
TRANSPORTATION ON THE RIVERS OF THE MISSISSIPPI VALLEY.

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The rivers from which statistics of the transportation of freight and passengers have been secured for this report for the year ended December 30, 1889, are, roundly speaking, the Mississippi, the Missouri, and the Ohio, with their respective tributaries. A single entry has been made of the Red River of the North because of its geographical location. In grouping these streams according to what may be called commercial divisions, the Mississippi has been divided into the Upper and Lower Mississippi, with Saint Louis as the dividing point, and with the Missouri set down as one of the tributaries of the Upper Mississippi, while the Ohio has been separately considered. In the census report for 1880 a somewhat different division was carried out. The Mississippi was similarly divided and the Ohio was also treated separately, but the Missouri and its tributaries were given an individual report, and also included the business of the Red River of the North. These differing divisions are not allowed, however, to stand as difficulties in comparison, because in all the comparative tables which are presented in this report the returns for 1889 are grouped to correspond with the returns for 1880, a statement which will explain certain other differences which appear between the 1889 returns in the comparative tables for 1880 and 1889 and those which present the positive business of the latter year.

The tributaries which are put down in the 1889 tables as belonging to the 3 divisions of the Upper Mississippi, the Lower Mississippi, and the Ohio are those from which the principal reports of transportation have been made. Thus, the rivers which are considered as being the chief commercial tributaries of the Upper Mississippi, and which make up what is styled the Upper Mississippi system, are the Saint Croix, the Chippewa, the Illinois, the Missouri, the Osage, and the Gasconade. Those which make up the Lower Mississippi system are the White, the Arkansas, the Yazoo, the Washita, and the Red; and those which make up the Ohio system are the Allegheny, the Monongahela, the Muskingum, the Little Kanawha, the Great Kanawha, the Big Sandy, the Kentucky, the Green, the Wabash, the Cumberland, and the Tennessee. It is not to be understood from this that these are the only streams on which a transportation business was done in 1889 or from which a report of operations was received, but only as being convenient and comprehensive streams whose names are sufficiently indicative of their district. The report of the Monongahela, for example, includes all that was done on itself, the Cheat, and the Buckhannon; and the report of the Tennessee includes the business done on itself, the Clinch, the Hiwassee, the Caney fork, and the French Broad. The list of these tributaries and subtributaries on which a transportation business was done in 1889 is such a long one that a separate report from each would be too bulky and intricate for present statistical purposes, but those curious in the matter can refer to the tables and diagram printed with that portion of this report which refers to congressional appropriations made for all the navigable streams of the Mississippi valley, and to that portion of this text in which these tables and diagram are explained at length.

RIVERS OF ORIGIN.

Perhaps no better place can be found than this in which to state that while Saint Louis is styled the dividing point between the Upper and Lower Mississippi, the business of that port is allotted as follows: the business of the vessels coming into that port over the Upper Mississippi or the Ohio is credited respectively to those rivers; but all the business of the vessels leaving that port for any river is credited to the Lower Mississippi, as is the business of those vessels trading locally at that port. This is done in pursuance of the plan which has been adopted to credit to every stream wherever possible such business as has its origin thereon, no matter whether the finality of the operation was on that stream or some other; that is, a steamer carrying freight from Pittsburg to Saint Louis is credited as an operating craft on the Ohio, as is of course a steamer trading between Pittsburg and Cincinnati. In the same way the operations of a steamer trading between Burlington and Saint Louis are credited to the Upper Mississippi, while those of a steamer trading between Saint Louis and New Orleans, or between Vicksburg and Natchez, are credited to the Lower Mississippi. This plan has been adopted in order to avoid any duplication of freight movement, a duplication which would surely occur unless some such plan of allotment was made out and adhered to wherever possible, and of which more will be said when treating of the subject of freight movement by commodities.

STATISTICS OF TRANSPORTATION.

In grouping the operations of the steamers constituting the fleet of the Mississippi valley it has been thought better to depart from the plan followed in the report of the vessels belonging to coast ports, and to segregate the returns according to the rivers over which their operations were conducted. The distribution of the steamers according to the rivers of operations is as follows:

STEAMERS, BY LOCALITY OF OPERATION.

Red River of the North.....	4	Chippewa.....	1
Saint Croix.....	15	Missouri, Osage, and Gasconade.....	52
Illinois.....	9	Allegheny.....	6
Ohio.....	380	Muskingum.....	7
Monongahela.....	48	Great Kanawha.....	21
Little Kanawha.....	5	Kentucky.....	5
Big Sandy.....	8	Wabash.....	3
Green.....	5	Tennessee.....	32
Cumberland.....	17	White.....	5
Lower Mississippi.....	265	Yazoo.....	11
Arkansas.....	15	Red.....	9
Washita.....	3		
Upper Mississippi.....	188	Total.....	1,114

The distribution of the steamers according to their districts of registration is as follows:

STEAMERS, BY LOCALITY OF REGISTRATION.

New Orleans.....	126	Memphis.....	71
Vicksburg.....	30	Paducah.....	53
Chattanooga.....	22	Saint Louis.....	115
Louisville.....	52	Saint Joseph.....	6
Kansas city.....	16	Burlington.....	43
Omaha.....	13	Minnesota (a).....	46
Dubuque.....	28	Galena.....	27
Lacrosse.....	47	Cincinnati.....	115
Evansville.....	54	Pittsburg.....	152
Wheeling.....	94		
Natchez.....	4	Total.....	1,114

^a Includes the ports of Saint Vincent (on the Red River of the North) and Saint Paul.

Having thus given in broad and general outline an indication of the plan of the present report, the next proceeding will be one of review, and will be taken in order to get back to the days of early transportation on the rivers of the Mississippi valley. The material for this review is abundantly found in the text of the Tenth Census report on steam navigation in the United States, and it is from this full presentation of facts that the following condensation has been made:

EARLY NAVIGATION.

Previous to 1778 the Ohio river was not navigated to any extent in the interests of commerce. Troops and war material of the French were moved from point to point on flatboats, and colonists moving to Kentucky would float down to their destination from Fort Pitt (now Pittsburg) on rafts or flats, as the case demanded. In the month of January, 1778, Captain Willing, acting as agent for the Continental army, took 2 large flatboats loaded with produce to New Orleans, where he exchanged it for arms, ammunition, and stores, and he reached Fort Pitt on his return voyage, bringing up his goods and some 50 men besides. From this time the traffic with the Lower Mississippi was kept up and Pittsburg was soon known as an important trading post. Immigration began then to pour into the Ohio valley, and the navigation of the river increased rapidly. Besides the great variety of small craft and rude arks, numerous well-built keel boats, barges, and some seagoing vessels were soon used in conveying the products of the rich region down the Mississippi, where it found a market and was exchanged for merchandize and West India products. It is stated that as late as 1817 the products of the Mississippi valley arrived at New Orleans in 1,500 barges and 500 flats, but no statistics of this commerce were kept at that early date.

In 1811 Fulton and Livingston began the construction of a steamboat at Pittsburg. She was called the Orleans, and was completed that year, making her first voyage down the river and arriving at New Orleans January 10, 1812. It was found a difficult matter to stem the strong current of the lower river, and this was not practically accomplished until about 1814. Within the next 10 years, however, there were built at Pittsburg 30 steamers, measuring 5,698.78 tons; and from 1815, the date of the first steamer at Louisville, up to 1825, 35 steamers, measuring 6,032.26 tons, were launched at that port and vicinity. The first steamer built at Louisville was called the Kentucky. She measured 112 tons, and, according to the record, came out in 1815. The next was the Governor Shelby, of 106.25 tons burden, built in 1817.

