

DEPARTMENT OF THE INTERIOR,  
CENSUS OFFICE.

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Appointed April 1, 1879; resigned November 3, 1881.

CHAS. W. SEATON, Superintendent,  
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REPORT

ON THE

AGENCIES OF TRANSPORTATION

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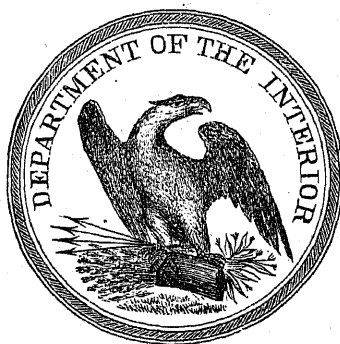
UNITED STATES,

INCLUDING THE

STATISTICS OF RAILROADS, STEAM NAVIGATION, CANALS, TELEGRAPHS, AND TELEPHONES.

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POSTAL TELEGRAPHS .....	ROBERT B. LINES.

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NOTE ON THE STATISTICS OF EXPRESS COMPANIES.

## LETTER OF TRANSMITTAL.

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DEPARTMENT OF THE INTERIOR,  
CENSUS OFFICE,  
Washington, D. C., October 1, 1883.

Hon. H. M. TELLER,  
*Secretary of the Interior.*

SIR: I have the honor to transmit herewith the fourth volume of the final report on the Tenth Census, namely, that which relates to Agencies of Transportation.

For the preparation of those portions of this volume which relate to Railroads and to Telegraphs and Telephones this office was fortunate in securing the services of Mr. Armin E. Shuman, an expert whose qualifications for this work are sufficiently attested by the report itself, but whose zeal and industry merit especial recognition. Thanks are due to Mr. S. Wright Dunning, of the *Railroad Gazette*, of New York, who kindly consented to read the proof and give the office the benefit of his friendly criticism, for very valuable suggestions.

I have the honor to be, sir, your most obedient servant,

CHAS. W. SEATON,  
*Superintendent of Census.*

STATISTICAL REPORT

OF THE

RAILROADS IN THE UNITED STATES.

BY

ARMIN E. SHUMAN,

EXPERT.

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## LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,  
CENSUS OFFICE,  
Washington, D. C., May 18, 1883.

Hon. C. W. SEATON,  
*Superintendent of Census.*

SIR: I have the honor to submit herewith the reports upon the traffic and fiscal operations, and the physical characteristics of the railroads of the United States.

These reports were prepared by me in accordance with your instructions, from the statistical data collected by the Tenth Census from the different railroad corporations existing in the census year 1880.

Accompanying are the tables which exhibit in detail the compilation of both the traffic and fiscal operations, and the physical characteristics.

The statistical collections regarding the railroads in the United States having already been made, the duty which devolved on me was that of compilation, the extracting of results, and the preparation of tables of comparisons, and a report upon the whole work.

The contents of the report on the physical characteristics are the results derived from the tabulations prepared by Frank P. White, of Washington, D. C., to whom credit is due for the careful collection, compilation, and tabulation of the data therein included.

It has been my endeavor to give as full and complete an exhibit of the railroad system in the United States as could practically be made in the condensed form made necessary by the limited space.

All the tables of results and comparisons are based upon the actual figures reported by the different corporations and as exhibited by the detail tables, and only such comments were included as pertain to the facts established and were deemed necessary for the purpose of giving a comprehensive review of the manifold parts which make up our vast railroad system and its management.

Very respectfully, your obedient servant,

ARMIN E. SHUMAN,  
*Expert.*

# GENERAL REVIEW

OF THE

## TRAFFIC AND FISCAL OPERATIONS OF THE RAILROADS IN THE UNITED STATES.

The traffic and fiscal operations upon the entire system of railroads in the United States during the fiscal year ending nearest to June 1, 1880, according to the data collected from the railroad corporations then existing, are shown in detail for each corporation separately in the tables following this review.

The following is a copy of the departmental circular letter under the provisions of which the collections of data were made:

[7—092.]

DEPARTMENT OF THE INTERIOR,  
CENSUS OFFICE,  
Washington, D. C., October 15, 1879.

*To the officers of railroad corporations:*

Numerous letters having been received at this office, making inquiries in regard to the reports to be rendered upon the schedule [Form 7-034] issued from this office by railroad corporations under certain conditions, the following general circular is issued in answer thereto:

### AS TO THE DATE OF THE REPORT.

While it is evident that the reports should be of a substantially uniform date to render them of the highest value as a whole, so that the aggregate results may represent a complete year's business, it is the purpose of this bureau to impose no heavier burden upon the officers of railroads than is absolutely requisite to get the information required by the law, and to get it in such shape as to give value to the statistics to be compiled therefrom.

In view of the fact that June 30 is the date upon which many corporations close their fiscal year, and especially as the legislatures of the various states requiring reports from railroad corporations will be petitioned (as this office is informed) at the next sessions thereof to fix June 30 as a date for closing and rendering the accounts of railroads, *notice is hereby given that a report for the fiscal year ending June 30, 1880, will be accepted from any railroad office making such election in lieu of one of date May 31.*

*Returns upon the schedule sent out from this office [No. 7-034] will be required as follows:*

### FROM CORPORATIONS.

#### I. THOSE OPERATING ONLY THE ROADS OWNED BY THEM:

From such corporations complete returns are expected on the schedule issued.

#### II. THOSE OPERATING THE ROADS OWNED BY THEM, TOGETHER WITH ROADS LEASED TO THEM:

From such corporations a complete return of each road, or, if separate accounts are not kept, of all of the roads (including leased roads), is expected on the schedule issued. Where the operations of roads leased are kept separate and distinct from the operations of the roads owned, a separate report of the operations, earnings, etc., of each road so leased will be required from the corporation operating the same.

#### III. THOSE WHOSE ROADS ARE LEASED:

From such a corporation is expected a report showing all the facts concerning its road and the operations thereof which can be derived from its own books. Such a report would contain answers to questions on page 1; questions 12-14, page 2; questions 1-6, page 3; questions 33, 34, page 4; questions on pages 8, 9, 10, 14; questions pertaining to land accounts and sinking fund, page 11; and questions 1-6, page 15. This report will be entirely distinct from the report to be made by the lessee (see II and VI).

#### IV. THOSE WHICH, THOUGH THEIR ROADS ARE VIRTUALLY OWNED BY THE CORPORATION OPERATING THEM, ARE STILL MAINTAINED AS SEPARATE ORGANIZATIONS:

There are many roads whose condition being as above stated are simply nominally leased, and, having neither income nor expenses, no books or accounts are kept. From such corporations are expected as full reports as they are able to give. It should include a description of the road, with information in regard to the cost of the same, capital stock, etc., and answers as full as possible to such questions on pages 8, 9, 10, 14, 15 as may be applicable.

#### V. THOSE THE BUILDING OF WHOSE ROADS IS NOT COMMENCED, OR WHOSE ROADS, HAVING BEEN CONSTRUCTED IN PART OR IN WHOLE, ARE FOR ANY REASON NOT OPERATED:

From such corporations reports are expected containing answers to such questions on pages 8, 9, 10, 14, 15 as may be applicable to the road. In the case of such a road in the hands of a receiver a similar report will be expected from the receiver.

## STATISTICS OF RAILROADS.

## FROM LESSEES AND RECEIVERS.

## VI. FROM A PERSONAL LESSEE, OR A LESSEE BEING A CORPORATION OWNING NO ROAD (see also II):

From such a lessee is expected a return on the schedule issued so far as it appertains to the operations of the roads leased, viz: answers to questions on pages 1-7; rates of fare, etc., page 11; questions on pages 12, 13, 16, 17, and the latter half of page 15. In the answers may be included the operations of two or more roads where those roads are leased to the same party and no separate accounts have been kept; in all other cases a separate report of the operations of each road so leased will be required of the lessee.

## VII. FROM A RECEIVER (OR TRUSTEE):

From the receiver of each road a return will be expected on the schedule issued so far as it appertains to the operation of the roads in his hands, viz: answers to questions on pages 1-7; rates of fare, etc., page 11; questions on pages 12-17, together with the balance-sheet, pages 8 and 9, taken from the books as kept by him.

In addition to the above, a separate report, taken from the books of the corporation at the time the road passed into the hands of a receiver, will be required. Such report will include answers to questions on pages 8-11, and all other information called for in the schedule which is not contained in the receiver's report.

## IN GENERAL.

VIII. In cases where two or more corporations, operating separately and distinctly their own or other roads for part of the year next preceding the date of the report, become during the year consolidated, either through lease or sale, so that for the balance of the year the roads are operated under one management, a report will be expected from each of the corporations for the period of its separate operation, and a report from the consolidated corporation operating for the balance of the year.

In all cases where roads pass into different hands during the year, as, for instance, from ownership to lessees or receivers, and *vice versa*, a separate report from each management during the time thereof will be expected, the object being in all cases to get a complete year's report of the operations of every road.

FRANCIS A. WALKER,  
*Superintendent of Census.*

For the purpose of exhibiting these extensive and various operations in a condensed form for the whole system it was deemed advisable to prepare a general review, composed of tables of results, with the requisite explanations, and such comments and comparisons as were thought proper.

These tables being computed from the aggregate amounts of property, capital, income, earnings, etc., of all the railroads combined, it is necessary that the results so exhibited should be considered only as a general average for the whole.

Special reference is made to the following items, which appear in the accounts, viz:

"SURPLUS" (see general financial exhibit or income account).—As some companies report surplus and others deficits, it is necessary, for the purpose of ascertaining the net average surplus for the whole system, that the total amount of gross surplus reported by some (\$64,038,730 38) should be reduced by the amount of the deficits reported by others (\$15,244,475 51); see table showing disposition of net earnings.

"PROFIT AND LOSS."—The tables exhibiting the general balance show the total amount of assets as including the debit charges of "profit and loss account". This became necessary, because these charges were included in the amount of assets by the respective companies reporting in making up their accounts to balance liabilities. Of course such a charge is not an asset, and allowance should be made for the amounts so reported and exhibited on the tables; that is, the actual assets should be ascertained by taking the total assets reported and reducing such by the amount of the respective debit charge of "profit and loss". Similar remarks pertain to the "liabilities". The credit charge of "profit and loss" therein included does not represent actual liabilities of the corporation, but merely undivided earnings or income, for which the directors of the corporations are accountable only to their stockholders.

The assets of a corporation can only consist of the values of the actual property (permanent investments), the cash, etc., on hand, and the liabilities only of such indebtedness as the actual assets are liable for. Undivided income remains a liability only between the managers and stockholders. On the balance-sheet, or the table exhibiting the assets and liabilities, the item of "profit and loss" appears both as a debit and as a credit charge, because some companies report it as the first and others as the latter.

"REMARKS."—The balances (surplus or deficits) reported by companies as remaining over from the previous fiscal year are only included in the balance-sheet tables in the item of "profit and loss", and not in the balance shown in the tables which exhibit the general finances of the companies, these amounts being omitted therefrom for the purpose of showing the gains and losses created during the current fiscal year distinct and separate from those of previous years. (a) Therefore the differences existing between the amounts of profit and loss, as shown in the assets or liabilities, and the surplus balance or deficit shown in the general financial exhibit must be considered as having been created through such causes.

The term "through", as used in the detail tables for either freight or passengers, means such freight as is delivered by one road to another, or received by one road from another, for shipment upon a joint way-bill, or such passengers as are carried upon coupon tickets. Local freight and passengers are carried at local tariff or special local rates between stations and the terminal points of a given road.

a There were also some companies which omitted to report their surplus or deficits from the previous fiscal year, or failed to give the separate items of extraordinary gain or loss from other causes than either operations or other management producing a regular income in their income account, only including such in either their assets or their liabilities by lumping them with profit and loss account, and not separately specifying the same.

The Pennsylvania Railroad Company reports as "through freight" all such shipments on its several divisions as are designed for points on other railroads than their own, and also such shipments as originate at points on any one of its divisions for shipment to points on the other divisions of its system of roads. Thus, "way" or "local" freight with that company means such as is moved from point to point between the termini of its respective divisions, as between Philadelphia and Pittsburgh, on the Pennsylvania Railroad division; between New York and Philadelphia, on the New Jersey division; and between Erie and Sunbury, on the Philadelphia and Erie division.

It is presumed that the several railroads have reported in accordance with the definition given by the Census Office.

As the companies which reported operations have not specified the amount of their operating expenses separately for either freight or passengers, it became necessary, for the purpose of arriving at the average net receipts per ton or passenger per mile (see tables of "Receipts per mile from tonnage", etc., and "Revenue train mileage"), to estimate such expenses. Basing this estimate upon those expenses which were specifically stated for either freight or passengers in the expense account, the following average is ascertained: 70 per cent. for freight and 30 per cent. for passengers. The total specified expenses for passengers, such as repairs, service, supplies, and mileage, aggregate \$22,561,240, while the same expenses for freight amount to \$51,530,689. This proportion of expenses is adopted in the calculations pertaining to this subject.

### ROADS OPERATED.

The total number of miles of road reported as operated during the fiscal year is 87,781.97. The operations were under the management of 631 corporations, which worked their own lines and those leased, controlled, or managed under contracts of whatever description. Beside the above number of miles, there were further operated 50½ miles by the following corporations, viz:

	Miles.
Cleveland, Painesville, and Ashtabula railroad.....	8
Manchester and Keene railroad.....	20½
Muncy Creek railroad.....	6
Milton and Sutherland narrow-gauge railroad.....	7

The report of the operations of the Cleveland, Painesville, and Ashtabula Railroad Company was only obtained after proceedings had been instituted against the company in the United States district court of the district in which the road lies; but such proceedings were not resorted to until it had been found that the repeated sending of letters of request by the Census Office were of no avail. When at last received, it was too late to include such report in the regular tables, as that work had already been closed.

