitutes the carrying on of the vocations of the people. A railroad rate represents payment for service rendered, a service that enters into the cost of production of commodities and, with other factors, constitutes that cost of production. It, therefore, in no sense is a tax; a railroad rate is not a levy, but a measure of service. That is, how can the transportation charge be designated a tax any more than any other charge entering into the cost of producing a commodity? If it were true that the freight charge is a tax, a large portion of the value of every article of food, of clothing, of every structure, is a tax; and inasmuch as certain States tax the earnings of the railroads, they would be imposing a tax upon a tax.—*L. G. McPherson: The Working of the Railroads*, 1907.

Good Credit and a Fair Return

All questions of valuation and rate making cannot evade the main problem of credit and a fair return on capital. If this cannot be had, public ownership is the only alternative, but we believe public opinion will continue to endorse and support private ownership and operation under governmental regulation.

Confronted by this situation, the railroads have made a public appeal not for the maximum rate which under their charters they are entitled to charge, but for a moderate increase over the minimum rates now in existence. On such a basis as that they confidently rely upon public support, preferring to make this appeal so that railroad enterprise may not be halted, but that, on the contrary, railroad managements will continue to assume their full responsibility, and provide the facilities and service to make the country progress.—*Samuel Rea: Address at a meeting of shippers at Boston, June* 12, 1913.

Purchasing Power of Railway Receipts

He who would know why railroad development is lagging behind in the United States must look not only below gross receipts, operating expenses, and net revenue to the income account of the railways, but he must take cognizance of the essential changes during recent years in values in general, and even in the value of money itself. * * * * While railway rates as indicated by the average receipts a ton a mile have changed but little since 1900, as expressed in money, they have when expressed in the purchasing power of money declined on the average at least 25 per cent.—*New York Sun, October* 14, 1912.

Seven Cents for All a Man Wears

To assemble, for example, here in New Brunswick, or in any other city between the Atlantic and the Mississippi, the articles of apparel in which a man goes about the public street, a charge is made by the steam railroads of less than 7 cents. Similar examples might be given in sufficient number to demonstrate that the transportation charge under what are known as the "classified" rates is so small that it does not affect the retail price of the staple articles of general use. On the traffic moving under "commodity" rates, such as coal and iron ore, the rates are small in proportion to those charged by European roads if compared on the basis of the money unit of value. They are vastly smaller if compared on the basis of the average daily pay of common labor, which I think is a much more equitable basis.—*L. F. Loree: Address at annual dinner of Alumni Association of Rutgers College, New Brunswick, N. J., June* 17, 1908.

The Laws of Trade

It is clear that even with the whole power of the European governments, the laws of trade have proved too strong for any arbitrary attempt at railroad regulation to succeed. The effort to base rates upon cost of service has only resulted in a compromise.—*Arthur T. Hadley: Railroad Transportation.*

Rates and Prices

Compared with the average of the decade from 1890 to 1899, the average wages for 1905 were 14 per cent higher and the average hours of labor per week

4.1 per cent lower. Food advanced an average of 12.4 per cent and all commodities an average of 15.9 per cent. The average rate per ton-mile of the railroads decreased 8.8 per cent. The men who ship the larger portion of the freight say, almost without exception, that railroad rates are low.—*L. G. McPherson: The Needs of the Railroads. Political Science Quarterly, September*, 1908.

Conditions that Control Charges

The persistence of the delusion that rates are controlled by the par value of securities is curious and unaccountable. Throughout the whole history of American railway development parallel routes have been represented by widely different amounts of securities and have carried at identical rates or, in many instances, the route having the highest par of securities has carried at a differential lower than its competitors; rates have gone down as the par value of securities has been augmented by new issues and the issues of securities have repeatedly been revised because the commercial conditions that control rates made such revision necessary. * * * The conditions that control railway charges do not seem to me to be hard to discover. At each end of the railway service there is a market; at the market of origin there is a marginal producer whose product is required in the other market and whose traffic is wanted by the railway, at the market of destination there is a marginal consumer who fixes the price there. The difference between these prices must satisfy the railway and all the other agencies employed in getting the product from the producer to the consumer; how they divide this amount is a matter dependent upon skillful and fair trading, subject to such regulation

as public authority has imposed.—*H. T. Newcomb: Government Regulation of Railway Capitalization. Part I. Railway World, March* 10, 1911.

Value of the Article

At first thought it would appear that the value of the article ought not to be taken into account in determining the transportation charge. A ton of cotton, it would appear, ought to be carried as cheaply as a ton of silks. It would also appear to one who has not studied the question that a charge of a certain amount per mile, taking into account weight, bulk, perishability, and the expense of loading and unloading, would be just. Such a method of fixing rates, however, would stagnate the whole movement of commodities at once. These theories were discarded long before railways came into existence. If the bulk and weight of articles were made the basis of charging, a prohibitive tariff would at once be laid on the movement of many important commodities. If a purely distance tariff were established, it would bankrupt the Western agricultural States and stagnate exportation of the chief commodities of foreign commerce.

Therefore, the value of the article must be taken into account when fixing its carriage charge. Properly speaking, the ability of the article to pay must be reckoned with. That is generally determined by its value. In other words, a rate has to be fixed for each commodity at which it will move. If the rate on agricultural products was the same per ton as the rate on cutlery, not a bushel of wheat would move any great distance by rail for export. This fact was recognized in the shipping industry long before railroads were thought of.—***Anthony Van Wagenen: Government Ownership of Railways.***

Why Rates Can Be Advanced

The whole history of American railroading, indeed, is filled with instances of railroads built through territory in the development stage keeping their freight rates below the value of the service rendered in order to give new industries located along the line a chance to get a foothold and grow strong. There is nothing altruistic about it. It is a matter of business, pure and simple. The prosperity of the railroad depends upon the prosperity of the territory it serves, and for the railway to forego immediate returns in order to build up future business is a most reasonable sort of policy. The industries located along its lines having developed and become firmly established as a result of low freight rates, the traffic can bear more and rates can be advanced to a point where the railway can make a reasonable profit out of handling the business.—*Franklin Escher: The Delicate Question of Railway Credit. North American Review, February*, 1913.

What the Railroads Get

The price paid by the housekeeper per dozen for eggs during the season of shipment seldom exceeds by more than five cents the price received by the Western farmer who takes them to the country store. That is, the railroads bring eggs a thousand miles to New York for a cent or a cent and a half a dozen, and two thousand miles or so for about two cents and a half a dozen, the dealers taking the remainder of the five cents as payment for handling. The net difference between the price paid per pound for butter at the creamery, whether in New York City or in the Mississippi Valley, and that paid by the New York retail

dealer averages about one and one-half cents for commission and one cent for freight.

In December, January, and February turkeys are taken from the Texas ranches to marketing centers, the transportation charge on ten birds, weight one hundred and twenty pounds, being about 25 cents. After these ten birds have been dressed and packed they weigh about one hundred and two pounds, and the freight rate from Texas to New York is $1.50 per 100 pounds—that is, a Texas turkey that retails in the New York market for 20 cents a pound will have paid one and three-fourths cents per pound to the railroads that took it from the ranch to the concentration point, and thence to the market. The farmer in Texas received about nine cents per pound, leaving a trifle over nine cents to be divided between the packing-house, the produce merchant, and the retail dealer. Chickens and other dressed poultry that come from Chicago pay a freight rate of about three-fourths of a cent a pound, the railroad company supplying a refrigerator car, and keeping them iced while in transit.

The rail rate from Chicago to New York on grain and grain products for domestic consumption has been about 17½ cents per 100 pounds; that is, a bushel of oats or corn or wheat, that may bring in New York anywhere from 40 cents to $1, has been brought from the Western farm for from 8 to 15 cents. Hay that has yielded the farmer $18 or $19 a ton and sells in New York at about $24, has paid the railroads somewhere from $3 to $5 per ton, according to whether it came from the meadows of the Ohio or the Mississippi valleys.

A bullock that weighs 1,200 pounds will, at Chicago, bring on an average $5.50 per 100 pounds, which includes an average of 5 cents per 100 pounds for freight from the grazing grounds. Its total value at the

stock yards, therefore, is $66. When it has passed through the packing-house its weight will have been reduced to 700 pounds. From Chicago to New York it will pay 45 cents per 100 pounds freight; or, in other words, the 700-pound carcass, which, if retailed at an average of 15 cents a pound, would bring $105, has paid the railroads between $3.50 and $4 from the Far West to the metropolis.

On potatoes the freight rate per barrel containing about two and a half bushels is $1.05 from Florida, 65 cents from South Carolina, 45 cents from North Carolina, 30 cents from Virginia, and from this 12 cents per bushel the rate scales down to 5 or 6 cents per bushel from near-by regions. The freight rate on tomatoes from Florida is 25 cents per package of six baskets, from Texas 15 cents for twelve quarts, from Mississippi 76 cents per 100 pounds, and from the near-by farms 8 cents per bushel of twenty-eight quarts. The freight rate on cantaloupes to New York ranges from less than a cent for a melon from the Carolinas to about 2½ cents for that from California. Oranges from Florida to New York pay the railroads from 4 to 9 cents a dozen, and those from California 6 to 12 cents a dozen, as they may be large or small. A three-pound can of tomatoes from Maryland pays the railroad about one-half cent per can.—*L. G. McPherson: Railroad Freight Rates.*

Rates on Staple Articles

In response to inquiries made concerning certain staple articles of daily and general use in various of the smaller cities and towns extending from Massachusetts to Georgia and Illinois, and from Michigan to Mississippi, it has been ascertained that throughout this region the transportation charge on such articles

ranges as follows: On a man's suit of clothes, from two to eight cents; on calicos and ginghams, from one-fiftieth of a cent to one-fifth of a cent a yard; the freight charge paid on the entire apparel of a fully dressed man or woman in this section would range perhaps from 6 or 7 to 16 or 18 cents. The rate on an ordinary dining-room suite, consisting of table, sideboard, six chairs, and a china closet, would average from 75 cents to $5; on a parlor suite of sofa and four chairs, from 50 cents to $4; on a bedstead and its equipment, from 75 cents to $1.50, in each case from the factory to the home. The lumber used in the ordinary eight-room house will have paid the railroads from $35 to $150, and the brick from $6 or $8 to $50 or $60, as the kiln may be near or remote. A fifty-pound sack of flour from the mill, even at Minneapolis, in but a few cases, has paid a freight rate of over 8 or 9 cents to the consumer. Products of the beef or the hog are carried from the western packing-houses throughout this territory at rates that vary from a fifth of a cent to not exceeding a cent per pound.—*L. G. McPherson: Railroad Freight Rates.*

Rates in Different Countries

Railroad rates in this country are not unreasonably high. As shippers and consumers of freight, we pay a transportation cost less than one-half that of Germany, barely more than one-third that of France, and but slightly in excess of one-fourth that of England and the other countries of Europe. Following are the figures for the last year [1907]:

Country.	Freight cost per ton-mile, in cents.
China	.10
Japan	.05
Russia	.022
Italy	.024
Austria	.0225
Germany	.015
France	.019
England	.026
United States	.0069

Besides, the cost of transportation to the actual consumer is so slight a quantity as never to disturb his thoughts except when forced upon his attention as a campaign issue. A careful writer has computed the amount which freight charges actually add to the cost at Pittsburgh of necessary articles of wear and consumption, and I give you some of them:

A suit of clothes, three cents;

A pair of shoes, one and one-half cents;

A man's hat, less than half a cent;

A lady's hat, trimmed for wear, less than one cent;

Muslin, one-twelfth of a cent per yard;

Flour, less than one-fifth of a cent per pound;

Dressed meats, one-fourth of a cent per pound;

Fish, one-third of a cent per pound;

Vegetables and canned goods, one-sixth of a cent per pound.—*Robert Mather: Railway Regulation. Speech before Traffic Club of Pittsburgh, April* 3, 1908.

Steady Decrease of Rates

The record of the extension of lines (with the rates for which they were extended) reads as follows, by decades:

Year.	Miles of line.	Increase.	Per cent.	Rate per ton-mile.	Rate per pass. mile.
1832..	229	229	...	.....	.....
1839..	2,302	2,073	905	.....	.....
1849..	7,365	5,063	220	.....	.....
1859..	28,789	21,424	291	.....	.....
1869..	46,844	18,055	63	.....	.....
1879..	86,556	39,712	85	*1.29c	†2.422c
1889..	161,276	74,720	86	0.922	2.165
1899..	194,336	33,060	20	0.724	1.978
1909..	236,869	42,533	22	0.763	1.928

* 1880. † 1883.

Except for individual roads, rates for the earlier years have not been handed down to us. In 1852 the Pennsylvania charged 4.64 cents per ton-mile, and the Erie 1.95 cents. In 1865 the freight rates on four principal trunk lines ranged from 2.44 cents to 3.45 cents. In 1875 six low-rate through routes charged 1.01 to 1.53 cents per ton-mile, and by 1885 the same lines had reduced their rates to 0.55 cent and 0.94 cent. The roads cited had lower rates than the average, which must necessarily include a large proportion of local and feeder lines. They, however, will serve in conjunction with the figures given in the table, to illustrate the progressive fall in rates that continued until 1899.—*Morrill W. Gaines: A Living Rate for the Railroads. Yale Review, New Haven,* 1910.

REGULATION AND LEGISLATION.

Congress and the States

There is no room in our scheme of government for the assertion of State power in hostility to the authorized exercise of Federal power. The authority of Congress extends to every part of interstate commerce, and to every instrumentality or agency by which it is carried on; and the full control by Congress of the subjects committed to its regulation is not to be denied or thwarted by the commingling of interstate and intrastate operations.—*Supreme Court, Nos.* 291, 292, *and* 293, *October Term*, 1912, *Opinion Delivered by Justice Hughes June* 9, 1913.

Not at the Mercy of Legislative Caprice

The property of a railroad corporation has been devoted to a public use. There is always the obligation springing from the nature of the business in which it is engaged—which private exigency may not be permitted to ignore—that there shall not be an exorbitant charge for the service rendered. But the State has not seen fit to undertake the service itself; and the private property embarked in it is not placed at the mercy of legislative caprice. It rests secure under the constitutional protection which extends not merely to the title but to the right to receive just compensation for the service given to the public.—*Supreme Court, Nos.* 291, 292, *and* 293, *October Term*, 1912, *Opinion Delivered by Justice Hughes, June* 9, 1913.

National Control of Interstate Commerce

The court holds that Congress has complete power to control interstate commerce and to regulate it, and that this necessarily includes the power to regulate such business within State lines as affects indirectly interstate business.

But the court holds that until Congress acts in respect to such business within the State it must be left to the action of the State.

The judgment of the court is a broad declaration in favor of the plenary power of Congress to vest the Interstate Commerce Commission and the Federal courts, or some other appropriate instrumentality, with the authority to regulate and restrict such improper or prejudicial interference with interstate commerce as the fixing by a State Railroad Commission of merely State rates may involve.

The result of the main issue is a great victory in principle for the national control of interstate commerce and the possession by Congress of the right to use every appropriate means to render that control effective and uniform.—*William H. Taft on Supreme Court's Decision in Minnesota Rate Cases, June* 9, 1913.