From 1817 to 1827 there were built at Cincinnati 52 steamers, measuring 9,306.61 tons. The Vesta, of 203.01 tons, came out in 1817, and was followed the next year by the Eagle, of 118.49 tons; the Heckla, of 124.25 tons; the

Henderson, of 123.17 tons, and the Cincinnati, of 157.38 tons. Besides these 4 steamers built at Cincinnati in 1818, there were 4 at Louisville, measuring 1,106.46 tons; 5 at Pittsburg, measuring 1,226.48 tons, and 1 at Wheeling, of 140.31 tons. In 1819 there were 12 steamers built at Louisville, measuring 2,375.93 tons; 6 at Cincinnati, measuring 1,551.01 tons; 2 at Pittsburg, measuring 501.71 tons; 1 at Wheeling, of 224.51 tons, and 2 at New Orleans, measuring 662.50 tons. The growth of steamer building on the western rivers was remarkably rapid and exceeded that on the Atlantic coast by a large amount in tonnage, for it is found that in 1820, according to these records, there had been built on the rivers 71 steamers, measuring 14,207.53 tons, as against 52 steamers on the Atlantic coast (exclusive of New England coast), measuring 10,564.43 tons. On July 27, 1820, a writer in a Louisville paper enumerated 73 steamers belonging to western navigation, and there were several on the stocks above the Falls of the Ohio and 2 at New Orleans. Estimating the freight actually carried by each boat at 150 tons, and an average of 3 trips annually, he placed the up-steamer freight at 33,300 tons, while the down freight exceeded this figure. The up freight by flatboats and arks would double this amount, so that 100,000 tons about represented the upward movement. Freight rates ranged from 1.5 to 2 cents per pound from New Orleans to Louisville, and the amount paid on this up freight by steamers was at that date \$1,332,000, taking the last-named rate as the average. Down freights by steam were estimated at \$666,000. The passenger traffic both ways, calculating 10 to a boat, at \$100 up and \$50 down, was placed at \$333,000, so that the total income from passengers and freight on steamers was estimated at \$2,331,000, to which was added \$500,000 for lower river traffic. Some 3 years previous to this date it is stated there were only 30 steamers navigating the western waters. Great expectations were at this early date raised with regard to the commerce of New Orleans, since goods could be placed by it in any part of the Ohio valley for \$2.50 to \$3 per 100 pounds, while it cost nearly twice these sums to freight merchandise through from eastern seaboard cities. That New Orleans did not gain and hold the trade at that time was attributable to the superior capital and commercial character of the eastern merchants and to the dangerous nature of river navigation at that early date. New Orleans was never an extensive building point. In 1817 the Harriet, of 54.46 tons, was built there, and she was followed the next year by the Louisiana, of 102.54 tons. In 1819 New Orleans is credited with building 2 steamers, measuring 662.50 tons, and in 1820 with 6 steamers, measuring 1,034.12 tons; in 1821, 1 steamer, of 46.53 tons, and in 1822, 4 small boats, measuring only 296.67 tons. Pittsburg, Cincinnati, and Louisville were the leading building points.

From 1820 till the breaking out of the civil war, and up to 1865, when rail communication came into competition with the river interests, the progress of steam navigation on the lower river was rapid and extensive; in fact, the palmy days of steamboating on the Lower Mississippi were from 1840 to 1859, when the country had become populous and railroads had not yet come into active competition.

TRADE BEGINNINGS AT SAINT LOUIS.

Saint Louis was selected by Laclède in 1764 as a point possessing peculiar advantages for the fur trade from the confluence of the different rivers in its neighborhood. The statistics for 16 years previous to 1805 show that the average annual value of the furs collected at this place amounted to \$303,750. The population at this date was estimated at 1,500, more than one-half of whom were absent a greater part of the year engaged in trapping. In 1810 the population was 1,600. In 1820 the census showed that the population had increased to 4,598; in 1830 to 5,852, and in 1840 to 16,469. The first steamboat, the Antelope, arrived here in 1817, on her way to explore the great Missouri. In 1845 a committee of 8 citizens prepared a report on the business of Saint Louis, from which it appears that during the year 1845 there were 2,050 steamboat arrivals in the harbor of Saint Louis, with an aggregate tonnage of 358,045 tons, and 346 keel and flat boats. Of these steamers 250 came up from New Orleans; 406 from different ports on the Ohio river, including arrivals from the Cumberland and Tennessee; 298 from ports on the Illinois river; 643 from ports on the Mississippi above the mouth of the Missouri, not including the daily trip of the Alton packet; 249 from ports on the Missouri river, and 204 from other ports, chiefly from Cairo and intermediate ports. At this date, 1845, the tonnage on the rivers, as reported at the different ports, was as follows:

	TONS.
Pittsburg.....	9,233
Wheeling.....	1,340
Pearl river.....	378
New Orleans.....	19,321
Saint Louis.....	16,664
Nashville.....	5,666
Louisville.....	7,114
Cincinnati.....	13,137
Total.....	72,853

ON THE UPPER MISSISSIPPI.

The first steamboat that ascended the Upper Mississippi as far as Fort Snelling, near the Falls of Saint Anthony, was the Virginia, a stern-wheel boat, which arrived at the fort in the early part of May, 1813. From 1823 to 1844 there were but few arrivals each year, sometimes not more than 2 or 3. The steamers running on the

STATISTICS OF TRANSPORTATION.

Upper Mississippi at that time were used altogether to transport supplies for the Indian traders and the troops stationed at Fort Snelling. Previous to the arrival of the Virginia keel boats were used for this purpose, and 60 days' time from Saint Louis to the fort was considered a good trip. In 1844 the country had become settled enough to warrant the introduction of a regular line, and the Otter was put upon the route from Saint Louis to Saint Paul. The next year the Lynx and the Argo followed, and in 1847 came the Senator.

In 1851 3 boats went up the Minnesota river, and in 1852 1 ran regularly up that stream during the season. In 1853 the business required an average of 1 per day.

The following table shows the number of arrivals at Saint Paul from 1844 to 1856, including those from above and below, with date of opening and closing of the river:

YEARS.	Date of first arrival.	Number of arrivals.	River closed.
1844.....	April 6	41	November 23
1845.....	do	48	November 26
1846.....	March 31	24	December 5
1847.....	April 7	47	November 29
1848.....	do	63	December 4
1849.....	April 9	35	December 7
1850.....	do	104	December 4
1851.....	April 4	119	November 28
1852.....	April 16	171	November 18
1853.....	April 11	300	November 30
1854.....	April 8	215	November 27
1855.....	April 18	560	November 20
1856.....	do	846	November 10

In 1856 the arrivals at Saint Paul were as follows:

From Saint Louis.....	212
From Fulton city.....	28
From Galena and Duluth.....	228
From Dubuque.....	134
From Minnesota.....	216
From head of Lake Pepin.....	28
Total.....	846

About the same time a thriving trade sprang up between the southern counties of Minnesota and Galena and Dubuque. During a portion of the summer the War Eagle and Tishomingo ran regularly to Winona. Above, on the Upper Mississippi, the 3 steamers, Governor Ramsey, H. M. Rice, and North Star, ran between Saint Anthony and Sauk Rapids.

EARLY DAYS ON THE MISSOURI.

The first steamboat that navigated the Upper Missouri was built at Pittsburg by the American Fur Company in the spring of 1831, and was called the Yellowstone. She was a staunch boat, with side wheels, and had her cabin on the same deck with the boilers. Commanded by Captain Bennett, she made her first trip during the summer of 1831 to Fort Pierre, whence she returned to Saint Louis for the winter. During the summer of 1832 she made her second trip, reaching Fort Union, near the mouth of the Yellowstone river. The second boat was built by the American Fur Company and called the Assiniboine. She made her first trip in 1833, ascending to Fort Union, a few miles above the mouth of the Yellowstone river, whence she returned safely to Saint Louis. This boat made another trip in 1834, and in 1835 ascended as far as the mouth of Poplar creek, some 60 miles above the mouth of the Yellowstone. She was caught by the fast-falling water and was obliged to winter there. The following spring she took on a very valuable cargo of furs and started for Saint Louis. When she had reached Heart river, near where Fort Lincoln is situated, she was burned with her entire cargo.

