

HE2757

1921

757

0621

06

Cornell University Library
HE 2757 1921.06

A plan for railroad consolidations, incl



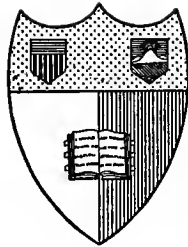
3 1924 013 693 142 mann

A PLAN
FOR
RAILROAD CONSOLIDATIONS

INCLUDING
A DISCUSSION OF THEIR PURPOSE
AND PRACTICABILITY

By
JOHN E. OLDHAM

Published by
INVESTMENT BANKERS ASSOCIATION OF AMERICA
NOVEMBER 1921



New York
State College of Agriculture
At Cornell University
Ithaca, N. Y.

Library

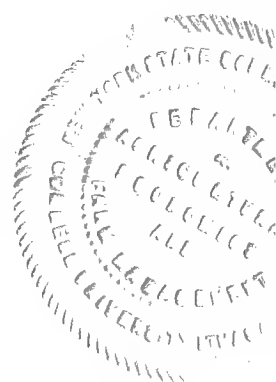
A PLAN
FOR
RAILROAD CONSOLIDATIONS

INCLUDING
A DISCUSSION OF THEIR PURPOSE
AND PRACTICABILITY

By
JOHN E. OLDHAM



Published by
INVESTMENT BANKERS ASSOCIATION OF AMERICA
NOVEMBER 1921



2
HERTZ
1921
OG

Copyright, 1921
By JOHN E. OLDHAM

@ 26717

PRINTED IN U. S. A.
THE COSMOS PRESS
INCORPORATED
CAMBRIDGE, MASS.

CONTENTS

	PAGE
Preface	5
Introduction	7
Condition of Railroad Credit before Federal Control	9
The Basis of Rates	17
Application of "Service-at-Cost" Principle	19
Consolidations — Their purpose and practicability	24
Consolidation would not destroy the credit of the "Strong" Roads	25
Consolidations Essential to Healthful Competition	26
Characteristics of Competing Companies	28
The Proposed Systems	33
A Brief Description of the Districts	42
Similarity of Proposed Systems	43
Competition among Systems	47
A Brief Description of Systems	50
Summary of Conclusions	59

TABLES

COMPARISON OF "STRONG" AND "WEAK" ROADS

Table	I	Per Cent of Gross Operating Income obtained from Different Kinds of Traffic	11
	" II	Classification of Tonnage	11
	" III	Rates	11
	" IV	Disposition of Gross Operating Income	12
	" V	Per Cent of Gross Operating Income Distributed to Security Holders	12
	" VI	Capitalization for each \$1.00 of Gross Operating Income	12
	" VII	Rate of Return on Capitalization	12

	PAGE
Table VIII Thirty systems with annual operating income of \$25,000,000 and upward	30
“ IX Fifteen systems with annual operating income of \$10,000,000 to \$25,000,000	31
“ X Summary of all systems classified by amount of annual gross earnings	31
Tables showing similarity of Proposed Systems	44-45-46
Table of Principal Cities in the United States showing by which Systems each is served	48-49
Alphabetical List of all Class I Roads	61

LIST OF MAPS

- Map No. 1 — New York Central System
- “ “ 2 — Buffalo System
- “ “ 3 — Pennsylvania System
- “ “ 4 — Baltimore-Reading System
- “ “ 5 — Norfolk & Western-Chesapeake & Ohio System
- “ “ 6 — Atlantic Coast Line-Louisville & Nashville System
- “ “ 7 — Southern System
- “ “ 8 — Great Northern-St. Paul System
- “ “ 9 — Northern Pacific-Burlington System
- “ “ 10 — Union Pacific-Northwestern System
- “ “ 11 — Atchison System
- “ “ 12 — Southern Pacific System
- “ “ 13 — Illinois Central-Soo System

PREFACE

SINCE the railroads of the country were returned to private management on March 1, 1920, the attention of railroad executives, the shipping public, and citizens in general so far as it has concerned itself with railroad problems, has been directed to questions of immediate importance. Transportation rates, labor costs, and obligations due to or from the Government have been the problems of immediate concern.

The Transportation Act of 1920, properly called one of the great constructive pieces of legislation of our national existence, makes provision for the consolidation of the railroads of the country into a limited number of systems in accordance with such plans as may be adopted or approved by the Interstate Commerce Commission. Little public attention has as yet been given to this matter, and yet it is fundamental to any final solution of the railroad problem, since the financial soundness and credit position of the railroads of the country are dependent upon the character of such consolidations.

It is not an over-statement to say that consolidations have an important bearing upon the future success of private operation and ownership, and hence a close relationship to the question of public operation and Government ownership. It is inevitable that this whole matter of railroad consolidation will soon come into general public discussion and will receive the attention which its fundamental importance deserves.

The writer of this pamphlet, Mr. John E. Oldham, of the firm of Merrill, Oldham & Company, Boston, a former Vice-President of the Investment Bankers Association, and Chairman of its Railroad Securities Committee, in February 1920, prepared an article entitled "A Comprehensive Plan for Railroad Consolidation," which first appeared in "The Nation's Business." Later this article, amplified with sup-

plementary tables and maps, was published in pamphlet form by the Chamber of Commerce of the United States.

The present pamphlet is a further study of the same subject and presents a more carefully determined conclusion. The Investment Bankers Association has undertaken its publication and presents it to the public with the hope that its analyses and findings may constitute a contribution of value in bringing about such railroad consolidations as may be desirable and necessary to carry out the purposes of the Transportation Act.

November 1921.

RAILROAD CONSOLIDATIONS

INTRODUCTION

At the time the railroads passed under Federal control in December 1917, transportation facilities were inadequate for the needs of the country, and railroad service generally was unsatisfactory. Facilities were over-crowded,— terminals especially were congested. Embargoes on freight and priority orders became necessary to assure the movement of the most essential traffic.

While the sudden change from a nation at peace to a nation at war brought about new and unexpected conditions and made unusual demands upon the transportation facilities of the country, it nevertheless had become evident long before our entrance into the war that these facilities were fast becoming unequal to the needs of the country, especially because of the inability of the railroads generally to raise new capital. Railroad credit had become so depreciated that investors had lost confidence in the securities of even the strongest systems. Many of the weaker systems were having serious financial difficulties, and not a few were in receivership. Many persons believed that private management was a failure and that Government ownership would be necessary to give the country adequate and satisfactory service. Others contended that the unsatisfactory financial condition of the railroads was due to the restrictions of public regulation, and that under a more liberal policy the roads could be operated successfully under private management. Agreement was general, however, that the roads should not be returned by the Government to their owners without the enactment of legislation which would make substantial changes in the policy of regulation theretofore in force, and especially legislation made with a view to rehabilitating and maintaining credit on a permanently sound basis.

The roads were returned to their owners March 1, 1920, and the success of private management under the legislation provided by the Transportation Act is yet to be determined.

It need hardly be stated that private management cannot continue unless it succeeds in furnishing the country with a system of transportation adequate to its needs at all times, and that the failure of private management will necessitate Government ownership and operation.

As sound credit is essential to adequate facilities and satisfactory service, the restoration and maintenance of credit are necessarily essential to assure the continuance of private management and to avoid the possibility of Government ownership. In order that credit may be restored and transportation conducted successfully under existing laws, the Transportation Act recognizes that further consolidations among the railroads of the country may be necessary, and provides a method by which they may be accomplished.

The relationship of consolidations to credit and the practicability of making consolidations necessary to establish credit form the subject of this pamphlet.

Part I analyzes the causes of the depreciated credit of the railroads in the decade prior to their being taken over by the Government and contains a discussion of consolidations as a factor in restoring and maintaining sound credit conditions.

Part II presents a concrete plan for consolidating the principal railroads of the country into a limited number of systems. This plan has been prepared because of the conclusions arrived at in Part I that consolidations are important and necessary for the purpose stated. Accompanying the plan are maps and statistical data to show that the proposed systems would be strong, self-supporting, and competing, in accordance with the requirements of the Transportation Act.

PART I

CONDITION OF RAILROAD CREDIT BEFORE FEDERAL CONTROL

IN the discussion of the railroad problem, the roads with satisfactory dividend records have usually been referred to as "strong" and those without such records as "weak." Using this classification, it will be found that during the ten years preceding Federal control approximately 60 per cent of the traffic of the country was handled by the so-called "strong" roads and the remaining 40 per cent by the so-called "weak" roads.

Prior to 1910 railroad earnings generally were adequate to furnish the strong roads with income which covered not only their dividend requirements but provided also a margin, or surplus, sufficient to offset such shrinkage in earnings as might result from a temporary change in business conditions or from other causes which could not be foreseen. Under these circumstances the strong roads found it possible to finance a considerable part of their requirements by the issue of capital stock, thus following a policy which is universally recognized as a test of sound credit.

*The Strong
Roads*

After 1910, although the same rates of dividends were generally maintained, the margin of earnings which had previously served to protect dividends had become so reduced, with the exception of a brief period covered by the years 1916 and 1917, that investors lost confidence in the ability of these roads to continue dividend payments at former rates. As further issues of capital stock were impossible under these conditions, financial requirements were necessarily met largely by the issue of bonds.

That the reduced margin of earnings was the result of increased cost of operation and the impossibility of securing rate increases necessary to offset the increased cost, is shown conclusively by a comparison of the reports of the

Interstate Commerce Commission for the years covering the period 1910 to 1915. These statements show that in no one of the years 1911 to 1915 inclusive, were railroad net earnings as large as those of the year 1910, although in each of these years gross earnings were larger and property investment was greater. It is fair to conclude, therefore, that the depreciated credit of the strong roads, which is indicated in part by the discontinuance of stock financing, was largely if not entirely due to inadequate rates.

**The
Weak Roads**

In considering the causes of the depreciated credit of the weak roads, which handled the remaining 40 per cent of the traffic of the country, in addition to inadequate rates other conditions must be taken into account. In this discussion the weak roads will be considered in three groups as follows —

First— The larger systems which in the pre-war period handled about 25 per cent of the country's traffic

Second— The smaller or short line roads scattered throughout the country which handled approximately 10 per cent

Third— The New England roads which handled the remaining 5 per cent

**Larger
Weak Roads**

Because the first group of weak roads — the larger systems — forms a large part of the country's transportation system, and also because the roads comprising this group are and must continue to be a factor of great importance in any proposed plan of consolidation, it is desirable to ascertain and clearly establish the fundamental causes of their weakness. These causes are clearly brought out by a comparison of these roads with the strong roads.

**Comparison
of Strong and
Larger Weak
Roads**

For this purpose tables are here submitted presenting a comparison of the operating and financial statistics of the ten largest strong roads with a like number of the largest weak roads, all of which operate in the Southern and Western districts.

The "strong," or dividend-paying roads, will be referred to in this comparison as the Group A roads, and the "weak," or non-dividend-paying roads, as the Group B roads. The tonnage statistics in the following tables cover the year ended June 30, 1916; all other statements are based upon figures representing an annual average covering the three-

year period ended June 30, 1917, commonly known as the "Test Period."

These tables are designed to show —

- Table I The proportion of gross operating income obtained from different kinds of traffic
- Table II The percentage of different commodities constituting the freight tonnage
- Table III The uniformity of rates for both passenger and freight service
- Table IV The uniformity of operating results, and the disposition of traffic earnings
- Table V The percentage of fixed charges and dividends to gross operating income
- Table VI The percentage to gross operating income of: total capitalization; securities on which fixed charges were paid, including interest and rentals; preferred and common stocks
- Table VII The percentage of net operating income to gross operating income; the rate of return earned on the total capitalization; the similarity of the return of the Group A and Group B roads if similarly capitalized

TABLE I
Per cent of Gross Operating Income Obtained From Different Kinds of Traffic

	Freight	Passenger	Miscellaneous	Total
Group A	68.5	21.7	9.8	100
Group B	72.1	20.5	7.4	100

TABLE II
Classification of Tonnage

Per cent to total tonnage								
Products of	Agriculture	Animals	Mines	Forests	Manufactures	Miscellaneous	L C L Goods	Total
Group A	19.2	3.8	42.9	13.7	13.9	1.6	4.9	100
Group B	17.2	4.1	40.9	13.2	18.2	2.2	4.2	100

TABLE III
Rates

	Rate per Ton Mile	Rate per Passenger Mile
Group A	\$.00812	\$.02060
Group B	.00819	.02060

TABLE IV
Disposition of Gross Operating Income

	Received from passenger, freight, and miscellaneous traffic	Operating expenses and taxes, excluding maintenance	Available for expenditure upon property (maintenance and surplus combined)	Aggregate of fixed charges and dividends
Group A	100%	41.1%	35.7%	23.2%
Group B	100%	43.6%	33.8%	22.6%

TABLE V
Per cent of Gross Operating Income Distributed to Security Holders

	Per cent of gross paid as fixed charges, interest, and rentals	Per cent of gross paid as dividends on preferred and common stocks	Total — Same as last column in Table IV
Group A	11.5%	11.7%	23.2%
Group B	22.2%	.4%	22.6%

TABLE VI
Capitalization for Each \$1.00 of Gross Operating Income

	Obligations — Rentals and Interest capitalized at 5%	Preferred stock	Common stock	Total See Note A
Group A	\$2.31	\$.22	\$1.54	\$4.07
Group B	4.44	1.14	1.45	7.03

TABLE VII
Rate of Return on Capitalization

	Net Operating Income (Per cent to Gross) See Note B	Capitalization per \$1.00 of gross operating income See Table VI	Rate of return earned on capitalization	Both groups capitalized \$4.07 — Rate of return earned	Both groups capitalized \$7.03 — Rate of return earned
Group A	30.7%	\$4.07	7.54%	7.54%	4.37%
Group B	28.2%	7.03	4.01%	6.93%	4.01%

Note A. As railroad income is derived not only from traffic but also from outside investments, and as the proportion of income from the several sources varies with individual companies, for the sake of uniformity in the above comparisons the proportionate part of the capitalization which may be properly considered as representing railroad property has been determined by placing the same proportion of capitalization against the railroad property that the net railway operating income is to the total net income. For example, if the total net income is made up of 90 per cent of railroad earnings and 10 per cent of earnings from outside investments, 90 per cent of the total capitalization is allocated to railroad property and 10 per cent to outside investments.

Note B. As net earnings are affected by the amounts charged to maintenance, and as there is no uniformity among railroads in the matter of maintenance accounting, it has seemed desirable for the purpose of comparison to charge to operating expenses the same percentage of gross operating income in both groups of roads. The figure used in this case is 28.2 per cent, which is the actual average of the roads comprising group A.

The conclusions which are to be drawn from these tables are —

First — that the strong and weak roads handle similar traffic; that the proportion of income which is obtained from different classes of service — passenger, freight, and miscellaneous — to the total are about the same; that passenger and freight traffic are handled at substantially uniform rates; and that the revenues received from traffic are expended by both groups of roads in similar proportions for operating expenses, maintenance charges, and disbursements to security holders. Tables I to IV.

Second — that Group A roads divide their disbursements to security holders about equally between fixed charges and dividends, while Group B roads disburse about the same proportion of gross, but substantially all of it is absorbed by fixed charges; consequently, the Group B roads cannot be expected to pay dividends on their capital stock unless they receive a larger income than the Group A roads for handling similar traffic, or unless they are operated with greater efficiency. Table V.

Third — that capitalization representing the aggregate par value of all obligations and stock of the Group A roads is \$4.07 per dollar of gross operating income, and that of the Group B roads is \$7.03; the capitalization of the Group B roads is thus 75 per cent greater than that of the Group A roads; further, that the amount of securities on which interest and rentals alone are paid by the Group B roads is larger than the total capitalization of the Group A roads. Table VI.

Fourth — that were both groups of roads capitalized on the basis of their gross earnings, there would be but little difference in the rate of return earned on the capitalization of either group. Table VII.

These figures tell their own story. They offer little if any evidence that the average road of either group had any special advantage over the other in location, character of traffic carried, operating costs, maintenance charges, or in any other essential operating factor. They show also that the necessary readjustment of the capitalization of the Group B roads is all that is required to make their financial showing similar to that of the Group A roads.

The figures given in the tables for Groups A and B are averages. It is a fact that figures for individual roads in each group vary from the average; such variation, however, is no greater in Group B than in Group A. This indicates that at least some of the Group A roads, if capitalized as are the Group B roads, would be considered “weak” roads,

and that some of the Group B roads, if capitalized as are the Group A roads, would be considered "strong." In other words, a conclusion as to the relative strength or weakness would be the same whether comparisons are made between the two groups as such or between the individual roads in such groups.

Similar comparisons in the Eastern District show similar conditions.

**Capitalization
makes them
Strong or
Weak**

Thus it is evident that the difference between the financial condition of the strong roads and the weak, insofar as the larger systems here under consideration are concerned, is accounted for by the form of their financial structures and has little or nothing to do with the character or quantity of, or the method of handling, their business. This is an important fact, for it indicates that by making over the financial organizations of these weak roads, and by this action alone, the financial condition of roads which carry about 25 per cent of the country's traffic can be placed on a basis of financial soundness similar to that of the so-called strong roads. While these conditions are not generally appreciated, yet the causes which have led to them are quite apparent. The principal railroad systems of the country, the so-called strong roads and the larger systems among the so-called weak roads which together carry about 85 per cent of the country's business, are the result of consolidations of separately built railroads. These consolidations took place, substantially without public regulation, previous to the year 1903, at which time the decision of the United States Supreme Court in the Northern Securities Case became an important factor in checking development along these lines. By the consolidations which at that time had been made, roads of favorable situation and conditions had been united with other roads less favorably circumstanced. In this way uneven conditions had been averaged, more or less unconsciously it is true, so that in all essential operating respects the resulting systems in both the "strong" and the "weak" groups were similar. This is clearly shown by the foregoing tables.

**No uniform
financial
policy**

In this development, however, no uniform financial policy was followed, and consequently no uniformity of capitaliza-

tion resulted. In some cases the value of the consolidated property equalled or even exceeded the total capitalization; in other cases the capitalization exceeded the property value. Likewise, there was wide variation in the proportion of capitalization which was represented by obligations and by capital stock. The roads where capitalizations did not exceed property values and where fixed charges did not absorb so much of the income as to leave an amount insufficient to pay and to protect dividends, came to be known as the "strong" roads, the roads of sound credit which found it possible under adequate rates to finance by the issue of capital stock. On the other hand, the roads where capitalization exceeded property values and where fixed charges absorbed so large a part of their income that no balance was available for dividends came to be known as the "weak" roads, the roads of unsound credit which even under adequate rates were obliged to finance almost entirely by borrowed capital.

From the foregoing it appears that by reorganizing the financial structures of the roads which comprise the first group of weak roads which carry 25 per cent of the business of the country, both they and the strong roads, which carry 60 per cent of the business, may be expected to operate with similar success under rates which are uniform for all roads in the same rate-making territory.

**Financial
reconstruction
necessary**

There remains for consideration the balance of the weak roads—the small roads widely scattered over the country—which handle in the aggregate approximately 10 per cent, and the New England roads which handle about 5 per cent of the country's business.

**The *Small*
Roads**

These small roads have been characterized frequently as "less favorably situated." Such characterization is in the main accurate. Some of them probably suffer from the form of their financial organization as do the so-called "weak" roads which have just been described, and like them, they would be benefited by a change in their financial structures. But, the smaller roads generally are further handicapped by the character and quantity of business available for them, by higher operating costs, and by other factors which make it clear that as separately owned and

operated units they cannot become profitable under any rate-making system which would suffice for the larger and stronger roads competing with them in their respective territories. For the most part, they perform a necessary service; they are important lines as feeders for the larger systems with which they connect; their public very properly demands their continuance; they cannot be abandoned.

**The
New England
Roads**

With the New England roads the situation is in some respects similar. Like the small roads they must operate under rates made for roads more favorably situated, since their rates are and must be the same in large part as those made for all roads in the Eastern territory, even though statistics show that they are more costly to operate. It must not be concluded, however, that these roads constitute a problem by themselves without interest to people outside of New England and unrelated to the railroad problem of the whole country. New England with her enormous factory development is an important market for the raw materials produced by other sections of the country — coal, steel, cotton, wool, copper, and leather — as well as the source from which the country receives many kinds and large amounts of manufactured products which are its necessities and comforts. The food producing sections of the country also find a large market for their products in the dense population of the New England district.