Federal Authority Over Railroads

The Supreme Court points out that the authority of the United States may be made as complete in rail transportation as it now is in water transportation. Practically no rate can be made by State commissions that does not directly affect existing interstate rates. The opinion of the court should give the railroads a means amply to protect the structure of their rates if they elect to maintain those authorized by the Inter-

state Commerce Commission and resist all interference with them by State commissions. If this policy is consistently pursued, it should eliminate the States from the field of rate-making as fully as they are now eliminated from control of water navigation.—*L. F. Loree: Apropos of the decision in the Minnesota Rate Case, June*, 1913.

Progress of Regulation

Only slowly and reluctantly did the majority of railroad men yield to public control, and even now some of the operators hold the older attitude to be correct, although admitting that it can no longer be followed in practice. The railroads, being common carriers, require public franchises, and therefore have all of the obligations of public utilities. But the public has gradually asserted its authority over them. As early as 1869 the State of Massachusetts established a railroad commission. California did the same in 1876, New York in 1882. But these early commissions, and those of other States, did not attempt any large control. Indeed they did not have authority to do so. Their power was usually limited to that of recommendations to the Attorney-General. Illinois created a railroad commission in 1871, which in 1873 was given power to prescribe rates, but little in the way of effective regulation was accomplished during this decade.

While in Iowa there was earlier legislation looking toward the control of railroads, in 1897 a law was passed which went a long way towards assuming control within that State. The rates were to be "reasonable," and the findings of the Commission were to be *prima facie* evidence of the reasonableness of the rates. The State of Wisconsin in 1905 enacted an even more

comprehensive and effective law, under which the Commission was given ample power to control the rates charged within the State. The example of Iowa and Wisconsin has been followed by many other States.

The Interstate Commerce Commission, when it was created in 1887, had the power of investigation, but it could go no further than to recommend reparation in case of just complaint. It was, in fact, a purely advisory body. Not until 1906 was the law so amended by Congress as to give to the Interstate Commerce Commission the power to fix minimum rates. In 1910 the Commission was given the further power to suspend any increase of rates pending investigation. Thus it is only five years ago that the National Government has asserted its broad authority to control the rates which railroads may charge in interstate commerce.—*Commission in Arbitration between the Eastern Railroads and the Brotherhood of Locomotive Engineers, Charles R. Van Hise, chairman.*

Regulation Here to Stay

Government regulation is here to stay, and, intelligently administered, it is no bugbear to railroad owners or managers. On the contrary, it can and should be a protection and safeguard. It is plain, however, to every one that the result today of the activity of the Federal and State tribunals has greatly altered the position of railroad securities in the public eye. They no longer offer opportunities for speculative profits; the only speculative element remaining arises from and inheres in the sensitive fear that capital always exhibits in the face of hostile or adverse conditions. The investor, wisely or not, today views the safety and future value of railroad securities with distrust. Meager returns, coupled with doubt about the public

intention toward invested capital in railroad properties, are making it more difficult and also more expensive to secure funds for the urgent improvements and extensions that are necessary fully to equip the railroads to keep abreast of the times. Whether this fear is well grounded remains for the future to determine. Every patriotic citizen should persuade himself and his neighbor that this great industrial servant is in safe hands, and see to it that this proves to be so. Otherwise a continuation of inadequate transportation facilities will, as certainly as night follows day, "place an arbitrary limit upon the future productivity of the land." This was the anxious utterance of the Interstate Commerce Commission in 1907, and is the present concern of every thoughful student of the situation.—*Darius Miller: World Today, December*, 1910.

Cost of Regulation

Now all of this regulation costs a good deal of money, and in these days of great governmental expense it would seem wise to pause a little and make certain that the very best use of the tax-payers' money is being made. For example: The Commerce Commission cost the country in 1888 $97,867, but in 1910 it cost 14 times as much, or $1,385,000. The State Commissions of Wisconsin, Minnesota, North Dakota, Montana, Washington, and Oregon cost in 1909 $266,718.70, or an average of $44,450. Using this average for the States west of the Mississippi River having commissions, gives a total expenditure of $844,550 a year.

Recently the owners of the Minnesota railroads were obliged to appeal to the courts to decide whether laws and orders affecting the earning power of their properties were just, and that case is still pending. The total cost of preparing for and trying that case to the

State and to the railroad stockholders will be more than $400,000. The extra cost to the railroads of the United States by what in many cases seems to be excessive and unnecessary regulation is estimated to be about $85 per mile of road per annum, or nearly $20,000,000 per year.—*Howard Elliott: Address before the Minnesota Federation of Commercial Clubs, in annual convention, St. Paul, Minn., January* 26, 1911.

Ample Machinery for Regulation

There can no longer be any doubt that the public has ample and efficient machinery for the thorough control and regulation of the railroads. We have not only a Federal Commission in Washington which has been granted the widest possible powers to regulate and supervise, but we have also commissions in nearly all of the individual States, with powers relatively as great as those delegated to the Federal body. The Interstate Commerce Commission is empowered to prescribe the manner in which the railroad accounts shall be kept, even to the minutest detail, and the roads are now keeping their accounts in harmony with the requirements of the Commission. It is also provided by law, under penalty of heavy fine and imprisonment, that no discrimination shall be shown either with reference to rates paid or service given, as between individuals or communities.

It has come to be understood that the railroad is a semi-public institution, and that it is expected to treat, and must treat, all with equal fairness. The executives in charge of the railways by virtue of what has come about, occupy the dual position of semi-public officers, charged with the duty of operating the properties in harmony with the laws of the country, and also with the equally important duty of trustee,

representing those whose money is invested in the enterprise. It should be remembered that although the railroad is considered a public utility with important public functions to perform, it nevertheless owes its very existence to the employment of private capital.—*Daniel Willard: Before the Boston Chamber of Commerce, June* 12, 1913.

Ignorance and Legislation

The average critic of railroad management, be he legislative or journalistic, spends one day or two investigating transportation problems that three generations of shippers and railway employees and managers have struggled with. After a session of an hour with himself and a study of magazine and newspaper clippings, he formulates solutions that he hopes may be accepted by the public. He never had charge of a train in face of a mile washout in a storm, with an ax, a crowbar, and a lantern, to make repairs. He knows nothing of the game of chess involved in keeping a dozen trains of constantly varying speed capacities moving on a single track over a mountain top, against another dozen to be kept moving in the opposite direction.

But in an hour's speech he can tell you that the railroad must be made to move its freight with unvarying expedition, or suffer. He does not consider that a railroad has not the slightest control over the destination of its own cars or the cars in its service. He does not realize that the shipper says where these cars shall go and gives them destinations all over the United States, and that the cars received by the road are largely dependent upon the directions of shippers in other sections of the country, maybe thousands of miles away.

It is from such authorities that the general public have formed their conceptions of the railroad business, its evils and its remedies. And, more unfortunate still, too many of those same ideas have crystallized themselves into legislative enactments that hinder instead of heal transportation hurts.—*W. L. Ross: Address before American Association of Local Freight Agents' Associations, Toledo, June* 16, 1908.

Too Many State and National Laws

Every Anglo-Saxon community likes fair play, and as within the last eight years there have been passed about 1,800 State and National laws for the regulation of almost every detail of the railway business, there has been spreading among the people a feeling that the roads ought to be given a rest.—*S. O. Dunn, American Railway Number of the London Times, June* 28, 1912.

How the Railroad is Tied

The high cost of living during the last few years has pinched the railways more severely than any other branch of business. Everything that the railway uses has gone up, from the wages of the office boy to the price of locomotives; but the one thing that has remained stationary has been the cost of transportation. The railway is just like a merchant; it has something to sell to the public. But there is this difference between the railway and the merchant. If the merchant has to pay more for his goods because the wages of the men who make the articles that he sells have increased, and the price of raw materials has advanced, the salesmen and bookkeepers ask more money, and the landlord thinks his store is worth more this

year than it was last, and more men have been appointed on the police force and in the fire department, making taxes heavier, why, the merchant simply charges more for his goods, whether it be coffee or calico, beans or beef. And he can do this, because every other merchant is in the same boat. Manufacturing costs more this year than last, and the retailer has to pay the difference; so the retailer puts the burden on the public, the ultimate consumer. The railway cannot do this, because it is not permitted to charge what it pleases for its services. It is under the control of State and Federal laws; its rates for the transportation of passengers and freight are subject to the approval of local or national authorities.—*A. Maurice Low, Harper's Weekly, August* 31, 1912.

The Scheme of Legislation

The public service in which the carrier engages is undertaken for private gain; the shipper avails himself of this public service, likewise for private gain. The selfishness of human nature is on both sides of the transaction. Now the object of legal regulation is to hold these opposing forces in stable equilibrium, to reduce contests and complaints to a minimum, and to bring the dealings between shipper and carrier under the control of mutual justice. The sufficient scheme of legislation, therefore, will recognize the possibility of wrong-doing on one side as well as the other: it will be judicial rather than partisan in its aims and requirements, and while equipping the shipper with ample protection will also furnish the carrier with all needful defenses.—*Martin A. Knapp: Principles of Railway Legislation. Address before the Railway Congress Auxiliary of the World's Columbian Exposition, June* 23, 1893.

Railroads and Other Industries

It may be well to examine the case of railway securities, which form so large a part of the people's investments. The ability of the railways to pay a legitimate dividend on capital is as essential to the maintenance of transportation of persons and goods—one of the most necessary services required by society— as is the payment of wages to their employees. At the bottom of a just policy toward railways is the right to the same treatment that is accorded to other industries, such as agriculture, mining, or manufacturing—except so far as it is necessary to take into account their quasi-public character. As quasi-public corporations, railways must submit to that kind of supervision by the public which will ensure equality of service and the same rates to all. But beyond that, the railway should not be singled out for crippling and special attacks any more than an iron furnace or a shoe factory. Yet because of the psychological conditions above described, the ambitious politician wins votes by "baiting" the railways and large industrial organizations. Therefore it is well, as in the recent election, to drive the cows out of the garden. The need in Congress is for men who are not representatives of special interests, but who will take into their purview the interests of all who are affected by the problem.—*James Laurence Laughlin: The People's Investments in Railways. Address at the fourth annual meeting of the Association of Life Insurance Presidents, at Chicago, Illinois, Saturday, December* 10, 1910.

Excess of Regulation

The country is suffering from an excess of railroad regulation. Much of it is ill-considered. In many cases the remedies are worse than the evils they are designed to cure. We have seen that the best remedy for over-capitalization due to insufficiency of earnings to pay fixed charges and return on the capital stock lies in the growth of the volume of the traffic. In such cases a restriction of the issue of stock cannot affect its intrinsic value.—*Henry Fink: Federal Regulation of Railroad Securities and Valuation of Railroad Properties.*

A Better Understanding

With a proper exercise of the large experience and recognized ability possessed by railway managers, and public discussions which will lead to a better knowledge of the subject, there are good reasons to believe that a better understanding will be reached between legislators, shippers, and railway companies, and that methods will be introduced which will be for the good of all and end the possibility of further warfare. If unremunerative rates are forced upon the railways, they will unquestionably lead to a deterioration of the service and the impossibility of raising money to build necessary extensions and create new roads. Capital, which furnishes the sinews of all business, will shun localities which render investments unprofitable, disbursements will be smaller, the purchasing power of customers will be reduced, and every branch of trade will feel the evil effects. It is a sound axiom that whatever injures a part injures the whole, and no one great industry of the country

can suffer without others suffering in some degree.—*Horace Porter: Railway Rates. North American Review, December*, 1891.

Creation of Permanent Conditions

Vast areas of country upon the American continent yet remain to be developed. Great sections of the West, Northwest, Southwest, and South have only fairly begun what will be their ultimate development. A railroad's facilities for meeting these demands of the coming years must be planned for long in advance. This is a strong argument for the stability of government regulation. In the coming ten years at least 100 per cent more traffic must be handled than in the ten years that have just passed, and all reasonable regulation should have in mind the creation of permanent conditions that will enable the railroads to meet these demands that are to come to them.

Conditions must be maintained and created that will give the railroads the money to carry on this development.—*W. L. Ross: Address at meeting of Traffic Club of Philadelphia, February* 17, 1912.

Limits of Governmental Regulation

As a railway is a public highway, it is a proper function of the Government to protect all travelers and shippers from undue discriminations in charges or in service when the service is performed under substantially similar circumstances and conditions. As the operating company must exercise a monopoly of transportation over this highway, it is a proper function of the Government to prevent unreasonable or extortionate charges for the service performed.

Neither as a matter of sound economics nor of sound public policy can governmental regulation of

the railways be carried beyond these limits, and it is to the interest of the business man that it should not be. It is to his interest that the railway should receive just and reasonable compensation for each specific service which it performs, as it is only in this way that railway credit can be maintained and adequate facilities be provided. It is, I believe, a property right in which a privately owned railway is protected by the Constitution of the United States to receive just and reasonable compensation for each specific service performed, and I believe that it is to the ultimate interest of the business man that the railways should be protected in this right rather than that by the exercise of governmental authority their revenues should be so reduced as to restrict the value of capital in railway enterprises.—*William W. Finley, at Alexander Hamilton Institute, New York City,* 1911.

Too Many Laws

Today on all important questions but one the railway owner is directed by acts of Congress, of State legislatures, and by the orders of commissions and bureaus. He has little control over the rates, over the hours of labor, over the rules for the conduct of the business in which his money is invested, over the taxes he shall pay. There is reserved to him the one duty and responsibility of finding money to pay the bills.

The Congress, the legislatures, the commissions and bureaus may pass laws and issue orders and the railway will obey them when they understand them and if they are constitutional and until they are exhausted. But there is one great fact that cannot be changed by legislative fiat or commission decree—and that is you cannot make a man invest his money in railways

unless he wants to—*Howard Elliott: Address at the Third National Apple Show, Spokane, Washington, November* 14, 1910.

Inherent Rights of the Railroads

As we have seen, the popular and legal conception of the relations of the railroads to the government has undergone marked changes and, as we all know, there is a possibility of still more radical change. The era of corporate amalgamation marks a transition in the industrial and commercial status which has found effect in modifications of the laws. As the problems developed by this period of transition are not as yet thoroughly understood, the laws to which they have given rise are as yet incoherent.

Inasmuch as the railroads of this country have been constructed and maintained by private capital that capital must be protected in the rights inherent in property. To do otherwise would impede their operation, impair their maintenance, and obstruct their development. There is but one way in which the obligation of the government to the railroads as private property can be removed, and that is through their purchase by the government. The experience of other countries in the ownership and administration of the railroads is sufficient to give the people of the United States a long pause before taking this step.

That private property must be used for the public good applies with redoubled force to the railways. This does not mean, however, that their public relations may be considered a basis for their oppression by the public any more than their status as private property can be made the basis for oppression of the public by them.—*Logan G. McPherson: Lecture under auspices of the College of Arts and Sciences, Cornell University, May* 13, 1912.

Why Not Regulate These?

Two hundred and twenty-one persons killed in New York city during the year 1912 by automobiles; 355 by automobiles and street cars; 135 passengers killed on all the railroads in the United States.