For the 12 or 15 years following the American Fur Company did all of the steamboating that was done above Kaneshville (now Council Bluffs), Iowa, making such improvements on their boats as experience suggested. Many efforts were made to ascend the Missouri river higher than Poplar creek, but it seems that none were successful. During the summer of 1850 the El Paso succeeded in reaching the mouth of Milk river; but during all this time Fort Union was really the head of navigation. The steamboats running farther up the Missouri than Kaneshville were owned and operated by and for the American Fur Company only. Western Iowa began settling up at about this date, preparing the way for general commerce. In 1856 several boats besides those owned by the fur company ran up as far as the then new settlement of Sioux city, loaded with supplies suited to the wants of the country. This trade grew rapidly, until in the spring of 1857 boats ran from Saint Louis to Sioux city weekly. Above Sioux city there was little change, the fur company sending up each season from 2 to 4 boats as far as the mouth of the

Yellowstone river. In 1859 they built a small boat called the Chippewa. She was the first stern-wheel boat that navigated the Upper Missouri, and was better adapted to this river than any of her predecessors. She was accompanied by the Spread Eagle as far as Fort Union, and from thence pushed forward alone, passing Milk river, the highest point reached by the El Paso in 1850, and reached Fort McKenzie June 17, 1859. From this place, only a few miles below Fort Benton, she turned back. The Chippewa reached Fort Benton on her trip in 1860, being the first steamboat that ever reached the present head of navigation. About this time there was much interest exhibited in the Montana gold mines, which started an emigration in that direction. Boats were at once fitted out, loaded with provisions, tools, clothing, and such supplies as promised rich profits, and sent to Fort Benton. During the first years of the war the government established a number of posts on the Missouri above Fort Randall. This also increased the demand for boats, so that in 1864 there were at one time a dozen boats above Sioux city. In 1868 the first railroad reached Sioux city. Before the railroad had its warehouses built a company was formed which owned and operated the North Alabama, the Fannie Barker, the Deer Lodge, the Huntsville, the Tennessee, and other boats between Sioux city and Fort Benton. This line carried private, military, and Indian freight, and was quite successful. They operated in connection with the Sioux City and Pacific railroad. In 1870 they sold their shore property to the Peck line, operating on the river at that time. The Kountz line had also 4 boats on the river, and the Coulson line was organized about this time. The Fort Benton Transportation Company was organized in 1875.

PLAN OF THE TABLES.

Reverting to the present work, it will be found that the statistical results of the investigation by the Eleventh Census are embodied in 31 tables. The first 19 of these deal with the positive figures for 1889; the next 9 present the comparative figures for the 2 years of 1880 and 1889; 2 tables deal with the congressional appropriations made for the survey, improvement, and maintenance of the various water ways of the Mississippi valley, while the final table deals with the number of navigable miles on the rivers of the Mississippi valley. In addition to this division of the tables into 3 great groups, the positive statistics in the first 19 tables have been divided into 5 subgroups, entitled "Equipment", "Income and expenditure", "Employés", "Traffic", and "Classified details". Set down in index form the tables are as follows:

EQUIPMENT.

- Table 1. Equipment in general.
- Table 2. Equipment by classes.
- Table 3. Equipment by tonnage.

INCOME AND EXPENDITURE.

- Table 4. Expense account in general.
- Table 5. Expense account by classes.

EMPLOYÉS.

- Table 6. Employés by classes.

TRAFFIC.

- Table 7. Passenger and freight movement in general.
- Table 8. Freight movement by classes.
- Table 9. Commodities moved by freight steamers.
- Table 10. Commodities moved on barges.
- Table 11. Commodities moved by ferry steamers.
- Table 12. Recapitulation of commodities moved.

CLASSIFIED DETAILS.

- Table 13. Passenger and freight steamers.
- Table 14. Towboats.
- Table 15. Ferries.
- Table 16. Harbor craft.

CLASSIFIED DETAILS—Continued.

- Table 17. Miscellaneous.
- Table 18. No traffic report.
- Table 19. Résumé.

COMPARATIVE STATISTICS.

- Table 20. Fleets in 1880 and 1889.
- Table 21. Steamers by classes in 1880 and 1889.
- Table 22. Expense accounts in 1880 and 1889.
- Table 23. Wage details in 1880 and 1889.
- Table 24. Traffic in 1880 and 1889.
- Table 25. Documented fleets for 10 years, 1880 to 1889, inclusive.
- Table 26. Aggregate and average tonnages for same period.
- Table 27. Annual fluctuations of registered tonnage for same period.
- Table 28. Shipbuilding for same period.

CONGRESSIONAL APPROPRIATIONS.

- Table 29. Appropriations for rivers by detailed localities.
- Table 30. Appropriations by totals.

NAVIGABLE WATERS.

- Table 31. Navigable miles of the Mississippi fluvial system.

THE EQUIPMENT TABLES.

The first table of equipment (Table 1) shows the number, tonnage, and value of all steamers and unrigged craft of over 5 tons burden owned on the rivers of the Mississippi valley in 1889. This simply deals with the totals, the only divisions made being into steamers and unrigged; and the only distribution effected being that of the steamers and unrigged to each of the rivers upon which they plied, with totals for the Upper Mississippi system, the Ohio system, the Lower Mississippi system, the Red River of the North, and a grand total for the valley.

Table 2, entitled "Equipment by classes", divides up the entries of the previous table, separating the total number of steamers plying on each river into the 5 operating classes or occupations of passenger and freight, towing, ferry, harbor, and miscellaneous, and giving to each class its tonnage and value. The unrigged is also

added to this list of classes, and a supplementary division is made of those steamers from which no traffic report was received. By this allotment the number, tonnage, and value of each class of craft operating on each river may be readily seen.

In Table 3 a new division is made of the steamers documented in the ports of the Mississippi valley in 1889. Instead of dividing them according to their respective occupations, as was done in Table 2, this table divides them according to groups of tonnage, and instead of allotting them to the different rivers on which they plied they are allotted to the various ports of entry. The material for this table was gathered from the report of the commissioner of navigation for 1889, and it is owing to this circumstance that the small discrepancy appears between the tonnage as made up from the census schedules and that gathered from the commissioner of navigation's report. In the case of the census schedules the tonnage of the 1,114 steamers amounted to 210,771.89 tons, while in the case of the commissioner's figures the 1,114 steamers had a tonnage of 209,826.07 tons, a difference of 945.82 tons, which is easily accounted for by the fact that gross tonnage is always a more or less elastic quantity and that it would be impossible to secure absolute identity of tonnage in the reports of two bureaus.

INCOME AND EXPENDITURE.

There are, it will be seen, 2 tables giving the statistics of income and expenditure. The first (Table 4) gives the total gross earnings, expenses, and net earnings of all the fleets operating on the rivers of the Mississippi valley and fluvial systems according to the same plan as was adopted in the general table of equipment (Table 1), while Table 5 divides up these gross earnings, expenses, and net earnings and distributes these totals among the various fleets divided into occupations according to the same plan pursued in the distribution of the fleets in the second table of equipment (Table 2).

One of the chief items making up the total of expenses incurred in the operation of the Mississippi valley fleet was that of wages, and this subject is treated of in Table 6. In this table there are shown the total wages paid during the year to all the officers and men making up the ordinary crews of each class of steamers, together with the total number of men required to work and officer the 975 operating steamers. Of course these figures are not to be understood as indicating the total number of men to whom whole or partial employment was given during the year. That number was necessarily a much larger one, but the difficulties experienced in securing anything like a correct report of this total number were found to be so great that the tabulation of the statistics regarding so nomadic a class of workers as many of the employes of the river steamboats are had to be abandoned. The average wages per man per year are not given in this table, but will be found in Table 23, which deals with the comparative wage statistics of the years 1880 and 1889.

THE TRAFFIC TABLES.

The presentation of the statistics of traffic is made in 6 tables, numbered in running order from 7 to 12, inclusive.

Table 7 shows in a general and comprehensive fashion the number of passengers carried and the tons of freight moved by all the operating craft of the Mississippi valley allotted to the different rivers and systems, the only attempt at detail being that of separating the passengers under the heads of "Regular and excursion" and "Ferry".

A corresponding division of the totals of freight moved will be found in Table 8, wherein the total amounts of freight moved on each river are set down under the respective heads of "Freight carried" and "Freight towed", whether by passenger and freight steamers, ferries, or towboats.