The extent of the commercial value of New England to other sections of the country and of their dependence upon her is shown by the fact that nearly 65 per cent of the freight tonnage of the New England roads is interchanged with railroads outside of New England. This high percentage of interchanged business taken with the fact that the haul on the New England roads is short shows very clearly that the latter are to a large extent terminals for their connecting roads and are important parts of these systems.

That the credit of the New England roads be restored and maintained so that they can perform adequately the service required is thus a matter of concern not only to the public of New England, but to the country at large. It is obvious, however, that due to high operating costs their credit can-

not be maintained under rates which are sufficient for the more favorable situated roads with which they connect.

A satisfactory solution of the problem of credit involves: rates adequate to insure a credit position for *all* roads; such readjustment of capitalization as may be necessary to give each road a sound financial structure; and some provision to overcome the handicaps of location.

Necessity of
Credit restora-
tion

Large amounts of new capital will be required by all roads not only for the adequate maintenance and expansion of their facilities, but also for the liquidation of vast amounts due to the Government as a result of Federal control.

These enormous debts due the Government at the present time are a menace to private operation; their continuance will eventually lead to Government ownership. The conclusion is inevitable, if private management is to be perpetuated, that the railroads of the country individually and as a whole must secure for themselves a credit position which will enable them to meet their capital requirements from the investment markets and without dependence upon the public treasury.

THE BASIS OF RATES

From the above it is evident that the factor common to all the railroads is the matter of rates,—their adequacy, and the theory upon which they are to be established so as to afford each railroad system a sufficient income. The importance of this factor is clearly recognized by the Transportation Act.

The provisions of the Transportation Act relating to rates recognize that the cost of capital is part of the cost of service, and as such must be protected by the rates charged. The Act provides accordingly that rates shall be so established as to provide a return on the aggregate value of all railway property held for and used in the service of transportation. It stipulates that for two years, beginning March 1, 1920, such fair return shall be 5½ per cent and, in the discretion of the Interstate Commerce Commission, may be increased to 6 per cent; and that after the expiration of two years the rate of return shall be left to the judgment

of the Commission, who shall give "due consideration, among other things, to the transportation needs of the country and the necessity . . . of enlarging such facilities in order to provide the people of the United States with adequate transportation."

This recognition by the Transportation Act of the cost of capital as a factor in the cost of service is not the recognition of a new principle in its application to publicly regulated corporations. The decisions of our highest courts time and again have held that property used in the public service is entitled to a fair and just return — which, obviously, must be provided by the rates charged — and less than such return results in confiscation of property that is abhorrent to the safeguards of the Federal constitution.

**The
Service-at-cost
principle**

Various plans which have come to be known as "service-at-cost" plans, in which cost of capital has been given equal consideration with other factors, have been adopted successfully for determining the rates to be charged by public utility companies, especially those furnishing local transportation service. In such cases an agreement has been reached both as to the value of the property to be used for rate-making purposes as well as to the rate constituting a fair return. Heretofore, however, it has been impossible to make railroad rates on this basis, for opinions have differed in regard to the rate constituting a fair return and to the factors which should determine value for rate-making purposes. Progress in this direction has been made, however, in recent years.

The Transportation Act has fixed the rate of return, or provided the basis for determining the rate of return, which the railroads will be allowed to earn on their property value in the future. Furthermore, in response to Act of Congress passed in 1913, the Interstate Commerce Commission has been engaged in preparing a valuation for each railroad of the country, and these valuations are nearly completed. Now for the first time, with more accurate and definite knowledge of these two essential factors, it is possible to apply to the railroads of the country the service-at-cost principle of rate-making and to include in the cost the factor of fair return upon the value of railroad property.

In the application of this method of rate making the public in the territory served is charged rates to provide income sufficient to cover the cost of all services performed, including an amount equal to the agreed return upon the aggregate value of the property used in the service.

Provided there is a common interest in the results of operation through a common interest in the ownership of all parts of the property used in the service, it is not essential that the income from each service performed should be proportionate to its cost, nor that each individual part of the property should be self-sustaining so long as the total income received from all services is adequate for a fair return on the aggregate value of the property.

APPLICATION OF "SERVICE-AT-COST" PRINCIPLE

In the case of public utility companies this method of rate making has been applied to companies having a monopoly and, hence, a common interest in the results obtained. In its application to the railroads, however, the companies, because of diversity of ownership of the constituent parts of the property, have no common interest in the results of operation, and furthermore competing for the same business are obliged to operate under uniform rates. As in the case of a monopoly, however, the rates cannot be made to produce income in excess of the combined requirements of the roads as a whole in any given territory which may be determined to be a unit for rate-making purposes. While rates must be established which will afford the required fair return upon the aggregate value of all the railroad property in a given rate-making territory — and neither more nor less than such fair return — it does not follow that under competitive conditions such fair return will be received by each road in the territory.

Difficulties in its application to competing companies

If the rates were established at a figure just sufficient to give a fair return to the railroad most favorably situated, such rate would be insufficient to give a fair return to another competing railroad in the same territory less favorably situated. Thus, the second railroad under such a rate would be selling its service at less than cost and, under such con-



ditions, could never arrive at a position of sound credit. On the other hand, if the rates were made at a figure to cover the cost of service of the inferior railroad, the railroad of superior position would receive more than the fair return contemplated by the statute.

Since property values and operating costs of each road are factors which determine the rates to be used for all roads, they should also determine the amount of income to be received by each road. While a separate rate for each road cannot be established, this impossibility should not operate to give to any road a return larger than would be received if the rates were established for it as a separate unit; nor should it operate to deprive any road of the full amount of income to which it is entitled on the basis of its individual requirements.

The Transportation Act recognized these difficulties but found no adequate way to meet them. By providing for the "recapture of excess earnings" it attempts to limit the income of the more favorably situated roads to the fair return on the value of their property; by requiring the Interstate Commerce Commission, in determining the equitable division of joint rates, to give weight to the circumstances of each road and especially to take into account "the amount of revenue necessary to pay operating expenses, taxes, and to give a fair return on the value of the property" it attempts to some extent to divert earnings from the more favorably situated to the less favorably situated roads.

**Requisites for
its successful
application to
competing
companies**

Unless some practical way is found to give to each system income adequate for its needs, some roads which are important parts of the nation's transportation system cannot be made financially sound, and the provision for rate making under the Transportation Act will not fully accomplish its purpose. To apply the service-at-cost method with complete success it will be necessary either (a) to consolidate all the railroads in each rate-making territory into one system, thus creating a monopoly and completely eliminating competition; or (b) to provide a method which is practicable and economically sound for equalizing the income of the various roads by a redistribution of the earnings so that each road will receive from the whole such amount as is necessary for

its cost of operation and a fair return upon the value of its property, or (c) to combine the more favorably and less favorably situated roads in each rate-making district so that the systems resulting from the combinations will be able to obtain uniform results under uniform rates.

The solution of the problem by creating a monopoly should be considered only after failure to meet the situation by one of the other methods. A railroad monopoly in any district would eliminate competition, would offend public sentiment, and would be directly contrary to the clear intent of the Transportation Act.

**Monopoly
not to be
considered**

The second suggestion, that of equalizing the income by a redistribution of earnings, even though sound in principle, presents difficulties which appear to be conclusive against it. It would require both the recapture of the excess earnings of the more favorably situated roads and the allocation of such earnings in varying amounts to the less favorably situated in accordance with the requirements of each. To take from some railroads a part of the income which they have received under a given schedule of rates, because they have received more than that to which they are entitled under the service-at-cost principle, and to hand it over to other roads which have meanwhile received less than that to which they are entitled entails exact standardization of operating costs and maintenance charges, and standardization also of efficiency in management, for a road is entitled to its fixed return only provided it is efficiently operated. Such standardization is practically impossible. A given railroad management knowing that any excess earnings received by it are to be taken away will be constantly under temptation to conceal its excess earnings through an increase in operating expenses; it will not be under any incentive to keep costs down to the lowest amount consistent with safe and sound operation. Likewise, a management which knows that a shortage in its income is to be made up will have little incentive to keep the shortage small by economies in operation. Extravagances of corporate management to avoid payment of taxes is a phenomenon of recent development which illustrates the point.

**Solution by
Equalizing
Income
Impracticable**

In order to exercise all of its ingenuity in a competitive

**Recapture of
Excess Earn-
ings
economically
unsound**

field each management must be assured that what it receives under established competitive conditions shall remain its own and shall not be handed over to a management which may be less resourceful and less careful. To take away rewards to efficiency and to make awards to inefficiency (and this in the absence of exact standards of accounting and management) would destroy the incentive for railroad managements to take advantage of their opportunities in the knowledge that they may not keep everything that they receive. Under the one plan railroad management would inevitably become shiftless and extravagant; under the other, each management would constantly strive to conserve its resources and to become efficient.

**Difficulties of
application
illustrated**

The difficulties of this method of solution are well illustrated by the controversy between the New England roads and the trunk lines over the division of joint rates. Negotiations which started to determine the equitable division of such rates between these roads, because of some implied authority in the Act for giving weight to the circumstances of the roads concerned, developed into a contention for a redistribution of earnings on the basis of the needs of the roads.

In the hearings before the Interstate Commerce Commission testimony was presented purporting to show that rates had been established for the whole of the Eastern territory higher than they would have been if New England had not been included, and that because of these higher rates the roads in the Eastern territory outside of New England would receive approximately \$25,000,000 more than if rates were made with a view to their requirements alone, without taking into account the cost of operation and property values of the New England roads. The New England roads contended that these excess earnings measured and established the amount which they were entitled to receive from the outside roads because of their inclusion in the rate group. This excess would be received in varying amounts by all railroads in the Eastern territory, including roads which have no physical and no direct traffic connection with the New England roads. In this case, if it should be determined how much each road should pay into a fund equitably be-

longing to the New England roads, and if such payment should actually be made, there would remain the equally perplexing question of the equitable division of the fund among the several New England roads. The practical difficulties of solving the problem in this way have proved so great that no agreement has been reached, although negotiations have extended over many months under repeated requests of the Interstate Commerce Commission.

This single incident well illustrates some of the practical difficulties which would occur hundreds of times if the expedient of equalizing income by a redistribution of earnings were adopted in order to apply the service-at-cost principle.

From the foregoing it is clear that the service-at-cost method cannot be applied successfully to competing companies unless they are uniform in essential respects. Unless such uniformity can be brought about, the operation of the rate-making provision of the Transportation Act will prove disappointing in the results attained. The question thus becomes this: Can the railroads of the country be consolidated into a limited number of competing systems of such uniform character and subject to such uniform operating conditions so that each and every system in a given rate-making territory will be able to earn the fair return upon the value of its property? Part II of this pamphlet answers this question in the affirmative by presenting such a plan of consolidation.

**Consolidations
the only
solution**

PART II

CONSOLIDATIONS—THEIR PURPOSE AND PRACTICABILITY

THE discussion in Part I has shown that consolidations are necessary in order to establish the finances of the railroads as a whole upon a sound basis. The primary purpose of making the railroads financially sound is to enable them to obtain capital readily and economically. To accomplish this fully other requirements must be met.

It will be of no avail to consolidate the railroads in such a way that each road hereafter existing will be enabled to receive, under a uniform rate, its fair return in a competitive field, unless each road is assured of a credit position clearly recognized by the investing public.

Reputation
necessary to
credit

The requisites of credit are not only financial soundness but a reputation based upon conservative financial policies and management. This reputation at present is possessed only by the "strong" roads. It will not be secured readily by the "weak" roads merely by their financial reorganization, although, logically, this is all that is needed to insure the investment integrity of their securities.

Broad market
for securities
important

Furthermore, if capital is to be obtained upon the most advantageous terms by these roads, their securities must be made available for investment on the part of savings banks, insurance companies, and other semi-public institutions. Their securities, accordingly, must conform to the requirements governing the eligibility of such investments, and these requirements quite universally include, as an essential factor, dividend payments at given rates extending over a considerable period of time. The institutional markets will not be available for the securities of roads which have found it necessary to readjust their capitalization in order to meet sound standards of credit until these roads have established for themselves the necessary record

for dividend payments; nor will they be available at any time for the securities of the smaller systems, for these institutions, either because of legislative restrictions or of investment policies, for the most part confine their investments to securities of the larger systems.

To establish the necessary credit position and to give access to the most favorable security markets the "strong" roads must be used as the backbones of the new systems.

CONSOLIDATION WOULD NOT DESTROY THE CREDIT OF THE "STRONG" ROADS

Much of the opposition to consolidations has been and will continue to be based on the theory that their purpose is to strengthen the "weak" by weakening the "strong" roads and that the credit of the "strong" roads will thereby be impaired. If this result is to follow, it goes without saying that voluntary consolidations in a large way will never take place.

This conception of the problem, however, proceeds largely on the assumption that the "weak" roads generally are less favorably situated. It does not take into account the fact that approximately 25 per cent of the country's traffic is handled by systems which are "weak" only in their capitalization, but are similar to the "strong" roads both in operating conditions and in favorableness of location, and, if similarly capitalized, would have similar financial strength. (The similarity and differences of these two groups of roads are fully discussed in Part I, pages 10-15).

The contention that the credit of the so-called "strong" roads will be impaired by merging with the "weak" roads, insofar as it applies to such systems as are here referred to, can be upheld only on the theory that the amount of existing capitalization rather than property value, is to be the controlling factor in determining the basis of consolidations, and that adjustment of capitalization to conform to property value is not to be made at the time or before consolidations take place. Such readjustments, however, are required by the provision of the Transportation Act which stipulates that "the bonds at par of a corporation

Sound financial
structure a
prerequisite

which is to become the owner of the consolidated properties, together with the outstanding capital stock at par of such corporation, shall not exceed the value of the consolidated properties as determined by the Commission." Thus in the process of consolidation over-capitalization will be eliminated wherever it is found.

The problem of consolidations, therefore, has to do largely with the merging of roads whose main difference is a matter of capitalization, inasmuch as the remaining roads—the less favorably situated—handle not over 15 per cent of the country's traffic.

Even the absorption of these roads need not prove a burden, provided proper recognition is given to the property values and relative earning capacity of the several companies involved.

**Difficulties
overestimated**

While the complexity of the problem of harmonizing the many interests concerned is fully appreciated, it is sufficient here to say that, if the public interest requires that such consolidations be made, the difficulties of making them on a basis which will fully recognize the rights of all parties appear to be no greater than those which have been met successfully many times heretofore in railroad and industrial consolidations.

CONSOLIDATIONS ESSENTIAL TO HEALTHFUL COMPETITION

While this discussion has concerned itself thus far principally with the relation of consolidations to credit, nevertheless, consolidations are important to carry out other essential provisions of the Transportation Act. The Act specifically stipulates that transportation must be furnished at the lowest cost consistent with adequate service.

Congress adopted the premise that private ownership and operation would secure greater efficiency than Government ownership and that competition would assure greater economy in operation than a monopoly.

**Wasteful com-
petition should
be eliminated**

There has been much misapprehension as to the kind of competition contemplated by the Act. It should be emphasized that inasmuch as the primary purpose of competition

is to promote efficiency and economy, the competition intended is only such as may be expected to serve these purposes. Competition which would require duplication of facilities or which in any way would increase the cost of service, would be clearly inconsistent with the purposes of the Act. The Act calls for a limited number of systems so competing as to secure economical service through efficiency of operation.

Under the policy of rate making established by the Transportation Act the amount of income in a given territory is to be limited to an amount which will equal the fair return on the aggregate value of the property of the roads as a whole in the territory. As railroads have no control over rates to be charged for service and as they are forbidden by law from discriminating in favor of either individuals or communities, competition resolves itself into a contest among the roads in each district for such part of the available income as each is able to obtain on the basis of the facilities which it can furnish and the quality of service which it can offer.

**Character of
the competition
to be preserved**

This is genuine competition, provided the companies are similarly situated so as to create equality of opportunity, for under such circumstances efficiency of operation alone would determine the income which each receives. Unless the companies are similarly situated, other factors, especially favorableness of location, would in part determine the receipt of income, and, insofar as such factors are unduly rewarded, efficiency of operation will fail to receive its just reward.

Congress has made competition an essential factor in the railroad policy of the country on the theory that competition provides the means of assuring adequate service with the greatest efficiency and economy. It is obvious that these purposes cannot be served unless the companies engaged in competition have equal operating advantages and similar financial strength and credit standing; and that to establish these conditions it will be necessary to make further consolidations among existing systems.

CHARACTERISTICS OF COMPETING COMPANIES

The general character of the consolidations contemplated by the recent legislation are clearly indicated by Section 407 of the Transportation Act of 1920 and may be summarized briefly as follows —

- To combine all the railroads of the country into a limited number of self-supporting systems
- To group the roads so that “competition shall be preserved as fully as possible” among the systems serving the same territory and so that wherever practicable “the existing routes and channels of trade and commerce shall be maintained”
- To arrange the systems so that “the cost of transportation as between competitive systems” shall be substantially uniform, so that “these systems can employ uniform rates in the movement of competitive traffic and under efficient management earn substantially the same rate of return upon the value of their respective railway properties”

In order that the interests of all concerned may be fully considered before a definite plan is adopted, the Act provides that the Interstate Commerce Commission shall first prepare a tentative plan, and that “when the Commission has agreed upon a tentative plan, it shall give the same due publicity and upon reasonable notice, including notice to the Governor of each State, shall hear all persons who may file or present objections thereto.” The Act further provides that “after the hearings are at an end, the Commission shall adopt a plan for such consolidation and publish the same.” After the adoption of the permanent plan, the consolidations which are authorized and approved by the Commission “shall be in harmony with such plan.”

The Transportation Act does not fix the number of systems, as the exact number can only be determined after consideration of the whole subject.

Scope of
tentative plan

A tentative plan of consolidation necessitates the consideration only of combinations to be made among the larger systems, for such systems, as they control a substantial part of the mileage and traffic of the country, must necessarily be the foundation of any general plan. The smaller roads cannot be placed until the basic systems are determined; and with these definitely fixed, the logical disposition of such roads will in most cases become apparent.

In the preparation of a tentative plan the number of roads to be considered is not large. Prior to Federal control 80 per cent of the mileage of the country was operated by 109 roads so related by stock ownership, lease or otherwise, as to constitute 30 systems; and 88 per cent of the revenues was obtained from traffic handled by these systems. Approximately 7 per cent of the mileage was operated by 17 additional roads so related as to constitute 15 systems; 6 per cent of the revenue was obtained from their traffic. Thus, as 87 per cent of the mileage and 94 per cent of the revenues were within the control of 45 systems, only about 13 per cent of the mileage and 6 per cent of the revenues were within the control of the smaller systems.

The 30 systems referred to are listed in Table VIII below; the 15 in Table IX; and a summary of all the systems and roads classified on the basis of their mileage and earnings, with the relative mileage and earnings of each class to the total of the country, will be found in Table X.

TABLE VIII

The thirty systems listed below comprise all systems which, with their controlled or affiliated companies, as of June 30, 1916, had annual gross operating income of \$25,000,000 or over.

The names of the affiliated companies constituting the various systems as of June 30, 1916, with minor exceptions and except as noted, will be found by reference to the description of the systems on pages 33-40.