The same remarks refer also to the Manchester and Keene Railroad Company, with the exception that the report was received before the close of the work. This company had suspended operations during the census year, and its report included assets and liabilities only.

The report of the Muncy Creek Railroad Company was also received after the close of the work, and was only obtained after repeated requests for the same had been sent, and through an admonishment from the United States district attorney of the district in which the road lies.

The report of the Milton and Sutherland Narrow-Gauge Railroad Company was received under similar circumstances as that of the Muncy Creek Company, but its report is incomplete and inaccurate.

Beside the Muncy Creek and the Milton and Sutherland railroad companies, two other corporations had to be admonished through the respective United States district attorneys before reports could be obtained from them, namely, the Saint Joseph and Western and the Saint Paul, Minneapolis, and Manitoba railroad companies; but as their reports were received before the close of the work, they are included in the tables.

Of the railroad corporations whose roads were under construction, and upon which operations had not then been commenced, the Nashville and Florence Railroad Company was the only one delinquent in making its report. This report was sent under compulsion, by a decree of the United States district court for the district in which the road lies; but as the report so received is inaccurate in what is intended to be shown, and is incomplete in general, it has been omitted from the tables.

The accounts of such of the above-mentioned companies as are not embodied in the regular tables are exhibited below in the aggregate for each.

### MUNCY CREEK RAILROAD COMPANY.

Total income.....	\$8,018 09
Total expenses.....	7,295 18
Net income.....	<u>722 91</u>

The net income of this road is liable to the payment of interest on the debt (floating and funded), but the report is very incomplete. If the funded debt, which is given as \$204,000, at 7 per cent. interest per annum, is taken into consideration, then the payment of the interest thereon would create a deficit.

Assets are not reported; the liabilities (\$124,450) are given as stock paid in.

## STATISTICS OF RAILROADS.

Equipment is reported as follows, viz: 1 locomotive, 2 passenger cars. Employés are reported, viz: 1 superintendent, 1 clerk, 1 engineer, 1 conductor, and 1 brakeman, and accidents, viz: 2 employés injured during the year.

The report of the Nashville and Florence Railroad Company, received under a decree of the United States court, is made up in such an incorrect manner that no part thereof can properly be considered as fit to be included in the tables.

## MILTON AND SUTHERLIN NARROW-GAUGE RAILROAD COMPANY.

Total income .....	\$4,500
Total expenses .....	1,800
Net income .....	2,700
Interest on funded debt .....	2,080
Balance for year .....	620
Transportation earnings:	
Local passengers .....	1,100
Mails .....	300
Local freight .....	3,100
Transportation expenses .....	1,800
Liabilities:	
Stock paid in .....	169,300
Funded debt .....	26,000
Assets: Incomplete.	

## CONSTRUCTION OF ROADS.

The total amount reported as expended in the construction of roads, fully or partly completed, aggregates \$4,112,367,175 83. (a). It being impossible to obtain the actual number of miles completed to one given date from the different companies reporting, therefore the average cost per mile of road-bed and track cannot be given exactly. Taking the mileage as exhibited by the report on physical characteristics to June 30, 1880, namely, 87,801.42, it would be \$46,837 14.

## EQUIPMENT. (b)

The equipment, comprising the rolling-stock in use upon the railroads in the United States during the fiscal year reported, aggregates, 17,412 locomotives, 12,330 passenger cars, 4,475 mail, express, and baggage cars, 375,312 freight cars, and 80,138 cars of all other descriptions. The total value of this equipment owned by the railroad companies, as such, reported as assets, aggregates \$418,045,458 48.

The total cost of repairs reported upon this rolling-stock during the year aggregates \$54,985,340 51, of which amount 40 per cent. was expended on locomotives, 40 per cent. on freight cars, and 20 per cent. upon passenger and all other classes of cars.

The aggregate amount reported as repairs must be considered as including the cost of constructing entire new and additional rolling-stock, as most of the companies which construct their own locomotives and cars have reported the cost thereof as included in their items of repairs charged against earnings from transportation; and there is further included in such repairs the cost of reconstructing rolling-stock (at nearly the cost of the value of new equipment) which shall replace such worn-out and useless cars and locomotives as should be dropped from the equipment account.

*a* This amount does not represent the actual cost of construction of all the roads making up the whole system. There are some corporations from which the cost of construction of certain roads could not be obtained. That for the "Erie Railway", for instance, is not included therein. The New York, Lake Erie, and Western Railroad Company, the present owners of that road, reported a lump sum (\$151,631,284 08) as representing the value of what they term the "Erie estate", including road, equipment, etc., and only stated the amount expended by them in construction since June 1, 1878. The attorneys in charge of the affairs of the old "Erie Railway Company" also declared their inability to give actual cost of construction. Under these circumstances it was impossible to include a true amount as cost of construction for that road. The amount reported as asset value of the "Erie estate" is exhibited in column of miscellaneous investments, and the amount expended in construction since June 1, 1878, in the proper column representing such costs (see page 78). Besides this instance, there are a few others where corporations did not state the actual cost of construction for some roads and branches. In consideration of these facts, it is probable that an approximate amount of \$150,000,000 would have to be added to the total of \$4,112,367,175 83 for the purpose of making up the aggregate cost of construction of all the roads combined.

*b* The equipment above enumerated is that owned by the railroad corporations. Beside this equipment, there is used and run upon certain of the roads which make up the railroad system in the United States other rolling-stock, such as sleeping cars, palace or parlor cars, express cars, and other rolling-stock which is owned by corporations or companies separate and distinct from the railroad corporations, such as freight and transportation companies, the Pullman Car Company, railroad equipment companies, United States rolling-stock companies, etc.

The equipment so run upon the roads is either rented by the railroad corporations or is allowed to be attached to their regular freight and passenger trains and run over their roads under certain agreements and contracts existing between the respective parties. In some cases the railroad corporations receive a stipulated amount, or a *pro rata*, or a percentage of earnings for the privilege of allowing cars to be attached to their revenue trains, etc.; in others they pay a certain amount of rent, or a percentage of the earnings made by the cars used to the owners thereof, etc., as the case may be. There are also cases where neither the railroad nor the car company receive rents from each other, and where the car company is allowed to collect all fares, etc.

The contracts and agreements pertaining to such arrangements are various. In cases where railroad corporations receive a rent, etc., the amounts so received are debited to either the revenue from freight or passengers (other sources), or to income from all other sources and miscellaneous; if, on the contrary, the corporation has paid a rent, etc., then the amount is credited (as debit balance) to expenses as mileage of freight cars or passenger cars. In most instances such equipment is kept in repairs by the railroad corporations.

# STATISTICS OF RAILROADS.

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The following table exhibits the aggregate value of the property and capital invested :

## BALANCE-SHEET.

ASSETS.			LIABILITIES.		
Description.	Amount.	Total.	Description.	Amount.	Total.
Construction of road.....	\$4,112,367,175 83		Capital stock, preferred.....	\$304,471,042 42	
Equipment.....	418,045,458 48		Capital stock, common.....	2,309,134,322 03	\$2,613,606,264 45
Lands.....	103,319,845 42		Funded debt.....		2,390,915,401 63
Stocks.....	184,866,526 91		Unfunded debt, interest unpaid.....	68,750,287 93	
Bonds.....	158,933,604 61		Unfunded debt, dividends unpaid.....	13,059,932 68	
Telegraph lines and miscellaneous.....	204,913,195 68		Unfunded debt, notes payable.....	85,573,269 50	
Total permanent investments.....		\$5,182,445,806 93	Unfunded debt, vouchers and accounts...	253,817,353 36	
Cash.....	61,211,512 74		Profit and loss account.....		421,200,893 56
Bills receivable.....	31,064,427 54				233,191,598 46
Due from agents and companies.....	79,814,154 94				
Materials and supplies.....	44,294,901 34				
Sinking fund.....	20,488,758 96				
Debit balance.....	117,100,225 29				
Total cash and other assets.....		353,973,980 81			
Profit and loss account.....		122,494,370 36			
Total.....		5,658,914,158 10	Total.....		5,658,914,158 10

The actual assets for the whole system amount to \$5,536,419,787 74, and the actual liabilities to \$5,425,722,559 54; which leaves \$110,697,228 20 as actual profit and loss to credit for the combined roads.

The respective items of profit and loss (either to credit or debit) as shown in above balance-sheet represent on the credit side the undivided and accumulated earnings, or income, etc., and on the debit side the deficits, etc., which were either created in previous years or in the current year reported.

Accordingly the permanent investments amount to nearly 94 per cent. of the total actual assets, against which the actual liabilities show about 92 per cent. of capital stock paid in and funded debt, the first being 48 per cent., and the latter near 44 per cent. of such liabilities.

The unfunded debt is near 8 per cent. of total liabilities, and is offset by nearly 7 per cent. of cash assets and the excess of permanent investments over amount of stock and funded debt, which is over 3 per cent. of total.

## CAPITAL STOCK PAID IN.

Stock.	Amount.	Per cent.
Common.....	\$2,309,134,322 03	88.35
Preferred.....	304,471,042 42	11.65
Aggregate.....	2,613,606,264 45	100.00

The capital stock paid in aggregates \$2,613,606,264 45, of which 88.35 per cent. is common or ordinary stock and 11.65 per cent. preferred.

Of the total stock, over 80 per cent. earned a profit,\*and near 20 per cent. none whatever (see tables following income account).

There are several companies (viz, the Lake Shore and Michigan Southern, etc.) which have issued guaranteed stock, but as the great majority of the companies have only reported preferred and common, for the purpose of saving space such amounts of guaranteed stock were taken up and included with the preferred.

## NUMBER OF STOCKHOLDERS.

Group I.....	64,827
Group II.....	144,322
Group III.....	30,049
Group IV.....	31,981
Group V.....	1,175
Group VI.....	14,153
Total.....	286,507

The aggregate number of railroad stockholders reported for the United States is 286,507; but as several corporations have omitted to report the number of their stockholders, the above would probably have to be increased to nearly 300,000, as the estimated number for the United States, and for such the average amount of stock per capita would be \$8,700.

## STATISTICS OF RAILROADS.

## FUNDED DEBT.

Total funded debt .....	\$2,390,915,401 63
Less funded debt of companies whose roads are under construction, and upon which no interest has been reported as accrued.....	30,027,386 63
Total funded debt upon which interest is reported .....	<u>2,360,888,015 00</u>

Upon this amount of debt (\$2,360,888,015) there was reported as accrued or paid interest the sum-total of \$126,442,309 67, which is an average rate of 5.36 per cent. This however is not the true average rate of interest borne by the aggregate funded debt of the whole system. That aggregate includes portions upon which interest accrued only for a part of the fiscal year reported, such for instance as had been created after the commencement, or at or near the end of the fiscal year; also such upon which the interest matured and became due at intermediate periods of such year (including securities, etc., which originated at a different date from the beginning of the several fiscal years reported). It is therefore impossible to give the exact average rate of accrued interest for the combined debts for a given year. From the tables which exhibit the several funded debts of each company reporting: such it appears that such rates ranged from 4 to 10 per cent. per annum, the greater portion thereof bearing 6 and 7 per cent. The average rate of interest for the funded debt of the whole system is probably 6.5 per cent.

The following table exhibits the aggregate income (from whatever source):

Description.	Amount.	Total.	Aggregate.
Gross transportation earnings.....		\$580,450,594 26	
Income from other sources—Rents.....	\$53,543,710 53		
Interest, dividends, etc., from assets.....	27,301,056 83	80,844,797 36	
Total income.....			\$661,295,391 62
Less—Transportation expenses.....	352,800,120 75		
General expenses of lessor companies.....	1,879,847 95		
Interest on the funded debt.....	126,442,309 67		
Interest on the unfunded debt.....	9,037,797 65		
Rentals.....	51,790,718 95	541,950,794 97	
Deduct—Expenses of companies over their earnings.....	1,427,580 11		
Expenses of companies over other income.....	13,286,921 04	14,714,501 15	
Net income.....			527,236,293 82
Dividends on preferred stock.....	6,893,263 05		134,059,097 80
Dividends on common stock.....	63,657,078 73	70,550,341 78	
Deduct—Dividends paid by companies over their net income.....		529,974 36	
Balance remaining.....			70,020,367 42
			64,038,730 38

Of the total income (see income account, viz., \$661,295,391 62) 87.77 per cent. was derived from transportation operations as "gross earnings", 8.10 per cent. from rents for use of roads, depots, grounds, etc., and 4.13 per cent. from assets, such as interest upon bonds and dividends upon stock held by companies of others, etc. Of the total expenditures (\$541,950,794 97) 65.10 per cent. were transportation expenses, including the maintaining of road and real estate, the repairs of machinery and cars, and the operating expenses proper; also the general expenses, such as taxes, legal, telegraph, damages, etc. The balance of the expenditures consist of 0.34 per cent. for the management of the business of lessor companies, 23.33 per cent. of interest upon the funded debt, 1.67 per cent. of interest upon the unfunded debt, and 9.56 per cent. of rentals for leased lines. The total amount of expenditures is 81.95 per cent. of total income, leaving 18.05 per cent. of gross income available for the payment of dividends, etc. Reducing the aggregate expenditures by the amount of deficits, \$14,714,501 15, or 2.72 per cent. of total, which some companies created over and above their income, then the total expenditures of the companies having no deficits are 79.73 per cent. of gross income, leaving 20.27 per cent., or \$134,059,097 80, available for the payment of dividends, etc. The dividends declared upon stock aggregate \$70,550,341 78, or 52.63 per cent. of income available. Of this amount \$529,974 36 were declared by companies which had no income available. This amount, deducted from aggregate, leaves \$70,020,367 42, or 52.23 per cent. of income available, as declared upon stock by the companies having profits. The surplus or balances remaining for these latter companies aggregate \$64,038,730 38, or 47.77 per cent. of total income available. Against this surplus stand \$15,244,475 51 as deficits created by the other companies, which, deducted, leaves \$48,794,254 87 as the net surplus for the whole system. Some companies, although having an income available, have not declared any dividends, but report the whole amount so available as surplus.