The 4 succeeding tables (9, 10, 11, and 12) carry out this work of division in a still greater degree. In Tables 9, 10, and 11 the freight carried by the passenger and freight steamers, by ferries, and on unrigged is given by commodities, the division of these being carried out to as great an extent as the returns of the schedules would permit. They give about 30 items of commodity, about equally divided between the products of agriculture, of mines, and of merchandise.

In Table 12 all these commodities are gathered under their respective heads and given in one table, thus showing the quantity of each commodity moved by all the operating craft of the Mississippi valley during 1889.

CLASSIFIED DETAILS.

The 6 succeeding tables (13, 14, 15, 16, 17, and 18) form another group, which may be entitled that of "classified details". In these tables the information which had been furnished in the various tables of equipment, income and expenditure, employes, and traffic is gathered together under the 6 titles of "Passenger and freight steamers", "Towboats", "Ferryboats", "Harbor boats", "Miscellaneous craft", and "No traffic report", with a separate table for each class of occupation.

In Table 19 all of the preceding returns are gathered together and a résumé is furnished, in which all the statistics of the various classes of vessels are grouped for each river of the valley. By this method the water transportation in any of its branches, on any river of the Mississippi valley, can be seen at a glance.

An apparent discrepancy exists between the total figures of the amount of freight towed as given in Table 10, which shows the towed freight by commodities, and that given in Table 14, which shows the entire operations of the towboats as a class. In the commodity table the total amount of freight moved on unrigged craft and on rafts on the rivers of the Mississippi valley is set down as 19,059,542 tons, while in Table 14, showing the amount of freight distinctively moved by towboats, the amount of freight moved is set down as 17,133,342 tons. The difference, 1,926,200 tons, is that amount of freight which was towed by passenger and freight steamers on the Illinois, the Allegheny, the Big Sandy, the Green, the Wabash, the White, the Arkansas, the Yazoo, the Washita, the Red, and the Red River of the North. In order to make this clearer, the amount of freight moved on these rivers by passenger and freight steamers has been doubly entered on Table 13 as the amount of freight carried and the amount of freight moved. A simple calculation would show that out of the total 11,159,798 tons of freight credited to the passenger and freight steamers as their share of the transportation business 9,233,598 tons were carried on the steamers themselves, and that the amount which has already been quoted, 1,926,200 tons, was towed. This method of calculation will also explain why, in the commodity table (Table 9), showing the amount of freight carried on the passenger and freight steamers, the total is set down as 9,233,598 tons, while in the class table (Table 13) of the passenger and freight steamers the amount of freight set down as being moved by these steamers is 11,159,798 tons; for just as the 1,926,200 tons of towed freight had to be subtracted from the class table (Table 13) so in this case the same amount of tonnage has to be added to the 9,233,598 tons set down in the commodity table (Table 9).

THE COMPARATIVE TABLES.

So far the tables which have been enumerated have referred only to the condition and operation of the water ways of the Mississippi valley for 1889, while in the 5 succeeding tables, numbered from 20 to 24, inclusive, there are given the comparative statistics for 1880 and 1889. The subjects compared are: Table 20, the number, tonnage, and value of the steamers and unrigged craft owned on the rivers of the Mississippi valley in 1880 and 1889, given by localities; Table 21, the number, tonnage, and value of all steam vessels owned on the rivers of the Mississippi valley in 1880 and 1889, given by their occupations; Table 22, the gross earnings and amount paid in wages by all craft operating on the Mississippi valley in 1880 and 1889; Table 23, the number of men constituting the totals of the ordinary crews employed on all the craft operating on the rivers of the Mississippi valley in 1880 and 1889, together with the wages paid and the calculated averages of annual pay, with a decrease or increase per man, given by localities; Table 24, the number of tons of freight moved and the number of passengers carried by all craft operating on the Mississippi valley in 1880 and 1889, given by localities.

An extension of certain of these comparative statistics is found in the next 4 sets of tables, numbered 25, 26, 27, and 28. The first of these presents the number and tonnage of all steam vessels and barges registered in the customs districts of the Mississippi valley for the years 1880 to 1889, inclusive. The second (Table 26) shows the number, aggregate tonnage, and average vessel tonnage of all the steamers registered in these districts during the same years. The third (Table 27) shows the average annual number of steamers and the average annual tonnage registered in the same districts during the same years, so arranged as to show the fluctuations of registration. The fourth (Table 28) presents the number and tonnage of all steam vessels and barges built in the customs districts of the Mississippi valley during these 10 years, together with data showing the number and tonnage of side-wheel steamers, stern-wheel steamers, and propellers built during each year in each district.

A recapitulation for the 10 years is given for the first and last of these sets of tables, from which those whose interest is not sufficient to lead them into the study of the details of the condition of shipbuilding, the changes in the method of propulsion, and the fluctuations of the operating fleets may see these things in 10 lines instead of 10 tables.

CONGRESSIONAL APPROPRIATIONS.

One of the most interesting tables is Table 29, which gives the amounts appropriated by Congress for the survey, improvement, and maintenance of the water ways of the Mississippi valley from the date of the earliest appropriation down to and including that of the act of Congress of September, 1890. These sums, so far as the grouping of periods is concerned, are given, first, up to and including 1879; second, from 1880 to 1889; third, the appropriations in 1890; and, fourth, the total appropriations from first to last. These sums, so far as the localities are concerned, are given with considerable detail, not only for the rivers and the systems into which all the tables are divided, but also for the different portions of the larger rivers for which appropriations have been made and for whatever tributaries and subtributaries have either been surveyed or improved by the government. An additional column is given, in which is entered the date of the earliest appropriation made for each division of a stream or its tributary. The whole forms a comprehensive index of the government's encouragement and care of the water ways of the Mississippi valley.

Table 30 gathers up the details of Table 29 and gives them in the compact form of totals only.

Table 31 deals with the number of navigable miles on the rivers of the Mississippi valley and the number of miles over which a transportation business was conducted in 1889.

WHAT THE TABLES SHOW.

Having considered the plan of the tables, it is next in order to consider what these tables show.

Taking up first the 3 equipment tables in their order, it is seen, from the totalized figures for the different divisions of the fluvial system of the Mississippi valley, given in Table 1, that in 1889 there were owned on those rivers 1,114 steamers, having a tonnage of 210,771.89 and a value of \$10,539,251; 6,339 unriggered craft, with a tonnage of 3,182,608 and a value of \$4,795,754; a grand total of 7,453 craft, having a tonnage of 3,393,379.89 and a value of \$15,335,005. The figures of total tonnage appear enormous when placed in comparison with those of other sections of the country, but it will be observed that 93.79 per cent of the valley total is tonnage of low grade. Dividing this valley total into system totals, it is found that in 1889, on the Upper Mississippi and its tributaries, including the Red River of the North, there were 269 steamers, with a tonnage of 33,398.47 and a value of \$1,895,269; 359 unriggered, with a tonnage of 191,555 and a value of \$266,923; an aggregate of 628 craft, with a tonnage of 224,953.47 and a value of \$2,162,192. On the Ohio river and its tributaries there were 537 steamers, of a tonnage of 107,195.83 and a value of \$5,192,710; 5,708 unriggered craft, of a tonnage of 2,813,273 and a value of \$3,503,631, making a total of 6,245 craft, of a tonnage of 2,920,468.83 and a value of \$8,696,341. On the Lower Mississippi there were 308 steamers, with a tonnage of 70,177.59 and a value of \$3,451,272; 272 unriggered craft, of a tonnage of 177,780 and a value of \$1,025,200, making an aggregate of 580 craft, of a tonnage of 247,957.59 and a value of \$4,476,472.

The preceding figures relate to all steamers and unriggered craft owned on the rivers of the Mississippi valley, whether in operation or not. Between these figures and the number of those vessels in operation there is a discrepancy, which is attributable to the fact that there were many steamers which were not in operation during 1889, or from which no traffic report could be secured. This unremunerative stock (unremunerative so far as the purposes of the present report are concerned) is given in Table 2 (and Table 18) under the class title of "no traffic report", and will be found to number 139 for the whole valley, with a tonnage of 17,387.07 and a value of \$904,143. Of this number 33 steamers were owned on the Upper Mississippi system and Red River of the North, representing a tonnage of 4,435.17 and a value of \$214,719; 59 belonged to the Ohio system, with a tonnage of 7,874.81 and a value of \$401,802, and 47 were owned on the Lower Mississippi system, with a tonnage of 5,077.09 and a value of \$287,622. This leaves an active balance of 975 steamers, with a tonnage of 193,384.82 and a value of \$9,635,108, divided in their occupations, as will be seen in Table 2, and shown by class tables as follows:

EQUIPMENT OF CLASSES.