Number of Class I Roads in each System constituting roads owned and controlled as of June 30, 1916		Average for Test Period	
		Mileage Operated	Gross Operating Income
	EASTERN		
12	Pennsylvania R.R.	11,476.70	\$405,623,546
10	¹ New York Central	13,331.22	343,785,402
2	Baltimore & Ohio	4,563.50	110,216,356
4	² Phila. & Reading	1,998.88	92,680,217
3	N.Y. N.H. & H. R.R.	2,870.15	88,621,495
3	Erie Railroad	2,396.15	73,197,134
4	Chesapeake & Ohio	2,848.95	59,077,915
1	Norfolk & Western	2,062.11	53,800,498
1	Boston & Maine	2,286.36	51,913,506
1	Delaware, Lackawanna & Western	956.27	48,923,528
1	Lehigh Valley	1,443.45	47,023,053
2	Wabash	3,031.02	42,449,571
1	Delaware & Hudson	883.41	25,411,263
	SOUTHERN		
9	Atlantic Coast Line	12,755.01	125,895,041
7	Southern Ry.	9,684.36	107,892,747
3	Illinois Central	8,071.04	97,818,454
1	Seaboard	3,445.88	24,926,111
	WESTERN		
8	³ Northern Pacific	18,916.06	202,039,732
8	Southern Pacific	10,884.31	154,162,290
4	Atchison	11,745.52	139,897,726
5	Union Pacific	9,304.28	117,691,478
2	Chicago & Northwestern	9,860.63	111,048,825
1	Chicago, Milwaukee & St. Paul	10,221.52	103,164,598
1	Great Northern	8,094.45	78,548,635
2	Chicago, Rock Island & Pacific	8,297.79	77,988,555
2	Missouri Pacific	7,348.14	66,076,724
3	⁴ St. Louis & San Francisco	6,125.10	64,635,838
3	Minn., St. Paul & Sault Ste. Marie	4,938.10	36,843,497
3	Missouri, Kansas & Texas	3,865.04	35,340,021
2	Denver & Rio Grande	3,518.64	32,221,710
109*		**197,224.04	***\$3,018,915,466

Includes New York, Chicago & St. Louis, since sold.

¹ Includes Central of New Jersey.

² Includes Chicago, Burlington & Quincy which is controlled jointly by the Great Northern.

³ Includes Chicago & Eastern Illinois, since sold.

⁴ Includes Chicago & Eastern Illinois, since sold.

* Includes 100 Class I roads of a total of 160.

** Represents 80.3 per cent of the mileage of all roads in the United States.

*** Represents 88.2 per cent of the gross operating revenue of all roads in the United States.

TABLE IX

The fifteen systems listed below comprise all systems which, with their controlled or affiliated companies, as of June 30, 1916, had annual gross operating income of \$10,000,000 but less than \$25,000,000. The names of the affiliated companies constituting the various systems as of June 30, 1916, with minor exceptions and except as noted, will be found by reference to the description of the systems on pages 33-40.

Number of Class I Roads in each System constituting roads owned and controlled as of June 30, 1916		Average for Test Period	
		Mileage Operated	Gross Operating Income
	EASTERN		
1	Pere Marquette	2,271.73	\$20,843,657
1	Elgin, Joliet & Eastern	788.78	12,192,426
1	Maine Central	1,219.73	12,328,910
1	Buffalo, Rochester & Pittsburg	586.50	11,667,747
1	Western Maryland	694.50	10,791,912
1	Bessemer & Lake Erie	204.63	10,362,886
—	SOUTHERN		
	WESTERN		
1	Texas Pacific	1,944.82	19,834,671
1	Chicago & Alton	1,051.86	16,637,024
1	Chicago & Great Western	1,459.84	15,157,101
2	St. Louis & Southwestern	1,753.81	12,910,439
2	Kansas City and Southern	836.51	11,023,296
1	El Paso & Southwestern	1,027.61	10,878,268
1	Minnesota & St. Louis	1,646.56	10,590,733
1	Duluth, Missabe & Northern	390.06	10,552,080
1	International & Great Northern	1,159.50	10,107,915
17*		**17,036.44	***\$195,879,065

* Includes 17 Class I roads of a total of 169.
 ** Represents 6.9 per cent of the mileage of all roads in the United States.
 *** Represents 5.7 per cent of the gross operating revenue of all roads in the United States.

TABLE X

Summary showing proportionate part of the total mileage and total revenue of the country handled by various classes of roads.

Roads with Total Gross Operating Income of	Number of systems	Number of controlled or affiliated companies	Total roads in the group	Combined Mileage	Per Cent to Total	Combined Gross Operating Income	Per Cent to Total
\$25,000,000 or over	30	79	109	197,224.04	80.3	\$3,018,915,466	88.2
10,000,000 to 25,000,000	15	2	17	17,036.44	6.9	195,879,065	5.7
10,000,000 or under	42	1	43	14,199.49	5.8	104,974,736	3.1
Total Class I roads	87	82	169*	228,459.97	93.0	\$3,319,769,267	97.0
Estimated total for Class II and III roads				17,321.73	7.0	103,411,445	3.0
Approximate total for Class I, II and III roads				245,781.70	100.0	\$3,423,180,712	100.0

* The slight variation from that which appeared on page 23 in the pamphlet "A Comprehensive Plan for Railroad Consolidation" is due to the omission here of the Canadian Pacific Lines in Maine; the Duluth, Winnipeg & Pacific, and the Grand Trunk Lines in the United States.

The concentration of ownership which is indicated by these tables is significant as it shows: that substantial progress has already been made in the direction of establishing a national system of transportation along the lines called for by the Transportation Act; that the suggestion for further consolidation is consistent with the tendencies under which the representative systems of the country have been developed; and that the difficulties incident to such consolidations are not as great as they frequently have been made to appear.

These tables also make it clear that a national system of transportation as proposed cannot be established if consolidations are to be voluntary except through the coöperation and by the consent of the owners of the 30 systems listed in Table VIII. With such coöperation, the problem of a comprehensive plan of railroad consolidations, such as the Transportation Act contemplates, will be largely solved.

In the preparation of the following plan, the roads have been segregated into three general groups which may be described as the Eastern, Southern, and Western. The systems for the most part are developed by combining the various roads within each group. While it may prove to be desirable to make some changes eventually in the ownership or control now existing, for present purposes, the relationships heretofore established, with few exceptions, have not been disturbed. Thirteen systems in all are proposed: 5 for the Eastern district; 2 for the Southern; and 6 for the Western.

The tables given on pages 44-46 show the similarity of the proposed systems. To demonstrate the extent to which competition has been preserved a list of the larger cities in the United States is given on pages 48-49 designating by which systems each is to be served. A brief description of 13 systems will be found on pages 50-60, giving some of the fundamental considerations involved in this grouping of the roads. The maps following the text show the proposed systems in colors and indicate the individual roads by number.

The roads constituting the various systems, together with their mileage and earnings, are as follows —

PROPOSED SYSTEMS

System 1

NEW YORK CENTRAL SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
2	New York Central.....	6,075.50	\$203,060,842	\$33,423
12	Cleve. Cin. Chi. & St. Louis.....	2,382.43	42,904,858	18,009
13	Michigan Central.....	1,854.87	41,756,671	22,512
13	Pittsburgh & Lake Erie.....	224.58	20,559,224	91,545
40	Toledo & Ohio Central.....	438.64	5,736,686	13,078
60	Cincinnati Northern.....	245.70	1,830,991	7,452
46	Kanawha & Michigan.....	176.60	3,297,455	18,672
37	Lake Erie & Western.....	900.01	6,859,306	7,622
15	Central of New Jersey.....	682.78	32,490,917	47,586
31	New York, Ontario & Western.....	568.46	8,874,397	15,611
70	Ulster & Delaware.....	128.88	1,023,519	7,942
		13,678.45	\$368,394,866	\$26,932

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

56	*Lehigh & Hudson.....	96.60	\$2,053,781	\$21,261
59	**Monongahela.....	92.41	1,690,183	18,290

NEW ENGLAND SYSTEM

to be jointly controlled by four of the Trunk Line Systems.

Also shown on Maps 2, 3, 4.

44	Rutland.....	463.11	\$ 3,831,743	\$ 8,264
8	Boston & Maine.....	2,286.36	51,913,506	22,706
25	Maine Central.....	1,219.73	12,328,910	10,108
45	Bangor & Aroostook.....	631.73	3,955,357	6,261
4	New York, New Haven & Hartford	1,998.83	74,927,908	37,485
41	Central New England.....	302.86	4,819,190	15,912
		6,902.62	\$151,776,614	\$21,988

* Also in Systems 2, 3, 4.

* Also in System 3.

System 2
BUFFALO SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
6	Erie.....	1,987.84	\$62,401,580	\$31,392
33	Chicago & Erie.....	269.56	7,455,155	27,657
47	New York, Susque. & Western..	138.75	3,340,399	24,075
14	Wabash**.....	2,518.89	34,270,522	13,606
30	Wheeling & Lake Erie.....	512.13	8,179,049	15,971
19	Pere Marquette.....	2,271.73	20,843,657	9,176
21	New York, Chicago & St. Louis....	569.78	13,947,626	24,479
16	Delaware & Hudson.....	883.41	25,411,263	28,764
9	Delaware, Lackawanna & Western..	956.27	48,923,528	51,161
26	Buffalo, Rochester & Pittsburgh....	586.50	11,667,747	19,894
27	Bessemer & Lake Erie.....	204.63	10,362,886	50,642
30a	Pittsburgh & West Virginia.....	63.31	1,080,449	17,066
23	Elgin, Joliet & Eastern.....	788.78	12,192,426	15,457
63	Buffalo & Susquehanna.....	252.56	1,604,078	6,351
		12,004.14	\$261,680,365	\$20,966

LINE AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

56	*Lehigh & Hudson.....	96.60	\$2,053,781	\$21,261
----	-----------------------	-------	-------------	----------

NEW ENGLAND SYSTEM

to be jointly controlled by four of the Trunk Line Systems.

Also shown on Maps 1, 3, 4.

44	Rutland.....	463.11	\$ 3,831,743	\$ 8,264
8	Boston & Maine.....	2,286.36	51,913,506	22,706
25	Maine Central.....	1,219.73	12,328,910	10,108
45	Bangor & Aroostook.....	631.73	3,955,357	6,261
4	New York, New Haven & Hartford	1,998.83	74,927,908	37,485
41	Central New England.....	302.86	4,819,190	15,912
		6,902.62	\$151,776,614	\$21,988

* Also in Systems 1, 3, 4.

**Lines west of St. Louis in Gr. Northern-St. Paul System.

System 3

PENNSYLVANIA SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
1	Pennsylvania Railroad	4,559.45	\$215,428,766	\$47,249
5	{ Pennsylvania Co.	1,756.74	67,119,283	38,206
	{ Pittsburgh, Cin. Chi. & St. Louis	2,397.98	59,450,509	24,792
17	Phila., Balt. & Washington	717.32	24,001,572	33,460
39	Grand Rapids & Indiana	573.32	5,716,575	9,971
22	Long Island	397.22	14,284,869	35,962
42	New York, Phila. & Norfolk	124.22	4,626,775	37,246
35	West Jersey & Seashore	359.06	7,355,513	20,485
48	Cumberland Valley	163.67	3,528,025	21,555
68	Balt. Chesapeake & Atlantic	87.61	1,200,911	13,707
172	Toledo, Peoria & Western	247.70	1,220,565	4,927
		<hr/>	<hr/>	<hr/>
		11,384.29	\$403,933,363	\$35,481

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

56	*Lehigh & Hudson	96.60	\$2,053,781	\$21,261
59	**Monongahela	92.41	1,690,183	18,290
88	†Richmond, Fred. & Potomac	87.68	3,475,207	39,635
101	††Washington Southern	35.57	1,647,852	46,327

NEW ENGLAND SYSTEM

to be jointly controlled by four of the Trunk Line Systems.

Also shown on Maps 1, 2, 4.

44	Rutland	463.11	\$ 3,831,743	\$ 8,264
8	Boston & Maine	2,286.36	51,913,506	22,706
25	Maine Central	1,219.73	12,328,910	10,108
45	Bangor & Aroostook	631.73	3,955,357	6,261
4	New York, New Haven & Hartford	1,998.83	74,927,908	37,485
41	Central New England	302.86	4,819,190	15,912
		<hr/>	<hr/>	<hr/>
		6,902.62	\$151,776,614	\$21,988

* Also in Systems 1, 2, 4.
** Also in System 1.

† Also in Systems 4, 5, 6, 7.
†† Also in Systems 4, 5, 6, 7.

System 4

BALTIMORE — READING SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
3	Baltimore & Ohio	4,539.96	\$108,665,110	\$23,935
65	Staten Island Rapid Transit	23.54	1,551,246	65,898
7	Philadelphia & Reading	1,104.76	55,803,929	49,614
61	Port Reading	21.16	1,818,575	85,944
53	Atlantic City	170.18	2,566,796	15,083
104	Coal & Coke	197.30	1,100,109	5,576
51	Ann Arbor	295.68	2,661,519	9,001
64	Cincin. Indianapolis & Western	321.68	2,477,850	7,703
28	Western Maryland	694.50	10,791,912	15,539
30b	Toledo, St. Louis & Western	453.55	5,560,324	12,260
10	Lehigh Valley	1,443.45	47,023,053	32,576
		9,265.76	\$240,020,423	\$25,904

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

56	*Lehigh & Hudson	96.60	\$2,053,781	\$21,261
101	**Washington Southern	35.57	1,647,852	46,327
88	†Richmond, Fred. & Potomac	87.68	3,475,207	39,635

NEW ENGLAND SYSTEMS

to be jointly controlled by four of the Trunk Line Systems.
Also shown on Maps 1, 2, 3.

44	Rutland	463.11	\$ 3,831,743	\$ 8,264
8	Boston & Maine	2,286.36	51,913,506	22,706
25	Maine Central	1,219.73	12,328,910	10,108
45	Bangor & Aroostook	631.73	3,955,357	6,261
4	New York, New Haven & Hartford	1,998.83	74,927,908	37,485
41	Central New England	302.86	4,819,190	15,912
		6,902.62	\$151,776,614	\$21,988

* Also in Systems 1, 2, 3.

** Also in Systems 3, 5, 6, 7.

† Also in Systems 3, 5, 6, 7.

System 5

NORFOLK & WESTERN — CHESAPEAKE & OHIO

No.	Name	Mileage	Gross Earnings	Gross Per Mile
75	Chesapeake & Ohio	2,374.98	\$46,322,284	\$19,504
36	Hocking Valley	350.72	7,632,572	21,763
74	Norfolk & Western	2,062.11	53,800,498	26,090
83	Virginian	506.53	7,570,315	14,945
91	Carolina, Clinchfield & Ohio	271.44	2,854,624	10,517
		5,565.78	\$118,180,293	\$21,233

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

101	*Washington Southern	35.57	\$1,647,852	\$46,327
88	†Richmond, Fred. & Potomac	87.68	3,475,207	39,635

* Also in Systems 3, 4, 6, 7.

† Also in Systems 3, 4, 6, 7.

System 6

ATLANTIC COAST LINE — LOUISVILLE & NASHVILLE SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
76	Atlantic Coast Line	4,718.08	\$35,464,175	\$ 7,517
73	Louisville & Nashville	5,052.18	60,597,491	11,994
79	Nashville, Chattanooga & St. Louis	1,232.68	12,613,336	10,232
96	Charleston & West Carolina	341.88	1,925,040	5,631
100	Louisville, Henderson & St. Louis	199.80	1,655,678	8,287
89	Georgia	329.98	3,251,141	7,853
102	Atlanta & West Point	93.12	1,373,126	14,746
34	*Chicago, Indianapolis & Louis- ville	327.00	3,836,962	11,734
		12,294.72	\$120,716,949	\$9,819

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

101	**Washington Southern	35.57	\$1,647,852	\$46,327.
88	†Richmond, Fred. & Potomac	87.68	3,475,207	39,635
103	††Western Railway of Alabama	133.30	1,341,130	10,061

** Also in Systems 3, 4, 5, 7.

† Also in Systems 3, 4, 5, 7.

†† Also in System 13.

* This road will be jointly controlled by the Atlantic Coast Line—Louisville & Nashville System and the Southern System, one-half of the mileage and figures being used in each system.

System 7

SOUTHERN SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
71	Southern	7,018.06	\$71,974,418	\$10,256
81	Mobile & Ohio	1,135.09	11,903,351	10,487
85	Alabama Great Southern	310.53	5,585,318	17,986
105	Southern Railway in Mississippi	279.84	1,100,457	3,933
82	Cincinnati, New Orleans & Texas Pacific	337.27	10,983,183	32,565
87	New Orleans & Northeastern	203.73	3,859,772	18,946
34	*Chicago, Indianapolis & Louis- ville	327.00	3,836,962	11,734
98	Alabama & Vicksburg	142.74	1,701,714	11,924
165	Vicksburg, Shreveport & Pacific . . .	171.47	1,667,937	9,729
84	Florida East Coast	741.04	7,206,392	9,725
77	Seaboard	3,445.88	24,926,111	7,234
92	Georgia Southern & Florida	399.84	2,486,248	6,218
		14,512.49	\$147,231,863	\$10,145

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

101	**Washington Southern	35.57	\$1,647,852	\$46,327
88	†Richmond, Fred. & Potomac	87.68	3,475,207	39,635

** Also in Systems 3, 4, 5, 6.

† Also in Systems 3, 4, 5, 6.

* This road will be jointly controlled by the Southern System and the Atlantic Coast Line—Louisville & Nashville System, one-half of the mileage and figures being used in each system.

System 8
GREAT NORTHERN — ST. PAUL SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
111	Great Northern	8,094.45	\$ 78,548,635	\$ 9,704
142	*Spokane, Portland & Seattle . . .	277.36	2,569,401	9,264
108	Chicago, Milwaukee & St. Paul . . .	10,221.52	103,164,598	10,093
14	†Wabash			
129	Duluth, Missabe & Northern	390.06	10,552,080	27,052
138	Duluth & Iron Range	278.54	6,043,443	21,697
115	St. Louis-San Francisco	4,750.92	47,113,030	9,917
146	St. Louis, San Francisco & Texas	239.41	1,165,568	4,869
125	**Chicago & Alton	525.93	8,318,512	15,817
		24,778.19	\$257,475,267	\$10,391

* This road will be jointly controlled by the Great Northern—St. Paul System and the Northern Pacific—Burlington System, one-half of the mileage and figures being used in each system.

** This road will be jointly controlled by the Gt. Northern—St. Paul System and the Union Pacific—Northwestern System, one-half of the mileage and figures being used in each system.

† Lines of this system west of St. Louis. Lines east of St. Louis and total figures are shown in the Buffalo System.

System 9
NORTHERN PACIFIC — BURLINGTON SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
112	Northern Pacific	6,501.95	\$ 74,857,779	\$11,513
142	*Spokane, Portland & Seattle	277.36	2,569,401	9,264
135	Colorado Southern	1,099.76	8,810,988	8,012
140	Fort Worth & Denver City	454.14	5,797,831	12,767
109	Chicago, Burlington & Quincy . . .	9,359.90	103,814,782	11,091
166	Colorado Midland	337.64	1,615,559	4,875
176	Trinity & Brazos Valley	351.23	1,002,119	2,853
177	Wichita Valley	256.71	1,001,872	3,903
127	Chicago Great Western	1,459.84	15,157,101	10,383
121	Denver & Rio Grande	2,573.83	24,763,649	9,621
137	Western Pacific	944.81	7,458,061	7,894
133	Kansas City Southern, } Texarkana & Ft. Smith }	836.51	11,023,296	13,185
		24,453.68	\$257,872,438	\$10,545

* This road will be jointly controlled by the Great Northern—St. Paul System and the Northern Pacific—Burlington System, one-half of the mileage and figures being used in each system.

System 10

UNION PACIFIC — NORTHWESTERN SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
114	*Union Pacific	3,619.46	\$61,986,599	\$17,126
120	Oregon Short Line	2,235.06	24,780,729	11,087
124	Oregon-Washington & Navigation	2,031.84	17,939,712	8,829
130	Los Angeles & Salt Lake	1,157.85	11,075,453	9,566
158	St. Joseph & Grand Island	260.07	1,908,985	7,340
181	*Central Pacific			
110	Chicago & Northwestern	8,107.82	91,542,024	11,291
122	Chicago, St. Paul, Minneapolis & Omaha	1,752.81	19,506,801	11,129
125**	Chicago & Alton	525.93	8,318,512	15,817
118	Missouri, Kansas & Texas Mo. Kans. & Tex. of Texas Wichita Falls & Northwestern	3,865.04	35,340,021	9,144
		23,555.88	\$272,398,836	\$11,564

* The Central Pacific has been placed with the Union Pacific-Northwestern System, but the figures of the Central Pacific are included with those of the Southern Pacific System.

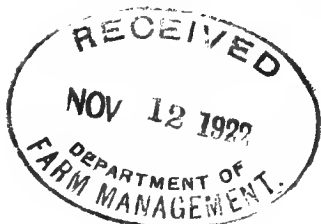
** This road will be jointly controlled by the Union Pacific-Northwestern System and the Great Northern-St. Paul System, one-half of the mileage and figures being used in each system.