# STATISTICS OF RAILROADS.

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## DEFICITS OF COMPANIES, BY GROUPS.

EXPENSES OVER EARNINGS.			FIXED CHARGES OVER INCOME.		DIVIDENDS OVER NET INCOME.	
Group.	Companies.	Amount.	Companies.	Amount.	Companies.	Amount.
Total .....	120	\$1,427,580 11	176	\$13,286,921 04	31	\$529,974 36
I.....	7	25,776 07	23	889,190 21	8	4,592 98
II.....	66	821,681 31	95	6,946,227 05	15	216,828 98
III.....	12	66,944 06	23	2,022,129 75	5	225,521 45
IV.....	15	308,238 11	15	1,864,816 06	2	46,753 95
V.....	2	5,536 35	( <sup>1</sup> )	66,055 95	.....	.....
VI.....	18	199,403 61	20	1,498,502 02	1	36,277 00

Same companies which report expenses over earnings.

### AGGREGATE.

	Companies.	Amount.
Expenses over earnings .....	120	\$1,427,580 11
Fixed charges over income .....	176	13,286,921 04
Dividends over net income.....	31	529,974 36
Total .....	327	15,244,475 51

The aggregate of deficits (\$15,244,475 51), as exhibited by the above table, was created as follows: 120 companies report operating expenses over their gross earnings amounting to \$1,427,580 11, or 9.36 per cent. of total; 176 companies (both lessor and operating) paid fixed charges over total income amounting to \$13,286,921 04, or 87.16 per cent. of total; and 31 companies declared dividends in excess of their net income amounting to \$529,974 36, or 3.48 per cent. of total. This shows that 327 companies in all created deficits. The same companies report the aggregate cost of construction and equipment of their roads to be \$937,621,269, or over 20 per cent. of such cost for the United States. The deficits therefore represent an average loss of 1.63 per cent. upon such investments.

Beside the capital invested which is burdened with deficits, there are some companies which, although showing no deficits, have not made any net earnings, their operating expenses balancing their gross earnings; and, further, many companies have only averaged very slight profits. It is therefore safe to assume that nearly 25 per cent. of the reported aggregate cost of roads and of equipment had no remuneration.

The general detail tables prove that, with the exception of the lines centering around large cities like New York, Boston, etc., which roads carry large numbers of local passengers, the greater profits in railroad operations remain with the trunk and other extensive lines. These latter railroad corporations (some 44) control 80.4 per cent. of the whole freight traffic in the United States. The aggregate net income reported is \$134,059,097 80, and as all expenditures, either operating or fixed charges, have been deducted from the gross income, this is the amount available for the payment of dividends or balance to be carried, and is therefore profit. The capital stock (preferred and common) aggregates \$2,613,606,264 45, and the net income available \$134,059,097 80; therefore the average per cent. of profit made upon the dollar of stock is 5.13, and, should the deficits reported be deducted from the net income available, the average profit would be 4.57 cents upon the dollar (see following table).

The following table exhibits the results of operations, etc., of the combined railroad system:

Miles of road operated.	Gross earnings.	TRANSPORTATION EXPENSES.		Net earnings.	Deduct fixed charges and general expenses of lesser companies, less income from all sources other than earnings.	AVERAGE PER CENT. OF PROFIT UPON THE DOLLAR OF STOCKS (ALL REPORTED, EITHER PREFERRED OR COMMON).		
		Amount.	Per cent. of earnings.			Per cent. earned.	Per cent. declared in dividends.	Per cent. of remaining balance.
87,782	\$580,450,594	\$352,800,121	60.78	\$227,650,473	\$108,305,877	4.57	2.70	1.87

The following table shows the average per cent. of net income of capital stock and funded debt:

Capital stock and funded debt.	TOTAL INCOME.		TOTAL EXPENDITURES (LESS INTEREST ON FUNDED DEBT).		NET INCOME AVAILABLE.	
	Amount.	Per cent. of capital.	Amount.	Per cent. of capital.	Amount.	Per cent. of capital.
\$5,004,521,606	\$661,295,392	13.21	* \$415,508,485 † 400,793,984	8.30 8.01	\$245,786,907 260,501,408	4.91 5.20

\* Deficits included.

† Deficits excluded.

In obtaining the average per cent. of profit made during the year upon the aggregates of capital stock paid in and the borrowed money, such as the funded debt, as above exhibited, the gross income has been taken. The gross expenditures, less interest paid upon the funded debt deducted from such income, leave the amount available for the payment of interest upon the funded debt and dividends upon stock, which, if the overpayments (deficits) created by some companies are included in the amount of total expenditures, would be 4.91 per cent. upon that capital; but if the overpayments are not included, and only the expenditures of such companies are taken as have a net income, then the average per cent. is 5.20.



## STATISTICS OF RAILROADS.

The following tables exhibit the earnings from the transportation of freight, passengers, express, and mails, and the expense account, including the different items charged against such earnings:

## EARNINGS.

Description.	Amount.	Per cent.	Total.	Per cent.
<b>Passengers:</b>				
Local .....	\$98,321,340 02	68.23		
Through (to and from other roads) .....	44,514,392 86	30.89		
All other .....	1,265,976 29	0.88		
Total .....		100.00	\$144,101,709 17	24.83
<b>Express .....</b>			8,828,259 48	1.52
<b>Mails .....</b>			10,472,812 56	1.80
<b>Freight:</b>				
Local .....	233,688,201 91	56.16		
Through (to and from other roads) .....	176,909,131 18	42.51		
All other .....	5,548,425 07	1.33		
Total .....		100.00	416,145,758 16	71.69
<b>Revenue not specified by class .....</b>			902,054 89	0.16
<b>Total .....</b>			580,450,594 26	100.00

## EXPENSES.

Description.	Amount.	Per cent.	Per cent. of earnings.
Repairs of road-bed and track .....	\$39,603,076 09	11.23	6.82
Renewal of rails .....	17,243,950 43	4.89	2.97
Renewal of ties .....	10,741,577 06	3.04	1.85
Repairs of bridges .....	9,009,097 20	2.55	1.55
Repairs of buildings .....	7,644,121 24	2.17	1.32
Repairs of fences, crossings, etc. ....	1,480,925 69	0.42	0.25
Telegraph expenses (a) .....	3,576,476 45	1.01	0.62
Taxes .....	13,283,819 10	3.77	2.29
Total maintaining road and real estate .....	102,583,043 26	29.08	17.67
Repairs of locomotives .....	21,830,963 43	6.19	3.76
Repairs of passenger, baggage, and mail cars .....	10,558,823 99	2.99	1.82
Repairs of freight cars .....	22,595,553 09	6.40	3.89
Total repairs of machinery and cars .....	54,985,340 51	15.58	9.47
Passenger-train service (b) .....	10,046,080 09	2.85	1.73
Passenger-train supplies .....	1,148,810 20	0.33	0.20
Passenger-car mileage (c) .....	807,525 36	0.23	0.14
Freight-train service (b) .....	19,892,343 01	5.64	3.43
Freight train supplies .....	1,280,964 52	0.36	0.22
Freight-car mileage (c) .....	7,781,828 43	2.21	1.34
Fuel for locomotives .....	32,836,470 47	9.31	5.66
Water supply .....	2,388,866 66	0.68	0.41
Oil and waste .....	3,754,671 25	1.06	0.65
Locomotive service (b) .....	27,239,567 54	7.72	4.69
Agents and station service (b) .....	36,707,299 20	10.42	6.33
Station supplies .....	2,871,932 69	0.81	0.49
Salaries of officers and clerks .....	12,215,850 06	3.46	2.10
Legal expenses (d) .....	2,457,964 98	0.70	0.42
Insurance (d) .....	926,633 77	0.26	0.16
Stationery and printing (d) .....	2,692,011 00	0.76	0.47
Outside agencies and advertising (d) .....	4,737,310 56	1.34	0.82
Contingencies and miscellaneous (d) .....	21,323,325 70	6.04	3.67
Loss and damage: Freight (d) .....	974,525 60	0.28	0.17
Property and cattle (d) .....	1,103,761 31	0.31	0.19
Personal injuries (d) .....	1,377,977 58	0.39	0.24
Expenses not specified by class .....	621,077 00	0.18	0.11
Total operating and general expenses .....	193,231,736 98	55.34	33.64
Aggregate of expenses .....	352,800,120 75	100.00	60.78
Net earnings .....	229,078,053 62		
Less expenses over earnings .....	1,427,580 11		
	227,650,473 51		39.22

a Maintenances and wages.

b Salaries, wages, etc.

c Debit balances.

d General expenses.

The gross earnings of all operating companies amount to \$580,450,594 26, and include 24.83 per cent. as revenue from passenger traffic (of which 16.94 per cent. was from local and 7.89 per cent. from through passengers, etc.), 1.52 per cent. from express business, 1.80 per cent. from carrying mails, and 71.69 per cent. from freight (of which 40.26 per cent. was local and 31.43 per cent. through freight, etc.), the remainder (0.16 per cent.) being not specified in detail.

The total expenses charged against gross earnings amount to \$352,800,120 75, and include those for maintaining roads and real estate, repairs of machinery and cars, actual operating expenses, and general expenses necessary for the management of the roads, which latter are included with the total of operating expenses.

The cost of maintaining roads and real estate is 29.08 per cent. of operating expenses, or 17.67 per cent. of gross earnings; for repairs of rolling-stock, 15.58 per cent. of expenses, or 9.47 per cent. of gross earnings; and the remainder, the operating and general expenses, 55.34 per cent. of total expenses, or 33.64 per cent. of gross earnings. The aggregate expenses are 60.78 per cent. of the gross earnings, leaving 39.22 per cent. for net earnings.

The taxes are state and municipal, and include certain amounts paid to the national government by companies which had been delinquent in paying the government tax when the law levying the same was yet in force, as it was until 1870.

By analyzing the account of expenses which are charged against transportation earnings, such as from freight, passengers, express, and mails, there will be noticed several items which appear questionable and as not properly belonging to the account made for the purpose of ascertaining the amount of "net earnings" from operations.

If that term is intended to convey the meaning of net revenue derived from the carrying of freight, passengers, express, and mails, and the rents received from other companies for joint use of roads, depots, grounds, etc., then, for the purpose of ascertaining the true amount of "net earnings" from operations, no expenses should be charged against such receipts but what were actually necessary for the carrying on of such operations.

Net earnings are believed to represent that balance of the gross transportation earnings which is left after having deducted therefrom the expenditures which were necessary in conducting the traffic operations through which such earnings were obtained, and include the cost of keeping in proper repair both road and equipment, the actual expenses of the transportation service, and such general expenses as were required to maintain the road and the real estate connected therewith, such as taxes, insurance, and legal expenses, and the losses occasioned through the transportation of passengers, goods, and animals; also such miscellaneous and contingent items as do not come under the specific head of regular transportation expenses, but which were necessary for carrying on the actual traffic. The balance so obtained from gross earnings will then represent the true net amount of revenue derived from the rates charged for freight and the fares from passengers, the receipts from mail and express, and the rents from the joint use of the road and equipment.

The fixed charges, including the interest on the debt and rentals paid for leased lines, should be charged against such net revenue, and the balance remaining, increased by all the income from other sources than transportation, less all the expenses other than transportation and the fixed charges, would represent the net income from all sources. This net income would then be available for either the increase of equipment or additions to the roads, etc., the cost of each being added to the assets, for transfer to the sinking fund, for dividends upon stock, or for surplus remaining, as circumstances might require. This net income would represent the actual profit (or loss) made on the whole, as the increase of assets by the cost value of new equipment and of additions to the road and the appropriations to the sinking fund are just as much a profit obtained as the dividends declared upon stock or as the surplus remaining.

The net revenue from transportation earnings would be more correctly arrived at than has been the custom by many companies included in the census tables were the actual and incidental expenses pertaining to transportation made more specific and kept separate from those which are occasioned on account of other income.

The expense account (see table on page 8) includes every item of outlay had, only excluding the fixed charges, such as rentals and the interest on the debt, although some \$28,000,000 of income was obtained by the different companies making up the whole system as derived from other sources than traffic operations, the receipts of which, of necessity, must have created expenses.

It may be immaterial to the managers of a road whether, in accounting to their directors, all such expenses as the construction cost of new and additional cars and locomotives, betterments and additions to roads, the keeping up of the telegraph systems, and everything included in the items of contingencies and miscellaneous, are charged against the gross transportation earnings, but with the stockholders, etc., who may be interested in these accounts, and may wish to ascertain the exact net revenue derived from the rates and fares charged, it may make a material difference.

It yet appears to be an open question whether it is proper to charge as "repairs" the cost of the construction of new and additional cars and locomotives and the cost of betterments and additions to a road (both of which help to increase the amount of value in assets, by being added to either the equipment or the construction account, whether in the year of construction or in the succeeding year) against the gross earnings, or against the amount of net income after this has been obtained as before suggested.