TABLE 13.—In the actual transportation of passengers and freight there were 320 steamers, with a tonnage of 95,215.26 and a value of \$3,661,475, of which number 48 were employed on the Upper Mississippi and tributaries and Red River of the North, with a tonnage of 10,414.73 and a value of \$443,700; 161 were employed on the Ohio, representing a tonnage of 45,513.50 and a value of \$1,752,075, and 111 were employed on the Lower Mississippi system, with a tonnage of 39,287.03 and a value of \$1,465,700.

TABLE 14.—In the towing of freight on all classes of unriggered craft and on rafts there were 290 steamers employed, with a tonnage of 53,875.55 and a value of \$3,422,983, of which 98 were employed on the Upper Mississippi system, with a tonnage of 11,547.70 and a value of \$759,000; 157 were employed on the Ohio system, with a tonnage of 32,662.67 and a value of \$2,035,383, and 35 were employed on the Lower Mississippi system, with a tonnage of 9,665.18 and a value of \$627,600.

TABLE 15.—Engaged in the ferry business were 163 steamers, having a tonnage of 18,593.40 and a value of \$1,056,250, of which number 51 were employed on the Upper Mississippi system, with a tonnage of 3,905.31 and a value of \$268,300; 61 were employed on the Ohio, with a tonnage of 11,543.53 and a value of \$376,250, and 51 were employed on the Lower Mississippi system, with a tonnage of 3,144.56 and a value of \$411,700.

TABLE 16.—In local or harbor towing and in such pursuits as would necessarily fall to floating channel property there were 141 steamers, with a tonnage of 18,981.96 and a value of \$1,028,350. Of this number 29 belonged to the ports and harbors of the Upper Mississippi system, with a tonnage of 1,095.81 and a value of \$69,750; 59 belonged to the ports and harbors of the Ohio system, with a tonnage of 5,482.35 and a value of \$370,300, and 53 belonged to the ports and harbors of the Lower Mississippi system, with a tonnage of 12,403.80 and a value of \$588,300.

TABLE 17.—The balance has been grouped under the head of "Miscellaneous", and includes pleasure boats, private excursion boats, traveling shows, and all such craft as can not be said to have any net earnings from the industry of water transportation, of which class there were 61 steamers in operation in the valley, having a tonnage of 6,718.65 and a value of \$466,050. Of this number 10 were employed on the Upper Mississippi system, with a tonnage of 1,999.75 and a value of \$139,800; 40 were employed on the Ohio system, having a tonnage of 4,118.97 and a value of \$255,900, and 11 were employed on the Lower Mississippi, with a tonnage of 599.93 and a value of \$70,350.

EQUIPMENT, BY DISTRICTS OF REGISTRATION.

The third table of equipment (Table 3) furnishes a decided amplification of the list of steamers distributed according to their districts of registration, which was given in the early part of this text. That list was made out irrespective of the order of importance of each district, but on taking up this idea it is found that, so far as the number of documented steamers go, the districts stand as follows in the order of their importance:

DISTRICTS OF REGISTRATION.	Rank in importance of registration, by number.	Number of registered steamers.	DISTRICTS OF REGISTRATION.	Rank in importance of registration, by number.	Number of registered steamers.
Pittsburg, Pennsylvania.....	1	152	Minnesota.....	10	46
New Orleans, Louisiana.....	2	126	Burlington, Iowa.....	11	43
Cincinnati, Ohio.....	3	115	Vicksburg, Mississippi.....	12	30
Saint Louis, Missouri.....			Dubuque, Iowa.....	13	28
Wheeling, West Virginia.....	4	94	Galena, Illinois.....	14	27
Memphis, Tennessee.....	5	71	Chattanooga, Tennessee.....	15	22
Evansville, Indiana.....	6	54	Kansas city, Missouri.....	16	16
Paducah, Kentucky.....	7	53	Omaha, Nebraska.....	17	13
Louisville, Kentucky.....	8	52	Saint Joseph, Missouri.....	18	6
Lacrosse, Wisconsin.....	9	47	Natchez, Mississippi.....	19	4

When, however, the relative importance of the districts as shown by registered tonnage is considered, the order, as will be seen by the following statement, is somewhat changed:

DISTRICTS OF REGISTRATION.	Rank in importance of registration, by tonnage.	Tonnage of registered steamers.	DISTRICTS OF REGISTRATION.	Rank in importance of registration, by tonnage.	Tonnage of registered steamers.
Saint Louis, Missouri.....	1	42,827.04	Minnesota.....	11	5,213.56
Pittsburg, Pennsylvania.....	2	32,263.23	Burlington, Iowa.....	12	5,053.39
Cincinnati, Ohio.....	3	31,406.87	Chattanooga, Tennessee.....	13	3,966.09
New Orleans, Louisiana.....	4	19,248.58	Lacrosse, Wisconsin.....	14	3,884.03
Memphis, Tennessee.....	5	12,113.76	Galena, Illinois.....	15	3,129.60
Louisville, Kentucky.....	6	11,937.92	Vicksburg, Mississippi.....	16	2,875.99
Wheeling, West Virginia.....	7	9,768.97	Kansas city, Missouri.....	17	1,781.35
Paducah, Kentucky.....	8	8,781.24	Omaha, Nebraska.....	18	1,329.55
Evansville, Indiana.....	9	6,953.76	Natchez, Mississippi.....	19	592.35
Dubuque, Iowa.....	10	6,355.26	Saint Joseph, Missouri.....	20	340.53

STATUS OF THE DISTRICTS.

In the number of registered craft Pittsburg easily leads, while Saint Louis stands third, but in the amount of registered tonnage Saint Louis rises to first place, while Pittsburg takes the second. On the other hand, while Wheeling stands fourth in point of number it is seventh in point of registration, and Lacrosse, from being ninth in point of number, sinks to fourteenth in point of registered tonnage. In both number and tonnage, however, Saint Louis, Pittsburg, Cincinnati, New Orleans, Wheeling, Memphis, Evansville, Louisville, and Paducah stand easily as the first 9 districts, while the relative positions of the other districts do not vary very materially.

Looking from localities of registration to the analysis of tonnage (Table 3), it is interesting to note that while the small tonnage steamers, that is, from 5 to 50 tons, number 270, what may be called the medium tonnage steamers, that is, from 100 to 200 tons, are even greater in number, standing at 295. It is also interesting to note how close the number of the 300 to 400 ton steamers stands to the 500 to 1,000 ton class, being 74 to 71, while the number of the 400 to 500 ton class only reaches 28. The number (23) of the 1,000 to 2,500 ton class is rather surprising, but one can not fail to remark that the first 3 tonnage classes, the 5 to 50 tons, the 50 to 100 tons, and the 100 to 200 tons, are undoubtedly the favorite classes of river steamers, their aggregate number standing at 826 out of a total of 1,114, or 74.15 per cent of the whole number, and representing an aggregate tonnage of 69,879.60 out of a total tonnage of 209,826.07, or 33.30 per cent of the whole amount. Equally interesting deductions may be drawn from the returns of the different districts. These returns of equipment by tonnage classes were not kept in the previous census year, so that it is not possible to make any class comparisons, but the question of average tonnage will be considered when the group of comparative statistics is reached.

EARNINGS AND EXPENSES.