System 11

ATCHISON SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
107	Atchison, Topeka & Santa Fe	8,626.94	\$114,019,747	\$13,217
145	Northwestern Pacific	471.86	4,194,169	8,889
141	Panhandle & Santa Fe	709.29	5,387,362	7,595
126	Gulf, Colorado & Santa Fe	1,937.43	16,296,448	8,411
20	*Chicago & Eastern Illinois	567.38	8,178,620	14,415
123	Texas & Pacific	1,944.82	19,834,671	10,199
123a	New Orleans, Texas & Mexico	243.80	1,503,574	6,167
123b	St. Louis, Brownsville & Mexico	548.18	3,221,309	5,876
134	International & Great Northern	1,159.50	10,107,915	8,718
119	Missouri Pacific			
117	St. L. Iron Mt. & Southern	7,348.14	66,076,724	8,992
		23,557.34	\$248,820,539	\$10,562

* This road will be jointly controlled by the Atchison System and the Southern Pacific System, one-half of the mileage and figures being used in each system.



System 12
SOUTHERN PACIFIC SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
106	*Southern Pacific	6,990.90	\$115,870,170	\$16,575
149	Arizona Eastern	374.08	3,304,983	8,835
128	Galveston, Harrisburg & San Antonio	1,355.80	14,167,759	10,450
139	Houston & Texas Central	893.13	7,022,858	7,863
144	Texas & New Orleans	468.48	4,683,962	9,998
167	Houston East & West Texas	190.94	1,532,556	8,027
152	Louisiana Western	207.74	2,580,656	12,422
143	Morgan's Louisiana & Texas	403.24	4,999,346	12,398
171	Kansas City, Mexico & Orient	737.62	2,522,892	3,420
147	San Antonio & Aransas Pass	727.80	4,003,622	5,500
113	Chicago, Rock Island & Pacific	7,821.02	74,724,444	9,554
150	Chicago, Rock Island & Gulf	476.77	3,264,111	6,846
132	El Paso & Southwestern	1,027.61	10,878,268	10,586
136	St. Louis Southwestern	943.31	8,500,314	9,011
174	St. Louis Southwestern of Tex.	810.50	4,410,125	5,441
20**	Chicago & Eastern Illinois	567.39	8,178,620	14,415
		23,996.33	\$270,644,686	\$11,278

* The Central Pacific has been placed with the Union Pacific-Northwestern System, but the figures of the Central Pacific are included with those of the Southern Pacific System.
** This road will be jointly controlled by the Atchison System and the Southern Pacific System, one-half of the mileage and figures being used in each system.

System 13
ILLINOIS CENTRAL — SOO SYSTEM

No.	Name	Mileage	Gross Earnings	Gross Per Mile
72	Illinois Central	4,767.81	\$70,595,781	\$14,807
78	Yazoo & Mississippi	1,380.77	14,059,523	10,187
80	Central of Georgia	1,922.46	13,163,150	6,847
182	Minneapolis & St. Louis	1,646.56	10,590,733	6,437
116	Minneapolis, St. Paul & Sault Ste. Marie	4,207.61	32,305,808	7,678
148	Duluth South Shore & Atlantic	610.48	3,506,694	5,744
160	Mineral Range	120.01	1,030,995	8,591
		14,655.70	\$145,252,684	\$9,911

LINE AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

103	*Western Railway of Alabama	133.30	\$1,341,130	\$10,061
-----	---------------------------------------	--------	-------------	----------

* Also in System 6.

SUMMARY OF MILEAGE AND INCOME OF PROPOSED SYSTEMS.

	No. of Class I Roads Included	Number of Miles Oper- ated	Earnings per Mile Operated	Av. Annual Rail- way Operating come	Per Cent Earn- ings to total of all Roads
EASTERN SYSTEMS					
New York Central	11	13,678.45	\$26,932	\$368,394,866	
Buffalo	14	12,004.14	20,966	261,680,365	
Pennsylvania	11	11,384.29	35,481	403,933,363	
Baltimore-Reading	11	9,265.76	25,904	240,020,423	
Norf. & West.-Ches. & Ohio	5	5,565.78	21,233	118,180,293	
Total Eastern Systems	52	51,898.42		\$1,392,209,310	40.7
SOUTHERN SYSTEMS					
Atl. Coast L.-Louis & Nash.	8	12,294.72	9,819	120,716,949	
Southern	11	14,512.49	10,145	147,231,863	
Total Southern Systems	19	26,807.21		\$267,948,812	7.8
WESTERN SYSTEMS					
Great Northern-St. Paul	7	24,778.19	\$10,391	\$257,475,267	
Northern Pacific-Burlington	12	24,453.68	10,545	257,872,438	
Union Pacific-Northwestern	11	23,555.88	11,564	272,398,836	
Atchison	11	23,557.34	10,562	248,820,539	
Southern Pacific	15	23,996.33	11,278	270,644,686	
Illinois Central-Soo	7	14,655.70	9,911	145,252,684	
Total Western Systems	63	134,997.12		\$1,452,464,450	42.5
Roads to be jointly controlled. (Mileage and gross earnings not included in the above)	11	7,348.18		161,984,767	4.7
TOTAL ALL SYSTEMS	145	221,050.93		\$3,274,607,339	95.7

SUMMARY — ALL ROADS IN THE UNITED STATES

	Mileage	Gross Operat- ing Income	Per Cent Earnings to total of all Roads
Class I Roads—Included in proposed systems, 145	221,050.93	\$3,274,607,339	95.7
Class I Roads—Not included in proposed systems, 24.	7,409.04	45,161,928	1.3
Class II and Class III Roads—partly estimated	17,321.73	103,411,445	3.0
TOTAL—ALL ROADS	245,781.70	\$3,423,180,712	100.0

It will be seen from the above table that included in the 13 systems are 145 of the 169 roads which were designated on June 30, 1916 as Class I roads; that the aggregate earnings of these 145 roads — on the basis of statements covering the Test Period — were 95.7 per cent of the total of the country; and that the earnings of the remaining 24 Class I roads, together with the earnings of all Class II and Class III roads combined, were but a little over 4 per cent of the total.

A BRIEF DESCRIPTION OF THE DISTRICTS

Eastern District

Chicago and St. Louis would be western terminals for all the Eastern systems except for the Norfolk & Western-Chesapeake & Ohio System, which would reach Chicago but not St. Louis.

New York and adjacent cities and all the important cities in New England, through the joint control of the New England roads, would be eastern terminal points for the same systems.

Philadelphia, Baltimore, and Washington would be additional terminal points for two of these systems.

Most of the large cities located in the East and Central West would be served by four systems, some by three, and all, with minor exceptions, by at least two.

Southern District

The two systems in the Southern District would compete with each other at practically all points. Each of these systems would extend from all important centers in the South to Chicago, St. Louis, Louisville, Cincinnati, and Washington.

Western District

Chicago and St. Louis would also be eastern terminal points for all six Western systems. San Francisco and Portland would be the Pacific Coast terminals for four, and Seattle, Tacoma, and Los Angeles for three systems. Omaha would be reached by all six; Minneapolis, St. Paul, Duluth, Houston, Kansas City, Des Moines, and Fort Worth by five. Many of the other large cities would be served by four, and all by two or more.

The three Northwestern systems would not only extend from the Pacific Coast to Chicago and St. Louis, but also would have lines extending to the Southwest. Five of the Western systems would be competitors in the Southwest for business to and from Chicago and St. Louis.

The Illinois Central System would be a north and south system extending from the Canadian border to the Gulf

with service to the principal intervening cities. It would be a competitor of the Atchison and the Southern Pacific systems for business between New Orleans, St. Louis, and Chicago.

As Chicago and St. Louis would be terminals for both the Eastern and Western systems, traffic relations could be established between systems in the two districts which would give coast to coast service as completely and effectively as a transcontinental system.

Each of the 13 systems would be a complete unit in itself, and to a large extent the business originating on the lines of any system for points within the district, of which it is a part, could reach its destination over the lines of the same system on which it originated.

SIMILARITY OF THE PROPOSED SYSTEMS

The following comparative tables are presented in order to show clearly the similarity in traffic and operating conditions of each proposed consolidated system competing in the same territory.

EASTERN SYSTEMS

Statement of Operating Income and Expenses of Proposed Consolidated Systems

Average for 3 years from June 30, 1915 to June 30, 1917

	Number Miles Operated	Railway Oper- ating Income	Operating ex- penses and taxes (not including maintenance)	Maintenance	Total operat- ing expenses— Taxes and Maintenance	Net Railway Operating Income
New York Central	13,678.45	\$368,394,866	\$165,251,295	\$99,970,816	\$265,222,111	\$103,172,755
Buffalo	12,004.14	261,680,365	116,445,526	73,282,968	189,728,494	71,951,871
Pennsylvania	11,384.29	403,933,363	186,448,287	127,663,344	314,111,631	89,821,732
Balti.-Reading	9,265.76	240,020,423	105,619,160	68,192,163	173,811,323	66,209,100
Norfolk & Western— Ches. & Ohio	5,565.78	118,180,293	43,009,453	36,359,033	79,368,486	38,811,807
New York Central	—	100.0%	44.8%	*30.8%	75.6%	24.4%
Buffalo	—	100.0%	44.4%	30.8%	75.2%	24.8%
Pennsylvania	—	100.0%	46.2%	30.8%	77.0%	23.0%
Balti.-Reading	—	100.0%	44.0%	30.8%	74.8%	25.2%
Norfolk & Western— Ches. & Ohio	—	100.0%	36.4%	30.8%	67.2%	32.8%

Classification of Tonnage for Year Ended June 30, 1916

	Percentages of tons of different kinds of products to total tonnage							
	Agricul- ture	Animals	Mines	Forests	Manufac- tures	Miscel- laneous	L C L	Total
New York Central	7.9	2.2	56.6	4.5	22.0	5.6	1.2	100.0
Buffalo	8.7	2.1	59.5	3.7	19.3	3.1	3.6	100.0
Pennsylvania	5.6	1.5	60.2	5.3	18.3	3.8	5.3	100.0
Balti.-Reading	6.3	1.4	63.3	4.1	16.0	3.3	5.6	100.0
Norfolk & Western— Ches. & Ohio	4.2	.6	78.4	5.8	9.1	.8	1.1	100.0

Statistics of Operation for Year Ended June 30, 1916

	Gross Earnings per mile road operated	Percentage of gross operating income				Average receipts per ton per mile	Average receipts per pas- senger per mile	Average number of tons per train mile
		Freight Income	Passenger Income	Miscella- neous Income	Total			
New York Central	\$26,932	67.5	21.0	11.5	100.0	.00637	.01920	693
Buffalo	20,966	79.0	13.3	7.7	100.0	.00613	.01740	656
Pennsylvania	35,481	69.0	21.6	9.4	100.0	.00638	.01930	682
Balti.-Reading	25,904	79.5	12.4	8.1	100.0	.00602	.01870	719
Norfolk & Western— Ches. & Ohio	21,233	84.1	10.8	5.1	100.0	.00400	.02140	1033

* As methods of accounting with respect to maintenance differ with different companies, for the sake of uniformity and for the purpose of affording a fairer comparison between individual companies, the maintenance charge in the percentage figures has been standardized for each group. For roads in the Eastern District, the amount was determined by taking the same percentage of the gross operating income, 30.8 per cent, that was charged to maintenance by the dividend-paying roads in the district averaged for the test period. The same method was followed in determining the standard of maintenance for the Western and Southern Districts, but the amount varied so little, being 28.2 for the Western roads, and 28.8 for the Southern, that the same figure, 28.2 per cent, was adopted for both Districts.

SOUTHERN SYSTEMS

Statement of Operating Income and Expenses of Proposed Consolidated Systems

Average for 3 years from June 30, 1915 to June 30, 1917

	Number Miles Operated	Railway Operating Income	Operating expenses and taxes (not including maintenance)	Maintenance	Total operating expenses—Taxes and Maintenance	Net Railway Operating Income
Atlantic Coast Line— Louisville & Nashville	12,294.72	\$120,716,949	\$51,963,904	\$37,828,546	\$89,792,450	\$30,924,499
Southern	14,512.49	147,231,863	65,344,830	42,027,549	107,372,379	39,859,484
Atlantic Coast Line— Louisville & Nashville	—	100.0%	43.0%	* 28.2%	71.2%	28.8%
Southern	—	100.0%	44.4%	28.2%	72.6%	27.4%

Classification of Tonnage for Year Ended June 30, 1916

	Percentages of tons of different kinds of products to total tonnage							
	Agriculture	Animals	Mines	Forests	Manufactures	Miscellaneous	L C L	Total
Atlantic Coast Line— Louisville & Nashville	10.3	2.1	51.1	14.1	14.7	1.9	5.8	100.0
Southern	11.8	1.8	35.1	22.6	18.6	4.8	5.3	100.0

Statistics of Operation for Year Ended June 30, 1916

	Gross earnings per mile road operated	Percentage of gross operating income				Average receipts per ton per mile	Average receipts per passenger per mile	Average number of tons per train mile
		Freight Income	Passenger Income	Miscellaneous Income	Total			
Atlantic Coast Line— Louisville & Nashville	\$9,819	71.3	21.2	7.5	100.0	.00807	.02160	376
Southern	10,145	69.2	21.4	9.4	100.0	.00851	.02180	402

* See note on page 44.

WESTERN SYSTEMS

Statement of Operating Income and Expenses of Proposed Consolidated Systems

Average for 3 years from June 30, 1915 to June 30, 1917

	Number Miles Operated	Railway Oper- ating Income	Operating ex- penses and taxes (not including maintenance)	Maintenance	Total operat- ing expenses— Taxes and Maintenance	Net Railway Operating Income
Great Northern— St. Paul	24,778.19	\$257,475,267	\$107,936,414	\$68,038,226	\$175,974,640	\$81,500,627
Northern Pacific— Burlington	24,453.68	257,872,438	104,620,295	67,929,018	172,549,313	85,323,125
Union Pacific— Northwestern	23,555.88	272,398,836	116,534,500	75,386,468	191,920,968	80,477,868
Atchison	23,557.34	248,820,539	102,627,403	76,812,422	179,439,825	69,380,714
Southern Pacific	23,996.33	270,644,686	121,412,251	75,056,461	196,468,712	74,175,974
Ill. Central-Soo	14,655.70	145,252,684	62,227,733	45,596,306	107,824,039	37,428,645
Great Northern— St. Paul	—	100.0%	41.9%	* 28.2%	70.1%	29.9%
Northern Pacific— Burlington	—	100.0%	40.5%	28.2%	68.7%	31.3%
Union Pacific— Northwestern	—	100.0%	42.8%	28.2%	71.0%	29.0%
Atchison	—	100.0%	41.2%	28.2%	69.4%	30.6%
Southern Pacific	—	100.0%	44.7%	28.2%	72.9%	27.1%
Ill. Central-Soo	—	100.0%	42.8%	28.2%	71.0%	29.0%

Classification of Tonnage for Year Ended June 30, 1916

	Percentages of tons of different kinds of products to total tonnage							
	Agricul- ture	Animals	Mines	Forests	Manu- factures	Miscel- laneous	L C L	Total
Great Northern— St. Paul	14.9	2.9	54.4	11.1	11.0	1.7	4.0	100.0
Northern Pacific— Burlington	19.7	4.6	42.6	11.8	13.8	2.6	4.9	100.0
Union Pacific— Northwestern	22.1	5.2	38.6	12.5	15.0	1.8	4.8	100.0
Atchison	20.2	4.4	38.5	14.2	16.6	1.2	4.9	100.0
Southern Pacific	20.7	4.0	38.4	13.7	16.9	1.3	5.0	100.0
Ill. Central-Soo	19.3	2.5	42.7	17.4	11.3	2.7	4.1	100.0

Statistics of Operation for Year Ended June 30, 1916

	Gross earnings per mile road operated	Percentage of gross operating income				Average receipts per ton per mile	Average receipts per pas- senger per mile	Average number of tons per train mile
		Freight Income	Passenger Income	Miscella- neous Income	Total			
Great Northern— St. Paul	\$10,391	73.4	18.0	8.6	100.0	.00779	.02160	554
Northern Pacific— Burlington	10,545	71.8	19.8	8.4	100.0	.00778	.01990	583
Union Pacific— Northwestern	11,564	68.5	22.4	9.1	100.0	.00861	.02020	464
Atchison	10,562	69.9	22.0	8.1	100.0	.00865	.02060	445
Southern Pacific	11,278	63.9	24.4	11.7	100.0	.00921	.02070	436
Ill. Central-Soo	9,911	73.0	19.4	7.6	100.0	.00672	.02020	498

* See note on page 44.

WHAT THESE TABLES SHOW

With minor exceptions the foregoing tables show:— that in the proposed grouping, systems have been created of about the same size and earning power; that the several systems competing in the same district obtained their earnings from passenger, freight, and miscellaneous traffic in similar proportions to the total; that the character of the tonnage was much the same; that the average rate per ton mile and per passenger mile was substantially uniform; and that under these conditions similar results from operation were obtained by all systems which competed with each other.

Therefore, it appears that the systems have been arranged in this grouping so as to lead to the conclusion that they could “employ uniform rates in the movement of competitive traffic and under efficient management earn substantially the same rate of return upon the value of their respective railway properties.”

COMPETITION AMONG SYSTEMS

In order to show the extent to which each system will compete for traffic, the following table has been prepared which gives a list of the cities in the United States having in 1920 a population in excess of 75,000, designating by which systems each will be served.

A BRIEF DESCRIPTION OF SYSTEMS

EASTERN SYSTEMS

1. *New York Central System*

The Central Railroad of New Jersey is the only addition of importance with the exception of the joint control of the New England roads which is to be shared in common with three of the other Eastern systems.

This grouping would give the New York Central a share of the anthracite coal business of the country and make a better distribution of such business among the Eastern systems.

The main line of the Central Railroad of New Jersey extends from Jersey City to Tamaqua. With trackage rights of about 40 miles from Tamaqua to Newberry Junction, direct connection would be made with existing lines of the New York Central extending from that point to Ashtabula.

With the Central Railroad of New Jersey a part of the New York Central system, much of the traffic to and from Pittsburgh, Cleveland, and points farther west would naturally be diverted from the main line of the system, for this line would be more direct and would pass through a less congested territory.

It is probable that in the future development of the New York Central system to meet the demands for increased service, capital expended upon this property would result in a greater increase of capacity than if similarly expended on the main lines of the system passing through New York state.

2. *Buffalo System*

The grouping of these roads has been made with a view to developing a system with advantages equal to those of the New York Central and the Pennsylvania systems which would be strong competitors.

The Delaware & Hudson connecting with the Northern

New England lines, and the Erie with the Southern New England lines, would make the system a strong competitor for business to and from New England.

The Delaware, Lackawanna & Western and the New York, Chicago & St. Louis, together with the main line of the Erie, would provide a system with two routes from New York and New England points to Chicago.

The Wabash lines East of the Mississippi River would give the system an entrance into St. Louis.

The Buffalo, Rochester & Pittsburgh, the Bessemer & Lake Erie, and the Wheeling & Lake Erie would give it an opportunity to obtain its fair share of the business originating in the Pittsburgh district.

The Pere Marquette would make it a competitor for Michigan business.

3. *Pennsylvania System*

The Pennsylvania System remains practically intact with the exception of sharing with other systems in the joint control of the New England roads.

4. *Baltimore-Reading System*

This system with its principal terminals in Philadelphia, Baltimore, and Washington would be more largely a competitor of the Pennsylvania Railroad from these points to the West.

The Western Maryland would supplement the lines of the Baltimore & Ohio in providing additional facilities in and about Baltimore.

With a joint interest in the New England roads and with terminals in New York, the system would be in position to compete for western business, but less advantageously than the other 3 systems because of its less direct lines and also because of the topography of the country through which it passes.

By the addition of the Lehigh Valley it would reach Buffalo and the Lakes. An outlet to Chicago could be had by traffic relations with the Grand Trunk.

The Lehigh Valley also would furnish an entrance from Allentown to New York.

5. *Norfolk & Western-Chesapeake & Ohio System*

The Virginian Railway is included in this system.

As the character of the business of these roads is so similar, and as there is so little diversity in the tonnage, greater economy of operation would probably be realized and duplication of investment avoided by a common ownership of these properties. They have, therefore, been grouped together in a single system and competition eliminated.