## STATISTICS OF RAILROADS.

It must here be stated that, in contrast with those companies which charge the cost of new construction under repairs, there are a few which appropriate a certain amount of their funds separately for the construction of equipment, etc., against which funds they charge all expenses occasioned through regular construction of rolling-stock or road, which cost, after being aggregated at the end of the year, is then added to the respective item in assets as an increase to equipment, etc. By so keeping the construction account separate and entirely distinct from all other expenses all questionable charges to repairs are avoided.

Why should the expenses occasioned on account of the telegraph system of the several railroad corporations owning such be charged against gross earnings from freight, passengers, etc., while their receipts from the telegraph business are kept as a separate account and are not included therein? Taking into consideration the large amount of contingent and miscellaneous expenses (\$21,328,325 70) charged against gross earnings, which is 6 per cent. of the total expense account, it appears that many items must have been included therein which do not actually pertain to the account, as they were not included with the items which make up the regular specified transportation expenses.

## DISPOSITION OF NET EARNINGS.

Net earnings.....	\$229,078,053 62	
Less expenses over earnings.....	1,427,580 11	\$227,650,473 51
Paid—		
Interest on funded and other debt and rentals.....	187,270,826 27	
Less income from other sources than earnings.....	80,844,797 36	
	106,426,028 91	
General expenses of lessor companies.....	1,879,847 95	108,305,876 86
		119,344,596 65
Dividends on preferred and common stock.....		70,550,341 78
Net surplus for whole system.....		48,794,254 87
Surplus reported.....		64,038,730 38
Deficits reported.....		15,244,475 51
		48,794,254 87

## FREIGHT TONNAGE.

The following table exhibits the freight moved in the different geographical groups, classified as to the articles composing the same.

The aggregates as exhibited by the following table must be considered as proportions only, and not as quantities, as they represent the proportion of tonnage carried to the amount of revenue derived from the rates charged thereon in the respective groups. For this reason, and because these figures include the tonnage reported by all operating companies (see the detail tables of classification of tonnage), of which many may have carried and reported the same freight before it reached its destination, it is evident that the aggregates given are the accumulations of the totals reported by the separate companies, and therefore do not represent the actual quantities of each separate class of freight carried in the United States; also one and the same shipment of freight may have passed through several of the groups before reaching the consignee.

The tonnage as exhibited for the different groups is the aggregate weight handled by the several companies enumerated with each group, upon which the same companies reported their total freight revenue.

## FREIGHT TONNAGE: CLASSIFICATION OF ARTICLES CARRIED.

Article.	Group I.	Group II.	Group III.	Group IV.	Group V.	Group VI.	Aggregate for the United States.
Aggregate.....	24,978,661	192,446,645	15,866,582	45,407,775	750,601	11,447,161	290,897,395
Grain.....	2,767,334	23,993,678	1,097,200	12,273,096	5,640	1,866,550	42,003,504
Flour.....	1,223,495	3,864,357	352,462	1,787,172	8,541	213,490	7,440,717
Provisions.....	1,004,247	4,373,741	638,640	814,758	22,987	245,143	7,009,525
Cotton.....	502,708	957,453	1,079,715	362,003	96,496	360,020	3,858,395
Live-stock.....	766,271	5,073,225	543,055	3,711,344	16,617	703,707	10,814,219
Stone, lime, cement, clay, and sand.....	987,700	6,292,027	336,364	1,095,176	6,128	282,918	9,000,322
Lumber and other forest products.....	2,395,090	13,019,552	1,757,231	6,447,585	29,265	1,825,026	25,474,349
Coal.....	2,673,998	76,470,439	2,479,305	6,092,437	4,664	1,302,066	80,622,899
Petroleum.....	207,431	7,342,843	52,386	72,656	1,165	38,461	7,714,892
Pig, bloom, and railroad iron.....	345,704	8,133,842	529,044	2,153,325	871	300,496	11,663,372
Manufactures.....	3,653,515	11,398,882	452,942	1,019,194	41,646	267,367	17,733,566
Merchandise and miscellaneous.....	8,251,069	31,526,406	5,948,249	8,079,029	516,575	3,974,590	58,295,918
Unspecified.....						66,717	66,717

# STATISTICS OF RAILROADS.

11

## 1.—RECEIPTS PER MILE FROM TONNAGE AND PASSENGERS.

FREIGHT TONNAGE.							PASSENGERS (NOT INCLUDING EXPRESS AND MAILS).						
Aggregate tons moved.	Average miles moved.	Tons one mile.	Revenue.	Receipts per ton per mile moved.	Cost per ton per mile moved.*	Net receipts per ton per mile moved.†	Passengers carried.	Average distance carried.	Passengers one mile.	Revenue.	Receipts per passenger per mile carried.	Cost per passenger per mile carried.*	Net receipts per passenger per mile carried.†
290,897,395	111	32,348,846,693	\$416,145,758	Cents. 1.29	Cents. 0.76	Cents. 0.53	269,583,840	21	5,740,112,502	\$144,191,709	Cents. 2.51	Cents. 1.71	Cents. 0.80

\* Of the expenses, 70 per cent. are taken for freight and 30 per cent. for passenger.

† From the above net receipts per ton or passenger per mile the fixed charges, less income from all other sources than earnings, are yet to be paid.

## RECEIPTS PER MILE FROM TONNAGE AND PASSENGERS.

Groups.	FREIGHT TONNAGE.					PASSENGERS (NOT INCLUDING EXPRESS AND MAIL).				
	Tons moved.	Average miles moved.	Tons one mile.	Revenue.	Receipts per ton per mile moved.	Passengers carried.	Average distance carried.	Passengers one mile.	Revenue.	Receipts per passenger per mile moved.
					Cents.		Miles.			Cents.
I.....	24,073,661	55.7	1,390,903,135	\$25,548,331	1.83	52,156,704	16.8	875,102,461	\$19,497,908	2.23
II.....	192,446,645	106.1	20,416,245,332	207,930,125	1.02	175,276,184	17.4	3,051,158,551	67,310,822	2.21
III.....	15,866,552	103.7	1,645,676,142	35,499,536	2.15	7,463,694	44.1	329,481,519	11,577,384	3.51
IV.....	45,407,775	153.3	6,959,758,749	94,725,530	1.36	22,860,130	41.9	956,234,759	27,338,124	2.86
V.....	750,601	34.6	25,937,082	3,261,043	*12.57	394,075	39.8	15,707,676	801,364	5.19
VI.....	11,447,181	166.9	1,910,326,253	49,181,193	2.57	11,432,553	44.8	512,427,536	17,507,017	3.43

\* Includes six roads upon which the rates charged average 8, 9, 10, 13, 15, and 44 cents per ton per mile, respectively.

Table 1 exhibits the aggregate freight mileage as 32,348,846,693, or an average haul of 111 miles to each ton, the freight, both local and through, being moved at an average receipt per ton per mile of 1.29 cents.

The aggregate passenger mileage is 5,740,112,502, or an average of 21 miles travel to every passenger carried, the average receipt per mile (both local and through) being 2.51 cents.

## DENSITY OF TRAFFIC.

Groups.	Total road mileage operated.	FREIGHT.			PASSENGERS.		
		Tons one mile.	Ton miles per mile of road.	Equivalent number of tons carried whole length of road, in each direction, daily.	Passengers one mile.	Passenger miles per mile of road.	Equivalent number of passengers carried whole length of road, in each direction, daily.
The United States.....	87,782	32,348,846,693	368,514	505	5,740,112,502	65,392	90
I.....	5,887	1,390,903,135	236,267	324	875,102,461	148,650	204
II.....	28,693	20,416,245,332	711,541	975	3,051,158,551	106,338	146
III.....	14,243	1,645,676,142	115,543	159	329,481,519	23,133	32
IV.....	25,037	6,959,758,749	277,979	381	956,234,759	38,193	52
V.....	877	25,937,082	29,575	41	15,707,676	17,911	25
VI.....	13,045	1,910,326,253	146,441	201	512,427,536	39,281	54

The preceding table exhibits the density of the traffic in the several groups and the United States as a whole. Table I shows that the freight carried by all the railroads in the United States aggregated 290,897,395 tons, and that this tonnage was carried an average distance of 111 miles, or 32,348,846,693 tons one mile. Dividing the ton miles by the total road mileage (87,782), it will be found that 368,514 tons were carried over the whole length of roads, or 184,257 tons in each direction during the year. The latter amount, divided by 365 (the days in the year), gives the average of 505 tons carried over the whole length of the roads, in each direction, daily. The same principle of ascertaining density applies to the passenger traffic. The year 1880 was a leap year (366 days), but as many of the reports received included portions of 1879 the usual 365 days have been taken. In the above described manner the density of traffic for each of the roads included in the tables may be ascertained. The freight traffic in the United States was equal to one train load of 505 tons, and the passenger traffic to one train load of 90 passengers, passing over the whole length of road, in both directions, daily.

## STATISTICS OF RAILROADS.

## 2.—AVERAGE RATES OF LOCAL AND THROUGH FREIGHT.

	FREIGHT TONNAGE.		
	Tons moved one mile.	Gross earnings.	Average rate per ton per mile.
Total .....	32,348,846,693	\$416,145,758	1.29
Local .....	14,252,169,774	233,688,202	1.64
Through (to and from other roads)...	18,075,963,658	182,457,556	1.01
Unspecified.....	20,713,261		

Table 2 exhibits the tonnage for local and through freight, each separately, the average receipts per ton per mile for local freight being 1.64 cents, and that for through freight 1.01 cents.

As some companies did not keep or report separate accounts of their local and their through freight mileage, a considerable portion of the respective mileage was estimated by them.

Of the total number of passengers carried, 244,178,377 were local (including 23,665,251 season-ticket passengers, at a computation of 12 passengers per week for time of each ticket) and 25,404,963 were through passengers.

The aggregate number of passengers carried one mile is 5,740,112,502, but as the companies have not specified such for either local or through it is impossible to give separately the average receipt per mile for either.

The following table exhibits the revenue train mileage statistics, including the average earnings, expenses, and net earnings per mile of road, and the same items for freight and passenger trains per mile run:

## REVENUE TRAIN MILEAGE FOR THE UNITED STATES.

Miles of road operated.	Earnings per mile.	Expenses per mile.	Net earnings per mile.	FREIGHT TRAINS.				PASSENGER TRAINS (INCLUDING EXPRESS AND MAILS).			
				Mileage.	Earnings per mile.	Expenses per mile.*	Net receipts per mile.	Mileage.	Earnings per mile.	Expenses per mile.*	Net receipts per mile.
87,782	\$6,612	\$4,019	\$2,593	251,022,710	\$1 65	\$0 98	\$0 67	138,225,621	\$1 19	\$0 76	\$0 43

\* As expenses for freight and passengers were not allotted to either separately, the average of 70 per cent. for freight and 30 per cent. for passengers has been taken as a fair estimate. The trunk lines average from 60 to 65 per cent. for freight, but the cost for such to the smaller lines is greater. From the net receipts herein shown per train per mile, the fixed charges, less income from other sources than earnings, are yet to be paid.

## REVENUE TRAIN MILEAGE, BY GROUPS.

Group.	Miles operated.	Earnings per mile.	Expenses per mile.*	Net earnings per mile.	FREIGHT TRAINS.		PASSENGER TRAINS (INCLUDING EXPRESS AND MAILS).	
					Mileage.	Earnings per mile.	Mileage.	Earnings per mile.
I.....	5,887	\$7,974	\$5,466	\$2,508	15,367,781	\$1 66	16,473,043	\$1 19
II.....	28,693	9,869	6,118	3,751	124,980,912	1 66	69,030,045	98
III.....	14,243	3,453	2,265	1,188	29,654,573	1 20	15,489,020	75
IV.....	25,037	5,049	2,899	2,150	56,755,922	1 67	25,728,268	1 07
V.....	877	4,770	3,524	1,246	4,232,265	77	861,472	93
VI.....	13,045	5,339	2,798	2,541	20,031,257	2 45	10,643,773	1 65

\* Includes expenses of the companies having deficits.

The following table shows the average (cost, value, and amounts) per mile of road completed and operated of assets and liabilities, earnings, income, expenses, profits, dividends, and balance retained:

Item.	Amount.	Average per mile of road operated.	Item.	Amount.	Average per mile of road operated.
Cost of construction of roads.....	\$4,112,367,176	\$46,848	Total stock and funded debt.....	\$5,004,521,066	\$57,011
Cost of equipment.....	418,045,458	4,762	Unfunded debt.....	421,200,894	4,798
Value of lands owned (including buildings).....	103,319,845	1,177	Total capital paid in and borrowed.....	5,425,722,560	61,809
Value of telegraph lines and miscellaneous.....	204,913,196	2,334	Gross transportation earnings.....	580,450,594	6,612
Stock and bonds owned (issued by other companies).....	343,800,132	3,917	Total income (all sources).....	601,295,391	7,533
Total permanent investments.....	5,182,445,807	59,038	Transportation expenses.....	352,800,120	4,019
Cash assets.....	353,973,981	4,032	Total expenditures (all classes).....	541,950,795	6,174
Profit and loss to credit.....	110,697,228	1,261	Net transportation earnings.....	227,650,474	2,593
Total permanent and cash assets.....	5,536,419,788	63,070	Net income or profit.....	119,344,596	1,360
Capital stock paid in.....	2,613,606,264	29,774	Dividends declared.....	70,550,342	804
Funded debt.....	2,390,915,402	27,237	Amount retained.....	48,794,254	556

\* This amount includes funds expended upon partly completed miles of road under construction. It was impracticable to obtain from railroad companies the respective amounts paid out for an exact number of miles entirely completed.