Tables 4 and 5 may be accepted as showing, both by localized totals and by classified details, how the business of water transportation on the rivers of the Mississippi valley paid in 1889. From Table 4 it will be gathered that the gross earnings of the entire operating fleet amounted to \$16,337,533, the expenses to \$12,600,342, and the net earnings to \$3,737,191. From the figures given when making the summary of equipments in Table 1 it was found that the total value of the entire fleet of vessels of all classes in the Mississippi valley, whether in operation or not, amounted to \$15,335,005. In all probability this estimated commercial valuation was short of the actual figures by some 30 per cent, which would raise the real value of the Mississippi valley fleet to \$21,907,150. When localized it is found that of the total figures the operating fleet of the Upper Mississippi system and the Red River of the North took in as gross earnings \$2,618,146, paid out \$1,855,063, and secured net earnings of \$763,083. The gross earnings of the operating fleet of the Ohio system were \$6,702,013, their expenses \$5,270,567, and their net earnings \$1,431,446, while the gross earnings of the operating fleet of the Lower Mississippi system were \$7,017,374, their expenses \$5,474,712, and their net earnings \$1,542,662.

EXPENSE ACCOUNTS OF CLASSES.

So far as the pecuniary results of the different classes go, it is found from Table 13 that the most important are the 320 passenger and freight steamers, which, in 1889, made as gross earnings \$7,651,248, paid out \$6,580,356, leaving net earnings amounting to \$1,070,892. The bulk of these sums was earned and paid out on the Lower Mississippi, where the gross earnings amounted to \$3,040,334, the expenses to \$2,742,406, and the net earnings to \$297,928. Next in importance comes the Ohio, where the gross earnings were \$2,168,215, but as the expenses stand only at \$1,850,248, leaving the net earnings \$317,967, it will be seen that the passenger and freight steamers paid better on this stream than on the Lower Mississippi. The other streams stand as follows: the Upper Mississippi, the Tennessee, and the Red, all with gross earnings over \$300,000; the Cumberland, the Yazoo, the Illinois, the Monongahela, the Missouri system, the Washita, and the White, having gross earnings over \$100,000, and the Muskingum, the Great Kanawha, the Kentucky, the Wabash, the Green, the Red River of the North, and the Allegheny stand in the order given so far as their earnings are concerned.

Though the gross earnings of the towboats (Table 14) were considerably less than those of the passenger and freight steamers, standing as they do at \$6,036,748 against \$7,651,248, the cost of conducting this class of craft was considerably less. As the expenses stand at \$4,098,723 for the towboats and \$6,580,356 for the passenger and freight steamers, this means net earnings for the towboats of \$1,938,025 against \$1,070,892 for the passenger and freight steamers. It is very interesting to notice here that on the Ohio the earnings of both classes are almost identically the same, for while the gross earnings of the passenger and freight steamers on that river amounted to \$2,168,215, the gross earnings of the towboats amounted to \$2,168,020. It will be observed, however, that the expenses of running the towboats, though numbering 114 as against 85 passenger and freight steamers, stand only at \$1,657,136 as against \$1,850,248. The net earnings of the towboats therefore reached \$510,884 as against \$317,967 for the passenger and freight steamers. It is also interesting to notice the importance which towing has assumed on the rivers forming the Upper Mississippi system. The boats engaged exclusively in this business numbered 98, the gross earnings of that fleet reaching to \$1,485,048, out of which were paid \$956,143 expenses, leaving \$528,905 net earnings. A close similarity between the number of vessels engaged as passenger and freight steamers and as towboats on the Ohio system and the strongly marked variations of tonnage and value are all interesting subjects for comparative data.

The expense account of the ferry fleet (Table 15) shows that the whole 163 steamers belonging to the Mississippi valley earned \$1,196,817, out of which was paid \$818,634, leaving \$378,183 net earnings. These figures, however, are not as satisfactory as they might be, and it must be understood that they are only partial reports, the owners of the large ferry lines claiming that their complete returns were made when reporting on the railroads of which they form a transfer link.

The earnings of the harbor boats (Table 16) amounted to \$1,291,080, the expenses to \$940,989, leaving \$350,091 for net earnings. These were chiefly employed at the ports of Saint Louis, Pittsburg, New Orleans, Cincinnati, and Memphis, the others being engaged at various points on the Saint Croix, Great Kanawha, and the Big Sandy. So far as the different systems are concerned the harbor boats of the Upper Mississippi made as gross earnings \$115,249, incurred \$80,675 expenses, leaving \$34,574 net profits; those of the Ohio system ports made as gross earnings \$374,352, paid out \$286,095 expenses, and counted on \$88,257 net earnings, and those of the Lower Mississippi ports made as gross earnings \$801,479, paid out \$574,219 for expenses, and profited to the extent of \$227,260 net earnings.

The gross earnings of the miscellaneous class (Table 17), \$161,640, have been balanced with a similar amount, because these earnings can not be said to have been made in the prosecution of the business of water transportation, and the balance has been struck in order that there might be no difference in the total net earnings of all the craft operating in the Mississippi valley.

CREWS AND WAGES.

One of the chief items accepted as indicating the importance of an industry is that of wages, and, in this particular, water transportation on the Mississippi valley, as is shown in Table 6, may certainly be regarded as an industry of much consequence. During 1889 the total of the ordinary crews of the operating craft numbered 15,996 men, although in the change of employes very many more men found whole or partial employment during the year. At the risk of repetition, it must be stated that this number must be taken as representing the total of the captains, engineers, deck hands, roustabouts, etc., who were required to man and run the 975 operating craft during the year, and to this complement of necessary men there was paid out \$5,338,862. The largest number of these men were employed on the Ohio system, where to 7,663 men, making the complementary crews of 478 operating vessels, there was paid \$2,545,625. The Lower Mississippi system stands next, where to 5,345 men, making up the complementary crews of 261 steamers, there was paid out \$1,948,541; the number of men on the Upper Mississippi system standing at 2,943 as the complementary crews of 233 steamers, the amount paid in wages being \$843,019. In the relation of craft and men (shown in Tables 13, 14, 15, 16, and 17) some peculiar facts make themselves apparent. On the 320 passenger and freight steamers the crew total amounted to 9,101 men, to whom was paid \$2,603,031, or an average of \$286.02 per man, while on the 290 towing steamers the crew total amounted only to 4,742 men, to whom was paid \$1,787,995, or an average of \$377.06 per man, which means that on the towboats the wages paid was on the average \$91.04 per man higher than it was for the average passenger and freight steamer employe. The wages paid on the 163 ferryboats is reported at \$456,676, paid to 893 men, while to the 1,016 men employed on the 141 harbor boats no less than \$409,267 was paid. The reports for the 61 miscellaneous craft show that 244 men were employed, to whom was paid \$81,893.

STATISTICS OF TRAFFIC.

Of the 5 operating classes only 3 can be said to be engaged in traffic, these being passenger and freight steamers, ferry steamers, and towboats. As is shown by Table 7, 29,405,046 tons of freight were moved by these 3 classes jointly on all the rivers of the Mississippi valley, of which amount 6,961,977 tons were moved on the Upper Mississippi system and Red River of the North, 16,041,866 tons on the Ohio, and 6,401,203 tons on the Lower Mississippi system.

The great bulk of this freight was towed, the total towed freight (see Table 8) amounting to 19,059,542 tons, of which 4,810,353 tons were towed on the Upper Mississippi system and Red River of the North, 12,235,201 tons on the Ohio system, and 2,013,988 tons on the Lower Mississippi system.

Nearly all of these 19,059,542 tons of towed freight were moved by the 290 towboats of which the equipment figures have been given. The exact figures of the amount of freight moved by the fleet of towboats are 17,133,342 tons, of which 4,762,024 tons were moved by those of the Upper Mississippi system, 11,149,972 tons by towboats of the Ohio system, and 1,221,346 tons by the Lower Mississippi system fleet of towboats.

The balance of the towed freight, 1,926,200 tons, was towed by the passenger and freight boats on the Illinois, Allegheny, Big Sandy, Green, Wabash, White, Arkansas, Yazoo, Washita, Red, and Red River of the North. By systems, the amounts of freight so towed were 44,692 tons on the Upper Mississippi system, 1,085,229 on the Ohio system, 792,642 on the Lower Mississippi system, and 3,637 on the Red River of the North.