The lines already owned or controlled by the Chesapeake & Ohio would provide an entrance into Chicago and Toledo for the remaining roads in the group.

Joint Control of New England System

One of the important features of the grouping of the Eastern roads is the provision for the joint control of the New England railroads by the four principal Eastern systems, all of which reach the New England gateways. In the effort to combine the railroads of the country into a single national transportation system to meet the requirements of the Transportation Act, each road as a part of the system must be considered in its relation to the whole. The disposition to be made of the New England roads, accordingly, must be determined by the service required of them as an integral part of such a system.

The Act calls for the division of the country into transportation districts; it provides that all roads in each district shall be grouped into systems in such a way as to "preserve competition as fully as possible"; to "maintain existing routes and channels of trade and commerce wherever practicable," and to assure facilities adequate to meet all the requirements of each district. The joint control of the New England roads by the four proposed systems provides the only means of serving all of these purposes.

Because of their location, the New England roads, neither individually nor as a whole, can compete with any other system in the district. The several New England roads at the present time have practically a monopoly of transportation in the territory which they serve, and without disintegrating existing systems they cannot compete even with each other to any appreciable extent. The only way

that the New England roads can serve a competitive purpose is through their relationship to and as parts of outside systems which compete for New England business.

The division of the New England roads among the various trunk lines (for example, assigning the Boston & Maine to the proposed New York Central System or the Buffalo System; or the New York, New Haven & Hartford to the Pennsylvania System or the Baltimore-Reading System) would greatly restrict if not entirely eliminate competition and create a monopoly in the respective parts of New England. To preserve and to promote competition to the fullest extent among the roads in the Eastern district west of the Hudson River, with which traffic is interchanged, as well as to maintain the existing routes and channels of trade and commerce, which these roads offer, a common use of all railroad facilities within New England must be preserved for all these systems without discrimination. While the joint ownership or control of the New England lines is not essential in order to maintain the common use of these facilities, so far as competition is concerned, it is essential, nevertheless, to assure facilities adequate to meet the transportation requirements of the district of which they are a part, for sound credit is necessary to maintain adequate facilities, and sufficiency and stability of income are equally necessary to maintain sound credit.

The difficulty of obtaining the full compensation for service in connection with interchanged traffic, as well as the high operating costs, due to location, are both factors of importance which adversely affect the income and credit standing of the New England roads. Nearly 65 per cent of the tonnage handled by these roads is interchanged at the gateways with connecting lines, and the compensation for service, both for traffic originating in New England for points outside, as well as that originating outside for destination in New England, is to a considerable extent determined by negotiations with the roads which share in the business.

The number of roads involved, the variety of the tonnage interchanged, the differences in the length of haul, and countless other factors make a satisfactory determination of the

fair division of the compensation received from this traffic a problem so complex as to be impossible. To what extent the income of the New England roads falls short of an amount sufficient to provide a fair return on their property values, because of unsatisfactory division of joint rates, and to what extent this shortage is due to other factors, it is impossible to say; nor would it be a matter of consequence if there were a common ownership of these properties by all the remaining roads in the same rate-making district, for by the provisions of the Transportation Act it is not essential that all parts of each system, if commonly owned, should be equally self-sustaining, for rates are designed to meet the combined requirements of all systems in the district considered as a whole.

As the roads comprising these four systems are to include practically all the roads in the Eastern district, except those in the Pocahontas district, these systems together will receive income above their requirements sufficient in large measure to offset the shortage of income on the part of the New England roads whether it is due to unsatisfactory compensation for handling joint business or higher operating costs due to location. With income sufficient for the system as a whole, it is obvious that the deficit of one part fairly measures the excess accruing to the balance of the system. In a broad way, therefore, it is possible both to determine the extent to which the systems in the Eastern district as a whole outside of New England profit by the rates made for the benefit of the New England roads, and to estimate the profit accruing to each system, for it may be assumed that such profit is approximately in proportion to the whole as the ton miles or freight earnings of each system are to the total of the district.

The ownership and control of the New England roads by these systems — each participating in the ownership in proportion as it benefits by including the New England roads in the district for rate making purposes — would prove no burden to these systems, for the dividends on the additional stock, which it would be necessary to issue to acquire control, would be provided by the increased income received through rates, which are higher because of the

inclusion of the factors of cost and property values of the New England roads in the determination of the rates for the whole.

Such a solution of the problem would be the most effective means of preserving and of promoting competition; of maintaining the existing routes of commerce; of providing the credit necessary to assure such facilities as would enable the New England roads to perform the service required of them, not only for New England but for the country at large.

This is not the place to discuss a detailed plan for the transfer of the control of New England roads to these systems. A brief statement will, however, show its practicability. First of all, it would be necessary to determine the equitable interest of each of the New England roads in a unified New England system, and to make such readjustments of capitalization as are necessary to establish substantial uniformity in the financial structures of each of the New England roads. The next step would be to form a holding company, whose stock would be used to acquire the stocks of the New England roads. These stocks could in turn be exchanged by the holding company for stocks of the four systems which are to participate in the joint ownership, the extent of participation of each system being determined largely by the benefit which it would receive by including the New England roads in the same rate-making district. As owners of the stocks of these four systems, the holding company would receive income with which to pay dividends to its own stockholders, the original holders of the New England railroad stocks.

This method of meeting the New England problem has been referred to as remote, inasmuch as the systems which are to purchase control exist only on paper and there is no assurance that the proposed consolidations will ever take place. Pending such consolidations a similar plan of ownership could become operative by dealing with the nine trunk line systems with which business is interchanged. The freight revenues of these nine systems are over 80 per cent of the total of the district, excluding the New England and Pocahontas districts. These roads are the principal

ones concerned in the division of joint rates, and are also the largest beneficiaries of the higher rates which are made to cover the requirements of the New England roads. The exchange of stocks with these roads on the basis outlined would leave less than 20 per cent of the stocks of the New England roads in the treasury of the holding company unexchanged; this stock could be held until such time as the remaining roads in the district were absorbed by the various systems and then exchanged on a similar basis.

(The New England situation has been discussed previously on page 16 and again on page 22).

SOUTHERN SYSTEMS

6. *Atlantic Coast Line—Louisville & Nashville System*

The various roads in this system are already so closely related by stock ownership or by lease as to constitute a system which meets the requirements of the Transportation Act.

7. *Southern Railway System*

The principal change in this system is the addition of the Seaboard Air Line.

The Seaboard Air Line covers much the same territory as the Atlantic Coast Line and would give the system access to Florida and additional coast ports which it would not otherwise reach.

WESTERN SYSTEMS

8. *Great Northern—St. Paul System*

The St. Paul would furnish the Great Northern entrances into Chicago, Omaha, and Kansas City.

The Wabash lines West of the Mississippi River would give an entrance into St. Louis; the St. Louis & San Francisco would provide an outlet to the Southwest.

The joint control of the Chicago & Alton with the Union Pacific—Northwestern system would give a line from Kansas

City to St. Louis and would also provide lines between the Southwest and Chicago and St. Louis.

This system would compete more especially with the Northern Pacific-Burlington System for Northwestern traffic, and with all systems from the Southwest to Chicago.

9. *Northern Pacific-Burlington System*

The important additions are the Denver & Rio Grande, Western Pacific, Kansas City Southern, and Chicago Great Western.

The Denver & Rio Grande and the Western Pacific would provide an entrance to San Francisco and make the system a strong competitor of the Union Pacific for business to and from California.

The Kansas City Southern would give an outlet from Kansas City to the Gulf.

The Chicago Great Western would cover territory not now occupied and would furnish more direct lines from Minneapolis and St. Paul to Omaha and Kansas City, and also supplementary lines from St. Paul and Kansas City to Chicago.

The principal competitors of this system would be the Great Northern-St. Paul and the Union Pacific-Northwestern systems.

10. *Union Pacific-Northwestern System*

The Chicago & Northwestern would give the Union Pacific a direct entrance from Omaha into Chicago and also would make it a competitor for Minnesota and Wisconsin business.

The addition of the Central Pacific would give it a direct line to San Francisco.

The Chicago & Alton would connect Kansas City with St. Louis and provide the system with an entrance into Chicago by way of St. Louis, both for its business from the West and from the Southwest, the territory which it would serve by the addition of the Missouri, Kansas & Texas.

This system would compete especially with the Northern Pacific-Burlington and Atchison systems.

11. *Atchison System*

An entrance into New Orleans would be provided by the addition of the Texas & Pacific and make it a strong competitor with the Southern Pacific from New Orleans to the Coast.

The addition of the Missouri Pacific System would make it an important factor in southwestern territory.

The Chicago & Eastern Illinois controlled jointly with the Southern Pacific System would provide a direct route from St. Louis to Chicago.

12. *Southern Pacific System*

By the addition of the El Paso and Southwestern, the present Southern Pacific and Chicago, Rock Island & Pacific systems would provide a direct through system from Chicago to the Coast.

By the addition of the St. Louis Southwestern and the joint control of the Chicago & Eastern Illinois it would be a competitor with other systems from the Southwest to St. Louis and Chicago.

The principal competitor would be the Atchison.

13. *Illinois Central-Soo System*

This is a north and south system from the Canadian border to New Orleans.

The Minneapolis & St. Louis would provide direct connection between Minneapolis and St. Paul and Omaha.

With its line through Peoria, it would permit traffic from these points to reach the Gulf without entrance into Chicago.

The discussions in this pamphlet have been concerned mainly with the importance of sound credit, and the suggested groupings of the roads have been developed among other things to insure the presence of this fundamental in each consolidated system. Other plans will be presented which will deal with essential factors viewed more especially from the standpoint of natural traffic relations and economy and efficiency of operation.

The Transportation Act provides first for a tentative plan of consolidations in order that all phases of the problem

may be thoroughly considered as a basis for the formulation of a final plan. This pamphlet, therefore, will have accomplished its purpose if it contributes to a clearer understanding of the fundamental requirements of credit and if it leads to a fuller appreciation of the necessity of recognizing credit as a factor of first importance in the development of the plan which is finally adopted.

SUMMARY OF CONCLUSIONS

The development of this plan is based upon the conviction that private management will not endure unless it is successful in furnishing transportation adequate to the needs of the country; that this purpose will be fulfilled only provided each railroad system hereafter existing shall establish for itself a credit position which will enable it to obtain capital from the investment markets both readily and economically; that with the diversity of ownership of the various parts of the transportation system of the country as now constituted, the remedial legislation of the Transportation Act will provide satisfactory credit for systems which control only about 60 per cent of existing railroad facilities and will leave those which control the remaining 40 per cent in much the same position as before Federal control; that with a common interest in the ownership of all parts of the system the legislative provisions of the Transportation Act will provide sufficient credit for the entire system; that with a readjustment of ownership which will make systems covering the same territory, similar in essential respects, the same results will be obtained from a credit standpoint as though the entire system were commonly owned; that the readjustments of ownership necessary to secure similar systems can be brought about without seriously disturbing the relationships of ownership and control already existing, and without loss of credit standing on the part of any of the railroads involved; further, that competition offers greater assurance of economical and efficient service than a monopoly; and it is, therefore, compatible with the public interest that further consolidations be made which will create systems in each transportation district

which are competitive as well as substantially uniform in their operating and financial characteristics.

The passage of the Transportation Act established private operation and management under public regulation as a part of the future railroad policy of the country. So far as a satisfactory system of regulation can be provided by legislation, it has been provided by the provisions of the Transportation Act. Its successful application, however, requires that uniform results be obtained, and such results cannot be obtained unless application be made to roads or systems operating under uniform conditions. Whether it will be necessary to establish such uniform conditions by compulsory consolidations, or resort to a monopoly with Government ownership, is a question for the future to determine. The adoption of one of these expedients appears to be certain, unless the necessary co-operation can be secured to bring about by voluntary action such consolidations as are required to make effective the regulatory provisions of the Transportation Act.

Index to Maps

Alphabetical List of all Class I Roads

- * Roads are not shown on the maps or included in the tables but they would, of course, be included in a complete plan for consolidating all roads into a limited number of strong, competing systems.
- ** Are to be joint control roads shown on the maps but the figures are not included in the tables.
- *** Joint control roads shown on the maps and one-half of the figures are included in each system.

NAME OF ROADS	MAP No.
Alabama & Vicksburg	7
Alabama Great Southern	7
Ann Arbor	4
*Arizona & New Mexico	—
Arizona Eastern	12
Atchison, Topeka & Santa Fe	11
Atlanta & West Point	6
*Atlanta, Birmingham & Atlantic	—
Atlantic City	4
*Atlantic & St. Lawrence	—
Atlantic Coast Line	6
Baltimore & Ohio	4
Baltimore, Chesapeake & Atlantic	3
**Bangor & Aroostook	1-2-3-4
Bessemer & Lake Erie	2
*Bingham & Garfield	—
**Boston & Maine	1-2-3-4
Buffalo & Susquehanna	2
Buffalo, Rochester & Pittsburgh	2
*Canadian Pacific Lines in Maine	—
Carolina, Clinchfield & Ohio	5
**Central New England	1-2-3-4
Central of Georgia	13
Central of New Jersey	1
§§Central Pacific	10
*Central Vermont	—
Charleston & West Carolina	6
Chesapeake & Ohio	5
***Chicago & Alton	8-10
***Chicago & Eastern Illinois	11-12
Chicago & Erie	2
Chicago & Northwestern	10
Chicago, Burlington & Quincy	9
*Chicago, Detroit & Canada Grand Trunk Junction	—
Chicago Great Western	9
***Chicago, Indianapolis & Louisville	6-7
Chicago, Milwaukee & St. Paul	8
*Chicago, Peoria & St. Louis	—
Chicago, Rock Island & Gulf	12
Chicago, Rock Island & Pacific	12

NAME	MAP No.
Chicago, St. Paul, Minneapolis & Omaha	10
*Chicago, Terre Haute & Southeastern	—
Cincinnati, Indianapolis & Western	4
Cincinnati, New Orleans & Texas Pacific	7
Cincinnati Northern	1
Cleveland, Cin., Chicago & St. Louis	1
Coal & Coke	4
Colorado Southern	9
*Colorado & Wyoming	—
Colorado Midland	9
*Cripple Creek & Colorado Springs	—
Cumberland Valley	3
Delaware & Hudson	2
Delaware, Lackawanna & Western	2
Denver & Rio Grande	9
*Denver & Salt Lake	—
*Detroit & Mackinac	—
*Detroit & Toledo Shore Line	—
*Detroit, Grand Haven & Milwaukee	—
*Detroit, Toledo & Ironton	—
Duluth & Iron Range	8
Duluth, Missabe & Northern	8
Duluth, South Shore & Atlantic	13
*Duluth, Winnipeg & Pacific	—
El Paso & Southwestern	12
Elgin, Joliet & Eastern	2
Erie	2
Florida East Coast	7
Fort Worth & Denver City	9
Galveston, Harrisburg & San Antonio	12
Georgia Railroad, Lessee	6
Georgia Southern & Florida	7
Grand Rapids & Indiana	3
*Grand Trunk Western	—
Great Northern	8
*Gulf & Ship Island	—
Gulf, Colorado & Sante Fe	11
*Gulf, Mobile & Northern	—
Hocking Valley	5
Houston & Texas Central	12
Houston East & West Texas	12
Illinois Central	13
International & Great Northern	11
Kanawha & Michigan	1
Kansas City, Mexico & Orient	12
Kansas City Southern	9
Lake Erie & Western	1
**Lehigh & Hudson	1-2-3-4
*Lehigh & New England	—
Lehigh Valley	4
Long Island	3
Los Angeles & Salt Lake	10
*Louisiana & Arkansas	—
*Louisiana Ry. & Navigation	—
Louisiana Western	12
Louisville & Nashville	6
Louisville, Henderson & St. Louis	6

NAME	MAP No.
**Maine Central	1-2-3-4
Michigan Central	1
*Midland Valley	—
Mineral Range	13
Minneapolis & St. Louis	13
Minneapolis, St. Paul & Sault Ste Marie	13
*Missouri & North Arkansas	—
Missouri, Kansas & Texas	10
Missouri, Kansas & Texas of Texas (included in Missouri, Kansas & Texas)	10
*Missouri, Oklahoma & Gulf	—
Missouri Pacific	11
Mobile & Ohio	7
**Monongahela	1-3
Morgan's Louisiana & Texas R. R. & Steamship Co.	12
Nashville, Chattanooga & St. Louis	6
*Nevada Northern	—
New Orleans & Northeastern	7
*New Orleans Great Northern	—
New Orleans, Texas & Mexico	11
New York Central	1
New York, Chicago & St. Louis	2
**New York, New Haven & Hartford	1-2-3-4
New York, Ontario & Western	1
New York, Philadelphia & Norfolk	3
New York, Susquehanna & Western	2
Norfolk & Western	5
*Norfolk Southern	—
Northern Pacific	9
Northwestern Pacific	11
Oregon Short Line	10
Oregon-Washington R. R. & Navigation	10
Panhandle & Sante Fe	11
Pennsylvania Company	3
Pennsylvania Railroad	3
Pere Marquette	2
Philadelphia & Reading	4
Philadelphia, Baltimore & Washington	3
Pittsburgh & Lake Erie	1
Pittsburgh & West Virginia	2
Pittsburgh, Cincinnati, Chicago & St. Louis	3
*Pittsburgh, Shawmut & Northern	—
Port Reading	4
**Richmond, Fredericksburg & Potomac	3-4-5-6-7
**Rutland	1-2-3-4
St. Joseph & Grand Island	10
St. Louis, Brownsville & Mexico	11
St. Louis, Iron Mountain & Southern	11
St. Louis-San Francisco	8
St. Louis, San Francisco & Texas	8
St. Louis Southwestern	12
St. Louis Southwestern of Texas	12
San Antonio & Aransas Pass	12
Seaboard	7
Southern	7
Southern Railway in Mississippi	7
§§Southern Pacific	12
*Spokane International	—

NAME	MAP No.
***Spokane, Portland & Seattle	8-9
Staten Island Rapid Transit	4
*Tennessee Central	—
Texarkana & Fort Smith (included in Kansas City Southern)	9
Texas & New Orleans	12
Texas & Pacific	11
Toledo & Ohio Central	1
Toledo, Peoria & Western	3
Toledo, St. Louis & Western	4
Trinity & Brazos Valley	9
Ulster & Delaware	1
§§Union Pacific	10
Vicksburg, Shreveport & Pacific	7
Virginian	5
§Wabash	2-8
**Washington Southern	3-4-5-6-7
West Jersey & Seashore	3
Western Maryland	4
Western Pacific	9
**Western Railway of Alabama	6-13
Wheeling & Lake Erie	2
Wichita Falls & Northwestern (included in Missouri, Kansas & Texas)	10
Wichita Valley	9
Yazoo & Mississippi Valley	13

§§ The Central Pacific has been placed with the Union Pacific, but the figures are included in those of the Southern Pacific.

§ Wabash lines east of St. Louis are included in the Buffalo System; lines west of St. Louis in Great Northern-St. Paul System. Total figures are used in the Buffalo System.