Why not regulate the autos and street cars. Railways are entitled to a rest.—*Railway Record, March* 8, 1913.

Effect of Radical Legislation

One reason, perhaps, why there has been some hesitation in the growth of Minnesota is that the State has been rather extreme in the past about legislation affecting the transportation business. The feeling that the State is somewhat inclined to extreme legislation has had a tendency to keep capital away. Some regulation is necessary and desirable in our modern, complex industrial system; but during the last few years regulation has too often been interpreted by the ambitious law-maker or the active railroad commissioner to mean the taking away of something from some one else, whether such act was just or not. Prices of commodities and railroad rates cannot be handled on a rigid arithmetical basis, with no elasticity, and there has not been enough statesmanship and every-day common sense in connection with attempts made to regulate and manage business by statute. Commissioners and legislatures should have before them always the question, "What is best for all the people, including the owners and employees of railroads?" and not the question, "Can the railroads stand another reduction in rates without the courts stepping in to prevent confiscation?"

Every legislator, every commissioner, and every right-minded man should remember the words of Chief Justice Waite, of the United States Supreme Court, who said: "This power to regulate rates is not a power to destroy, and limitation is not equivalent to confiscation under pretense of regulating fares and rates. The State cannot require a railroad corporation to carry persons or property without reward. Neither can it do that which in law amounts to the taking of private property for public use without just compensation or without due process of law."—*Howard Elliott: Address before the Minnesota Federation of Commercial Clubs, in annual convention, Saint Paul, Minnesota, January* 26, 1911.

Proof of Experience

There should be great care in experimenting with regulation that offers as warrant of its effectiveness the arguments of theorists rather than the practical proof of experience. Among the proposals thus to be tested is the one for Federal limitation of the capitalization of interstate corporations. If the purpose and effect of such action is to invalidate in the courts or to depreciate in the exchanges what are now denounced as watered securities, the blow will fall not on the persons responsible for their creation, but on the victims who parted with money to acquire them. Such an act of vicarious punishment could only be justified by the unquestioned conviction that the continued existence of the assailed securities is a menace to the public welfare. The only ground for such belief is the unfounded fallacy that the amount of securities outstanding against a railroad property determines the rates it charges for transportation. The sufficient answer to this is the fact that the Union

Pacific Railroad, with capitalization of $92,000 per mile of road, competes very comfortably, and upon equal rates, with the Atchison, capitalized at $50,298 per mile, and with the Great Northern, whose capitalization is $42,350 per mile. And the same rates between the same points serve for the Illinois Central, whose capital is $56,495 per mile; the Eastern Illinois, with $62,599, and the Alton, with nearly $115,000 per mile.—*Robert Mather: The Railroad Problem. Address before Chicago Association of Commerce, October* 12, 1907.

Why New Railroads Are Not Being Built

Mr. Untermyer: Do you attribute the absence of competing railroad building as against the great systems to the dominance of the banking interests in those great railroad systems?

Mr. Morgan: I do not.

Mr. Untermyer: You do not? Do you attribute it to the fact that in this comparatively new and growing country there is not any need for any more railroads?

Mr. Morgan: I do not.

Mr. Untermyer: Do you attribute it to the difficulty of getting new capital?

Mr. Morgan: I do.

Mr. Untermyer: For competing systems?

Mr. Morgan: I do. I might add to my reply, if you will allow me to——

Mr. Untermyer: Yes.

Mr. Morgan (continuing): That I think it is owing in large measure to the fact of the want of protection against railroads that has been current in this country for the last ten years.

Mr. Untermyer: You mean the want of protection to the railroads?

Mr. Morgan: To the railroads; yes. Nobody wants to put money into a new railroad in these times.—*Money Trust Investigation, December* 19, 1912.

A New Account with the Future

I assume we are all equally interested in the prosperity of our country as a whole. We cannot have such prosperity as we all desire while the second largest industry in the land, measured by capital investment, remains inert. I positively know that there is today in the minds of railroad managers a feeling of hesitancy, of uncertainty, as regards the future. Possibly that feeling is not justified by the facts, by the conditions. Possibly the managers are mistaken. None the less, the feeling is there and it is dominating the situation, and the all-important question is, How can it be corrected? How can the feeling of distrust, which now rightly or wrongly so powerfully influences the policy of the railroads, be allayed? I should say by removing the cause, and, unless I have altogether failed to make clear what is in my mind, I think the cause, as I view it, should be apparent; but, to be more specific, let the people who use the roads and want the roads now indicate that, having secured the enactment of such laws as they considered necessary in order to correct the conditions complained of in the past, they are now willing (as I think they should be) to open a new account with the future. Let them show that they are willing, as I believe they are, that the roads should be treated fairly; they are entitled to nothing more, they should receive nothing less. Let them consider each new proposal for legislation with entire freedom from any spirit of retaliation. I do

not say that it is necessary to undo anything already done (although experience may show such action to be wise in some instances), but I do say that the railroads should be given a respite from further legislation—State or Federal—for a time at least and until they can work out some of the many new and complex problems now confronting them. If such a course should find favor in the minds of the people and be reflected in their attitude towards the carriers, I do not hesitate to say that the patient now indisposed would immediately show signs of convalescence.—*Daniel Willard: Address at annual dinner of Railway Business Association, New York, November* 22, 1910.

Cost of Regulation

The effect of governmental regulation is much more apparent in railroad operation than in private industries, and, while both proper and desirable, it adds to the cost of operation. Mr. Howard Elliott, president of the Northern Pacific Railway, recently [January 26, 1911,] stated that the cost to the railroads of the United States for board and commission control amounts to $85 per mile of road per annum, an aggregate of $20,000,000. This regulation affects nearly every detail of operation. Though justified by public policy and apparently necessary to keep *all* the railroads up to a standard which the well managed might adopt without governmental requirement, it has an important bearing on any comparison which may be made between railroads and manufacturing establishments not so circumscribed.—*William J. Cunningham: Scientific Management in the Operation of Railroads. Quarterly Journal of Economics, May,* 1911.

A Conservative, Wise, Just Policy

Fair and intelligent consideration would result in the concentration of authority over the railways in the hands of the Interstate Commerce Commission and the abolition or subordination to the Interstate Commission of the numerous State commissions, with their multitudinous, conflicting, vexatious, and costly requirements. It would result in the appointment of well-paid experts and scientists, both to membership on the commissions, and to the various important and responsible positions under them. It would result in public authorities ceasing to try to substitute themselves for the managers of the railways, and becoming content to perform their proper duty of holding the managers responsible for the effects of their management on the public interests. It would result in no diminution of the efforts, growing every day more successful, to suppress all forms of unfair discrimination by railways; but it would result in a diminution of the incessant and successful efforts to hold down railway profits—efforts which are repelling capital from the railway business, and, by preventing adequte increases of facilities, imperiling the welfare of every manufacturer, every merchant, every farmer, every wage-earner, in the country. One thing is certain, and that is that we cannot long continue to muddle along as we are doing now. W. M. Acworth, the eminent English authority on railway affairs, after a visit to this country, said in an article published last autumn in the *Bulletin of the International Railway Congress:*

"If I have an individual belief it is that the United States will get much nearer to the brink of nationalization than they have come at present, and will then

start back on the edge of the precipice, and escape by some road not yet discernible."

The best road by which we may escape is a conservative, wise, just policy of regulation; and the most vital question of our time is whether the people of the United States will be just, wise, and conservative enough to take that road.—*B.. L. Winchell: Atlantic Monthly, December*, 1912.

The Flood of Legislation

The disposition to try to adjust everything by passing laws is nowhere more strikingly shown than in the number of laws introduced into Congress. While the largest number of proposed enactments submitted to any American Congress during the ten-year period ending in 1909 was at the sixtieth session, when 38,388 bills were introduced, the more deliberate and careful methods of the English are shown in the fact that the largest number of bills before any Parliament in that period, that of 1900, was only 621. Less than 2 per cent of the bills before the sixtieth Congress became law, while 67 per cent of the bills proposed in Parliament in 1900 were enacted.

During this ten-year period our National Senate and House considered 146,471 different bills. During the same period the English Parliament considered but 6,251 measures. The Congressional "mill" added 15,782 measures to the law of the land; Parliament enacted but 3,822 new laws. The figures in both instances include both public and private bills, and it should be added that Parliament considers and acts upon many subjects which are considered by State and municipal bodies in the United States.

The State legislatures for 1911 considered as a part of new railroad legislation proposed, a total of 512

bills, affecting physical operation of railroads. These proposed bills related to hours of service, terms of employment, the kind of uniforms to be worn, and other matters affecting employees, compulsory and voluntary arbitration, train rules, regulations for the operation of freight and passengers trains, equipment, car supply and claims, signals, clearances, crossings, maintenance of tracks, and many details which it would be supposed that the long experience and extensive knowledge of railroad managers under the varying conditions of business would be a better guide than the judgment of a legislative body, no matter how excellent its intentions.—*Howard Elliott: Public Opinion; Its Effect on Business. Address before the Publicity Club of Minneapolis, Minnesota, January* 10, 1912.

CAPITAL AND CREDIT.

Railways Must Have Adequate Capital

Without regard to the personnel of railroad officials, without regard primarily to the interest of stockholders, but in the interest of public welfare and national prosperity, we must permit railroad earnings to be adequate for railway improvement at advantage and profit.

The prosperity of the country is measured, and will be measured, by the ability of its railways and waterways to transport its increasing commerce. With a country of such vast extent and limitless resources, with all the means of production developed to a wonderful state of efficiency, the continued advancement of this great people depends primarily upon such an increase of transportation facilities as will provide prompt and safe movement everywhere from producer to consumer; and *that* we shall not secure unless the men who are relied upon to manage these great highways of commerce have fitting opportunity and the capital which is required for their needful expansion is permitted to realize fairly liberal returns.—*Martin A. Knapp, late Chairman of the Interstate Commerce Commission.*

Way to Strengthen Railway Credit

The Interstate Commerce Commission in 1907 declared that the inadequacy of transportation facilities was alarming, yet when the railroads sought to ad-

vance their rates in 1910 to enable them to make better provision for the public demands and establish a higher financial credit, the Commission would not sanction the advance. The earnings for the roads for the two following years, 1911 and 1912, increased $11,054,000, but the operating expenses and taxes were swelled $98,544,000, leaving a less net revenue for 1912 than for 1910 by $87,490,000. This loss was equivalent to the impairment of their ability to raise over $2,187,000,000 at 4 per cent. It is thus that the net revenues of the railroads are depleted and their inability to borrow money is further emphasized. If the railroads could retrieve such yearly net losses, they would be able to strengthen their credit in the financial marts and raise the necessary funds to meet the exigent demands of the business public.—*Benjamin F. Bush: Before the Economic Club, New York, April* 29, 1913.

Value of Securities

Of course the value of corporate securities does not depend wholly or even to a great extent upon the money originally put into the enterprise. That is only one of many factors. Much more depends upon foresight or good fortune in location, and in development and management, and in the drift of population and business or in territorial development. But the main reason why there is so little imposition or fraud practiced upon investors in railroad securities is the publicity given to the affairs of railroad companies. This came originally from the honesty of railroad managers, either from instincts of honor or from the necessity, on account of the large number of stockholders, of stating fully and accurately in the annual reports to the stockholders the real condition of the

corporation. This has been reinforced in recent years by legal requirements. The greatest value of the Interstate Commerce Act, in my judgment, is the requirement of accurate and intelligent bookkeeping and accounting in all particulars, and in the publicity given thereto. Except in some minor matters respecting depreciation charges and the classification of maintenance charges, betterments, and additions, the present system of railroad accounting as prescribed and enforced by the Commission is well-nigh perfect, and affords almost complete protection to the investors against fraud and imposition.—*R. S. Lovett: Statement before Railroad Securities Commission, December* 21, 1910.

Land Grants

There is no doubt that the benefits received by the railroads from land grants have been smaller than was expected when they were so eagerly sought. To the States immediately concerned, the grants have in many cases caused hardship. Following the withdrawal of large tracts of lands for indemnity purposes, construction was often brought to a halt on account of bankruptcy, and the result was that no railroad was built, and the State was left with a smaller population and less revenue than there would have been had the grants never been made. Cases of this sort were not at all infrequent in undeveloped States like Florida, Arkansas, and Texas, and in the territories where population was scant and products limited. Of all the railroads in Missouri which received grants of land, a single one obtained any real aid to construction from this source. In some instances land grants have been a source of expense rather than a benefit to railroads. Admitting that some great specu-

lative inducement was necessary in the launching of such pioneer ventures as the construction of the Illinois Central-Mobile and Ohio and Central-Union Pacific projects, the fact that some railroads have been constructed along similar routes and under identical conditions without the aid of grants of land points to the conclusion that the system of land subsidies was not an indispensable accompaniment of railroad construction in the West. When the grants have proved of service, it has generally been not at a time when their aid was most urgently needed, but after the initial stage of development had been passed by means of loans of public credit and the investment of private capital.—*Cleveland & Powell: Railroad Promotion and Capitalization in the United States. New York*, 1909.

Service, Dividends and Prosperity

As the preacher says, here is a thought which I wish you to take home with you, and that is that every statutory regulation which either improperly reduces the earning capacity of the railways or unnecessarily increases the cost of operating them, renders them just that much less able to serve you with due dispatch and reasonable and increasing safety. Adequate and efficient railway service is today the first necessity of every class of business men in the United States, and, so far as demonstrated up to date, this can only be provided by profitable railroads. You know better than most people in this country the difference between what you and the rest of the public get from roads which pay dividends and are prosperous, and the character of service which you receive from roads which continually pile up deficits; but the "strip of dividend fat" which separates the profitable

from the unprofitable American railway is less than 4 per cent thick; when that is pared away, we all suffer, but not all of us attribute the difficulty to the proper and right reason.

The freight rates of the railways are guarded, supervised, and restricted almost as zealously, in most of our States, as the rates of fare, but the road which makes up on its freight traffic what it loses on its passenger business is, as the Wisconsin Railway Commission says, "guilty of a species of piracy practiced upon the shippers of freight." If it does not in this, or in some other manner, make good its losses in passenger revenue, the result must be either deterioration or bankruptcy. Bear in mind, at the same time, that the low freight rate of the average American railway is the economic wonder of the world, as well as the economic necessity of the national prosperity, which is dependent upon cheap carriage—cheap but safe carriage—of all manners of commodities with which you are so intimately associated.—*B. L. Winchell: Address at banquet of National Association of Commercial Travelers, Chicago, July* 27, 1909.