# STATISTICS OF RAILROADS.

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The following table (a) exhibits the average number of employes per annum engaged upon railroads of the United States :

General officers.	General office clerks.	Station-men.	TRAINMEN.				SHOPMEN.				Trackmen.	All other employes.	Aggregate.
			Engineers.	Conductors.	All other.	Total.	Machinists.	Carpenters.	All other.	Total.			
3, 375	8, 655	63, 380	18, 977	12, 419	48, 254	70, 650	22, 766	23, 202	43, 746	89, 714	122, 489	51, 694	418, 957

Of the total number of employes, nearly 1 per cent. are general officers, nearly 2 per cent. office clerks, 15 per cent. stationmen, 19 per cent. trainmen, 21 per cent. shopmen, 30 per cent. trackmen, and 12 per cent. of all others.

The aggregate amount of the pay-rolls per annum is \$195,350,013, which gives an average of \$16,279,168 per month, or about \$39 per month for each employe, including all classes.

By taking the aggregate of the general officers and the general office clerks and comparing the same with the aggregate of all the other classes, we find the former classes to be near 3 per cent., and the latter near 97 per cent. of the total. The 3 per cent. (the former) received an annual salary aggregating \$12,215,850, or 6.25 per cent. of the total amount of pay-rolls; the latter classes, or 97 per cent. of all employes, received an aggregate of wages of 93.75 per cent. of the total pay-rolls.

The average of salaries for the general officers and clerks per month is \$84 62, and for all the other classes \$37 50.

The salaries paid to the first-mentioned classes form a separate item in the transportation expense account, and the wages paid to the other different classes, such as stationmen, trainmen, shopmen, trackmen, etc., are included with the respective service items, also charged in the transportation expense account, such as repairs of whatever class, locomotive, passenger, and freight services, and agent and station service.

There are some instances where companies report a certain amount of pay-roll and at the same time omit to report any employes; but as there are but few such cases, with small amount of pay-rolls, little affecting the aggregate, the average above given may safely be taken as near enough for the purpose.

The following table (b) is a summary of the accidents which have occurred upon the railroads in the United States during the fiscal year reported:

To whom happened.	THROUGH CAUSES BEYOND THEIR CONTROL.		THROUGH THEIR OWN CARELESSNESS.		AGGREGATE.		Total accidents.
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
Total .....	364	1, 438	2, 174	4, 174	2, 541	5, 674	8, 215
Passengers .....	61	331	82	213	143	544	687
Employes .....	260	1, 004	663	2, 613	923	3, 617	4, 540
All others .....	43	103	1, 429	1, 348	1, 472	1, 451	2, 923
Unspecified .....					3	62	65

a Since the close of this report the Atchison, Topeka, and Santa Fé Railroad Company has notified the Census Office (of date July 20, 1883) that their report of June 30, 1880 (which is embodied in this work), was erroneous regarding the average number of employes for the year, and that the numbers should have been stated as follows: 21 general officers, 190 general office clerks, 418 stationmen, 112 engineers, 80 conductors, 306 other trainmen, 142 machinists, 165 carpenters, 302 other shopmen, 1,092 trackmen, and 162 of all others; making a total of 2,990 employes. Making allowance for this correction, then the aggregates for the United States will be: 3,354 general officers, 8,465 general office clerks, 62,962 stationmen, 79,152 trainmen, including 18,865 engineers, 12,339 conductors, 47,948 of all other; of 89,105 shopmen, including 22,624 machinists, 23,037 carpenters, 43,444 of all others; of 121,397 trackmen and 51,532 of all other employes; in all, 415,967. These changes will also apply to the detailed tables where this company's report of employes is shown, to the respective summaries, that of Group VI, and that for the whole system. The average percentages given for the several classes will not be materially affected. The average wages per month for all classes will be \$39 13, instead of \$39; those for the general officers and general office clerks combined, \$86 13 per month, instead of \$84 62; and those for the other classes combined, \$37 76 per month, instead of \$37 50.

b Some persons have heedlessly compared the figures of this table (as published in the *Compendium of the Tenth Census*) with those contained in the tables relating to train accidents, published monthly and annually by an enterprising railroad journal. Only a small part of the casualties occurring on railroads arise through accidents to trains.

## STATISTICS OF RAILROADS.

## SUMMARY OF ACCIDENTS, BY GEOGRAPHICAL GROUPS.

Geographical groups.	FROM CAUSES BEYOND THEIR CONTROL.						FROM THEIR OWN CARELESSNESS.						Total killed.	Total injured.	Total accidents.
	Passengers.		Employés.		Others.		Passengers.		Employés.		Others.				
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.			
The United States.	61	331	260	1,004	43	103	82	213	663	2,613	1,429	1,348	*2,541	*5,674	8,215
Group I .....		11	19	49	1	12	15	17	64	138	151	91	250	318	568
Group II .....	24	157	119	480	28	54	37	110	360	1,546	844	850	1,412	3,197	4,609
Group III .....		12	30	109	2	1	5	20	41	165	83	83	161	390	551
Group IV .....	18	70	73	219	6	31	13	36	163	501	274	221	547	1,078	1,625
Group V .....	3		1	5	1	1				1	2		7	7	14
Group VI .....	16	81	18	142	5	4	12	30	35	262	75	103	164	684	848

\* These amounts include 3 killed and 62 injured on roads in Group VI, whose companies did not specify such accidents separately, but only reported them in the aggregate.

The total number of accidents reported for the year is 8,215, of which 31 per cent. caused death and 69 per cent. lesser injuries. Six hundred and eighty-seven accidents happened to passengers, of which 21 per cent. caused death and 79 per cent. lesser injuries. Of those causing death, 43 per cent. were through causes beyond the control of the victims and 57 per cent. through their carelessness. Of the lesser injuries, 60 per cent. were through causes beyond the control of the sufferers and 40 per cent. through their carelessness.

Four thousand five hundred and forty accidents happened to employés, of which 20 per cent. caused death and 80 per cent. lesser injuries. Of those causing death, 28 per cent. were from causes beyond the control of the victims and 72 per cent. from their carelessness. Of the lesser injuries, nearly 30 per cent. were from causes beyond the control of the sufferers and 70 per cent. through their carelessness.

Two thousand nine hundred and twenty-three accidents happened to persons other than passengers and employés, of which 50 per cent. caused death and 50 per cent. lesser injuries. Of those causing death, 3 per cent. were from causes beyond the control of the victims and 97 per cent. through their carelessness. Of the lesser injuries, 7 per cent. were from causes beyond the control of the victims and 93 per cent. through their carelessness.

Sixty-five accidents were not specified by classes.

The amount paid out by railroad companies on account of accidents was \$1,377,978. Taking the aggregate, as shown by the preceding table, the number of miles operated, and the days in the year, there is found the average of one accident to every ten miles operated, and 23 accidents for every day of the year. Of the aggregate, 55 per cent. happened to employés, 8 per cent. to passengers, and 37 per cent. to persons other than passengers and employés.

Taking the number of employés (418,957), which includes all persons engaged in their various capacities upon the railroads operated in the United States (employés upon new roads under construction are not included), we have 1 accident (death or injury) out of every 93 per annum. Deducting from the total of all classes of employés the number of general officers, clerks, and shopmen, which classes are less exposed to accidents, and only counting the stationmen, trainmen, trackmen, and all others employed upon the roads in the handling of cars and the general management of trains, etc., we have a total of 317,213, which would give 1 accident to every 70 on an average for the year.

In view of the many dangers to which railroad employés are liable, several of the greater lines in this country have taken steps for protecting the interests of their employés and their families in cases of accidents, sickness, and death. Prominent among such lines is the Baltimore and Ohio, which company has established a so-called employés relief association.<sup>(a)</sup> According to the rules governing this society, the managers or directors are elected by the employés themselves annually, the employés being divided into different classes, according to the liability of their being exposed to danger, and each individual of a class pays a certain percentage upon his salary or wages, which is deducted monthly. Upon an accident happening to any one so enrolled, notice is given, and, in case of death, the lawful heirs of the party killed, after having established their identity, at once receive the amount due them under the established rules. In case of injury, the party so injured receives the medical attention of the nearest doctor, who is engaged under the rules of the society, and is allowed a certain amount per week for his sustenance, and in case of the loss of a limb, or other accident disabling him for life, a certain amount of damages. In case of sickness, caused while in the performance of duty, a certain weekly allowance is paid over to the patient, who at the same time receives free medical attendance.

The following is the basis upon which this association has been formed:

With the desire of protecting and promoting the interests of the employés of the Baltimore and Ohio Company and of their families in cases of accidents, sickness, or death, the board adopted an insurance scheme, prepared and submitted by the third vice-president after much study and the examination of the numerous systems in use in Europe and America. This scheme, it is believed, embraces the best features of all the systems heretofore established. On the 10th of March, 1880, the board passed the following:

"The president stated to the board that the plan for the establishment of a relief association for the benefit of the employés of the Baltimore and Ohio Company, to which he had heretofore referred, had been so far prepared by the third vice-president as to be ready

<sup>a</sup> It is now (December, 1882) composed of nearly all employés engaged upon its lines, of whatever class.



for submission. The president stated that, after full reflection upon the subject, he had determined to recommend to the board that an appropriation of \$6,000 per year (being the equivalent of 6 per cent. on \$100,000) should be made by the company as part of the basis and capital of the fund. He suggested that the proposition and plan be referred to the committee on finance, with power, so that as soon as the details could be properly perfected the association should be organized and placed in operation.

"On motion of Mr. Nicholas, seconded by Mr. Chancellor, the recommendation and suggestion of the president were adopted, and the entire subject referred by unanimous vote to the finance committee, with power."

This action furnished a basis of financial aid which assured absolute safety to the subscribers for the payment of the benefit proposed. The plan was placed in operation on May 1, 1880, and as soon as it was carefully examined and understood it met with general acceptance and approval. During the five months of its operation ended September 30, 1880, 595 cases were relieved under its regulations, and much good was accomplished in many instances where, without this beneficial arrangement, there would probably have been greater embarrassment and suffering.

## COMPARISONS.

The reports received by the Census Office from the different railroad corporations in the United States show that some forty-four companies occupy conspicuous positions among the corporations which make up our railroad system regarding the amount of capital invested and the volume of traffic operations.

## FORTY-FOUR CORPORATIONS HAVING OVER 100 MILLION TON-MILES EACH.

Companies.	Ton-miles (local and through).	Companies.	Ton-miles (local and through).
Aggregate of 44 companies .....	26, 015, 488, 025	Pittsburgh, Cincinnati, and Saint Louis .....	381, 195, 157
Pennsylvania R. R. ....	3, 165, 725, 856	Boston and Albany .....	375, 452, 804
New York Central and Hudson River .....	2, 525, 139, 145	Illinois Central .....	335, 470, 880
Baltimore and Ohio .....	1, 725, 855, 440	Northern Central .....	272, 466, 907
New York, Lake Erie, and Western .....	1, 721, 112, 095	Atchison, Topeka, and Santa Fe .....	266, 174, 880
Lake Shore and Michigan Southern .....	1, 786, 183, 362	Saint Louis, Iron Mountain, and Southern .....	253, 070, 858
Chicago, Burlington, and Quincy .....	1, 173, 001, 695	Ohio and Mississippi .....	247, 323, 780
Wabash, Saint Louis, and Pacific .....	947, 369, 587	Chesapeake and Ohio .....	230, 219, 551
Philadelphia and Reading .....	834, 431, 965	Louisville and Nashville .....	221, 028, 834
Chicago and Northwestern .....	816, 730, 941	Missouri and Pacific .....	219, 885, 868
Pittsburgh, Fort Wayne, and Chicago .....	766, 011, 289	Missouri, Kansas, and Texas .....	185, 105, 510
Michigan Central .....	727, 254, 789	Cleveland and Pittsburgh .....	174, 837, 293
Chicago, Rock Island, and Pacific .....	664, 861, 579	Kansas Pacific .....	157, 143, 428
Lehigh Valley .....	592, 369, 479	Central Vermont .....	146, 459, 884
Delaware, Lackawanna, and Western .....	580, 454, 696	Marietta and Cincinnati .....	137, 116, 600
Central R. R. of New Jersey .....	518, 117, 193	Albany and Susquehanna .....	128, 044, 683
Chicago and Alton .....	462, 829, 875	Chicago, Saint Louis, and New Orleans .....	127, 536, 878
New York, Pennsylvania, and Ohio * .....	456, 094, 020	Hannibal and Saint Joseph .....	111, 987, 174
Central Pacific .....	449, 580, 783	Fitchburg .....	109, 323, 290
Chicago, Milwaukee, and Saint Paul .....	442, 907, 736	Saint Louis and San Francisco .....	109, 178, 009
Union Pacific .....	436, 054, 140	Allegheny Valley .....	103, 641, 884
Columbus, Chicago, and Indiana Central .....	415, 456, 386	Indianapolis and Saint Louis .....	102, 630, 114
Cleveland, Columbus, Cincinnati, and Indianapolis .....	411, 741, 819		

\* Including six months' operations by the Atlantic and Great Western.

The above corporations not only carry on the major part of all railroad operations in this country, namely, 80.4 per cent. of the whole freight traffic and near 60 per cent. of the total passenger traffic but the accounts of their operations also show that their average receipts per ton of freight, or passenger, per mile are considerably less than those of the other corporations, which means that their average rates and fares are lower than those charged by other companies. Regarding freight, they show less than the average receipts per ton per mile for the country; regarding passengers, they show nearly an equal average with the same. In consideration of these facts, it was deemed of sufficient importance to select fifteen of the greatest lines and extract their accounts from the detail tables, for the purpose of making a general comparison between them and the whole system.