MAP 1

NEW YORK CENTRAL SYSTEM

NEW YORK CENTRAL SYSTEM

COLOR	NO.	NAME
—	2	New York Central
—	12	Cleveland, Cincinnati, Chicago & St. Louis
—	13	Michigan Central
—	18	Pittsburgh & Lake Erie
—	40	Toledo & Ohio Central
—	60	Cincinnati Northern
—	46	Kanawha & Michigan
—	37	Lake Erie & Western
—	15	Central of New Jersey
—	31	New York, Ontario & Western
—	70	Ulster & Delaware

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

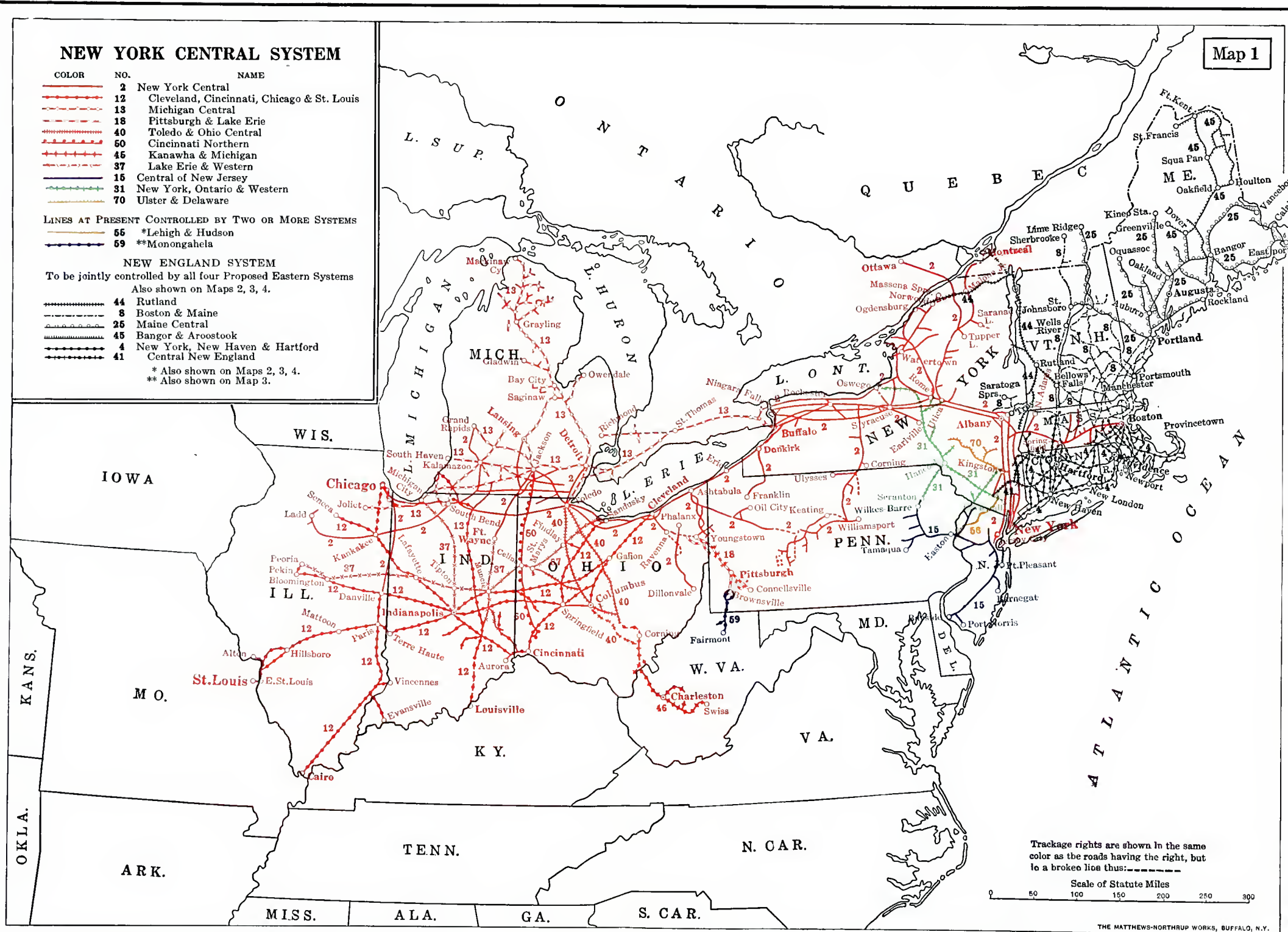
—	55	*Lehigh & Hudson
—	59	**Monongahela

NEW ENGLAND SYSTEM

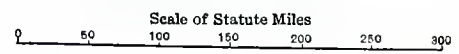
To be jointly controlled by all four Proposed Eastern Systems
Also shown on Maps 2, 3, 4.

—	44	Rutland
—	8	Boston & Maine
—	25	Maine Central
—	45	Bangor & Aroostook
—	4	New York, New Haven & Hartford
—	41	Central New England

* Also shown on Maps 2, 3, 4.
** Also shown on Map 3.



Trackage rights are shown in the same color as the roads having the right, but in a broken line thus: - - - - -



BUFFALO SYSTEM

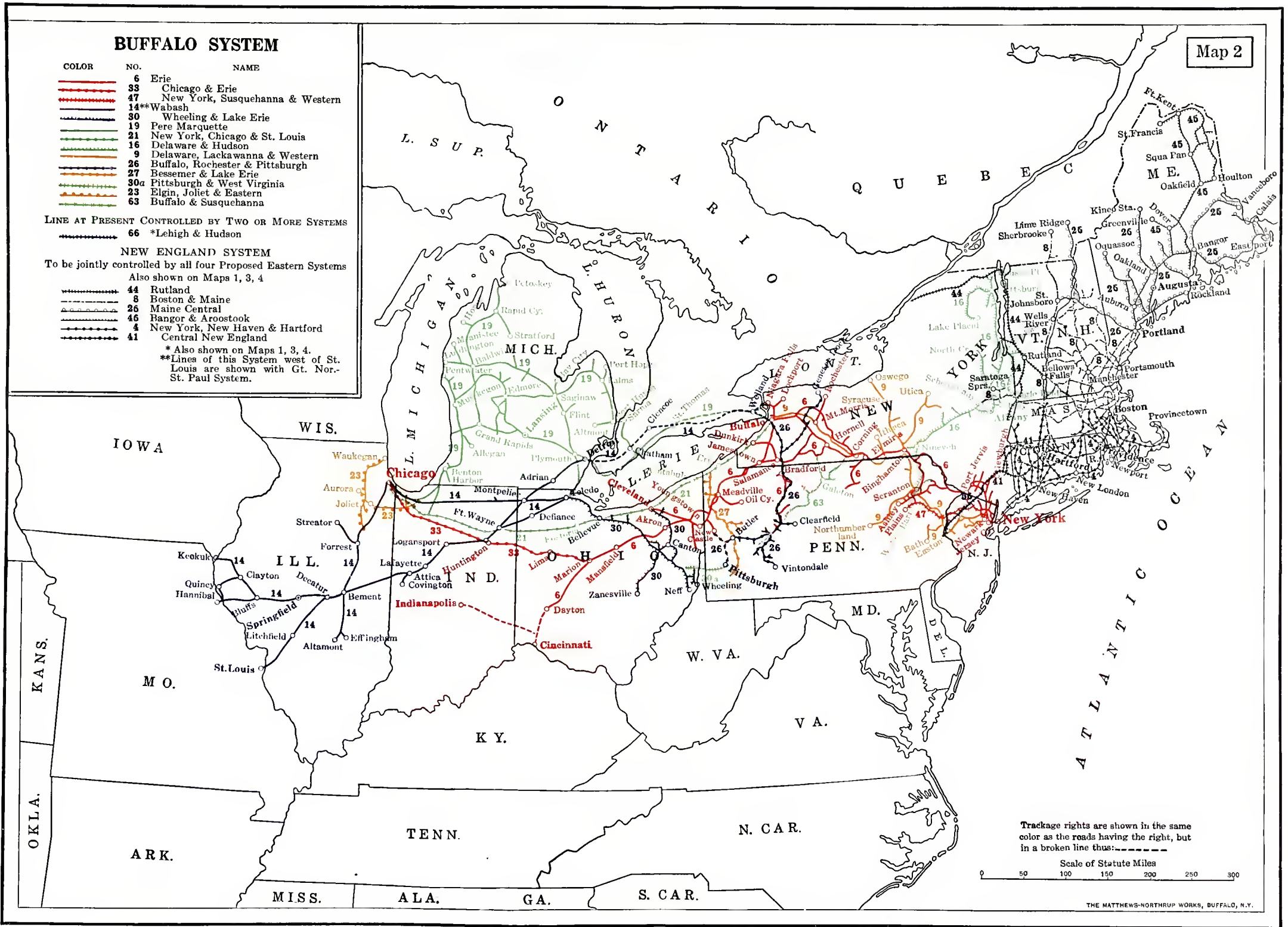
COLOR	NO.	NAME
Red	6	Erie
Red	33	Chicago & Erie
Red	47	New York, Susquehanna & Western
Black	14**	Wabash
Black	30	Wheeling & Lake Erie
Black	19	Pere Marquette
Black	21	New York, Chicago & St. Louis
Black	16	Delaware & Hudson
Black	9	Delaware, Lackawanna & Western
Black	26	Buffalo, Rochester & Pittsburgh
Black	27	Bessemer & Lake Erie
Black	30a	Pittsburgh & West Virginia
Black	23	Elgin, Joliet & Eastern
Black	63	Buffalo & Susquehanna

LINE AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS
 ***** *Lehigh & Hudson

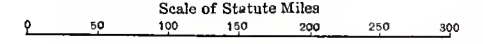
NEW ENGLAND SYSTEM
 To be jointly controlled by all four Proposed Eastern Systems
 Also shown on Maps 1, 3, 4

Black	44	Rutland
Black	8	Boston & Maine
Black	26	Maine Central
Black	46	Bangor & Aroostook
Black	4	New York, New Haven & Hartford
Black	41	Central New England

* Also shown on Maps 1, 3, 4.
 ** Lines of this System west of St. Louis are shown with Gt. Nor.-St. Paul System.



Trackage rights are shown in the same color as the roads having the right, but in a broken line thus:-----



PENNSYLVANIA SYSTEM

Map 3

COLOR	NO.	NAME
	1	Pennsylvania Railroad
	5	Pennsylvania Co.
	17	Pittsburgh, Cincinnati, Chicago & St. Louis
	39	Philadelphia, Baltimore & Washington
	22	Grand Rapids & Indiana
	42	Long Island
	35	New York, Philadelphia & Norfolk
	48	West Jersey & Seashore
	68	Cumberland Valley
	172	Baltimore, Chesapeake & Atlantic
	172	Toledo, Peoria & Western

LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

	56	*Lehigh & Hudson
	59	**Monongahela
	88	†Richmond, Fredericksburg & Potomac
	101	††Washington Southern

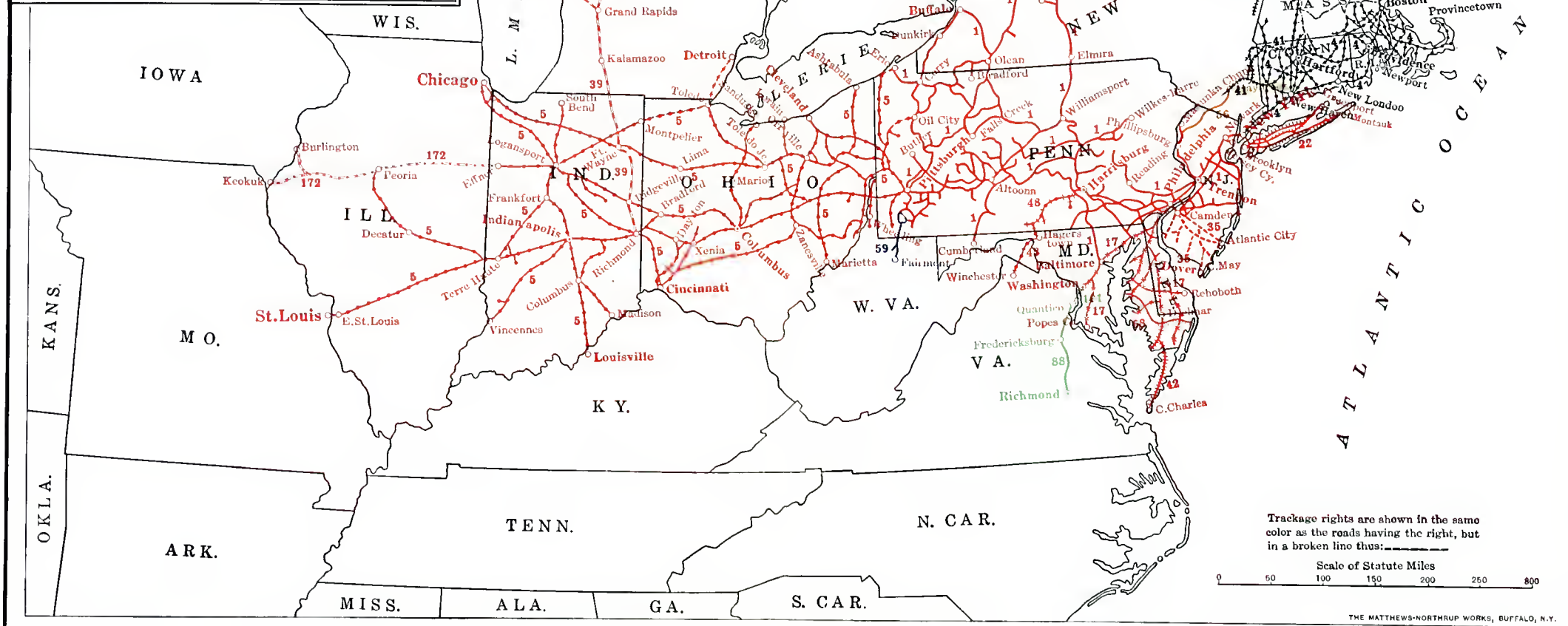
NEW ENGLAND SYSTEM

To be jointly controlled by all four Proposed Eastern Systems

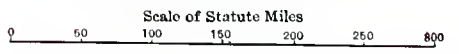
Also shown on Maps 1, 2, 4.

	44	Rutland
	8	Boston & Maine
	25	Maine Central
	45	Bangor & Aroostook
	4	New York, New Haven & Hartford
	41	Central New England

* Also shown on Maps 1, 2, 4. † Also shown on Maps 4, 5, 6, 7.
 ** Also shown on Map 1. †† Also shown on Maps 4, 5, 6, 7.



Trackage rights are shown in the same color as the roads having the right, but in a broken line thus: -----



BALTIMORE-READING SYSTEM

COLOR	NO.	NAME
	3	Baltimore & Ohio
	55	Staten Island Rapid Transit
	7	Philadelphia & Reading
	61	Port Reading
	63	Atlantic City
	104	Coal & Coke
	51	Ann Arbor
	64	Cincinnati, Indianapolis & Western
	28	Western Maryland
	36b	Toledo, St. Louis & Western
	10	Lehigh Valley

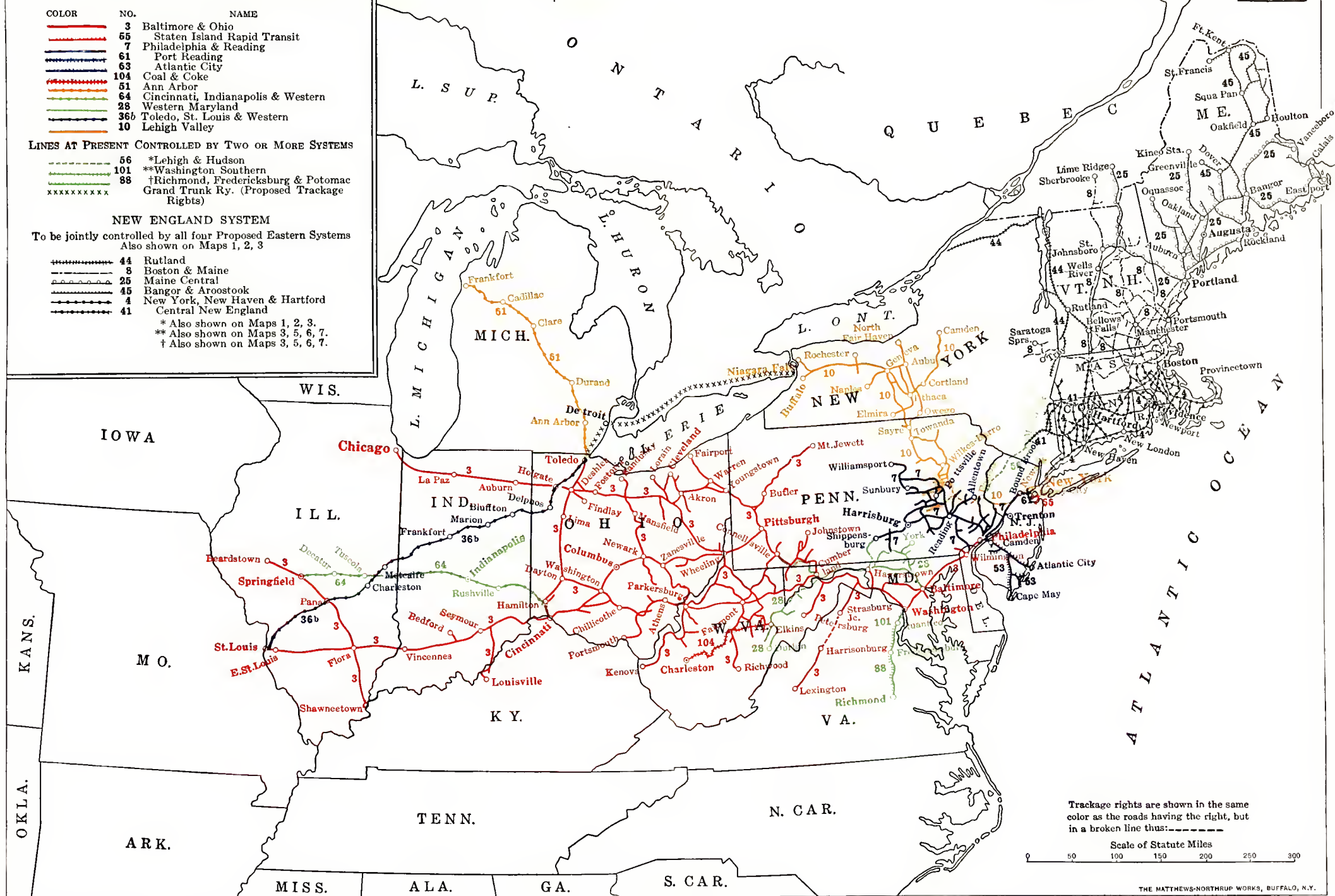
LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

	56	*Lehigh & Hudson
	101	**Washington Southern
	88	†Richmond, Fredericksburg & Potomac Grand Trunk Ry. (Proposed Trackage Rights)

NEW ENGLAND SYSTEM
To be jointly controlled by all four Proposed Eastern Systems
Also shown on Maps 1, 2, 3

	44	Rutland
	8	Boston & Maine
	25	Maine Central
	45	Bangor & Aroostook
	4	New York, New Haven & Hartford
	41	Central New England

* Also shown on Maps 1, 2, 3.
** Also shown on Maps 3, 5, 6, 7.
† Also shown on Maps 3, 5, 6, 7.