Free Play for the Railroad Builder

The great factor in the advancement of America has been the free play given for individual action. If at the outset we had tied up the energies of men by statutes and removed the spur of ambition from the inventor, the railroad builder, and the man of business, the progress of our country would have been far less marked than it has been during the last century, and the progress that the rest of mankind has gained under the influence of our example would also have been less. The American railroad managers, not through altruism or philanthropy, but by their indi-

vidual genius, called into play by the beneficent influence of our free institutions, have been working out the destiny of the American people. They have helped powerfully to mold a vast and naturally diverse continent into one people. They have, in a double sense, bound together the most remote parts of the country by cords of steel. They have interwoven our interests and our hearts inextricably with the meshes of the iron net. And if they are to receive your denunciation instead of your gratitude, then there is no species of property in the country which may not be plundered by law. There is a prescription that will almost infallibly work in forcing through such legislation. Fiercely denounce some Wall Street magnate by name, and then add some lurid declamation about insurance, and you could successfully rob any business in the country except farming, and if farmers were not so numerous they, too, would not escape.—*Samuel W. McCall: Speech in House of Representatives, February* 2, 1906.

Backbone of Railroad Credit

An eminent authority has stated, and very properly, that the surplus of a railroad is the backbone of its credit. The surpluses of the railroads are disappearing. When under schemes of regulation severely applied the surplus of a railroad disappears, its capacity for extensions and improvements stops, because what remains represents only a precarious dividend. The margin between that dividend and the interest obligation upon the bonds is too narrow to enable any railroad to borrow money long or in considerable amount.

It has been widely published that in the past year the Railroad Commission has saved two million dollars for the people by reducing the rates of the railroads

within this State. Accepting that statement for the present purpose, it means five per cent on a borrowing capacity of forty millions of dollars. Which is more important to this State, that forty millions be spent in the increase of railroad facilities to serve San Francisco and California, or that the railroads have two million dollars stricken from their earnings? I would like to ask any one in this room whether he has been benefited in his own business to any appreciable extent by that reduction. It would be interesting if every man in this room who has been so benefited would rise in his place; it would be presumption on my part to ask him to do it. If it were fitting, I would like to ask every man to rise in his place who believes he would be benefited by the expenditure of a new forty millions of dollars in railroad improvements and construction in this State. I would hazard my own judgment on your answer.—*Wm. Sproule: Address at the Annual Dinner of the Chamber of Commerce af San Francisco, December* 9, 1912.

Few New Issues of Securities

In no clearer way can the present state of railway credit be set forth than by the bare statement that the railways have practically stopped offering new issues of bonds to the investment-buying public. With traffic moving in the greatest volume ever known and railway facilities very much curtailed as a result of two years of enforced economy, there is every reason why the railroads should be in the market for funds. But such is not the case. Like the man who knows that his credit isn't good and so very wisely keeps away from the bank, railway finance managers are very wisely forbearing to ask investors to subscribe to new issues of railway securities.—*Franklin Escher, North American Review, February*, 1913.

Labor's View of a Railway Surplus

A surplus should be accumulated for the purpose of maintaining uniformity of dividends over periods of industrial or commercial depression, for meeting unforeseen and heavy expenses such as those growing out of the lamentable and disastrous floods in the Middle West, and for installing improvements such as grade crossings or track elevations, which are not immediately productive, or, in other words, do not add directly to the earning capacity of the transportation companies. Where surplus funds are used, however, to make permanent improvements to a railroad property, such appropriations should be considered as a distribution to stockholders in addition to regular cash dividends. The surplus or deficit of an individual railroad also has no significance, as already pointed out, unless its corporate relations are considered.—*W. S. Carter, President Brotherhood of Locomotive Firemen and Enginemen; Brief in Arbitration case*, 1912.

Another Labor View of Surplus

Railway labor does not begrudge—on the contrary, it approves of—proper expenditures out of income for additions and betterments, because it knows that these are necessary to keep pace with the growing demands of traffic, and in the end mean higher pay, better conditions and greater safety for the employés. Besides, these are matters that concern the stockholders and the public after the employés wages have been earned and paid. The distribution of net earnings after the payment of proper operating expenses, taxes and interest charges can be left to the owners of the properties, under the watchful supervision of the Interstate

Commerce Commission.—*From Minority Report of P. H. Morrissey, representing the Brotherhood of Locomotive Engineers in Arbitration with Eastern Railroads.*

Railroads and the Money Market

The amount of profit that railroads ought to be allowed to earn should be treated solely as a matter of expediency. The public will harm itself by exercising its legal right to reduce rates to the point where they are barely not confiscatory. Railroads compete in the money market with manufacturing, mercantile, and other concerns for capital. Capital is invested where, allowance being made for difference of risk, it can get the largest return. If railroads are restricted by reduction in rates, as some propose, to the current rate of interest on the bare value of their physical properties, while investors can get an average of from fifteen to twenty per cent from investment in manufactures, is it probable that capital will be permanently forthcoming for the adequate maintenance and development of the country's rail transportation system?—*Samuel O. Dunn: Fair Regulation of Railroads. North American Review, February,* 1910.

An Appeal to Reason.

I do not wish to speak in a spirit of complaint or criticism; but I want to ask you to carefully study the legislation, National and State, that has been passed during the last five years in the so-called regulation of railroads—regulation that has resulted in almost every instance in either seriously reducing revenue or largely increasing the cost of operation.

Recall the campaign of violent agitation and extravagant unmeasured condemnation of the past four

years. Bear in mind that the average return on capital invested in our railroads is about 4.4 per cent, whereas the return on money invested in agriculture (using statistics of 1905 as a basis) averages about ten per cent, in manufacturing over fifteen per cent, and in merchandising and banking above twenty per cent. Remember that everything in the way of development of railroad transportation in the past has been the result of the investment of private capital, and that if these extensions, enlargements, and improvements, absolutely indispensable to national growth and development, are made, it must be by the further investment of private capital by private citizens, or that dread alternative of Government ownership.

Then ask yourselves if these conditions are of such a character as to attract new investors or to encourage those that have already invested largely in railroads to materially increase their investments.—*W. C. Brown: The Country and the Railroads. Address at the seventh annual dinner, Albany Chamber of Commerce, Albany, January* 7, 1909.

The Unending Way of Capital.

Wherever a steel track can be made to pay, that steel track will be built; for that is the unending way of capital. In a world of politics, great and small, of laws wise and foolish, of lawsuits sane and crazy, of scandal aimed at stock exchange and magnate, it is well to remember this one fact, that capital, and capital alone, can open up the million fields yet unbroken in this country, and coax civilization into the great lands as yet untrodden.—*C. M. Keys: The Advance Agent of Prosperity. World's Work, January,* 1909.

Interest of the Shipper

Ignoring the right and wrong of such a proceeding—its hopeless injustice to those who have in good faith put their money into railway enterprise—and passing directly to the cold question of expediency, would the limitation of profits accomplish the end in view, the lowering of the actual cost of service? Why, of course it would, we hear it said; that's the point of the whole thing—to limit profits by making the railway charge less for its service. But just a moment. It stands to reason, of course, that if a railroad is making what is considered too much money and its rates are ordered reduced, its profits will be cut down. But suppose now that as a result of its profits having been cut down the railroad can't spend as much for improvements as it used to and there is deterioration in the service offered. Then how about the lower rates? Apparently they are lower, but are they really so? Well, the shipper pays less money. Yes, but not for the same thing. The railroad, perhaps, was contemplating buying a number of bigger engines or putting in double track or doing other things calculated to make it possible to move freight faster and better. Very possibly now, with its margin of earnings so reduced, it will not feel like spending the money and the improvement in service will not be made. The shipper may be paying less, but he is getting correspondingly less for his money.—*Franklin Escher: The Delicate Question of Railway Credit, North American Review, February*, 1913.

A Surplus for Emergencies

The railroads should be permitted to earn and hold a surplus equal to fifty per cent of the amount they pay out in dividends, to be held for emergencies and applied to improved facilities. There are many expenses, and new ones constantly arising, that must not be added to capital charge unless rates are to be made that the public cannot and ought not to be asked to bear. In addition to the heavy demands of the ordinary growth of traffic, there are many extraordinary expenses.—*James J. Hill: The Country's Need of Greater Railway Facilities and Terminals. Address at annual dinner of Railway Business Association, New York, December* 19, 1912.

The Railroad's Surplus

An extraordinary doctrine is now being propounded in many quarters. It is held that the accumulation of a surplus is evidence that rates are too high and ought to be lowered; just as if the man who earns, saves and puts a dollar in bank to meet future contingencies thereby admitted himself guilty of either dishonesty or extortion. It is held that a railroad has no right to receive or enjoy income derived from any other source than the operation of its plant. It is asserted that a railroad has no right to the natural increment in the value of its property, though this is not denied to any other corporation or to any individual under like circumstances. It has been attempted to apply these principles to the regulation of railway property, stripping it of privileges enjoyed by citizens and other corporate entities under the Constitution. But how about the other side of the shield? Does the State

recognize and abide by this same doctrine when its own revenue is at stake?—*James J. Hill: The Country's Need of Greater Railway Facilities and Terminals. Address at annual dinner of Railway Business Association, New York, December* 19, 1912.

Theory of Railroad Stock Issues

Every one knows that railroad securities are divided into two classes, stocks and bonds; very few people apprehend as plainly as they should the distinction between the two, or understand the real nature of a share of railroad stock. As to the real nature of a railroad bond, there is no doubt at all. It is essentially a note made by the company—a promise to pay a certain amount of money, say one thousand dollars, at a specific date of maturity, and to pay interest at specified rates in the meantime. The obligation is definite. The value is limited by the terms of the instrument.

But a share of railroad stock is of a different and more complex character. It represents two things instead of one: That a certain sum has been paid in, and that the holder of the stock has a certain *share* in the ownership of the property, of whatever value that may prove to be. The second of these things is what ultimately gives the stock certificate its value. In the case of a railroad bond the fact that it calls for one hundred or one thousand dollars is a determining factor in what it is worth. But in the case of stock, the fact that the certificate represents one hundred or one thousand dollars is far from being the determining factor. It is but one incident among many. Even in theory it purports merely to show that this was the amount originally paid by the subscriber when the road was built. It does not create an obli-

gation to pay its face value, nor does that face represent its money value as a share. The value varies with the development of the property as a whole. If it has been wisely located and well managed it will be worth more than the amount it represents. If it has been unwisely located or badly managed it will be worth less than the amount it represents. The shareholder chose his investment, elected his management, and took his risks. If he acted unwisely and fares badly, he has no claim that the public should indemnify him. If he did well, the public cannot either rightly or wisely fail to recognize and reward his foresight, so long as his road is managed with proper regard to the interest of the community and for the development of the traffic which it carries.

The principal of a bond is a fixed sum, its interest a fixed charge. The value of a share of stock is essentially variable, its profit essentially indeterminate.—*Report of Railroad Securities Commission*, 1911, *Arthur T. Hadley, Chairman.*

New Issues of Bonds

It seems to be generally agreed that no limitation should be placed on the price at which bonds can be sold; but any discount should be canceled or amortized during the life of the bonds by the appropriation each year, out of annual income or surplus accumulated after the issue of the bonds, of not less than the proportionate amount of the discount. In the case of convertible bonds, the same provision should hold good, with the additional restriction that after conversion the laws governing the amortization of discount on stock sold below par should apply also to the unamortized discount on convertible bonds. While the convertible bonds themselves may be sold below

par, the conversion price of the stock should equal its face value, except, of course, in case of shares without par value, where no limit as to conversion price is necessary nor any amortization after conversion. The premium on bonds redeemed before maturity or the unamortized discount on bonds thus redeemed should be charged to profit and loss, and provision made for the gradual cancellation of this charge out of income.

Issues of convertible bonds should be offered to stockholders pro rata, in the same manner as stock itself, to the extent to which they may choose to avail themselves of the privilege of subscription.—*Report of Railroad Securities Commission*, 1911.

What Constitutes a Reasonable Return

We hear much about a reasonable return on capital. A reasonable return is one which under honest accounting and responsible management will attract the amount of investors' money needed for the development of our railroad facilities. More than this is an unnecessary public burden. Less than this means a check to railroad construction and to the development of traffic. Where the investment is secure, a reasonable return is a rate which approximates the rate of interest which prevails in other lines of industry. Where the future is uncertain the investor demands, and is justified in demanding, a chance of added profit to compensate for his risk. We cannot secure the immense amount of capital needed unless we make profits and risks commensurate. If rates are going to be reduced whenever dividends exceed current rates of interest, investors will seek other fields where the hazard is less or the opportunity greater. In no event can we expect railroads to be developed merely to pay their owners such a return as they could have ob-

tained by the purchase of investment securities which do not involve the hazards of construction or the risks of operation.—*Report of Railroad Securities Commission*, 1911.

Amount of Additional Capital Required

There is a widespread belief, based on imperfect examination of the evidence, that the amount of capital needed for the future development of our railroad system is small in proportion to that which has been required in the past; that the profits on such added investments of capital are reasonably well assured, and that we can therefore fix attention predominantly, if not exclusively, on the needs of the shipper without interfering with the necessary supply of new money from the investors.

It is quite possible that the building of additional railroad mileage will be far less rapid in the future than it has been in the past, but the capital needed for the development and the improvement of the mileage already existing is enormous, even if we built no new mileage at all. The outstanding stock and debt of the railways in the United States averages less than $60,000 a mile of line. This figure is bound to be greatly increased in the immediate future. As our population grows denser, we shall need more and more to approximate European standards of construction by the increased amount of double track, the abolition of grade crossings, the development of station facilities, both for passengers and for freight, and many other improvements scarcely less fundamental. While our railroads are perhaps even better equipped than those of Europe for the economical handling of large masses of long-distance freight, they are far from being adequately provided with appli-

ances to secure the convenience of the public or the safety of passengers and employees. The cost of all these things is very great. The average capitalization per mile of railroads in Germany is $109,000; in France, $137,000; in Belgium, $177,000; in Great Britain, $265,000; and, contrary to the commonly received opinion, much of this excess of cost as compared with American roads, is due to other causes than the price of real estate—an item in which our companies have had a great advantage. The cost of European roads has been largely due to improvements which we have not yet made and many of which we must make in the future as population grows denser. The thousands of millions of dollars needed for these purposes must be raised by the sale of securities.—*Report on Railroad Securities Commission*, 1911.

GOVERNMENT OWNERSHIP AND VALUATION.

What State Ownership Means

State railroad ownership too often means not the ownership of the State as a whole, but of a small body of men who happen to hold political power at the time; it is neither more nor less than the substitution of a ring of political managers for a ring of railroad managers. Its practical success varies according to the condition of the civil service. But the Government is, as a rule, less responsible than a private corporation, instead of more so. If there is any lesson which is clearly taught by the history of railroad management from the beginning until now, it is that publicity and responsibility are more important than any set of laws or regulations.—*Arthur T. Hadley: American Railroad Legislation. Harper's Magazine, June,* 1887.