The accompanying tables, A, B, C, D, E, F, and G, exhibit the traffic and fiscal operations of fifteen of the greater trunk lines in the United States, which report the largest amount of transportation earnings (exclusive of the Pennsylvania Company's system of lines):

TABLE A.—Financial results of the whole business.

TABLE B.—Funded debt and stock paid in.

TABLE C.—Fixed charges, less income from all other sources than earnings.

TABLE D.—Capital, permanent investments, and stock and debt compared.

TABLE E.—Passenger traffic.

TABLE F.—Freight business.

TABLE G.—Employés and wages paid.



## STATISTICS OF RAILROADS.

TABLE A.—FINANCIAL RESULTS FOR THE FISCAL YEAR ENDING IN 1880.

Number.	Corporation.	Miles operated and upon which earnings reported were made.*	Gross transportation earnings.	TRANSPORTATION EXPENSES.		NET EARNINGS.		Fixed charges, less income other than transportation earnings (see Table C).
				Amount.	Per cent. of earnings.	Amount.	Per cent. of earnings.	
	Aggregate .....	22,599	\$248,656,765	\$138,827,375	55.8	\$109,829,390	44.2	† \$50,038,656
1	Pennsylvania R. R. ....	1,806	37,860,213	22,154,200	58.5	15,706,013	41.5	6,944,428
2	New York Central and Hudson River .....	994	29,322,574	17,861,535	60.9	11,461,039	39.1	891,818
3	Lake Shore and Michigan Southern † .....	1,178	18,749,461	10,418,105	55.6	8,331,356	44.4	2,750,374
4	New York, Lake Erie, and Western .....	1,011	18,605,739	12,405,872	66.5	6,259,867	33.5	4,469,246
5	Baltimore and Ohio .....	1,487	18,317,734	10,461,073	57.1	7,856,667	42.9	4,017,239
6	Central Pacific .....	2,447	17,371,734	8,171,987	47.0	9,199,767	53.0	6,178,453
7	Chicago, Burlington, and Quincy .....	1,805	16,190,076	8,040,869	49.7	8,149,207	50.3	2,054,948
8	Philadelphia and Reading .....	780	16,140,548	9,167,992	56.8	6,972,556	43.2	7,212,137
9	Chicago and North Western .....	1,633	15,797,055	6,999,597	44.3	8,797,458	55.7	3,598,871
10	Union Pacific .....	1,215	12,857,940	5,475,500	42.6	7,382,440	57.4	2,623,652
11	Chicago, Milwaukee, and Saint Paul .....	3,001	10,930,281	6,379,753	58.4	4,550,528	41.6	2,241,938
12	Chicago, Rock Island, and Pacific .....	1,811	10,674,699	5,796,546	54.3	4,878,153	45.7	826,184
13	Wabash, Saint Louis, and Pacific .....	1,730	10,063,538	6,819,695	67.8	3,243,843	32.2	3,306,382
14	Michigan Central .....	803	8,357,960	5,309,056	63.5	3,048,904	36.5	1,404,032
15	Atchison, Topeka, and Santa Fé § .....	1,398	7,357,207	3,365,615	45.8	3,991,592	54.2	1,518,954

Number.	Corporation.	NET INCOME AVAILABLE FOR DIVIDENDS, ETC.		DIVIDENDS DECLARED UPON STOCK (AGGREGATE OF PREFERRED AND COMMON) (see Table B).			BALANCE.			Date of report ending twelve months operations.
		Amount.	Average per cent. upon the dollar of stock.	Amount.	Per cent. of net income.	Average per cent. upon the dollar of stock.	Amount.	Per cent. of net income.	Average per cent. upon the dollar of stock.	
	Aggregate .....	\$60,092,854	9.2	\$32,739,162	54.5	5.0	\$27,353,692	45.5	4.2	
1	Pennsylvania R. R. ....	8,761,585	12.7	3,994,472	45.6	5.8	4,767,113	54.4	6.9	June 30, 1880
2	New York Central and Hudson River .....	10,569,221	11.8	7,141,513	67.6	8.0	3,427,708	32.4	3.8	Sept. 30, 1880
3	Lake Shore and Michigan Southern † .....	5,580,982	11.3	3,957,320	70.9	8.0	1,623,662	29.1	3.8	Dec. 31, 1880
4	New York, Lake Erie, and Western .....	1,790,621	2.2				1,790,621	100.0	2.2	Sept. 30, 1880
5	Baltimore and Ohio .....	3,830,428	19.4	1,482,444	38.6	7.5	2,356,984	61.4	11.9	Sept. 30, 1880
6	Central Pacific .....	3,021,314	5.1	1,628,265	53.9	2.8	1,393,049	46.1	2.3	June 30, 1880
7	Chicago, Burlington, and Quincy .....	6,094,239	11.7	3,903,003	64.0	7.5	2,191,236	36.0	4.2	June 30, 1880
8	Philadelphia and Reading .....	Deficit.								Nov. 30, 1880
9	Chicago and North Western .....	5,198,587	13.9	2,405,520	46.3	6.4	2,793,067	53.7	7.5	May 31, 1880
10	Union Pacific .....	4,758,788	12.9	2,204,701	46.3	6.0	2,554,087	53.7	6.9	Dec. 31, 1879
11	Chicago, Milwaukee, and Saint Paul .....	2,308,590	8.3	1,783,820	77.3	6.4	524,770	22.7	1.9	June 30, 1880
12	Chicago, Rock Island, and Pacific .....	4,051,969	10.3	2,097,990	51.8	10.0	1,953,979	48.2	9.3	Mar. 31, 1880
13	Wabash, Saint Louis, and Pacific .....	Deficit.								June 30, 1880
14	Michigan Central .....	1,644,872	8.8	1,030,601	62.7	5.5	614,271	37.3	3.3	June 30, 1880
15	Atchison, Topeka, and Santa Fé § .....	2,472,638	17.4	1,109,513	44.9	7.8	1,363,125	55.1	9.6	June 30, 1880

\* Some companies operate miles additional to those here given, but report earnings upon the same separately.

† Includes \$302,120 fixed charges paid by two companies in excess of their net earnings.

‡ Report of December 31, 1880, taken (report sent to Census Office is dated June 30, 1880).

§ Stock afterward increased by \$12,256,600 in their regular fiscal year ending December 31, 1880.

|| Both preferred and common.

¶ If the \$40,000,000 and over surplus funds are considered, which this company has invested in road, then the capital entitled to remuneration is near \$66,000,000.

# STATISTICS OF RAILROADS.

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The following is a comparison of the results as shown by Table A, and the corresponding items of the aggregate for the whole system:

Item.	WHOLE SYSTEM.	THE FIFTEEN LINES.	
	Amounts, etc.	Amounts, etc.	Per cent. of whole system.
Miles operated.....	87,782	*22,599	25.74
Transportation earnings.....	\$580,450,594	\$248,656,765	42.84
Transportation expenses.....	352,800,121	188,827,375	39.35
Net earnings (less deficits).....	227,650,473	109,829,390	48.26
Fixed charges, etc.....	189,150,674	63,816,098	33.74
Income other than earnings.....	80,844,797	13,777,442	17.04
Net income.....	134,059,098	60,092,854	44.83
Dividends declared †.....	70,020,367	32,739,162	46.76
Balance.....	64,038,731	27,353,692	42.72
Deficits.....	14,714,501	302,120	2.06

\* These are the miles upon which the earnings herein included were obtained. Some of the companies operate miles additional to those herein given, but their earnings are reported separately, and, therefore, are not here exhibited.

† Not including the dividends declared by companies having no net income available.

The following table gives a comparison of the per cent. of available income (profit) upon stock paid in and per cent. declared upon same, etc.; also of the per cent. upon stock and funded debts combined:

Item.	Whole system.	The fifteen lines.
Average per cent. of income available for dividends upon stock.....	5.1	9.2
Average per cent. of dividends declared upon stock.....	2.7	5.0
Average per cent. of income available, remaining balance.....	2.4	4.2
Average per cent. of net income available upon stock and funded debt.....	*4.9	7.4
Average per cent. of interest paid upon the funded debt.....	5.4	5.6

\* The amount of interest paid upon the funded debt, and which is included in the total amount of fixed charges, is here considered as not paid, and the net income reported is, therefore, increased by such amount.

The following tables B, C, and D are in explanation of items of accounts exhibited in Table A:

TABLE B.—FUNDED DEBT AND STOCKS (BOTH PREFERRED AND COMMON).

Number.	Corporation.	FUNDED DEBT.			STOCK PAID IN.
		Principal.	Interest paid.	Rate per cent.	Amount (preferred and common).
	Aggregate.....	\$655,427,209	\$36,766,422	5.6	\$653,286,667
1	Pennsylvania R. R.....	59,177,300	3,474,742	5.8	68,870,200
2	New York Central and Hudson River.....	41,473,033	2,730,842	6.5	80,428,300
3	Lake Shore and Michigan Southern.....	35,915,000	2,622,730	7.0	50,000,000
4	New York, Lake Erie, and Western.....	67,173,745	3,963,873	5.8	83,247,000
5	Baltimore and Ohio.....	26,376,612	1,550,841	5.8	*19,792,566
6	Central Pacific.....	84,685,680	3,473,300	4.1	59,275,500
7	Chicago, Burlington, and Quincy.....	29,073,625	1,812,629	4.5	52,203,677
8	Philadelphia and Reading.....	77,702,722	4,630,061	5.9	34,278,175
9	Chicago and North Western.....	36,209,374	2,333,031	6.5	37,812,501
10	Union Pacific.....	78,208,512	2,390,595	3.1	36,762,300
11	Chicago, Milwaukee, and Saint Paul.....	47,575,500	2,914,382	6.1	27,683,744
12	Chicago, Rock Island and Pacific.....	10,000,000	940,610	9.4	20,980,000
13	Wabash, Saint Louis, and Pacific.....	35,580,706	2,919,095	8.2	40,000,000
14	Michigan Central.....	13,691,000	766,360	5.6	18,738,204
15	Atchison, Topeka, and Santa Fé.....	12,634,400	743,330	5.9	†14,214,500

\* This company has some \$40,000,000 of accumulated surplus funds invested in road, etc., which is entitled to a remuneration.

† This amount has been increased from date of the company's report, June 30, 1880, up to December 31, 1880.

## STATISTICS OF RAILROADS.

## COMPARISONS OF AGGREGATES OF TABLE B WITH CORRESPONDING AGGREGATES OF WHOLE SYSTEM.

Item.	Whole system.	The fifteen lines.	Per cent. of whole system.
Stock (preferred and common).....	\$2, 613, 606, 264	653, 286, 667	25. 00
Funded debt .....	2, 390, 915, 402	655, 427, 209	27. 41
Interest paid on funded debt.....	126, 442, 310	36, 766, 422	29. 08

TABLE C.—FIXED CHARGES, LESS INCOME FROM ALL OTHER SOURCES THAN EARNINGS.

Number.	Corporation.	Fixed charges, etc.*	Income other than earnings.	Amount chargeable against net earnings.
	Aggregate .....	\$63, 816, 098	\$13, 777, 442	\$50, 038, 656
1	Pennsylvania R. R. ....	10, 243, 169	3, 298, 741	6, 944, 428
2	New York Central and Hudson River .....	4, 745, 158	3, 853, 340	891, 818
3	Lake Shore and Michigan Southern .....	2, 959, 036	208, 662	2, 750, 374
4	New York, Lake Erie, and Western .....	5, 280, 573	811, 327	4, 469, 246
5	Baltimore and Ohio .....	4, 390, 903	373, 664	4, 017, 239
6	Central Pacific .....	6, 609, 167	430, 714	6, 178, 453
7	Chicago, Burlington, and Quincy .....	2, 286, 359	231, 411	2, 054, 948
8	Philadelphia and Reading .....	8, 010, 475	798, 338	7, 212, 137
9	Chicago and North Western .....	3, 714, 692	115, 821	3, 598, 871
10	Union Pacific .....	5, 024, 786	2, 401, 134	2, 623, 652
11	Chicago, Milwaukee, and Saint Paul .....	2, 914, 383	672, 445	2, 241, 938
12	Chicago, Rock Island, and Pacific .....	1, 213, 147	386, 963	826, 184
13	Wabash, Saint Louis, and Pacific .....	3, 320, 689	14, 807	3, 306, 382
14	Michigan Central .....	1, 578, 022	173, 990	1, 404, 032
15	Atchison, Topeka, and Santa Fé .....	1, 525, 539	6, 585	1, 518, 954

\* Including interest upon the floating debt.

TABLE D.—CAPITAL ACCOUNT.