The amount of freight carried on the 320 passenger and freight steamers amounted to 9,233,598 tons for the valley, of which 1,453,732 tons were carried on the Upper Mississippi system, 3,561,767 tons on the Ohio system, and 4,218,099 tons on the Lower Mississippi system. By actual carriage and towing these passenger and freight steamers moved 11,159,798 tons of freight on the rivers of the valley, of which amount 1,502,061 tons were moved on the Upper Mississippi system and Red River of the North, 4,646,996 tons on the Ohio system, and 5,010,741 tons on the Lower Mississippi system.

So far but 28,293,140 tons of freight out of a total movement of 29,405,046 tons have been accounted for. The remaining 1,111,906 tons are credited to the 163 ferryboats. As was explained when speaking of the expense accounts of these steamers, the report of freight carried is not as satisfactory as it might be, because of the claims made by their owners, either that the freight movement had already been given in the reports of railroads or else that their freight had been carried in such a shape (by wagon or car load) that no tonnage returns could possibly be made. Of the 1,111,906 tons given, 539,057 tons were reported for the Upper Mississippi, 800 for the Saint Croix, 158,035 for the Missouri, 244,898 for the Ohio, 168,016 for the Lower Mississippi, and 1,100 for the Arkansas.

It was on these 3 classes of steamers, the passenger and freight, ferry, and towboats, that the passenger traffic of the Mississippi valley was conducted (see Table 7). Most of the excursion passengers were either carried on the towboats or towed on barges by them, while the regular and ferry passengers were of course carried on the steamers devoted to the respective business. The total number of passengers carried during 1889 was, it will be seen, 10,858,894, made up of 2,384,248 regular and excursion passengers and 8,474,646 ferry passengers. By systems, it is found that there were 338,750 regular and excursion passengers carried on the Upper Mississippi and its tributaries and 1,482,984 ferry passengers, a total of 1,821,734. On the Ohio system the regular and excursion

passengers amounted to 1,506,594 and the ferry passengers to 4,996,549, a total of 6,503,143; while on the Lower Mississippi system the regular and excursion passengers numbered 538,904 and the ferry passengers 1,995,113, a total of 2,534,017. No passenger movement was reported for the Red River of the North.

MOVEMENT OF COMMODITIES.

In the analysis of freight traffic shown by Tables 9, 10, 11, and 12 it is seen that while about 30 commodities are reported there are 6 principal commodities which easily lead, these being grain, cotton, coal, iron ore, lumber and forest products, and cotton seed and cotton-seed oil. The movement of these different commodities (see Table 12) was as follows: grain, 1,730,918 tons (wheat, 848,442 tons; corn, 786,888 tons; other grain, 95,588 tons); cotton, 896,292 tons; coal, 8,539,229 tons; iron ore, 574,790 tons; lumber and forest products, 9,300,641 tons; cotton seed and cotton-seed oil, 394,788 tons. Other items of which there was a large movement were: sugar, 190,873 tons; animal products, 177,376 tons; stone and gravel, 178,631 tons; clay and sand, 142,423 tons; hay, 91,579 tons, and iron manufactures, outside of iron (pig and bloom), 92,110 tons. Of flour-mill products there were moved 90,895 tons; of tobacco, 27,959 tons; of fruit and vegetables, 59,610 tons; of ice, 91,010 tons; of petroleum and other oils, 3,538 tons; of iron (pig and bloom), 7,775 tons; of cement, brick, and lime, 2,375 tons; of all other manufactures (including salt), 74,596 tons; of unclassified merchandise, 6,737,075 tons.

The great barge movement (Table 10) was of such commodities as corn, hay, coal, iron ore, stone and gravel, clay and sand, ice, lumber and forest products, cotton, and sugar. Out of a total movement of 91,579 tons of hay 57,635 tons were towed on barges; out of a total of 8,539,229 tons of coal 8,527,115 tons were towed; out of a total of 574,790 tons of iron ore 573,896 tons were towed; out of a total of 178,631 tons of stone and gravel 156,699 tons were towed; out of a total of 142,423 tons of clay and sand 141,464 tons were towed; out of a total of 91,010 tons of ice 91,000 tons were towed; out of a total of 9,300,641 tons of lumber and forest products 8,652,696 tons were towed; out of a total of 190,873 tons of sugar 100,000 tons were towed, and out of a total of 786,888 tons of corn 471,203 tons were towed. The principal towing of these commodities was conducted as follows: that of corn, on the Lower Mississippi, 471,203 tons; that of hay was principally, on the Missouri, 5,000 tons; the Tennessee, 5,000 tons; the Lower Mississippi, 5,000 tons, and the Arkansas, 42,000 tons. The principal towing of coal was done, on the Ohio, 4,018,787 tons; on the Monongahela, 3,059,418 tons; on the Great Kanawha, 941,446 tons; on the Lower Mississippi, 183,848 tons; and on the Arkansas, 165,888 tons. The principal barge movement of iron ore was on the Tennessee, on which 528,248 tons were towed out of a total of 573,896 tons. Stone and gravel were principally towed, on the Allegheny, 19,050 tons; on the Kentucky, 12,861 tons, and on the Arkansas, 120,000 tons. The principal barge movement of clay and sand was, on the Allegheny, 51,500 tons, and on the Cumberland, 89,964 tons. The principal ice movement on barges was on the Upper Mississippi, 45,050 tons, and on the Illinois, 41,950 tons. The principal barge movement of lumber and other forest products was 3,372,874 tons on the Upper Mississippi, 846,016 tons on the Saint Croix, 1,131,755 tons on the Ohio, 600,000 tons on the Green, 664,318 tons on the Cumberland, 310,654 tons on the Lower Mississippi, 261,906 tons on the Arkansas, and 325,477 tons on the Chippewa. The principal barge movement of sugar was 100,000 tons on the Lower Mississippi.

Of the commodities which were almost entirely carried on board passenger and freight steamers, the principal were wheat, other grains, mill products, cotton, iron (pig and bloom), cement, brick, and lime, all other manufactures, cotton seed and cotton-seed oil, and general merchandise. Those commodities which were carried entirely on passenger and freight steamers, or of which at least there was no barge movement, were tobacco, fruit and vegetables, animal products, petroleum and other oil, iron manufactures, and bar and sheet metal.

The ferry traffic could not be very well divided into commodities for reasons already referred to, and the bulk of the 1,111,906 tons had to be set down as general merchandise, the figures of that comprehensive commodity being 958,214 tons. Other commodities of which there was a ferry movement, and of which whole or partial returns were received, were: wheat, 8,461 tons; corn, 4,087 tons; other grain, 2,872 tons; mill products, 323 tons; cotton, 550 tons; tobacco, 252 tons; fruit and vegetables, 17,862 tons; coal, 11,801 tons; lumber, 100,400 tons; animal products, 6,858 tons; cement, brick, and lime, 182 tons, with a scattering tonnage of petroleum, sugar, bar and sheet metal, and all other manufactures.

CHARACTERISTICS OF TRAFFIC.

One of the principal values of these commodity tables will be to indicate the distinctive character of the local traffic on each of the rivers. It will be seen, for example, in Table 12 that the bulk of the Upper Mississippi's trade was in lumber and other forest products, the tonnage of that commodity standing at 3,473,189 tons out of a total tonnage movement on that river of 4,486,421 tons, the balance being almost entirely made up of 23,000 tons of wheat, 22,424 tons of coal, 45,050 tons of ice, and 913,888 tons of merchandise. The trade of the Saint Croix consisted almost entirely of a lumber movement, as did that of the Chippewa. The traffic on the Illinois, however, was a much more general one, 114,431 tons of general merchandise having been carried out of a total movement of 180,264 tons. The chief items of commodity movement on the Missouri, Osage, and Gasconade were: wheat, 141,658 tons; corn, 50,502 tons; mill products, 9,598 tons; coal, 51,162 tons; lumber, 104,384 tons; animal products, 11,424 tons, and