President Wilson's Position

Society can by no means afford to allow the use for private gain and without regulation of undertakings necessary to its own healthful and efficient operation, and yet of a sort to exclude equality in competition. Experience has proved that the self-interest of those who have controlled such undertakings for private gain is not coincident with the public interest; even enlightened self-interest may often discover means of illicit pecuniary advantage in unjust discriminations

between individuals in the use of such instrumentalities. But the proposition that the Government should control such dominating organizations of capital may by no means be wrested to mean by any necessary implication that the Government should itself administer those instrumentalities of economic action which cannot be used as monopolies. In such cases, as Sir T. H. Farrar says, "there are two great alternatives: (1) ownership and management by private enterprise and capital under regulation by the State; (2) ownership and management by Government, central or local." Government regulation may in most cases suffice. Indeed, such are the difficulties in the way of establishing and maintaining careful business management on the part of the Government that control ought to be preferred to direct administration in as many cases as possible—in every case in which control without administration can be made effectual.—*Woodrow Wilson: The State.*

President Taft's Views

This presents the question of Government ownership of public utilities which are now being conducted by private enterprise under franchises from the Government. I believe that the true principle is that private enterprises should be permitted to carry on such public utilities under due regulation as to rates by proper authority, rather than that the Government should itself conduct them. This principle I favor, because I do not think it in accordance with the best public policy thus greatly to increase the body of public servants.—*Extract from President Taft's special message to Congress, February* 22, 1912.

Justice Hughes Opposed

I do not believe in governmental ownership of railroads. But regulation of interstate transportation is essential to protect the people from unjust discriminations and to secure safe, advantageous, and impartial service, upon reasonable terms, in accordance with the obligations of common carriers.—*Statement made by Hon. Charles E. Hughes, Justice of United States Supreme Court and ex-Governor of New York, in an address on January* 31, 1908, *in New York City.*

Government a Bad Business Agent.

In the United States the Central Government possesses under the Constitution a minimum of governmental functions. Yet even among us the public business is conducted with much less energy and efficiency than private business. Although some European States own and manage the railways—never, however, with great success—we hesitate to invest our Government with this function because of its incompetency as a business agent and the inefficiency to which it is doomed by partisan politics.—*Dr. Jacob Gould Schurman, President of Cornell University, in the New York Tribune, February* 25, 1912.

A Hazardous Test

It (*i. e.*, the railroad) can hardly be taken over and worked by the National Government as are the railways of Switzerland and many of those in Germany and the Austro-Hungarian monarchy. Only the most sanguine State Socialist would propose to impose so terrible a strain on the virtue of American politicians,

not to speak of the effect upon the constitutional balance between the States and the Federal authority.—*Extract from the American Commonwealth (new edition, 1910, vol. II, part 6, chapter 106), by James Bryce, British Ambassador to the United States.*

State Ownership in Europe

Extract from a letter by the Hon. Evelyn Cecil, M. P., on the railway nationalization question in Great Britain, published in the London *Times*, June 8, 1912. The first portion of the first paragraph deals with the Western Railway of France:

"Its enormously enhanced deficit, its greater inefficiency of operation, and the insubordination of its staff since it has been taken over by the State are now notorious, and even affect English continental traffic to Normandy and Brittany. These disastrous results were preceded by a large increase in the number of employees, on the acquisition of the railway by the government, which has in no way been justified by increased efficiency. Under state management the discipline necessary to the best administration is disregarded by employees, who are mostly electors, while the pressure brought upon a squeezable minister to raise wages is highly detrimental to public interest. There is a similarly large increase in the number of railway employees in Belgium, where the private lines were taken over by the State, and Belgian State railways are run at a loss. In Italy, when the chief railways were nationalized in 1905, the number of employees was increased within three years from 97,000 to 137,000, and the systems do not earn enough to pay one-quarter of the interest on investment in them. The whole process of nationalization in Italy was accompanied by widespread strikes, and in one case the

appointment by the government of a most capable officer was directly afterwards canceled, apparently on the ground that this highly reputed expert was objected to by the men as too strict a disciplinarian. It has been charged in the Canadian Parliament that during political campaigns the government increases the number of employees on the Intercolonial Railway (which is under government management) to influence election results."

Results of Government Ownership

Generally speaking, the results have been poor. For instance, in 1907, quite a favorable year for railway traffic, the state systems of Europe, excluding Prussia and Saxony, earned possibly 3 per cent upon their reputed capitals. Thus France (*l'ancien réseau de l'État*) made 1.87 per cent, Italy 2.18, Norway 2.64, Sweden 2.75, Denmark 2.92, Würtemburg 2.47, Austria 3.01, Belgium 3.29, Bavaria 3.45, Hungary 3.50, Imperial Railways of Alsace-Lorraine 3.58, Switzerland 3.62, Baden 3.90 per cent. In 1908, when the effects of the economic depression which commenced in the United States in the fall of 1907 really began to be felt, the average return fell considerably below 3 per cent. Such results indicate that most of these railways—on a proper representation of capital, probably all of them—were actual burdens upon the finances of their respective states, for the latter have usually had to pay from 3½ to 4 per cent, or even more, for the necessary capital.—*Ernest R. Dewsnup, Bulletin American Economic Association, April*, 1911.

A Hard Blow to the Credit of France

The results of the State purchase of railroads may be summed up as follows:

The working of State railroads is more costly for France than had even been foreseen by its adversaries. It has proved the powerlessness of Parliament to control such undertakings. It has set up a class of workmen and employees who consider that the line is run for their benefit and not for the convenience of shippers or travelers. It has dealt a hard blow to public credit in France.—*Yves Guyot, former Minister of Public Works, France, in New York Times, January* 5, 1913.

A Huge Political Machine

The day you decide upon Government ownership, you have sown the wind from which you shall reap the whirlwind—you have sown the seeds of destruction of our republican form of government, though the end may be one or three centuries away. Let me paint you a picture. Some future demagogic President of the United States, drunk with ambition to succeed himself; a political machine composed of three to five million Government-owned railroad employees; the support of capitalistic interest that would come with the disposition in the hands of such a President of $5,000,000,000 annual income of these railroads—with these tools your demagogic President would become dictator over an empire vaster than Cæsar in his proudest moment ever dreamed of.—*James C. Jeffrey, at the annual banquet of the Transportation Club of Detroit, February* 8, 1913.

France a Bad Railway Manager

From all points of view the experience of State railways in France is unfavorable, as was foreseen by all those who had reflected upon the bad results given by the other industrial undertakings of the State, such as telephones, matches, and many others. The State, above all an elective administration, cannot be a good commercial manager. It works expensively, and is powerless before its employees. The experience which we have recently gained has had at least one result. It has provoked a very lively movement, not only against the repurchase of the railways, but against all extensions of State industry. This result seems to me fortunate. I hope this opinion will be maintained, and that not only we, but our neighbors, may profit by the lesson of these facts.—*Pierre Leroy-Beaulieu: State Railways in France. (Abstract from papers read at the Congress of the Royal Economic Society, January* 11 1912.)

Where Railroads Are State-Owned.

In Australia, and wherever else State ownership and operation of railways has been tried, the people are taxed to make good the railway deficits. In short, American railways pay more than their share of the public taxes and carry freight at about one-third the rates charged in New South Wales, where the people are taxed to make up the railway deficit, besides paying high freight rates. The effect of State ownership in railways and other public utilities in Australia is reflected in the per capita indebtedness of the colonies as follows:

	Taxation per capita.
Queensland	$380
South Australia	375
West Australia	358
New Zealand	336
Tasmania	261
New South Wales	221

What these figures mean may be judged from the fact that the per capita public debt in the United States is only $14, and that of Canada, even with its $80,000,000 debt for the Intercolonial Railway, is only $66 per head.—*Slason Thompson: Government vs. Private Control of Railways. Address before Railway Department of the Y. M. C. A., Chicago, October* 24, 1905.

Stimulus of Private Ownership

We cannot expect railroads that are managed by the Government to be so progressive as those that are managed by private companies. Not only the railroad itself, but all the great improvements and economies in the handling of traffic have come in countries where the system of private ownership prevailed and where there was an opportunity for competition to show what method was best. We must not think that because we have lost one of the benefits of free competition in American railroads we have lost them all. It no longer serves to regulate rates, but it still serves as an incentive to efficiency and economy and as a stimulus to progressive methods. We cannot afford to give up this stimulus by the adoption of a system of government ownership without weighing carefully the probable results of the change—in other words, without

seeing how government ownership works in practice.—*Arthur T. Hadley, President of Yale University, in Youth's Companion, April* 18, 1912.

Dangers of Excessive Regulation

I do not believe that the sentiment of the majority of the people of the United States is favorable to government ownership, nor do I believe that Congress and our State legislatures are consciously moving in that direction, but I do believe that if some of the more extreme legislation already enacted is supplemented along the lines now proposed, the ultimate result must be to break down the system of private ownership.

Some liberty of action is essential to the life of every business enterprise. The manager must have the power, in respect to the necessities of his business, to reasonably economize in the matter of wages and other expenses, and to reasonably adjust his charges to economic conditions. In the same way, there must be left to the railway manager room for the exercise, within reasonable limits, of similar powers of direction and control. It is impossible for the private management of railways to succeed, if the management is confronted, in whatever direction it may turn in the orderly exercise of business judgment, by the fixed bayonets of legislative penalties. Government which regulates must so shape its regulation as to leave to the management the power quickly to adjust itself to the changes in economic conditions; otherwise private ownership and private management cannot sustain themselves. If these are to survive, it must be recognized by American statesmanship that the common carriers of America must not be subjected to undue restriction through what Mr. Justice Brewer recently,

speaking generally, characterized as "an inordinate longing for legislation."—*W. W. Finley: Address at the annual dinner of the Traffic Club of New York, March* 6, 1908.

Built by Private Funds

The railroads of the United States, unlike some of the railroads of the older countries, were not built by the Government, but by private funds, aided, of course, in many ways, by bonuses from cities, towns, villages, and other municipalities. In 1859 we had 28,000 miles of railroad; in 1910 we had 266,000 line miles of railroad, not including second, third, or fourth tracks, yards or sidings, which indicates that in 50 years we built 238,000 miles, or enough to circle the earth ten times. It would be foolish for any one to state that these railroads were built with private funds as a philanthropic measure, simply to build up our country. Every one knows they were built in the full belief that they would be a good investment, which would give the owners handsome returns—the very same reason that thousands of people went into the West and took up cheap lands—with the hope that riches and its incident prosperity would be the reward.—*Address of J. F. Holden, at sixth annual dinner of Milwaukee Traffic Club, Milwaukee, Wis., January* 20, 1913.

Would Imperil Free Government

Regulative authority there must be. But it must be consistent, comprehensive, and uniform. It must be governed by the rule of fair play to the shipper, the railroad, and the consumer alike. Behind ruthless aggression by either corporation or State stands the menacing figure of public ownership. This has no

power to affright the present owners of railroads, since their property could not be taken without fair compensation. But for the people it would be the beginning of the end. No sane man can believe that our institutions or free government in this country would long survive the change.—*James J. Hill: Highways of Progress.*

Ownership and Politics

The greatest positive danger of Government ownership lies in politics. There are upwards of 1,700,000 men now employed by the railroads of the United States, earning over a billion dollars a year in wages, and if the Government owned and operated the railways they would all become office-holders. If we may believe the experience of Belgium and Italy, their numbers might be expected to increase rather than diminish under Government management. It is not difficult to imagine what the result would be in practical politics, what pressure there would be upon a party in power for the existing jobs, and for the creation of new ones—a pressure which no civil service could altogether resist.—*Fairfax Harrison, before the Conference on Southern Problems, at the University of the South, Sewanee, Tennessee, August* 1, 1911.

Effect on States

When, if ever, the Federal Government owns and operates the railroad systems of the country, the power of Massachusetts to control the railroad service within its borders, except through its representatives in Congress, will be absolutely gone. With mere Federal regulation, Massachusetts may co-operate, but in this co-operation it must secure proper service by its own

agencies and efforts. For the regulation which will consider the special needs of the people of Massachusetts little dependence can be placed upon the general regulation by national agencies.—*Governor Foss, of Massachusetts, Inaugural Message, January*, 1913.

Elements of Value

I wish also to refer to the subject of so-called physical valuation. In the first place, I think that is an unfortunate designation of the subject, because it implies that there are no elements of value in a railroad property except those of a strictly tangible sort. I understand the argument that in valuing a railroad for public purposes there ought not to be an additional value on account of the rates that it earns, because you then argue in a circle; you give it a value on account of its rates, and then give it high rates on account of its value. I realize allowance must be made for that. But, eliminating that element, there is a value to the element of a going concern which I think is entitled to consideration. I am not going to undertake to discuss that at length. I mention it simply in passing.—*Walker D. Hines: Statement before Railroad Securities Commission, December* 22, 1910.

Rates and Physical Valuations

The study of systematic rate-making has been confused also by the will-o'-the-wisp of the physical valuation theory. At first it was the popular advocate, the shrewd politician, who seized upon physical valuation as a slogan because he had heard so much of watered securities that he believed that a valuation of railway property would afford an automatic excuse for compelling a reduction of rates. But after the

first few valuations had been made, the shrewd politician dropped the theory like a hot potato. The practice of the railways in the past of putting back into the property so large a proportion of their revenues through maintenance expenses, and the increment of real-estate values which the railways claimed equally with the owner of the corner lot, were demonstrated to have run up the physical value of most of the railways, when ascertained by any fair system of appraisal, to a figure which was dangerous to the theory that rates were too high if based solely on physical value. So some railways themselves, who at first had opposed physical valuation, seized upon the discord of the politician and promoted it into a ground for an injunction. But probably this plea must now be abandoned also by the railways. The implacable logic of the suggestion that on this theory, as values are constantly increasing, rates must also constantly increase, would seem to put an end to rate-making on the simple arithmetic of physical valuation, for every student of political economy knows that railway rates in the United States, taken by and large, have, through the operation of general economic laws, gradually and steadily decreased.—*Fairfax Harrison: Address before Transportation Club of Indianapolis, March* 31, 1911.

RAILWAYS AND WATERWAYS

Canals Only Supplementary

Canals can never be a substitute for railways. For passenger traffic, or for goods to which speed is essential, they are evidently useless. Then, what with lack of water in summer, frost in winter, and the necessarily not infrequent closing for repairs, there is a considerable number of days in the year in which canals are not available for any traffic. Moreover, there are only certain portions of the country whose physical features permit the construction of canals at all. At best, therefore, canals can only be regarded as a supplement to railways. Contrary to the usual belief, the supplement is certainly not less expensive than the original. It is true that the average cost of a French canal per mile is scarcely half that of a French railway, but in the cost of the railways is included that of lines in mountainous districts where canals are inconceivable; is included, moreover, the cost of rolling stock, of stations and offices, of vast locomotive and carriage shops; is included, too, the money spent in paying interest during construction, none of which expenses are incurred by the State in the case of canals.—*W. M. Acworth: Taxes on Transport in Nineteenth Century. January*, 1892.

Different Kinds of Waterways

Deep seas came into being and their maintenance as highways is free of cost, and for their use no toll is charged. Over great bays and into estuaries the

largest of the present-day ocean liners can go; but there are few of the boundaries dividing estuary from river which they can pass. The facility with which even the greatest rivers can be navigated varies greatly. In the United States but few of the rivers tributary to the Atlantic are navigable for considerable distances. On the deep sea any number of ships as large as can be navigated may pass with undiminished speed. On a river the size of the craft, the rapidity of movement, and feasibility of passing, are limited by the width and depth of the channel; these limitations apply with greater force on a canal; and where there are locks the rate of movement and facility of passage are further restricted.