Trackage rights are shown in the same color as the roads having the right, but in a broken line thus:-----

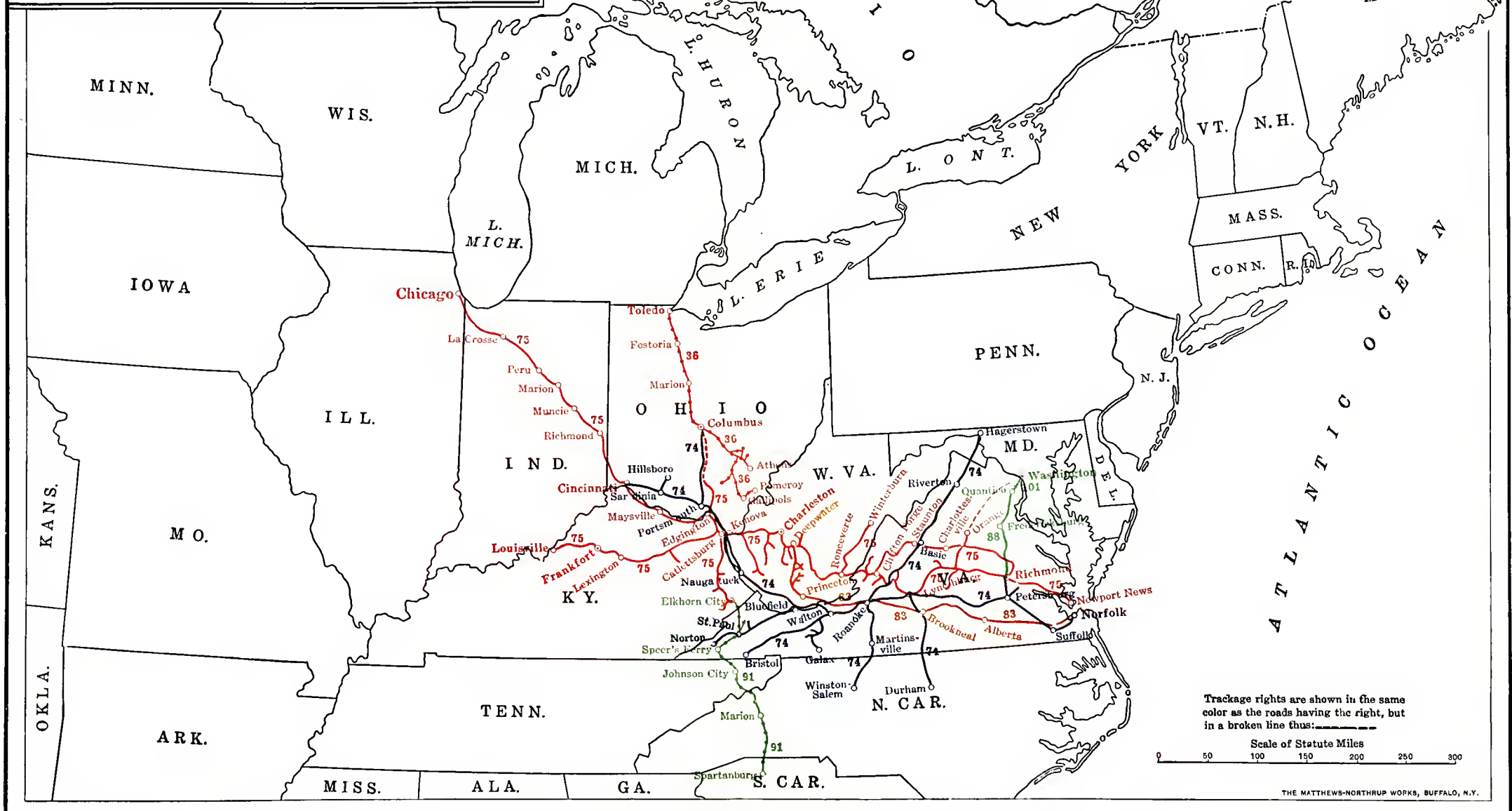
Scale of Statute Miles

0 50 100 150 200 250 300

NORFOLK & WESTERN—CHESAPEAKE & OHIO SYSTEM

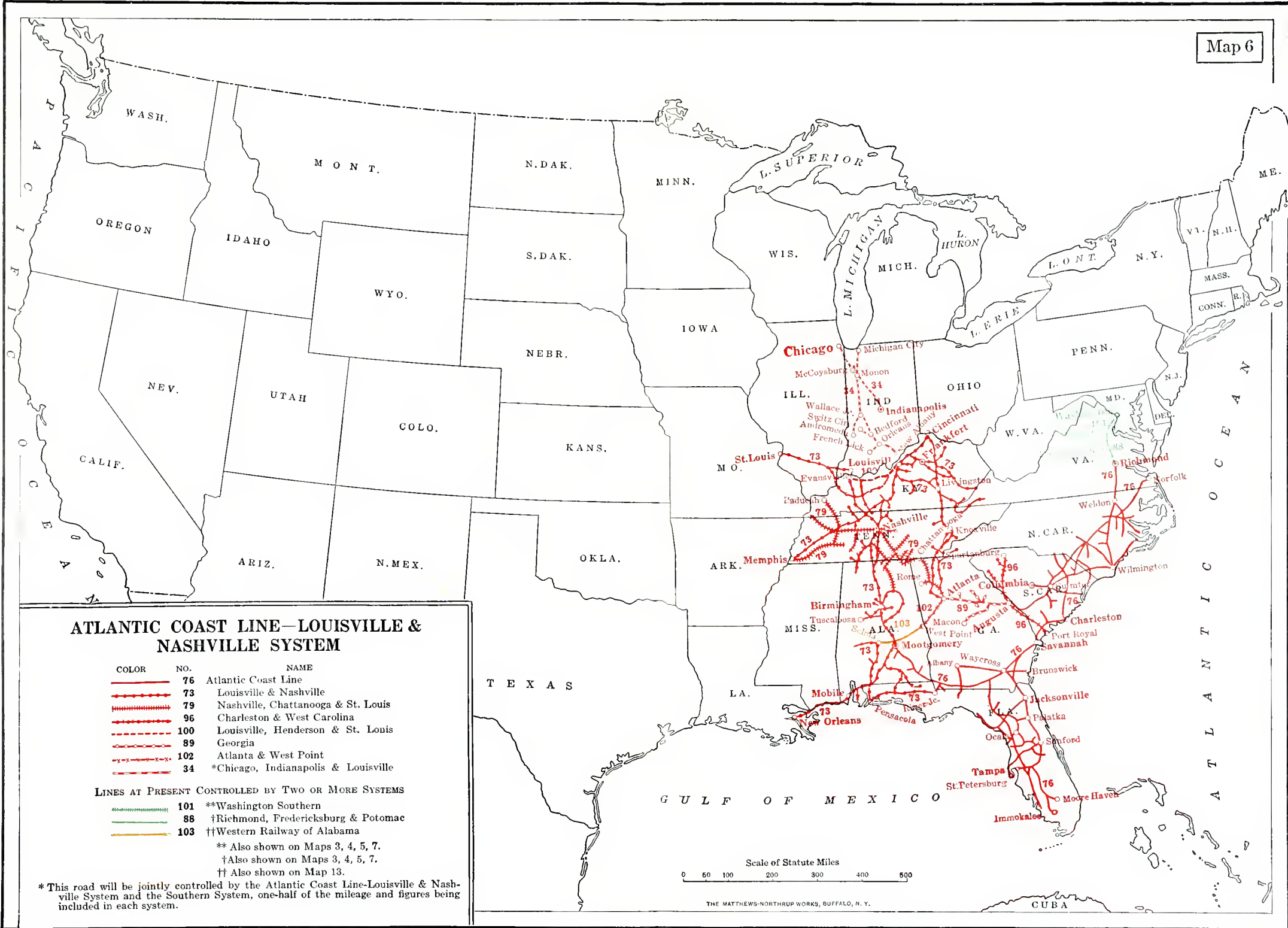
Map 5

- | COLOR | NO. | NAME |
|--|-----|------------------------------|
| — | 75 | Chesapeake & Ohio |
| - - - | 36 | Hocking Valley |
| — | 74 | Norfolk & Western |
| — | 83 | Virginian |
| - - - | 91 | Carolina, Clinchfield & Ohio |
- LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS
- | | | |
|--|-----|-------------------------------------|
| - - - | 101 | *Washington Southern |
| - - - | 88 | †Richmond, Fredericksburg & Potomac |
- * Also shown on Maps 3, 4, 6, 7.
 † Also shown on Maps 3, 4, 6, 7.



Trackage rights are shown in the same color as the roads having the right, but in a broken line thus: - - - - -

Scale of Statute Miles
 0 50 100 150 200 250 300



ATLANTIC COAST LINE—LOUISVILLE & NASHVILLE SYSTEM

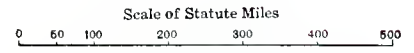
COLOR	NO.	NAME
	76	Atlantic Coast Line
	73	Louisville & Nashville
	79	Nashville, Chattanooga & St. Louis
	96	Charleston & West Carolina
	100	Louisville, Henderson & St. Louis
	89	Georgia
	102	Atlanta & West Point
	34	*Chicago, Indianapolis & Louisville

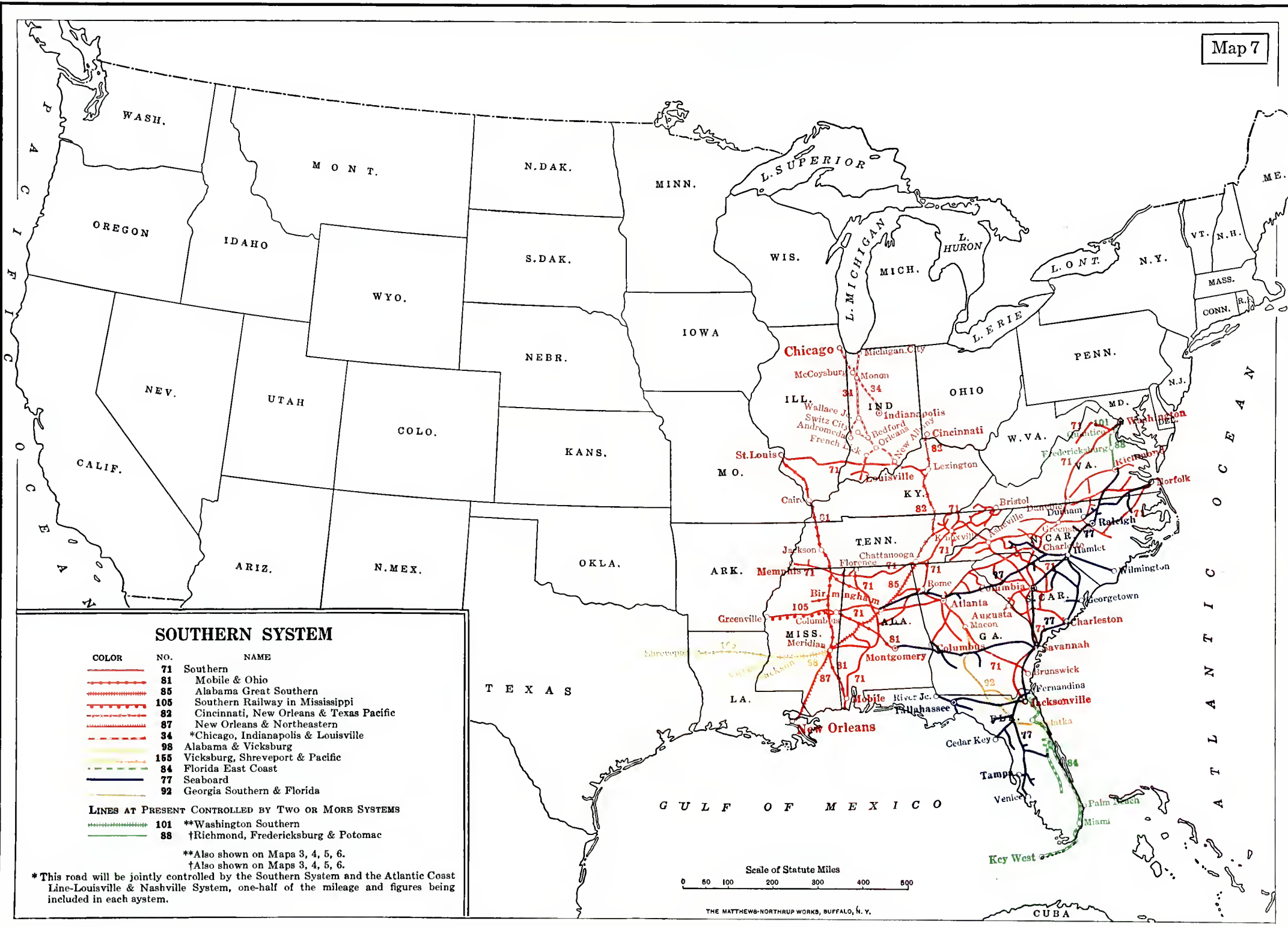
LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

	101	**Washington Southern
	88	†Richmond, Fredericksburg & Potomac
	103	††Western Railway of Alabama

** Also shown on Maps 3, 4, 5, 7.
 † Also shown on Maps 3, 4, 5, 7.
 †† Also shown on Map 13.

* This road will be jointly controlled by the Atlantic Coast Line-Louisville & Nashville System and the Southern System, one-half of the mileage and figures being included in each system.





SOUTHERN SYSTEM

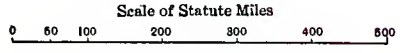
COLOR	NO.	NAME
Red	71	Southern
Red	81	Mobile & Ohio
Red	85	Alabama Great Southern
Red	105	Southern Railway in Mississippi
Red	82	Cincinnati, New Orleans & Texas Pacific
Red	87	New Orleans & Northeastern
Red	34	*Chicago, Indianapolis & Louisville
Red	98	Alabama & Vicksburg
Red	155	Vicksburg, Shreveport & Pacific
Red	84	Florida East Coast
Red	77	Seaboard
Red	92	Georgia Southern & Florida

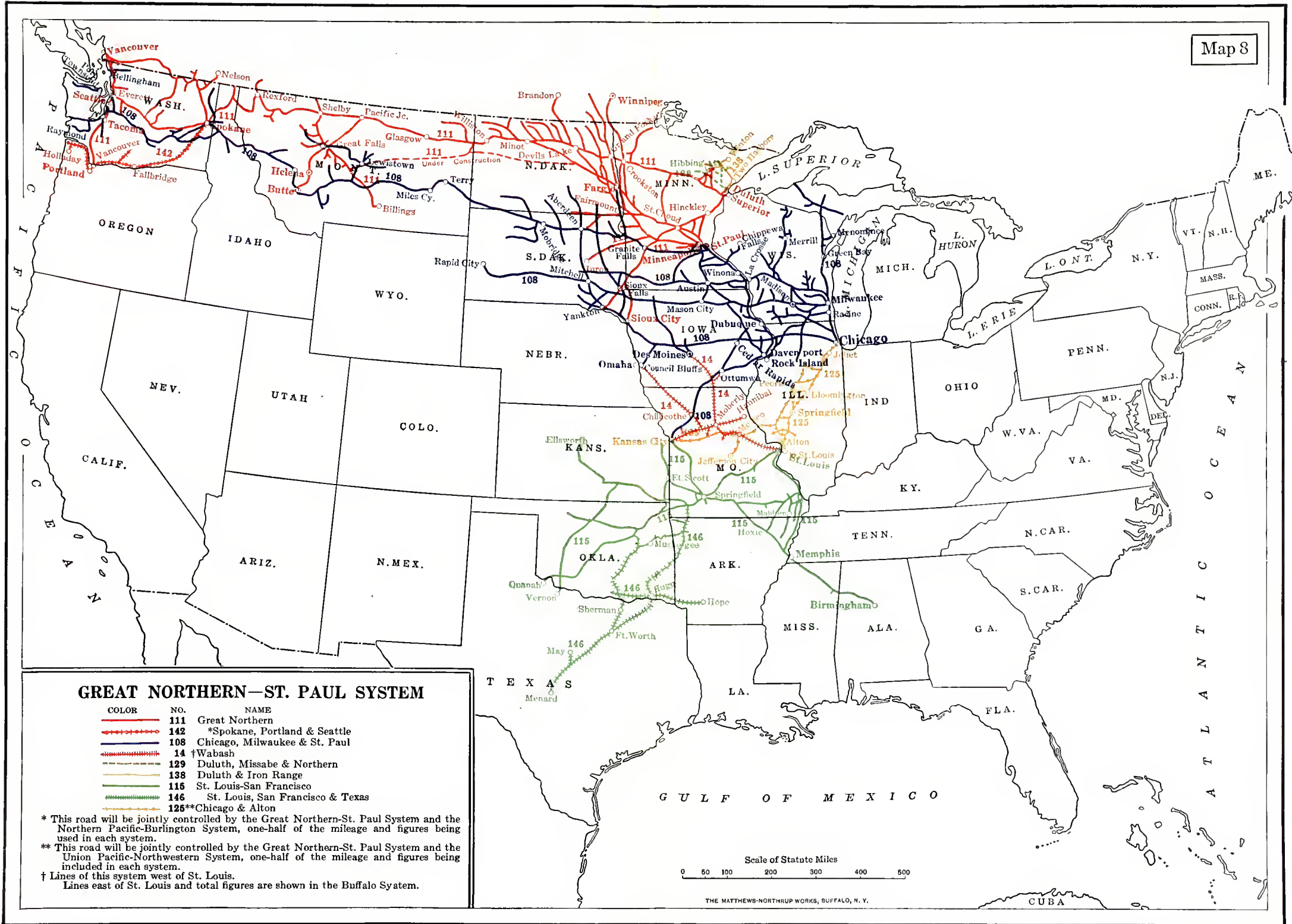
LINES AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

Red with black dots	101	**Washington Southern
Red with black dots	88	†Richmond, Fredericksburg & Potomac

**Also shown on Mapa 3, 4, 5, 6.
 †Also shown on Maps 3, 4, 5, 6.

*This road will be jointly controlled by the Southern System and the Atlantic Coast Line-Louisville & Nashville System, one-half of the mileage and figures being included in each system.





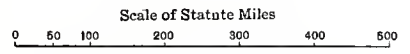
GREAT NORTHERN—ST. PAUL SYSTEM

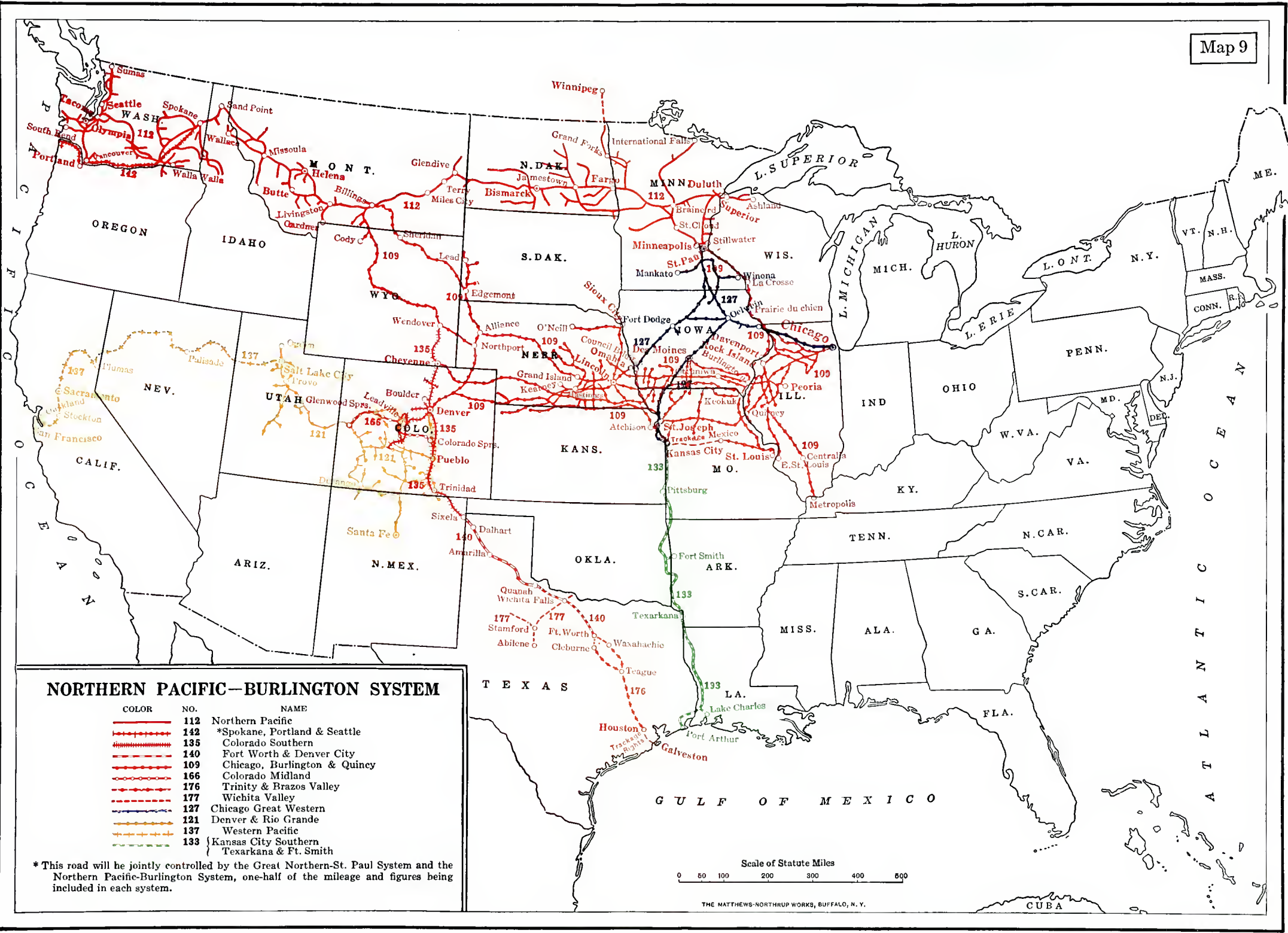
COLOR	NO.	NAME
—	111	Great Northern
—	142	*Spokane, Portland & Seattle
—	108	Chicago, Milwaukee & St. Paul
—	14	†Wabash
—	129	Duluth, Missabe & Northern
—	138	Duluth & Iron Range
—	116	St. Louis-San Francisco
—	146	St. Louis, San Francisco & Texas
—	125**	Chicago & Alton

* This road will be jointly controlled by the Great Northern-St. Paul System and the Northern Pacific-Burlington System, one-half of the mileage and figures being used in each system.