Number.	Corporation.	Construction and equipment.	Funded debt and stocks.
	Aggregate .....	\$1, 180, 479, 238	\$1, 308, 713, 876
1	Pennsylvania R. R. ....	45, 025, 546	128, 047, 500
2	New York Central and Hudson River .....	141, 093, 011	130, 901, 333
3	Lake Shore and Michigan Southern .....	79, 978, 000	85, 915, 000
4	New York, Lake Erie, and Western .....	* 162, 550, 111	150, 420, 745
5	Baltimore and Ohio .....	48, 258, 565	46, 169, 178
6	Central Pacific .....	144, 604, 015	143, 961, 180
7	Chicago, Burlington, and Quincy .....	74, 145, 430	81, 277, 302
8	Philadelphia and Reading .....	47, 556, 875	111, 980, 897
9	Chicago and North Western .....	73, 984, 169	74, 021, 875
10	Union Pacific .....	118, 682, 224	114, 970, 812
11	Chicago, Milwaukee, and Saint Paul .....	73, 836, 637	75, 259, 244
12	Chicago, Rock Island, and Pacific .....	33, 735, 696	30, 980, 000
13	Wabash, Saint Louis, and Pacific .....	77, 838, 562	75, 530, 706
14	Michigan Central .....	34, 125, 147	32, 429, 204
15	Atchison, Topeka, and Santa Fé .....	25, 065, 300	26, 848, 900

\* Total assets; includes estimate for Erie estate. This company's accounts of construction and equipment cannot be given exact.

## COMPARISON OF THE AGGREGATES OF TABLE D WITH CORRESPONDING AGGREGATES OF WHOLE SYSTEM.

Item.	Whole system.	The fifteen lines.	Per cent. of whole system.
Construction and equipment.....	\$4, 530, 412, 633	\$1, 180, 479, 238	26. 05

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TABLE E.—PASSENGER TRAFFIC.

Number.	Corporation.	Number carried (local and through).	Number one mile (local and through).	Revenue.	Receipts per passenger, average per mile.
	Aggregate .....	66,932,034	2,212,669,208	\$53,830,337	Cents. 2.43
1	Pennsylvania R. R. ....	15,154,575	350,755,020	8,492,261	2.42
2	New York Central and Hudson River .....	8,270,857	330,802,223	6,611,159	2.00
3	Lake Shore and Michigan Southern .....	3,313,485	176,148,767	3,761,008	2.14
4	New York, Lake Erie, and Western .....	5,491,431	180,460,204	3,682,951	2.04
5	Baltimore and Ohio .....	4,591,787	130,885,542	2,694,221	2.06
6	Central Pacific .....	* 6,669,037	† 180,779,711	5,473,007	3.03
7	Chicago, Burlington, and Quincy .....	2,370,227	115,399,675	2,765,839	2.40
8	Philadelphia and Reading .....	9,822,422	132,837,063	2,674,457	2.01
9	Chicago and North Western .....	3,782,723	126,187,390	3,274,508	2.60
10	Union Pacific .....	217,050	100,151,148	3,207,910	3.20
11	Chicago, Milwaukee, and Saint Paul .....	1,862,952	94,522,848	2,852,336	3.02
12	Chicago, Rock Island, and Pacific .....	1,905,417	82,610,900	2,318,452	2.61
13	Wabash, Saint Louis, and Pacific .....	1,528,336	77,862,697	2,110,761	2.71
14	Michigan Central .....	1,592,858	106,984,440	2,311,807	2.16
15	Atchison, Topeka, and Santa Fé .....	358,877	26,281,580	1,599,600	6.06

\* Includes 5,371,584 ferry (Oakland) passengers.

† Mileage reported for the twelve months ending December 31, 1879.

TABLE F.—FREIGHT BUSINESS.

Number.	Corporation.	Tons hauled (local and through).	Tons one mile (local and through).	Revenue.	Receipts per ton, average per mile.
	Aggregate .....	102,801,349	17,747,375,658	\$186,662,806	1.05
					Cents.
1	Pennsylvania R. R. ....	25,016,403	3,165,725,856	28,200,982	0.89
2	New York Central and Hudson River .....	10,533,038	2,525,139,145	21,663,382	0.86
3	Lake Shore and Michigan Southern .....	8,350,336	1,851,166,018	14,077,294	0.76
4	New York, Lake Erie, and Western .....	8,715,892	1,721,112,095	14,480,149	0.84
5	Baltimore and Ohio .....	10,108,409	1,725,855,440	15,331,153	0.89
6	Central Pacific .....	1,829,755	* 449,580,783	11,199,517	2.49
7	Chicago, Burlington, and Quincy .....	4,948,959	1,173,001,695	12,999,156	1.11
8	Philadelphia and Reading .....	12,636,105	884,431,965	13,415,956	1.61
9	Chicago and North Western .....	5,328,581	816,739,941	11,995,875	1.47
10	Union Pacific .....	992,881	496,054,149	8,692,414	1.99
11	Chicago, Milwaukee, and Saint Paul .....	2,927,119	442,907,736	7,010,908	1.72
12	Chicago, Rock Island, and Pacific .....	2,966,764	664,861,579	8,035,163	1.21
13	Wabash, Saint Louis, and Pacific .....	3,919,008	947,369,587	7,581,500	0.80
14	Michigan Central .....	3,656,074	727,254,789	5,817,117	0.80
15	Atchison, Topeka, and Santa Fé .....	872,025	266,174,880	5,556,048	2.09

\* Mileage reported for the twelve months ending December 31, 1879.

## COMPARISON OF THE AGGREGATES OF TABLES E AND F AND THE CORRESPONDING AGGREGATES OF THE WHOLE SYSTEM.

Item.	Whole system.	The fifteen lines.	Per cent. of whole system.
Number of passengers carried.....	269,533,340	66,932,034	24.83
Number of passengers one mile.....	5,740,112,502	2,212,669,208	38.50
Revenue from passengers.....	\$144,101,709	\$53,830,337	37.35
Number of tons of freight moved.....	290,897,395	102,801,349	35.34
Number of tons of freight one mile...	32,348,846,693	17,747,375,658	54.86
Revenue from freight.....	\$416,145,758	\$186,662,806	44.85

Table F shows that the average receipt per ton of freight per mile is 1.05 cents, which is 0.24 cent per mile less than the average for the whole system.

Of the fifteen lines exhibited, six are mainly situated in the states of New York, Pennsylvania, Ohio, Michigan, Indiana, Maryland, Delaware, New Jersey, and the District of Columbia. Taking these six roads separately, then their average receipt per ton per mile is found to be 0.91 cent or 0.14 cent lower than the average of the

## STATISTICS OF RAILROADS.

fifteen, and, excluding from these six lines the one line which is shown with 1.61 cents, then the rest (five) would show an average of only 0.84 cent per ton per mile, or 0.21 cent less than the average for the fifteen, and 0.45 cent less than that for the whole system.

Further, there are six lines mainly situated in the states of Illinois, Iowa, Wisconsin, Missouri, and Minnesota, which, when taken separately, show an average receipt of 1.13 cents, or an excess of 0.08 cent per mile over the average of the fifteen, and 0.16 cent less than that for whole system.

The three remaining lines are situated in the states and territories west of the Mississippi and Missouri rivers and connect with the Pacific coast. These, when taken separately, show an average receipt per ton per mile of 2.21 cents, or an excess of 1.16 cents over the average of the fifteen lines, and 0.92 cent over that of whole system.

The aggregate number of passengers carried one mile, as shown by Table E, is 2,212,669,208, at an average receipt per passenger per mile of 2.43 cents, or 0.08 cent less than the average for the whole system. Taking only the roads lying east of the Mississippi river, then the per cent. less than the whole system will be still greater.

TABLE G.—EMPLOYÉS AND WAGES PAID.

Number.	Corporation.	GENERAL OFFICERS AND CLERKS.		ALL OTHER EMPLOYÉS.		
		Average number.	Total amount paid during fiscal year.	Average number.	Amount of pay-roll for fiscal year.	Average wages per month.
	Aggregate .....	3, 641	\$3, 638, 501	152, 795	\$75, 409, 227	\$41 12
1	Pennsylvania R. R. ....	661	521, 773	25, 736	12, 885, 141	41 72
2	New York Central and Hudson River .....	157	302, 143	13, 007	6, 548, 527	41 95
3	Lake Shore and Michigan Southern .....	151	257, 337	9, 652	5, 230, 210	48 12
4	New York, Lake Erie, and Western .....	159	230, 699	13, 523	7, 133, 015	43 94
5	Baltimore and Ohio .....	289	282, 818	14, 330	5, 977, 286	34 76
6	Central Pacific .....	178	332, 133	6, 139	4, 656, 781	63 21
7	Chicago, Burlington, and Quincy .....	522	420, 482	12, 065	4, 599, 505	31 77
8	Philadelphia and Reading .....	155	146, 889	11, 226	5, 217, 068	38 73
9	Chicago and North Western .....	152	216, 788	8, 405	4, 554, 695	45 16
10	Union Pacific .....	94	150, 468	3, 865	2, 073, 420	57 64
11	Chicago, Milwaukee, and Saint Paul .....	456	186, 289	10, 368	4, 345, 460	34 93
12	Chicago, Rock Island, and Pacific .....	87	115, 312	6, 843	3, 188, 624	38 80
13	Wabash, Saint Louis, and Pacific .....	264	216, 524	7, 800	4, 110, 232	43 91
14	Michigan Central .....	143	114, 028	4, 999	2, 499, 366	42 43
15	Atchison, Topeka, and Santa Fé * .....	173	135, 908	5, 522	1, 789, 888	27 01

\* This company has notified the Census Office by date of July 29, 1883 (after close of this report), that the original numbers of employés which they had reported on June 30, 1880, was incorrectly given, and has furnished a new list (see page 13 of this report). According to the numbers so given, the average wages per month will be \$53 67, instead of \$27 01, as obtained by computing the original numbers. This change will alter the aggregate for the fifteen roads as shown in Table G to 3,679 general officers and clerks and to 150,032 of all other employés. The wages will average \$82 42 for the first classes and \$41 15 for the latter. The employés as given in the table following Table G will be altered as follows: Whole system—number of officers and clerks, 11,819, instead of 12,030; number of all other employés, 404,148, instead of 406,927; and the aggregate to 415,967, instead of 418,957.

The total pay-roll for all classes of employés, including officers and clerks, amounts to \$79,047,818, or 40.46 per cent. of such aggregate for the whole system.

Of the total aggregate of pay-roll 95.39 per cent. was paid to the employés other than officers and office clerks, which allowed an average of \$41 12 per month for every such employé. The balance, 4.61 per cent., of pay-rolls will allow an average of \$83 28 for every officer and clerk reported.

To compare with whole system, we have:

Item.	Whole system.	The fifteen lines.	Per cent. of whole system.
Amount of pay-rolls .....	\$195, 350, 013	\$79, 047, 818	40. 46
Number of officers and clerks .....	12, 030	3, 641	30. 26
Number of all other employés .....	406, 927	152, 795	37. 54
Aggregate number of employés .....	418, 957	156, 436	37. 34
Average monthly salaries to general officers and office clerks ..	\$84 62	\$83 28	.....
Average monthly wages to all other employés .....	\$37 50	\$41 12	.....

The aggregate salaries paid to officers and clerks for the whole system in the United States is at an average of 6.25 per cent. of total pay-rolls, while that of the fifteen companies is 4.61 per cent. of their aggregate. For the other employés the whole system shows 93.75 per cent., while the latter have 95.39 per cent. of respective totals; therefore the average paid to the regular working forces by the fifteen roads is nearly 10 per cent. higher than the average for whole system.

# STATISTICS OF RAILROADS.

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The equipment (rolling-stock) reported by these fifteen companies aggregates 6,048 locomotives and 173,695 cars of every description, which shows that they have 35 per cent. of all the locomotives and 37 per cent. of all the cars of the whole system.

The aggregate of accidents occurring on these lines during the year is 3,939, including injuries and death. This is 48 per cent. of all such reported for the whole system.

## A SUMMARY OF THE AVERAGE PROFITS EARNED UPON CAPITAL STOCK PAID IN.

For the purpose of exhibiting the average profit (which is the amount of earnings and all other income remaining over after the payment of all expenses and interest on funded and other debt and rentals) cleared by the different railroad corporations in the United States from their operations and all other business connected with the management of their roads, and as exhibited by the detail tables containing each corporation's own report, the following table was prepared, which shows the amount of stock of all such companies which had a net income available after having paid all operating and other expenses and fixed charges which accrued during the fiscal year reported. The table exhibits the number of corporations in each group, or in the United States, which had made profits, arranged from 1 per cent. upward.

TABLE H.—PER CENT. OF PROFIT UPON CAPITAL STOCK (PAID IN) OF COMPANIES WHICH REPORT NET INCOME AVAILABLE FOR THE PAYMENT OF DIVIDENDS.