In England the canals that did not pass under railway control have, with but few exceptions, fallen into decay and most of them have been operated year after year at a loss. In the United States during the early decades of the nineteenth century many canals were built, at a cost ranging from fourteen to seventeen thousand dollars a mile in the level Middle States and from thirty to sixty thousand dollars a mile, and even more, in the mountainous east. It was at first the general belief that, while the railroads would be more useful for the conveyance of high-class merchandise, demanding quick service, they would never supplant the canals in the conveyance of low-grade heavy commodities. Canal after canal was abandoned, until at this time there are very few interior canals in the whole country. In England the railways not only demonstrated their superiority over the canals for the transportation of interior traffic, but in very great measure displaced the coastwise vessels that had been in service between one and another of the ports. In obedience to the primal law, in the struggle for existence there was survival of the fittest.

In Germany the rates of the railways were made, and are maintained, at a level so high that the water-craft, which are allowed to charge whatever they please and to whomsoever they please, have in this respect a tremendous advantage. In France the rates of the railways were arbitrarily made and are arbitrarily maintained, at a level which averages twenty per cent higher than the rates of the water-craft, which in that country, as in Germany, Holland, Belgium, Austria-Hungary, Russia, and Italy, are allowed to charge whatever they please. The cost of this is enormous. The total capital expenditure of Prussia on its rivers, canalized rivers, and canals, to 1906, amounts to $132,000,000. The revenue from the interior waterways in 1905 was over $2,300,000 less than the expenditures for maintenance. If there be added thereto interest on the capital at three and one-half per cent, amounting to $4,637,750, it is found that the charge borne, without offset, by the State of Prussia during 1905 for its interior waterways amounted to nearly $6,500,000. The interior waterway traffic of France bears a charge of nearly nine-tenths of a cent per net ton per English mile, which considerably exceeds the average received by the railways of the United States on all their traffic. In every one of the European countries the Government practically makes the boatmen a present of the waterways. Yet, in every one of these countries the superiority of the railways is manifest. In the United States, as in every country of Europe, the subject of waterways is a matter of politics, tossed forward and back as one or another party comes into power and as popular enthusiasm waxes and wanes.—*Condensed from article by L. G. McPherson, in Atlantic Monthly for April*, 1910.

Cost by Canal Greater

Unless saving in hauling by water can be extended over a considerable distance—and a considerable part of this distance must be on a natural waterway, rather than a canal—the *total cost* of transportation, including charges on the investment in the waterway itself, will be greater than that by rail. This is a cardinal principle in transportation in Germany and France. At precisely that place, therefore, where railway rate regulation is most necessary—namely, on local traffic—the waterways are wholly unable to perform the service.—*H. G. Moulton: Waterways vs. Railways.*

Senator Burton's Statement

It is said that the reason for improving these streams is very largely the regulation of freight rates. I maintain that that is an erroneous policy. Waterways and railways alike are agencies for transportation. The question is which is the better way. The railways, built by private capital, cost money; the improvement of rivers and harbors costs money. In either case the amount expended is a charge upon the resources of the country.

The better way to regulate freight rates is by legislation, by the appointment of commissions, by the exercise of those functions which the different departments of the Government possess. Also, if the improvement of a waterway lowers freight rates in that locality, is it quite just to that greater area which is removed from that waterway? Whatever decrease must be made in charges on the railways paralleling the river or waterway must practically be made up by increased charges where waterway competition does

not exist.—*T. E. Burton: Extract from speech in United States Senate, February* 20, 1913. *Congressional Record, p.* 3580.

Rates of Railways and Erie Canal Compared

A comparison of the cost of transportation by canal and by rail should include not only the immediate cost of conveyance, but also the cost of capital, of operation, and of maintenance.

Since 1882 the canals of the State of New York have been maintained and operated at the expense of the State for the free passage of boats, the only charges paid by the shipper by canal being those of the boatmen for conveyance. This does not mean that the fixed charges and cost of maintenance are obliterated, but that they are borne by the community as a whole instead of by the shipper.

Official data indicates that up to 1905 the cost of the Erie Canal was about $57,600,000, or $163,600 per mile. If only 4 per cent be allowed for interest charges and extraordinary repairs and depreciation on the Erie Canal, and its total cost be taken at only $55,000,000, the annual fixed charge for these purposes is $2,200,000. This may be termed the aggregate cost of capital reduced to an annual basis.

As nearly as can be computed from ascertainable data the expense of maintaining the Erie Canal borne by the State of New York for the year 1909 was $672,105.

As nearly as can be computed from ascertainable data the average ton-mile charge made by the boatmen for conveyance of traffic over the Erie Canal is 2 mills.

A liberal estimate of the traffic on the Erie Canal for the year 1909 is 435,000,000 ton miles.

Apportionment of the aggregate annual cost of capital to this ton mileage gives 5.06 mills per ton mile. The cost of maintenance likewise apportioned gives 1.55 mills per ton mile. These items added to the immediate charge for conveyance of 2 mills make the total cost of transportation of freight on the Erie Canal 8.61 mills per ton mile.

For the same year of 1909 the average freight receipts were 6.2 mills per ton mile by the New York Central, 6.1 mills by the Erie, 7.4 mills by the Lackawanna, and 6.4 mills by the Lehigh Valley.

Whichever one of these various railway average receipts per ton mile be taken, the cost of transportation on the Erie Canal exceeds it by from 16 to more than 40 per cent.

These average rail receipts moreover include returns from high-grade merchandise such as is not carried in any quantity on the Erie Canal. The traffic of the Erie Canal is composed principally of grain, lumber, iron, and iron ore and coal. The receipts of the railways from such traffic are lower than their average receipts, and therefore the ratio of rail receipts to canal receipts on the kind of traffic that is carried by canal is lower than the above percentages indicate.—*Bulletin No.* 21 *of the Bureau of Railway Economics.*

FIVE POINTS IN THE SITUATION.

First of all, it is very clear that the period of railroad building and extensions is over. A great deal of capital is needed, and will be used in completing and improving existing railroads and in adding to their equipment and facilities; but the period of building extensions into new territory is over, because there is no encouragement to the investor. There is a vast territory west of the Mississippi and Missouri rivers which needs development; but however this may be, it can be put down as a safe prognostication that if the present policy of regulation continues, this territory must rely for development solely on the extension of branches and feeders from existing railways, and they will make additions to their mileage only in proportion to the encouragement afforded by the earnings of existing lines.

Second. The railroads' cost of living has gone up enormously in the last twenty years. Staple necessities, such as fuel and ties, have increased very largely in cost, and at the same time the standards of service which the public lemands have greatly risen. In order to increase their efficiency, railroads have been compelled to use larger locomotives, increase their tons per train; this, in turn, has created a demand for larger and stronger cars, heavier rail, better roadbed, and so on.

Another important point is that in recent years the general rate of interest has risen. It has risen against

the railways as well as against other borrowers, and, therefore, to raise adequate capital the railways must pay, and must, therefore, earn, a larger return on capital than formerly was necessary. Railways which a few years ago could sell 3½ per cent bonds at par cannot now sell 4½ per cent bonds at par. The net earnings of the railways have not increased in proportion to the increase in the amount that they must pay to get new capital or to refund old securities.

Third. Every new public demand of the Federal or State government or the municipality puts a burden which is especially heavy to bear by the railway company with small resources. It is perfectly clear to railroad men that the day of the small railroad has absolutely gone. A railroad of less than 500 miles which is not an adjunct to an important mining or manufacturing concern has little show for existence. Although public opinion more or less resents the great railroad corporation and the excessive centralization of authority incident to these large corporations, yet it is perfectly clear that the many exactions of law to which I have briefly referred have had much to do with bringing them into being. In the battle for existence only the strongest have been able to survive.

Fourth. It has been sometimes pointed out that poverty and wealth are largely comparative terms; and certainly this applies to railway corporations just as much as to individuals. The plea of the relatively poor corporation for an advance in rates is unheeded. Our commissions think only of the profits which our richest corporations will make by reason of a possible advance. The fact that the richest corporations represent relatively small proportion of the total mileage; that they are rich by reason of fortunate chance or extraordinary foresight; that many of them are corporations which went through a long struggle in

their early history and only after bankruptcy were put upon a paying basis, is forgotten. The very complexity of all these questions points clearly to the principle that the public should more and more depend on expert knowledge in the regulation of the railways, and not attempt this regulation by annual legislative enactments.

Fifth. The greatest hope of the railways and the public in the future lies in intelligent regulation. Railway officers whom I meet and talk with do not in the least fear the results of regulation by commissions free from political pressure, with a fair knowledge of the facts. Our experience is that these commissions, as they come to know the problem better, are more and more willing to understand the railroad man's point of view, and, as we think, deal fairly with us. One of the great troubles is that while the public and the legislatures have created these commissions on the theory that they will be most competent to solve the problems of public regulation, the public and legislatures will not refrain from interfering with the work of the commissions. In many States the legislatures or the people by referendums have adopted laws to reduce rates or impose unreasonable restrictions or burdens on the railways when the legislation was openly opposed as unreasonable, unjust, and harmful by the commissions. The public shows too much of a disposition to disregard injunctions of experts to be fair and moderate, even when they proceed from its own experts, and to trust and follow only those public men who advocate radical and even violent measures. We are not blind to the danger which lies in the public clamor for better service and more exacting requirements. It sometimes seems as if every man's hand were against us, and as if few men in public life could be found to possess the requisite courage to withstand the pres-

sure; but my opinion is that while the public is slow in making up its mind, it finally comes to a right conclusion, and the reaction is all the more effective when it does come. The time is sure to arrive when the public will see that if there isn't a fair profit in railway operation the development is bound to cease, because capital will seek other and more gainful occupations.—*Frederic A. Delano, before the Economic Club of New York, April* 29, 1913.

SEVERE TESTS OF RECENT YEARS.

To understand just what is the matter with the railways today it is necessary to begin with the situation that confronted them in the panic of twenty years ago. During the six years that followed the financial breakdown of 1893, the traffic of the railways so fell off that over a fourth of the railway mileage of the country went into bankruptcy, and many of the strongest companies kept out of receivership only by the exercise of severest economy. All over the country freight cars by the thousand were standing empty on side-tracks; locomotives by the hundred were idle in round-houses; everywhere there was insufficient expenditure upon roadbed and track; the forces of employees in every department of the service were cut to the lowest number that could keep things going. Shippers pressed the railways for reductions in rates.

During a time of depression is when the railways ought to put their equipment in the best of repair and build up their track and structures. They ought to take advantage of the low wages and low prices for material for making extensions and improvements. Though but little understood, it is a fact, however, that the income and outgo of the railways with but few exceptions is at all times so nearly balanced that there is seldom a surplus available for expenditures that do not promise immediate return. For capital expenditure the railways are nearly always obliged to seek new capital.

In the six years that succeeded 1893, surpluses not only were whittled down and exhausted, but new capital was not obtainable. During those six years the country was saturated with pessimism. It was the common cry that the manufacturing capacity exceeded any probable demand for a generation to come.

THE TIME OF PESSIMISM

Right and left it was said that the pauper labor of Europe made it impossible for the United States to continue in the world's markets; politicians and muckraking writers uttered dire misgivings as to the oncoming competition of the awakening East, the so-called yellow peril of the Orient. Under these conditions a railroad manager who would have endeavored to obtain new capital for extending track and extending equipment, for increasing the capacity of his railroad beyond immediate needs, not only would have been unable to obtain the money, but would have been deemed a lunatic. The energies of the great bankers were not then devoted to raising new capital in preparation for the future, but to the readjustment of existing capital issues that the railroads might be kept running at the time.

That the pessimism was without foundation was proved by the course of events. Yet at the time the despairing utterances were believed to portray the conditions.

The resumption of business that began in 1898 was under terrific headway in 1899. Mills and factories that long had been idle were working night and day; the farms burst forth in plenty. Although but a few years before in the great cities public and private charity was feeding thousands of workingmen who could not secure employment, there was now work for multiple the number of men that were available.

Capital flowed into new investment like the rush of a vernal torrent. Millions and millions of dollars were ready to open new mines, to build new mills and factories and to provide new machinery, and to erect new skyscrapers, new hotels, and theaters.

CAME ON THEM UNAWARE

This burst of business came upon the railroads pretty much as the Spanish war came upon the War Department. President McKinley held up the war to give the Department a chance to get ready, but there was nobody to hold up the flood of traffic until the railroads were ready. It hit them fore and aft and amidships. What seemed like a spring freshet in 1900 had become a raging torrent in 1901. There is no business in this country that does not have to rely upon the service of the railroads and it is hardly an exaggeration to say that at that time there was not a business in the country to which the railways rendered service that was satisfactory to those engaged in its direction. Raw material coming in and finished product going out were subjected to unwonted delay. There was not a mill, or a mine, or a factory, or a farm that was not clamoring for more cars and prompter service. Retail stores were complaining and even the householder awaiting a shipment of furniture had his patience exhausted.

At that time the railways were not even given credit for doing the best they could. They were moving an unprecedented volume of business, and the country was prospering as never before. Mines and mills had never turned out so much; the stocks in wholesale and retail stores had never been so heavy. Yet the railways did not have tracks enough, cars enough, locomotives enough, or employees enough, and there were manu-

facturing plants that were stealing away their men at the same time they were complaining of their service. The railways were so clogged that additional traffic meant a loss instead of a gain.

LITTLE MONEY FOR RAILWAYS

The railway managers learned that they needed more capital, that there was immediate use for every dollar they could get; but when they asked for millions instead of the hundreds of millions which they really needed, the country was aghast. Money had poured into mines, mills and factories, and farms were rising steadily in value, but when the poor dog of the railways asked for a bone it was kicked and cuffed. Rails, cars and locomotives had been ordered, but the factories also were clogged. This condition lasted the greater part of three years. The business reaction in 1903 brought some relief.

In these three years the railways did a great deal toward expanding their facilities; rails, cars and locomotives at last did come and they came in mighty volume. But there were respects in which the railways were handicapped by the very advances which they were making. For example, it was in about 1895 or 1896 that were built the first steel freight cars with capacity of forty and fifty tons, exceeding by about two-thirds that of the cars commonly in use.

About the same time were designed the new locomotives with tractive power about two-thirds greater than that of those in use. As these cars and locomotives came into service it was found that in many cases roadbed and bridges were not strong enough for the heavier weights, and that the cast-iron wheels which had been adequate for the older types of equipment were not strong enough to support the new. Thus was necessitated a general rebuilding.

The heavy demands of the traffic compelled the use of every car that could be placed in service, and thus old wooden cars were run in the same trains with the new steel cars; the old cast-iron wheels for which no satisfactory substitute was immediately found were the cause of many a wreck. The necessity for the rapid increase in their forces compelled the railways to employ the best recruits that could be obtained, but who sometimes were without sufficient experience.

ANGRY AT THE RAILROADS

Most people not only did not appreciate the difficulties of the railways but were largely not aware of them. They were angry at the railroads. They had had a good deal against the dog anyhow, and just wanted to kick it.