** This road will be jointly controlled by the Great Northern-St. Paul System and the Union Pacific-Northwestern System, one-half of the mileage and figures being included in each system.

† Lines of this system west of St. Louis.
Lines east of St. Louis and total figures are shown in the Buffalo System.

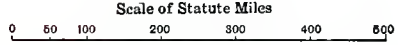




NORTHERN PACIFIC—BURLINGTON SYSTEM

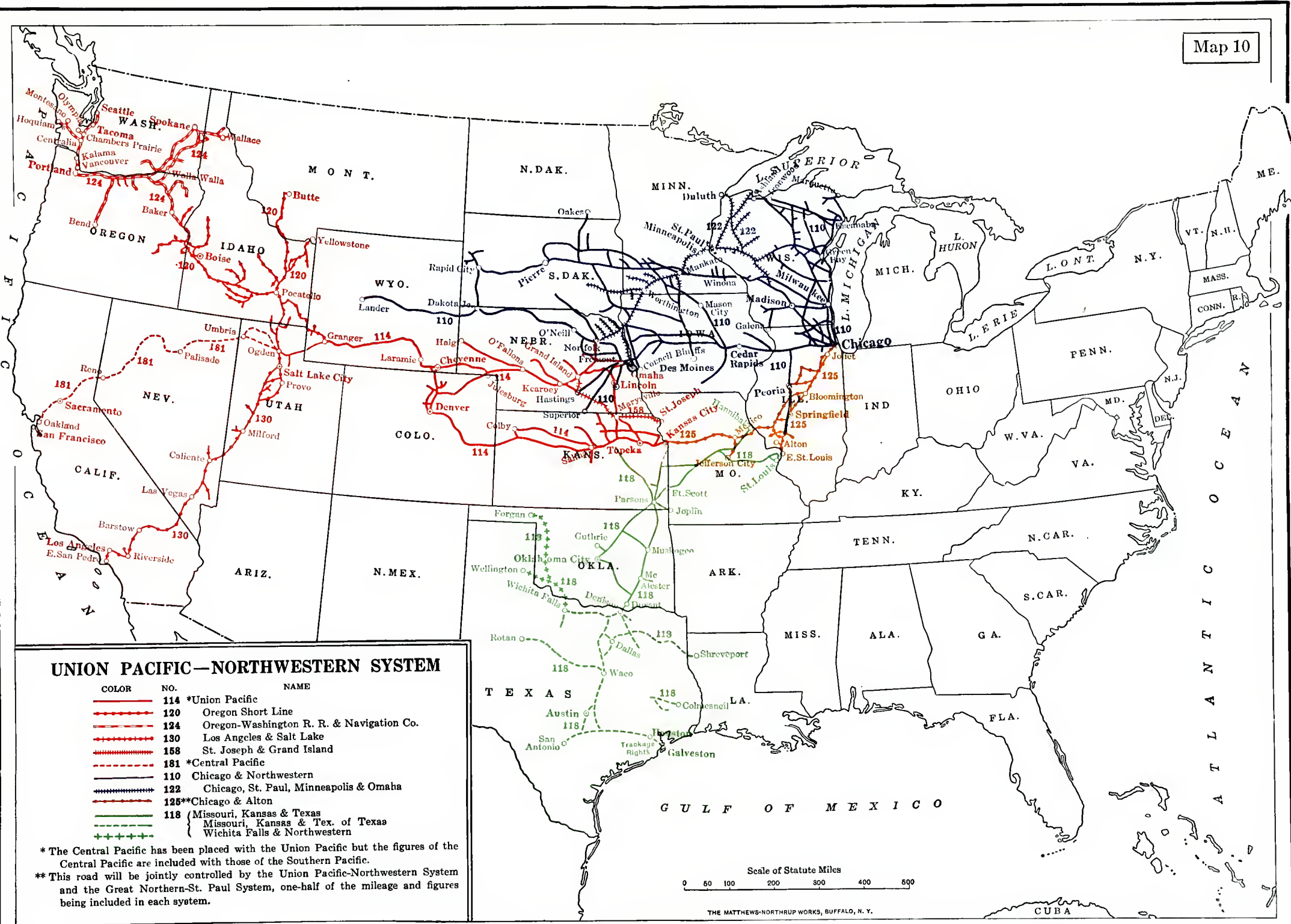
COLOR	NO.	NAME
—	112	Northern Pacific
—	142	*Spokane, Portland & Seattle
—	135	Colorado Southern
—	140	Fort Worth & Denver City
—	109	Chicago, Burlington & Quincy
—	166	Colorado Midland
—	176	Trinity & Brazos Valley
—	177	Wichita Valley
—	127	Chicago Great Western
—	121	Denver & Rio Grande
—	137	Western Pacific
—	133	Kansas City Southern Texarkana & Ft. Smith

* This road will be jointly controlled by the Great Northern-St. Paul System and the Northern Pacific-Burlington System, one-half of the mileage and figures being included in each system.



THE MATTHEWS-NORTHROP WORKS, BUFFALO, N. Y.

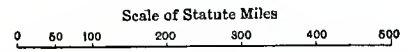
CUBA

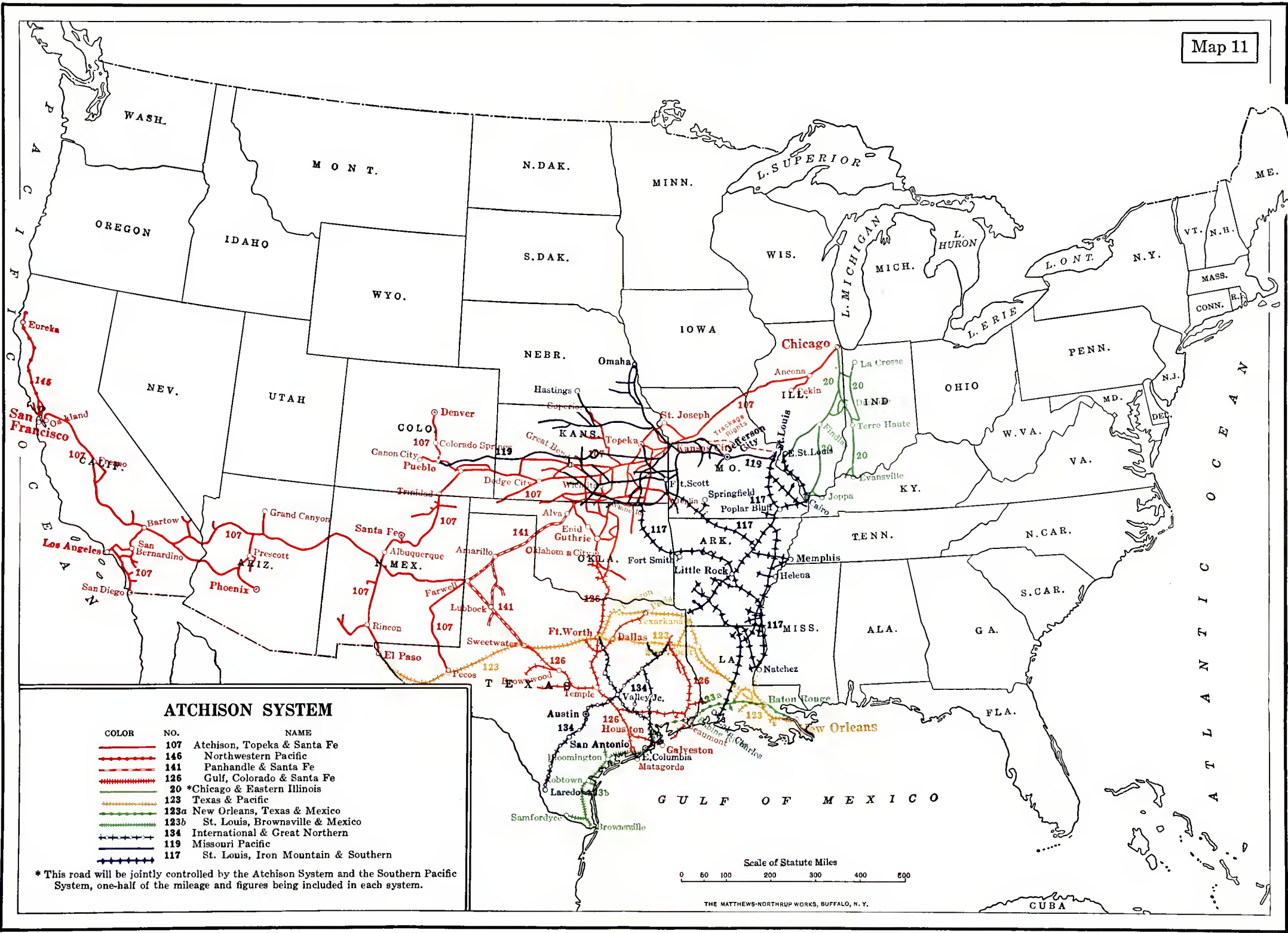


UNION PACIFIC-NORTHWESTERN SYSTEM

COLOR	NO.	NAME
—	114	*Union Pacific
—	120	Oregon Short Line
—	124	Oregon-Washington R. R. & Navigation Co.
—	130	Los Angeles & Salt Lake
—	158	St. Joseph & Grand Island
—	181	*Central Pacific
—	110	Chicago & Northwestern
—	122	Chicago, St. Paul, Minneapolis & Omaha
—	125**	Chicago & Alton
—	118	Missouri, Kansas & Texas
—		Missouri, Kansas & Tex. of Texas
—		Wichita Falls & Northwestern

* The Central Pacific has been placed with the Union Pacific but the figures of the Central Pacific are included with those of the Southern Pacific.
 ** This road will be jointly controlled by the Union Pacific-Northwestern System and the Great Northern-St. Paul System, one-half of the mileage and figures being included in each system.

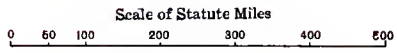




ATCHISON SYSTEM

COLOR	NO.	NAME
Red	107	Atchison, Topeka & Santa Fe
Red with diagonal lines	146	Northwestern Pacific
Red with horizontal lines	141	Panhandle & Santa Fe
Red with vertical lines	126	Gulf, Colorado & Santa Fe
Green with diagonal lines	20	*Chicago & Eastern Illinois
Green with horizontal lines	123	Texas & Pacific
Green with vertical lines	123a	New Orleans, Texas & Mexico
Green with cross-hatch	123b	St. Louis, Brownville & Mexico
Blue with diagonal lines	134	International & Great Northern
Blue with horizontal lines	119	Missouri Pacific
Blue with vertical lines	117	St. Louis, Iron Mountain & Southern

* This road will be jointly controlled by the Atchison System and the Southern Pacific System, one-half of the mileage and figures being included in each system.

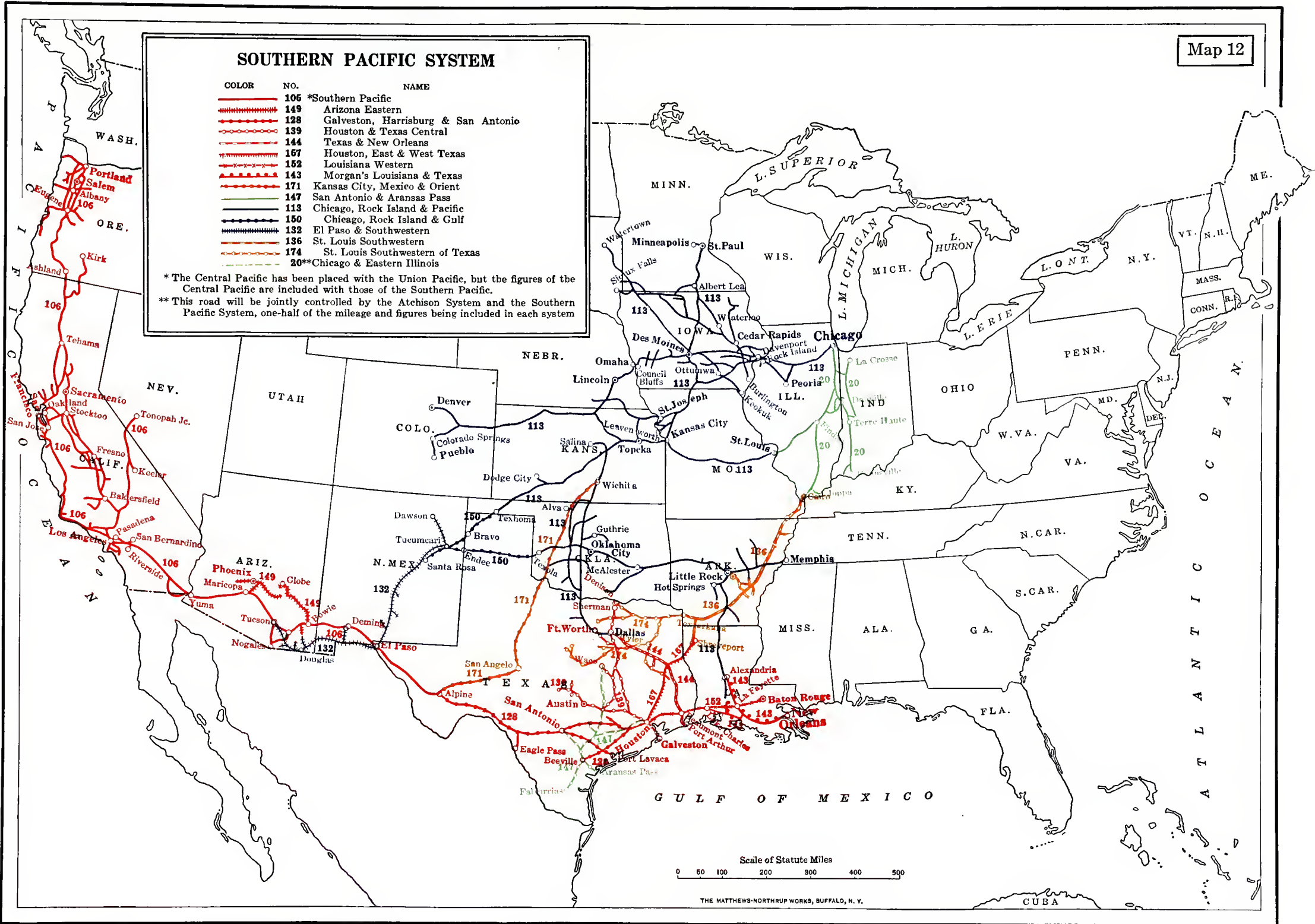


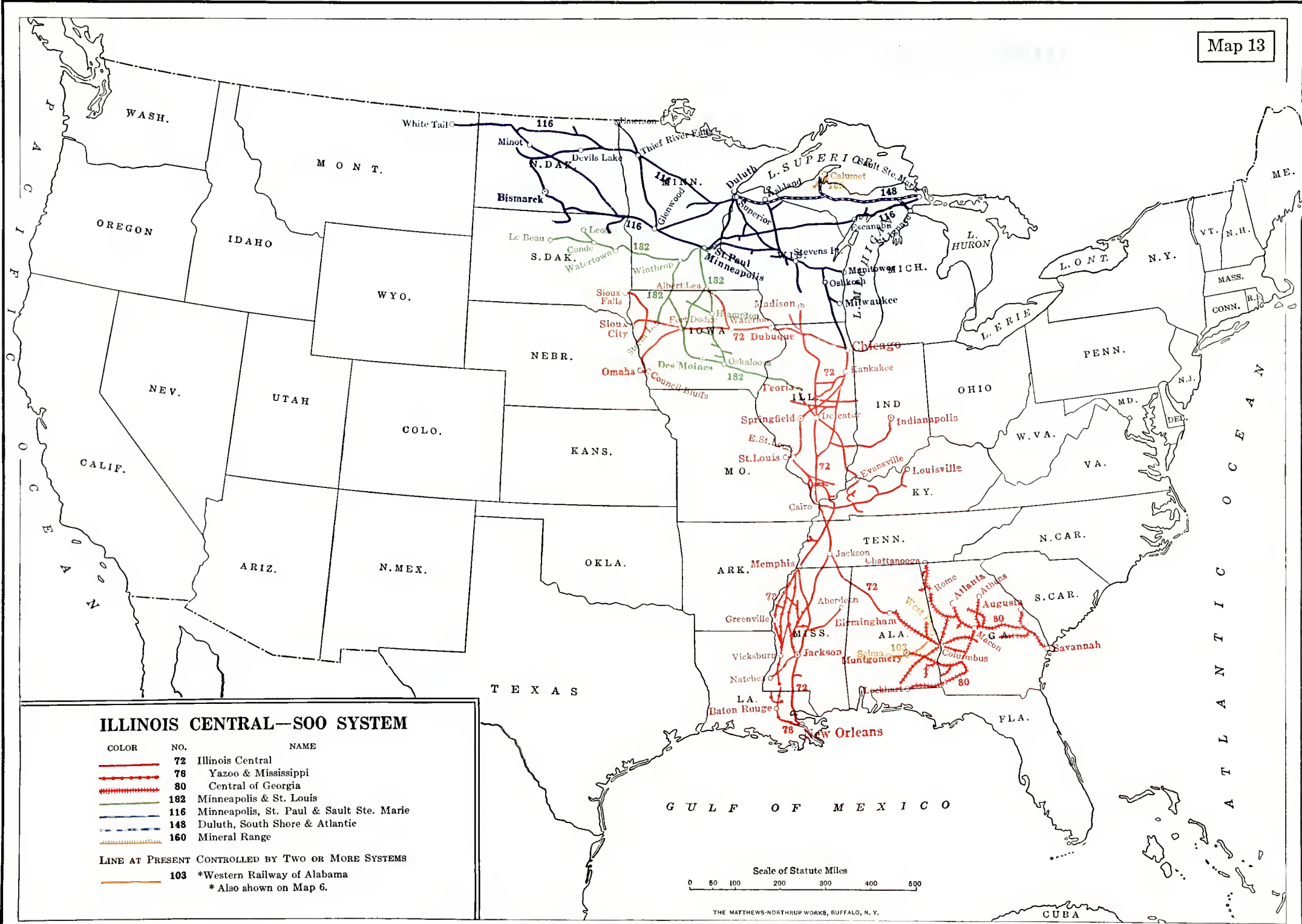
SOUTHERN PACIFIC SYSTEM

COLOR	NO.	NAME
	106	*Southern Pacific
	149	Arizona Eastern
	128	Galveston, Harrisburg & San Antonio
	139	Houston & Texas Central
	144	Texas & New Orleans
	167	Houston, East & West Texas
	152	Louisiana Western
	143	Morgan's Louisiana & Texas
	171	Kansas City, Mexico & Orient
	147	San Antonio & Aransas Pass
	113	Chicago, Rock Island & Pacific
	150	Chicago, Rock Island & Gulf
	132	El Paso & Southwestern
	136	St. Louis Southwestern
	174	St. Louis Southwestern of Texas
	20**	Chicago & Eastern Illinois

* The Central Pacific has been placed with the Union Pacific, but the figures of the Central Pacific are included with those of the Southern Pacific.

** This road will be jointly controlled by the Atchison System and the Southern Pacific System, one-half of the mileage and figures being included in each system





ILLINOIS CENTRAL—SOO SYSTEM

COLOR	NO.	NAME
Red solid line	72	Illinois Central
Red dashed line	78	Yazoo & Mississippi
Red dotted line	80	Central of Georgia
Green solid line	182	Minneapolis & St. Louis
Blue solid line	116	Minneapolis, St. Paul & Sault Ste. Marie
Blue dashed line	148	Duluth, South Shore & Atlantic
Blue dotted line	160	Mineral Range

LINE AT PRESENT CONTROLLED BY TWO OR MORE SYSTEMS

Orange solid line	103	*Western Railway of Alabama
-------------------	-----	-----------------------------

* Also shown on Map 6.