Per cent. of profit.	GROUP I.		GROUP II.		GROUP III.		GROUP IV.		GROUP V.		GROUP VI.		AGGREGATE FOR THE UNITED STATES.		
	Number of companies.	Amount of stock.	Number of companies.	Amount of stock.	Number of companies.	Amount of stock.	Number of companies.	Amount of stock.	Number of companies.	Amount of stock.	Number of companies.	Amount of stock.	Number of companies.	Amount of stock.	Per cent.
Under 1.....	7	\$8,561,492	35	\$120,321,476	19	\$29,767,109	14	\$68,406,086	4	\$4,991,487	13	\$164,714,974	92	\$334,762,024	18.77
1 to 2.....	7	22,779,476	19	87,797,771	11	19,107,915	21	78,106,080	1	300,000	5	6,924,720	64	215,015,962	10.23
2 to 3.....	13	15,657,782	18	93,667,049	7	35,231,900	7	16,905,443			7	31,902,240	52	193,364,414	9.10
3 to 4.....	11	13,208,195	21	19,219,350	3	7,567,500	8	15,934,841	1	1,500,000	3	6,897,950	47	64,327,830	3.06
4 to 5.....	11	10,086,825	4	3,629,113	4	9,688,605	4	3,254,300			10	26,233,220	33	52,892,063	2.52
5 to 6.....	9	5,685,000	19	33,673,065	6	10,342,262	3	8,141,600			3	62,248,500	40	120,131,427	5.71
6 to 7.....	14	15,805,300	37	91,740,832	7	16,451,857	3	13,370,000			1	130,000	62	137,497,989	6.54
7 to 8.....	9	10,703,966	26	74,236,917	9	15,081,797	9	24,088,400			3	12,950,000	56	137,061,080	6.52
8 to 9.....	5	7,300,000	20	79,273,344	3	3,954,103	5	58,374,780	1	740,990	4	6,805,700	38	156,457,867	7.44
9 to 10.....	6	33,280,775	6	31,757,263	6	3,918,818					2	1,450,000	20	70,415,856	3.35
10 to 11.....	5	23,604,400	19	105,431,876	1	140,000	2	1,797,400	2	211,000	1	1,000,000	30	132,184,676	6.28
11 to 12.....	3	4,364,580	4	89,653,300	3	3,059,350	6	70,058,779			1	425,000	17	167,561,009	7.97
12 to 13.....	1	50,000	10	74,905,616	3	11,991,561	1	2,796,357			1	36,762,300	16	126,505,834	6.01
13 to 14.....			3	6,188,600			1	37,812,500			1	8,767,800	5	52,768,900	2.51
14 to 15.....			2	250,000			1	86,600					3	336,600	0.02
15 to 16.....					2	2,885,100	1	1,328,000			2	1,756,854	5	5,969,954	0.28
16 to 17.....			2	1,400,000	1	26,973	1	600,000					4	2,026,973	0.10
17 to 18.....			1	160,000	1	100,000							2	260,000	0.01
18 to 19.....			1	86,300					1	5,000,000			2	5,086,300	0.24
19 to 20.....			2	20,416,160			1	20,980,000			1	12,634,400	4	54,030,500	2.57
20 to 21.....			3	2,564,100							1	50,000	4	2,614,100	0.12
22 to 23.....			2	280,000									2	280,000	0.01
23 and upward.....			8	1,492,015	6	3,301,203	4	240,000			7	6,483,004	25	11,516,222	0.55
Aggregate.....	101	160,087,791	262	938,144,147	92	172,616,053	92	422,322,116	10	12,752,477	66	388,145,662	623	2,103,068,246	100.00
Total net income available for dividends upon stock of companies herein included.....		\$10,410,097		\$64,966,211		\$8,356,418		\$29,645,636		\$754,066		\$18,856,908		\$132,989,336	
Average per cent. profit.....		6.16		6.92		4.84		7.02		5.91		4.86		6.32	
Net income of companies having no stock.....		\$221,078		\$203,576		\$169,998		\$391,846		\$8,640		\$75,124		\$1,069,762	

The aggregates, as given by the preceding table, of either stock or net income available refer only to those companies which reported both.

The stock so reported aggregates \$2,103,068,246, and the net income available of the same companies \$132,989,336. The total net income reported by all the railroad corporations, whether they have outstanding stock or not, aggregates \$134,059,098, of which \$1,069,762 is net income of companies which have no stock outstanding or which have never issued any.

There are 1,176 companies in the United States which report an aggregate capital stock (paid in) amounting to \$2,613,606,264, of which 623 have earned a net income of profit upon their stock. The remaining 553 companies earned no profit whatever, and 373 of the latter created deficits, or had their income balanced by expenditures, and 180 companies had not yet commenced operations, their roads being under construction, etc.

The net income or profit available for dividends upon the stock of these 623 companies (\$2,103,068,246, or 80 per cent. of the aggregate for the United States), amounting to \$132,989,336, is an average profit of 6.32 per cent. upon the dollar.

The balance of stock is that which bears no profit, and amounts to \$510,538,018, or near 20 per cent. of the aggregate. Of this amount \$449,905,903 are stock of companies having deficits, or having their income balanced by expenses, and \$60,632,115 are stock of companies whose roads were under construction, as will be seen by the tables I and J:

TABLE I.—CAPITAL STOCK PAID IN.

Description.	No. of companies.	Amount.	Total.	Per cent.
Stock of companies which report net income available for dividends.....	623		\$2,103,068,246	80.47
Stock of companies which report deficits or income balanced by expenditures.....	373	\$449,905,903		
Stock of companies whose roads are under construction, etc., and have no earnings.....	180	60,632,115		
Total stock of companies which have no net income.....			510,538,018	19.53
Total capital stock paid in.....	1,176		2,613,606,264	100.00

Of the 1,279 companies which report assets and liabilities, 96 have issued no stock.

TABLE J.—NET INCOME AVAILABLE FOR DIVIDENDS UPON CAPITAL STOCK.

Description.	No. of companies.	Amount.	Total.
Net income of companies which report capital stock.....	623	\$132,989,336	
Net income of companies which report no capital stock....	43	1,069,762	
Total net income reported.....	666		\$134,059,098

Of the 1,016 companies which report a general financial exhibit, 330 have no net income available for dividends upon capital stock nor profit upon other capital invested.

TABLE K.—AVERAGE PER CENT. OF PROFIT UPON CAPITAL STOCK.

	Under 1, and from 1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 and upward.	No profit.	Aggregate.
Amount.....	\$920,362,800	\$621,564,219	\$479,357,019	\$67,373,787	\$14,410,322	\$510,538,018	\$2,613,606,264
Percent.....	35.20	23.78	18.35	2.58	0.56	19.53	100.00

The above table exhibits the profit upon stock in a condensed form, as taken from Table H.

### SYSTEM OF TABULATION.

1. GENERAL FINANCIAL EXHIBIT FOR 1880.—These tables exhibit the income and expenditures of all the railroad corporations in the United States for the fiscal year ending nearest to June 1, 1880, and include both the companies operating their own roads, controlled or leased lines, and lessor companies.

The income is shown in three different columns, viz: transportation earnings, rents for use of road, whether under lease for the whole line or only joint use of roads, stations, grounds, etc., and interest and dividends, sales of old materials, and other income from assets.

The transportation earnings include only the revenue derived from passengers, freight, express, and mails.

It is customary among the managers of the greater lines in the United States to include in their gross earnings the rents received for the joint use of roads, stations, grounds, etc., and also to charge to transportation expenses amounts paid out for such purposes; but as the reports received from the different companies vary regarding such income or expenditures, some specifying such amounts separately, others giving only a lump sum, including them indiscriminately, it is impossible to decide which sums are properly to be included in earnings and which with other income, or which amounts are chargeable to transportation expenses. For this reason the amounts of such income or expenses are shown separately under the respective heads mentioned.

As the rentals paid by lessee companies to lessor companies must necessarily balance each other on the general exhibit, the difference existing between the amounts of rents received and rentals paid must partly be considered as rents received or paid for the joint use of roads, grounds, stations, etc., and charged respectively to working expenses or to income from all other sources than transportation earnings. Some lessor companies have also reported the full amount of rentals received, while the respective lessees report such payments partly as rentals paid and partly as included in other payments, such as interest upon guaranteed bonds of the lessor, etc.

The expenditures are exhibited as transportation expenses (including maintenance of the road-bed and track, repairs of rolling-stock, conducting, transportation, and general expenses), general expenses of lessor companies, and fixed charges, etc., which latter are shown separate as interest on the funded debt, interest on the floating debt, and rentals. By such tabulation, by simply deducting transportation expenses from earnings, it is possible at a glance to obtain the amount of net earnings of any operating company. The analyzed amounts forming the totals of earnings and expenses are exhibited in the tables of "results of traffic operations". It is further easy to compare the amount of income from all other sources with the expenditures other than operating.

The amounts shown in the column of "net income applicable to dividends", etc., are the balances of income left after paying all expenditures. The total amount shown in that column refers to those companies only which had a net income; and to balance such in the aggregate, by deducting total expenditures from total income, it is necessary to take into consideration the amounts expended by some companies over and above their income. Such amounts, deducted from the aggregate amount shown, will give the average net income for all companies in the United States.

Dividends declared and balance remaining require no further explanation.

2. GENERAL BALANCE-SHEET.—The tables exhibiting assets and liabilities represent the property, etc., of all the companies in the United States at the date nearest to June 1, 1880, including those under construction and such as had not yet commenced operations. As the property of some railroads which report operations under their own title is held and controlled by other companies which have guaranteed such companies' bonds, etc., it is evident that for this reason companies may appear on the tables as having operated their roads but still report no assets; and, again, companies may report assets, etc., and report no operations, their roads being operated by other companies, which include such operations in their own report.

3. RESULTS OF TRAFFIC OPERATIONS.—These tables represent the analysis of the transportation earnings and expenses which are entered in the aggregate in the respective columns in the general exhibit. The earnings are herein given as from passengers (both through and local), from express, from mails, and from freight (both through and local).

The expenses are shown in three different classes: maintaining road and real estate; repairs of machinery and cars; and general operating expenses, including those for general management of the business. The net earnings, and the expenses over gross earnings, are also shown.

Corporations which operate other roads beside their own lines and branches, either through lease, control, or other contract, are exhibited together with all the lines so operated. This manner of tabulating the "results from traffic operations" has been adopted for the purpose of showing (as far as it was possible to obtain correct data) the system of roads managed by any corporation as a whole and together, thereby making it easy to ascertain the total miles upon which the traffic revenue was obtained, and also allowing an easy comparison between the earnings and expenses of the main lines and the branches or leased lines composing the system.

It is presumed that by the opening of a branch line, etc., the earnings of the main line must become greater, because some passengers and freight from the branch lines will pass over the same and increase the revenue. The accurate way of calculating a whole system of roads must therefore be to compare the total earnings and operating expenses of the main line, as well as of the branch lines, with the total length of all lines operated, in order to find the average earnings and expenses and net earnings per mile.

The number of miles shown opposite the title of a company and its revenue shows the miles of road (whether single, double track, etc.) only.

4. MILEAGE, TRAFFIC, ETC.—These tables exhibit the mileage of trains and number of passengers and tons of freight carried by the operating companies.

5. CLASSIFICATION OF FREIGHT.—These tables exhibit the different articles of freight and their tonnage carried and handled by the respective roads.

6. EQUIPMENT, EMPLOYÉS, ETC.—These tables exhibit the numbers of the different kinds of rolling-stock used in operating roads, and the average number of the different classes of employés in the employ of the companies during the year.

7. ACCIDENTS.—These tables exhibit the number of accidents which happened to passengers, employés, and others upon the different roads operated.

The dates given by the different railroad companies of the ending of their respective fiscal years in 1880 are various, including in general every month up to September, with several reaching December in that year.

There are also companies whose fiscal reports end in 1879. This could not be obviated. It was the object of this bureau to obtain as nearly as possible statements from all the railroad corporations existing in the United States of the operations, etc., for twelve complete months. This has in general been accomplished, and that for



twelve months ending in 1880. Where a company had operated part of the fiscal year in 1879, and its road had been consolidated with another road or had been leased for the balance of such fiscal year ending in 1880 by another corporation, and where for such causes both accounts were reported separately in the census tables, it was, of course, necessary that both the years 1879 and 1880 should appear, or two separate periods of operations for the same road. The main object, namely, to show the operations, etc., of the entire railroad system of the United States for one complete year (twelve months), has, however, been obtained, and the few small corporations which are reported for part of a year only, some by reason of having become extinct, some from their inability to furnish authentic data, and others because they commenced operations at a later period of the year, will not affect the general results given for a full fiscal year ending in 1880.

The arrangement of roads (as per traffic operation tables), whether operated by the owners or controlled or leased, has therefore been made with the purpose of showing their results as existing at the latest period of the fiscal year of each separate corporation. Roads which changed hands during their fiscal year, and which were operated by the previous owners, controllers, or lessees during the first part of the fiscal year, and by the successors during the latter part, are so exhibited on detail tables that when the earnings, etc., of the two periods are combined in one total the aggregate may be obtained for the respective road and its mileage for a full twelve months.

For the purpose of allowing an easy and practicable manner of examining the several classes of fiscal and traffic reports furnished by each company respectively, a general index has been prepared, which exhibits in alphabetical order all roads included in the system, together with remarks in explanation of their management; also the numbers of the pages which exhibit separately the several classes of reports made, including the general financial exhibit, assets, liabilities, traffic operations, mileage, classification of freight, equipment, employes, accidents, and description of the funded debt. With the use of this index the whole system of accounts of each separate corporation may be with ease extracted and examined. A similar index has been prepared for the reports on the physical characteristics.

#### MISCELLANEOUS STATISTICS.

In addition to the data before reviewed other collections of statistics relating to the railroads and their management have been made, which are exhibited in the Tables A, B, C, D, and E, following Table XII, and which form an appendix.

Table A exhibits a detailed description of the several funded debts, separate for each company reporting such as liabilities. The designation of the various liens, etc., the term, the rates of interest, etc., are as fully given as the respective companies have reported them.

Table B exhibits the different public land grants made by the general government to the several railroads; also such as were made to them by the states.

Table C exhibits, as far as reported by the companies, the various kinds of rolling-stock manufactured by the companies in their own shops.

Table D exhibits, as far as reported, the several kinds of fuel used upon locomotives, the quantities consumed, the prices per ton, etc.

Table E exhibits, as far as reported, the extracts reported from the agreements or contracts which exist between the several railroad corporations and express companies, sleeping-, parlor-, and dining-car companies, and transportation companies, etc.

Table A is complete, as it contains the report of every corporation having a funded debt. As to the contents of Table B, it is presumed that every corporation having received government land grants has reported. In regard to Tables C, D, and E, this is not the case; their contents represent only such information as was obtained from such companies as complied with the requests of the Census Office. Several corporations neglected to furnish these data.