The Federal legislation shaped by the houses of Congress has much to commend it, and the Interstate Commerce Commission admittedly is a fine body of men. There is no criticism here of the Federal legislation or of the Commission except to suggest that neither would be human if it were perfect. The trouble was that the attack upon the railroads was taken up by the State legislatures, and they have been kicking the dog ever since. They have not confined their energies to the regulation of the railways, but have passed bill after bill prescribing detail of railway administration oftentimes without giving the railway officers a fair chance to be heard.

RUSH HAS CONTINUED

The railroads at the beginning of this century were quite unprepared, and through no fault of their own, for a rush of traffic such as the country had not known. They have been forced to renew their facili-

ties in the face of this onrush, which has continued except during two brief periods of reaction. They have been harassed in obtaining requisite capital and by legislation, much of which has been injurious in its effect. Under these conditions the railways have accomplished a great deal, but the development has been very uneven. They have done the things that they were obliged to do to meet the immediate demands of traffic and the immediate behests of legislators. They have not had the capital or the opportunity to do many things that must be done, which the people must allow them to have the means for doing, and which the people must not expect them to do unless they have the means.—*L. G. McPherson: a syndicate article printed in various newspaper, May* 26, 1913.

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Railway Mileage.

Year ending June 30—	Single track.	Main track.	Yard track and sidings.	All tracks.
1900	192,556	206,631	52,153	258,784
1901	195,562	210,437	54,915	265,352
1902	200,155	215,974	58,221	274,195
1903	205,314	222,261	61,560	283,822
1904	212,243	230,581	66,492	297,073
1905	216,974	236,855	69,942	306,797
1906	222,340	243,322	73,761	317,083
1907	227,455	250,226	77,749	327,975
1908	230,494	254,193	79,453	333,646
1909	235,402	259,975	82,377	342,351
1910	240,831	266,185	85,582	351,767

STATISTICS OF RAILWAYS OF THE UNITED STATES.

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Equipment.

	Locomotives.	Freight cars.	Passenger cars.	Total cars.	Cars per 1,000 miles of line.
1900	37,663	1,365,531	34,713	1,450,838	7,535
1901	39,584	1,464,328	35,969	1,550,833	7,930
1902	41,225	1,546,101	36,987	1,640,185	8,195
1903	43,871	1,653,782	38,140	1,753,389	8,540
1904	46,743	1,692,194	39,752	1,798,561	8,474
1905	48,357	1,731,409	40,713	1,842,871	8,494
1906	51,672	1,837,914	42,262	1,958,912	8,810
1907	55,388	1,991,557	43,973	2,126,594	9,350
1908	56,733	2,089,302	45,117	2,231,181	9,680
1909	57,212	2,073,606	45,584	2,218,280	9,423
1910	58,947	2,135,121	47,095	2,290,331	9,510

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Equipment—(Continued).

	Tractive power of locomotives. (pounds).		Capacity of freight cars. (tons).	
	Aggregate.	Av. per loco.	Aggregate.	Av. per car.
1900	... ...	... ...	... ...	..
1901	... ...	... ...	... ...	..
1902	768,502,779	20,485	42,292,977	28
1903	941,915,540	21,781	48,530,281	29
1904	1,052,307,261	22,804	50,759,133	30
1905	1,128,771,082	23,666	53,255,083	31
1906	1,260,633,673	24,741	59,059,302	32
1907	1,409,006,658	25,823	67,033,324	34
1908	1,477,756,536	26,384	72,663,665	35
1909	1,503,971,444	26,634	73,137,546	35
1910	1,588,894,480	27,282	76,578,735	36

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Freight-Train Mileage.

	Freight-train mileage.	Mixed-train mileage.	Freight-train miles per mile of line.	Freight-train miles per freight locomotive.
1900	492,543,526	30,691,508	2,592	22,808
1901	491,942,041	30,978,210	2,535	21,540
1902	499,711,176	30,824,268	2,526	21,180
1903	526,312,433	31,491,647	2,596	20,685
1904	535,090,971	31,973,615	2,563	19,797
1905	546,424,405	32,189,996	2,546	19,607
1906	594,005,825	32,833,713	2,704	19,901
1907	629,995,723	32,111,134	2,801	19,639
1908	587,218,454	34,866,036	2,565	17,448
1909	568,854,608	36,236,916	2,442	16,763
1910	635,450,681	35,807,207	2,669	18,160

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Passenger-Train Mileage.

	Mileage.	Passenger-train miles per mile of line.	Passenger-train miles per passenger locomotive.
1900	363,469,596	1,913	36,852
1901	385,172,567	1,985	37,821
1902	405,613,231	2,050	39,311
1903	425,142,204	2,097	40,222
1904	440,464,866	2,110	39,145
1905	459,827,029	2,143	39,579
1906	479,037,553	2,181	39,108
1907	509,328,042	2,265	39,748
1908	505,945,582	2,210	38,373
1909	506,011,038	2,172	37,997
1910	549,015,003	2,306	40,191

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Freight Traffic.

	Tons of revenue freight carried.	Tons per inhabitant.
1900	583,351,351	7.68
1901	583,692,427	7.52
1902	657,846,807	8.31
1903	714,767,821	8.85
1904	714,375,339	8.67
1905	784,920,188	9.35
1906	896,159,485	10.47
1907	977,489,440	11.21
1908	869,797,510	9.80
1909	881,334,355	9.75
1910	1,026,491,782	11.16

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Freight Traffic—(Continued).

	Ton-miles.	Average haul per ton (system).	Tons per train.	Ton-miles per freight locomotive.	Tons per car.
1900.....	141,596,551,161	242.73	270.9	6,556,731	11.3
1901.....	147,077,136,040	251.98	281.3	6,439,736	11.5
1902.....	157,289,370,053	239.10	296.5	6,666,499	11.8
1903.....	173,221,278,993	242.35	310.5	6,807,942	12.2
1904.....	174,522,089,577	244.30	307.8	6,456,846	12.2
1905.....	186,463,109,510	237.56	322.3	6,690,700	12.4
1906.....	215,877,551,241	240.89	344.4	7,232,563	13.0
1907.....	236,601,390,103	242.05	357.4	7,375,585	13.8
1908.....	218,381,554,802	253.94	351.8	6,488,829	13.0
1909.....	218,802,986,929	251.10	362.6	6,447,708	12.7
1910.....	255,016,910,451	249.68	380.4	7,304,065	13.4

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Freight Revenue.

	Freight revenue.	Per mile of main track.	Per train-mile.	Per ton-mile (cents).
1900	$1,052,602,235	$5,094	$2,000	.729
1901	1,122,608,471	5,335	2,132	.750
1902	1,212,075,563	5,612	2,271	.757
1903	1,342,487,051	6,040	2,440	.763
1904	1,383,570,975	6,000	2,427	.780
1905	1,455,853,104	6,147	2,497	.766
1906	1,646,031,877	6,765	2,608	.748
1907	1,829,765,646	7,312	2,740	.759
1908	1,656,062,597	6,515	2,653	.754
1909	1,678,058,645	6,455	2,765	.763
1910	1,926,940,028	7,239	2,862	.753

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Passenger Traffic.

	No. of revenue passengers carried.*	Average number of trips per inhabitant.	Average number of miles traveled per inhabitant.	Passenger-miles per passenger locomotive.
1900	576,831,251	7.59	211.1	1,626,179
1901	607,278,121	7.83	223.7	1,704,005
1902	649,878,505	8.21	248.6	1,908,310
1903	694,891,535	8.60	258.9	1,978,786
1904	715,419,682	8.68	266.1	1,948,384
1905	738,834,667	8.80	283.4	2,048,558
1906	797,946,116	9.32	294.1	2,054,636
1907	873,905,133	10.02	318.0	2,163,146
1908	890,009,574	10.03	327.6	2,205,752
1909	891,472,425	9.86	322.1	2,185,877
1910	971,683,199	10.56	351.6	2,354,748

* Includes duplications due to through passengers being carried over more than one railway.

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Passenger Traffic—(Continued).

	Passengers carried one mile.	Passenger-miles per mile of line.	Passengers per train.	Average journey per passenger.	Passengers per car.
1900.....	16,038,076,200	83,290	41	27.80	....
1901.....	17,353,588,444	89,721	42	28.58	....
1902.....	19,689,937,620	99,314	45	30.30	....
1903.....	20,915,763,881	103,291	46	30.10	....
1904.....	21,923,213,536	104,198	46	30.64	....
1905.....	23,800,149,436	109,949	48	32.21	....
1906.....	25,167,240,831	114,529	49	31.54	....
1907.....	27,718,554,030	123,259	51	31.72	....
1908.....	29,082,836,944	130,073	54	32.86	15.6
1909.....	29,109,322,589	127,299	54	32.85	15.5
1910.....	32,338,496,329	138,169	56	33.50	15.8

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Passenger Revenue.

	Passenger revenue.	Passenger service train revenue.
1900	$323,715,639	$398,045,285
1901	351,356,265	429,134,462
1902	392,963,248	475,911,320
1903	421,704,592	511,567,229
1904	444,326,991	541,617,105
1905	472,694,732	574,310,154
1906	510,032,583	619,729,203
1907	564,606,343	684,993,137
1908	567,071,551	690,666,227
1909	563,746,612	690,493,165
1910	629,452,643	764,773,354

STATISTICS OF RAILWAYS OF THE UNITED STATES.

From Bulletin No. 31 of The Bureau of Railway Economics.

Passenger Revenue—(Continued).

	Passenger revenue.		Per passenger mile (cents).	Passenger service train revenue.	
	Per mile of main track.	Per train-mile.		Per mile of main track.	Per train-mile.
1900	$1,567	$.890	2.003	$1,926	$1.011
1901	1,670	.912	2.013	2,039	1.027
1902	1,819	.969	1.986	2,204	1.085
1903	1,897	.992	2.006	2,302	1.116
1904	1,927	1.009	2.006	2,349	1.141
1905	1,996	1.028	1.962	2,425	1.160
1906	2,096	1.065	2.003	2,547	1.203
1907	2,256	1.109	2.014	2,737	1.258
1908	2,231	1.121	1.937	2,717	1.271
1909	2,168	1.114	1.928	2,656	1.270
1910	2,365	1.147	1.938	2,873	1.304

STATISTICS OF RAILWAYS OF THE UNITED STATES.

Compiled by Bureau of Railway Economics.

For the Fiscal Year 1911.

Net capitalization—Stock	$5,844,247,369
Funded debt	9,164,460,201
	15,008,707,570
Revenue train miles	1,237,500,138
Non-revenue train miles	50,524,324
	1,288,024,462
Revenue freight train miles	626,496,025
Revenue freight car miles	19,315,156,130
Loaded freight car miles	12,859,386,385
Average miles of line operated	243,433.61
Average tons per train	383.10
Average haul per ton (system)	254.10
Average receipts per ton	$1.07944
Ton-miles per mile of road	1,053,566
Locomotive miles	1,720,901,121
Ton miles	253,783,701,839
Passenger train miles	572,929,421
Freight revenue	$1,925,950,887
Passenger service train revenue	$799,771,186
Passenger revenue per train mile	$1.30921
Freight revenue per train mile	$2.89548

STATISTICS OF RAILWAYS OF THE UNITED STATES.

Compiled by Bureau of Railway Economics.

Distribution of Railway Income—1911.

	Per cent.
Revenues and income	100.0
Operating expenses	60.5
Taxes	3.4
Interest	13.8
Rents	4.1
Other deductions	2.8
Dividends	9.5
Surplus	5.9

RAILWAY BUSINESS IN 1912.

Statement of the Bureau of Railway Economics.

During a period of expanding business, profits at first usually rise more rapidly than expenses. That this has not been the case with the railways of the United States during the recent high tide of traffic is shown by their returns for the calendar year 1912. The total operating revenues are their total receipts from freight and passenger traffic, from carrying mail and express, and from miscellaneous sources. Operating income is the amount which after all expenses have been paid remains for rentals, interest on bonds, appropriations for betterments, improvements, new construction, and for dividends.

That the funds available for developing and extending the railways have not kept pace with the growth in traffic or the increased expenses of operation is shown by the following percentages: For the railways of the East the total operating revenues increased 7.2 per cent, operating expenses 8.3 per cent, and taxes 8 per cent, leaving an increase in operating income of 4.3 per cent. For the railways of the South total operating revenues increased 4.9 per cent, operating expenses 8.4 per cent, and taxes 2.8 per cent, leaving a decrease in operating income of 4 per cent. The unusual traffic of the West enabled the railways of that section to obtain an increase of 8.4 per cent in operating income, which just about balances the losses sustained during 1911.

STATISTICS OF RAILWAYS OF THE UNITED STATES.

Compiled by Bureau of Railway Economics.

TAXES.

Ratio of Taxes to Revenues, United States, 1890, 1900-1913.

Fiscal year.	Ratio of taxes to— Total operating revenue.	Net revenue.
1890	2.97%	8.67%
1900	3.25	9.20
1901	3.21	9.13
1902	3.15	8.93
1903	3.04	8.99
1904	3.12	9.70
1905	3.05	9.17
1906	3.22	9.48
1907	3.10	9.55
1908	3.46	11.58
1909	3.66	11.00
1910	3.69	11.16
1911	3.80	12.3[illegible]
1912[a]	4.23	13.6[illegible]

[a] 1912 figures based on roads having annual revenues exceeding one million dollars.

STATISTICS OF RAILWAYS OF THE UNITED STATES.

Compiled by Bureau of Railway Economics.

Taxes Per Mile of Line, Railways, United States, 1900-1913.

Fiscal year.	Taxes paid per mile.	Per cent increase over 1900.
1900	$254.78	....
1901	261.36	2.6
1902	274	7.5
1903	290	13.8
1904	301	18.1
1905	303	18.9
1906	349	37.0
1907	367	44.0
1908	382	49.9
1909	401	57.4
1910	431	69.2
1911	444	74.3
1912*a*	532.97	....
1913*b*	369.47	....

a Million-dollar roads only.
b Million-dollar roads only—8 months, July-February.

STATISTICS OF RAILWAYS OF THE UNITED STATES.

Causes of Principal Train Accidents of United States, Fiscal Years 1902-1912.

As investigated and determined by the Interstate Commerce Commission.

Fault of train crew other than brakeman:

Disobedience of rules or orders	63
Misread orders	69
Ran past signal	66
Ran past meeting point	36
Carelessness	95
Forgetfulness	49
Asleep	40
Intoxication	5
Failure to follow schedule	16
Excessive speed	137
Other errors	1
	577

Causes of Principal Train Accidents—(Continued).

Fault of brakeman:			
Failure to set brakes	40		
Failure to flag	72		
Improper flagging	26		
Other errors	5		
		143	221
Fault of dispatchers, operators, etc.:			
Wrong orders	89		
Failure to deliver orders	67		
Signal incorrectly set	60		
Switch misplaced	59		
Other errors	2		
		277	
Fault of other employees		18	

Causes of Principal Train Accidents—(Continued).

Mechanical defects:		
Defective or weakened track	59	
Defective or weakened equipment	96	
Failure of air-brakes	30	
Failure of block signals	4	
		189
Parting of trains	11	
Hostile weather conditions	68	
Malicious interference with track or equipment	41	
Miscellaneous	35	
Causes uncertain or unknown	72	
		227
		1,431

Electric Railway Mileage.

Compiled from returns to the American Electric Railway Association.

Total in United States, 1910 ..... 39,761.69

Of this 25,507.82 were in cities and suburbs and 14,253.87 were interurban lines.

RAILWAY MILEAGE OF THE WORLD, SHOWN BY CONTINENTS AND PRINCIPAL COUNTRIES: DECEMBER 31, 1911.

From Archiv für Eisenbahnwesen.

	Miles of line.	
Alaska	526	
Canada	25,395	
Hawaii	88	
United States	246,071	
Other American Countries	64,187	
America, total		336,267
Austria-Hungary	27,850	
Belgium	5,381	
Bulgaria	1,208	
Denmark	2,343	
France	31,213	
Germany	38,485	
Great Britain and Ireland	23,394	
Greece	988	
Italy	10,705	
Netherlands	1,985	
Norway	1,921	
Portugal	1,854	
Roumania	2,241	

RAILWAY MILEAGE OF THE WORLD—(Continued).

From Archiv für Eisenbahnwesen.

Russia in Europe (including Finland)	37,952	
Servia	582	
Spain	9,381	
Sweden	8,758	
Switzerland	2,971	
Turkey in Europe	967	
Other European Countries	391	
Europe, total		210,570
China	6,123	
Japan (including Korea)	6,172	
Russia in Asia	4,066	
Siberia and Manchuria	6,739	
Other Asiatic Countries	42,150	
Asia, total		65,250
Africa		25,159
Australia		20,045
The World, total		657,291

RAILWAY MILEAGE OF THE WORLD—(Continued).

From Official Reports.

State Owned and Privately Owned.

		Year ending—	Miles of line operated at end of year.	
United States—Private		June 30, 1911	....	246,124
United Kingdom—Private		December 31, 1911	....	23,417
France	State	December 31, 1910	5,530	25,127
	Private	December 31, 1910	19,597	
Germany[a]	State	March 31, 1912	35,089	37,317
	Private	March 31, 1912	2,228	
	Prussia-Hesse—State	....	....	23,871
Austria	State	December 31, 1911	11,987	14,406
	Private	December 31, 1911	2,419	
Hungary	State	December 31, 1910	10,783	12,829
	Private	December 31, 1910	2,046	
Italy—State		December 31, 1910	....	8,935
Switzerland	State	December 31, 1911	1,705	2,983
	Private	December 31, 1911	1,278	
Belgium	State	December 31, 1910	2,691	2,934
	Private	December 31, 1910	243	

[a] Includes Prussia-Hesse.

RAILWAY MILEAGE OF THE WORLD—(Concluded).

From Official Reports.

State Owned and Privately Owned—(Continued).

		Year ending—		Miles of line operated at end of year.	
Denmark	State	March	31, 1911	1,217	1,279
	Private	March	31, 1911	62	
Sweden	State	December	31, 1909	2,717	8,453
	Private	December	31, 1909	5,736	
Norway—State		June	30, 1911	1,621	1,917
Canada		June	30, 1911	....	25,400
New Zealand—State		March	31, 1911	....	2,761
Victoria—State		June	30, 1912	....	3,622

RAILWAYS AND AGRICULTURE.

From Bulletin No. 45 of the Bureau of Railway Economics.

INCREASE IN RAILWAY TRACK MILEAGE AND IN IMPROVED FARM LAND, EASTERN, SOUTHERN, AND WESTERN DISTRICTS.

Item.	1900.	1910.	Increase, 1900–1910.	
			Amount.	Per cent.
Eastern district:				
Railway main track—miles	64,537	75,129	10,592	16.4
Improved farm land—acres	90,921,000	89,641,000	*d 1,280,000*	*d 1.4*
Southern district:				
Railway main track	33,117	43,694	10,577	31.9
Improved farm land	82,061,000	88,353,000	6,292,000	7.7
Western district:				
Railway main track	108,977	147,362	38,385	35.2
Improved farm land	241,516,000	300,458,000	58,942,000	24.4

d Decrease.

RAILWAYS AND AGRICULTURE—(Continued).

From Bulletin No. 45 of the Bureau of Railway Economics.

Agricultural Output in Aggregate.

	Production in—		Per cent of increase, 1900-1910.
	1900.	1910.	
Corn (bushels)	2,666,324,000	2,552,190,000	*d* 4.3
Wheat (bushels)	658,534,000	683,379,000	3.8
Oats (bushels)	943,389,000	1,007,143,000	6.8
Barley (bushels)	119,635,000	173,344,000	44.9
Rye (bushels)	25,569,000	29,520,000	15 5
Buckwheat (bushels)	11,234,000	14,849,000	32.2
Potatoes (bushels)	273,318,000	389,195,000	42.4
Hay and forage (tons)	79,252,000	97,454,000	23.0
Tobacco (pounds)	868,113,000	1,055,765,000	21.6
Cotton (bales)	9,535,000	10,649,000	11.7

Railway Output in Aggregate.

	Output in—		Per cent of increase, 1900-1910.
	1900.	1910.	
Ton-miles	141,596,551,000	255,016,910,000	80.1
Passenger-miles	16,038,076,000	32,338,496,000	101.6

d Decrease.

From Bulletin No. 45 of the Bureau of Railway Economics.

AGRICULTURAL OUTPUT PER ACRE.

	1900.	1910.	Per cent of increase, 1900–1910.
Corn (bushels)	28.1	25.9	*d 7.8*
Wheat (bushels)	12.5	15.4	23.2
Oats (bushels)	31.9	28.6	*d 10.3*
Barley (bushels)	26.8	22.5	*d 16.0*
Rye (bushels)	12.4	13.4	8.0
Buckwheat (bushels)	13.9	16.9	21.5
Potatoes (bushels)	93.0	106.1	14.1
Hay and forage (tons)	1.285	1.345	4.7
Tobacco (pounds)	788.1	815.3	3.5
Cotton (bales)	0.393	0.332	*d 15.5*

RAILWAY OUTPUT PER MILE.

	Output per mile of main track in—		Per cent of increase, 1900–1910.
	1900.	1910.	
Ton-miles	685,263	958,044	39.8
Passenger-miles	77,617	121,489	56.5

d Decrease.

RAILWAYS AND AGRICULTURE—(Continued).

From Bulletin No. 45 of the Bureau of Railway Economics.

Acreage of Agriculture per 1,000 Inhabitants.

(Ten Principal Crops.)	1900.	1910.	Per cent of increase.
Corn	1,248.9	1,069.7	d 14.4
Wheat	692.0	481.3	d 30 5
Oats	388.7	382.3	d 1.7
Barley	58.8	83.7	42.3
Rye	27.0	23.9	d 11.7
Buckwheat	10.6	9.5	d 10.1
Potatoes	38.7	39.9	3.1
Hay and forage	811.8	785.9	d 3.2
Tobacco	14.5	14.1	d 2.9
Cotton	319.4	348.4	9.1

Track and Equipment of the Railways per 1,000 Inhabitants.

	1900.	1910.	Per cent of increase.
Miles of line	2.534	2.619	3.4
Miles of main track	2.719	2.894	6.4
Miles of all track	3.405	3.825	12.3
Locomotives (number)	.496	.641	29.2
Locomotive tractive power (pounds)	a 10,112.6	17,275.8	70.8
Freight cars (number)	17.97	23.21	29.2
Freight-car capacity (tons)	a 556.5	832.6	49.6
Passenger cars (number)	.457	.512	12.0

d Decrease. *a* 1902.

RAILWAYS AND AGRICULTURE—(Continued).

From Bulletin No. 45 of the Bureau of Railway Economics.

Output of Agriculture per 1,000 Inhabitants.

(Ten Principal Crops.)	1900.	1910.	Per cent of increase.
Corn (bushels)	35,085.7	27,749.6	*d 20.9*
Wheat (bushels)	8,665.5	7,430.3	*d 14.3*
Oats (bushels)	12,413.9	10,950.5	*d 11.8*
Barley (bushels)	1,574.3	1,884.7	19.7
Rye (bushels)	336.5	321.0	*d 4.6*
Buckwheat (bushels)	147.8	161.5	9.2
Potatoes (bushels)	3,596.5	4,231.7	17.7
Hay and forage (tons)	1,042.9	1,059.6	1.6
Tobacco (pounds)	11,423.4	11,479.2	0.5
Cotton (bales)	125.5	115.8	*d 7.7*

Output of the Railways per 1,000 Inhabitants.

	1900.	1910.	Per cent of increase.
Ton-miles	1,863,256	2,772,759	48.8
Passenger-miles	211,042	351,611	66.6

d Decrease.

RAILWAYS AND AGRICULTURE—(Continued).

From Bulletin No. 45 of the Bureau of Railway Economics.

Power of Average Acre's Crop to Purchase Transportation.

The amount of transportation purchasable by the output of an average acre of the same crops in 1899 and 1911 is shown in the following table :

	Corn.		Wheat.		Cotton.		All crops.	
	1899.	1911.	1899.	1911.	1899.	1911.	1899.	1911.
Ton-miles.....	1,175	1,954	1,008	1,448	1,843	2,684	1,261	2,049
Passenger-miles	442	749	379	555	693	1,029	474	786

The percentages of increase in the amounts of transportation purchasable with the average output of an acre are as follows :

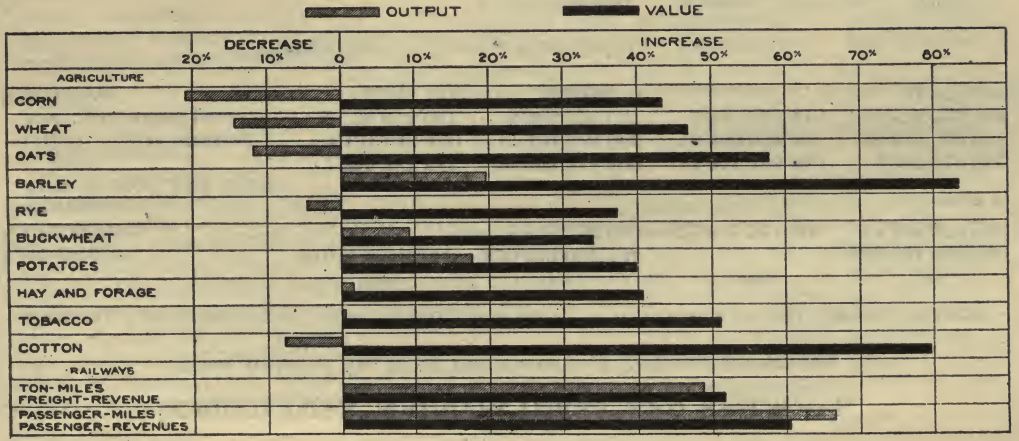
	Corn.	Wheat.	Cotton.	All crops.
Ton-miles.....	66.3	43.7	45.6	62.5
Passenger-miles	69.5	46.4	48.5	65 8

RAILWAYS AND AGRICULTURE.

From Bulletin No. 45 of the Bureau of Railway Economics.

The following diagram shows the increases or decreases in quantity per inhabitant, and the concurrent increase in value per inhabitant, of the ten principal crops, and of railway traffic, expressed in percentages.

1900-1910



AGRICULTURE, MANUFACTURES, AND RAILWAYS.

From Bulletin No. 39 of the Bureau of Railway Economics.

CAPITAL VALUE OF AGRICULTURE, MANUFACTURES AND RAILWAYS OF THE UNITED STATES.

	1890.	1900.	1905.	1910.
Agriculture	$16,082,267,689	$20,439,901,164	.....	$40,991,449,090
Manufactures	.....	8,975,256,000	$12,675,581,000	18,428,270,000
Railways:				
Cost of road and equipment	7,755,387,381	10,263,313,400	11,951,348,949	14,387,816,099
Gross capitalization	9,437,343,420	11,491,034,960	13,805,258,121	18,417,132,238
Net capitalization [b]	7,126,673,041	8,803,156,067	9,940,853,945	14,375,529,748
Population	62,947,714	75,994,575	.....	91,972,266

PERCENTAGE OF INCREASE IN CAPITAL VALUE.

	1900 over 1890.	1905 over 1900.	1910 over 1905.	1910 over 1900.
Agriculture	27.1	....	....	100.5
Manufactures	....	41.2	45.4	105.3
Railways:				
Cost of road and equipment	32.3	16.4	20.4	40.2
Gross capitalization	21.8	20.1	33.4	60.3
Net capitalization	23.5	12.9	44.6	63.3
Population	20.7	....	....	21.0

MANUFACTURES AND RAILWAYS.

From Bulletin No. 39 of the Bureau of Railway Economics.

GROSS AND NET RETURNS FROM MANUFACTURES.

	1900.	1905.	1910.
Gross returns:			
Gross value of products	$11,406,927,000	$14,793,903,000	$20,672,052,000
Expenses:[b]			
Cost of materials	6,575,851,000	8,500,208,000	12,141,791,000
Salaries and wages	2,389,132,000	3,184,884,000	4,365,613,000
Miscellaneous expenses, including taxes	905,442,000	1,453,168,000	1,945,676,000
Total	$9,870,425,000	$13,138,260,000	$18,453,080,000
Net return	$1,536,502,000	$1,655,643,000	$2,218,972,000

[b] It should be pointed out that the item "salaries and wages" does not include salaries paid to proprietors or firm members interested in non-corporate manufacturing establishments. There were 273,265 of these proprietors and firm members in 1910 for whom no definite salaries were reported. The railways are virtually all owned by corporations, all employees from president down being paid a definite salary or wage. To some extent, therefore, the expenses shown for the manufacturing and railway industries are not comparable. On the other hand, non-corporate manufacturers produced in 1910 only one-fifth of the total value of products manufactured in that year, while the average size and importance of the individual non-corporate establishment was so small that the return to the proprietor or firm owner could not be differentiated between wage and profit.

MANUFACTURES AND RAILWAYS—(Continued).

From Bulletin No. 39 of the Bureau of Railway Economics.

GROSS AND NET RETURNS FROM RAILWAY OPERATION.

	1890.	1900.	1905.	1910.
Total operating revenues.....	$1,051,877,632	$1,487,044,814	$2,082,482,406	$2,750,667,435
Expenses:				
Total operating expenses, including wages.....	692,093,971	961,428,511	1,390,602,152	1,822,630,433
Taxes	31,207,469	48,332,273	63,474,679	103,795,701
Total	$723,301,440	$1,009,760,784	$1,454,076,831	$1,926,426,134
Net return, including interest on capital...	$328,576,192	$477,284,030	$628,405,575	$824,241,301

COMPARISON OF NET RETURNS ON CAPITAL.

	1900.	1905.	1910.
Manufactures:			
Capital	$8,975,256,000	$12,675,581,000	$18,428,270,000
Net return on capital.....	1,536,502,000	1,655,643,000	2,218,972,000
Per cent of net return.....	17.119	13.062	12.041
Railways:			
Cost of road and equipment.....	$10,263,313,400	$11,951,348,949	$14,387,816,099
Net return	477,284,030	628,405,575	824,241,301
Per cent of net return.....	4.650	5.258	5.729

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