general merchandise 743,769 tons. The traffic on the Ohio was a very general one, and included 125,003 tons of wheat, 2,585 tons of corn, 18,522 tons of cotton, 11,656 tons of iron ore, 57,881 tons of sugar, 54,297 tons of iron, and 55,163 tons of all other manufactures; but the principal commodities after all were those of coal, lumber, and general merchandise, the figures being, respectively, 4,018,788 tons, 1,131,777 tons, and 2,293,466 tons. The Allegheny traffic consisted almost entirely of stone and gravel, 19,050 tons; clay and sand, 51,500 tons, and lumber and other forest products, 276,860 tons. The Monongahela's chief commodity was of course coal, there being 3,059,418 tons of that commodity moved out of a total river movement of 3,294,932 tons. The Muskingum's traffic was one of general merchandise; that of the Little Kanawha was almost entirely of lumber and other forest products; that of the Great Kanawha was chiefly confined to coal, 941,446 tons; lumber, 80,468 tons, and general merchandise, 119,848 tons. The Big Sandy's trade consisted very largely of lumber, 142,950 tons, and merchandise, 139,889 tons, the Kentucky running in the same way. The list of the Green's commodities was a much more general one, although lumber was still the principal commodity. The Wabash included a large grain and lumber movement in its report, as did the Cumberland, with an additional item of 89,964 tons of clay and sand. The Tennessee's traffic covered almost the entire list of commodities, although the principal items were 528,248 tons of iron ore, 17,984 tons of corn, 12,542 tons of cotton, 18,657 tons of fruit and vegetables, 35,888 tons of coal, and 20,178 tons of stone. The Lower Mississippi carried but little manufactures, comparatively, except in the item of sugar, of which the tonnage was 130,828 tons; the other principal items were products of agriculture, including 422,800 tons of wheat, 498,746 tons of corn, and 784,008 tons of cotton, the other chief commodities being 183,848 tons of coal; cotton seed and cotton-seed oil, 271,809 tons; general merchandise, 1,704,745 tons, and 310,654 tons of lumber. The traffic of the White was mainly that of lumber, but that of the Arkansas embraced the products of agriculture, mines, and manufactures about equally distributed. The Yazoo's trade was largely made up of 3 items: 22,865 tons of corn, 27,861 tons of lumber, and 14,124 tons of cotton seed and cotton-seed oil. Very nearly the same distribution of freight is to be seen in the Yazoo, the Washita, and the Red.

RESTRICTION OF RETURNS.

As was said in an early paragraph of this text, the attempt has been made, wherever possible, to credit to each stream the commodity traffic which originated there or which was confined to points along that stream; that is, to the Illinois river, for instance, there was credited the 18,000 tons of wheat which were either moved from some point on that river to some other point on the Illinois, or which were moved from some point on the Illinois to some point on another stream. Of course, in attempting to thus confine the credit of freight operations in certain commodities to certain streams, the great difficulty has been to avoid a duplication of freight movement when considering the transportation of the same commodity on some other stream; that is, the difficulty has been to say that no part of these 18,000 tons of wheat is found in the report of wheat movement on any other river. It has, indeed, been almost impossible to confine this commodity movement within such strict limits, but the attempt has been made with reasonable success.

In such commodities as cotton, tobacco, iron ore, sugar and molasses, cotton seed, cotton-seed oil, and hay the work of limitation has not been so difficult, the movement of these commodities being a localized one, but in the movement of such commodities as coal and lumber and other forest products it has been a difficult matter to procure a correct limitation. Take, for example, the commodity of coal. Table 12 shows that in 1889 there were moved on the Ohio 4,018,788 tons of coal, on the Monongahela 3,059,418 tons, on the Great Kanawha 941,446 tons, the coal movement on the other tributaries of the Ohio making a total for the system of 8,102,544 tons of coal. Here the chief rivers of origin were the Monongahela and the Great Kanawha, while the great center of distribution was Pittsburg. The chief points of supply were Pittsburg, Wheeling, Cincinnati, Louisville, Saint Louis, Memphis, and New Orleans. In the supply of these different points the coal was towed out on barges from the Ohio into the Mississippi, and the difficulty has been to say decisively whether the coal taken over the Lower Mississippi, in the supply of the different cities along that stream, should be set down as part of the traffic of the Lower Mississippi or go only to the Ohio as the stream of origin. It has been found that of the 8,102,544 tons of coal which are set down to the credit of the Ohio and its tributaries 2,104,681 tons were brought out into the Lower Mississippi, while it has also been found that the coal movement which either had its origin on the Lower Mississippi or was confined to between points on that stream, exclusive of the stoppage of coal barges en route from the Ohio to points on the Lower Mississippi, amounted to 183,848 tons. The superior part of Table 12, it will be seen, sets down this amount as being the traffic in the commodity of coal, which alone should be properly credited to the Lower Mississippi, while in the subsidiary part of the same table it is shown that on the Lower Mississippi there was moved a total of 2,288,529 tons of coal, that amount being made up out of the coal brought down from the Ohio and the coal which was moved along the Lower Mississippi as the river of origin.

A similar treatment has been made with respect to the statistics of lumber. Here, it will be seen, the amount of lumber carried over the Lower Mississippi, irrespective of origin, was 1,794,719, while the traffic in lumber on the Lower Mississippi as a river of origin was but 310,654 tons.

STATISTICS OF TRANSPORTATION.

ORIGIN OF FREIGHT.

The two sets of figures, therefore, show that on the Lower Mississippi system there was a total movement of coal, irrespective of origin, of 2,465,480 tons, but that on the Lower Mississippi system, as a system of origin, there was a movement of but 360,799 tons, while the total lumber movement on the Lower Mississippi system, irrespective of origin, was 2,222,813 tons, but that the lumber movement on the Lower Mississippi and its tributaries as points of origin was only 738,748 tons.

In the matter of coal it will be seen the total movement on the Upper Mississippi system was 75,886 tons, that on the Ohio system was 8,102,544 tons, and that of the Lower Mississippi and its tributaries was 2,465,480 tons, which, added together, would give a grand total as the freight movement in coal of the vessels on those 3 systems of 10,643,910 tons. But in making up a computation of the total movement of the commodity of coal on these 3 systems it should be understood that it is only proper to take the 75,886 tons on the Upper Mississippi and its tributaries, the 8,102,544 tons on the Ohio and its tributaries, and the 360,799 tons on the Lower Mississippi and its tributaries, with the total of 8,539,229 tons as the true total of the report of the commodity movement of coal on the rivers of the Mississippi valley. In the same way the 3 totals of 4,749,808 tons, 3,812,035 tons, and 2,222,813 tons of lumber and other forest products can be considered as the total freight movement in lumber by all the vessels of the Mississippi valley, but the actual amount of lumber moved on the rivers of the Mississippi valley was only 9,300,641 tons, made up of the 4,749,808 tons moved on the Upper Mississippi and its tributaries as rivers of origin, the 3,812,035 tons moved on the Ohio and its tributaries as rivers of origin, 738,748 tons moved on the Lower Mississippi and its tributaries as rivers of origin, and the 50 tons moved on the Red River of the North as river of origin.

COAL MOVEMENT ON THE OHIO.

From the preceding analysis it will be observed that by far the most important item of freight of the Ohio is coal, and on this account it was thought advisable in preparing a bulletin (No. 88) on transportation on this river to attempt to localize the coal traffic. The subjoined table was therefore worked out, showing the amount of coal shipped from Pittsburg (Pennsylvania), Point Pleasant (West Virginia), Pomeroy (Ohio), Ashland (Kentucky), and Bellaire (Ohio), and the cities to which this coal was shipped:

COAL TRAFFIC ON THE OHIO.

A.—AMOUNT OF COAL SHIPPED FROM PLACES NAMED AND THE DISTANCE CARRIED EXPRESSED IN TON MILEAGE.

FROM—	Tons.	Tons moved 1 mile.
Total.....	4,018,788	2,644,392,853
Pittsburg, Pennsylvania.....	2,753,599	2,382,822,128
Point Pleasant, West Virginia.....	1,067,857	231,087,122
Pomeroy, Ohio.....	136,900	23,780,489
Ashland, Kentucky.....	42,530	6,013,350
Bellaire, Ohio.....	17,902	689,764

B.—AMOUNT OF COAL SHIPPED FROM PITTSBURG TO PLACES NAMED.

TO—	Tons.	Miles.	Tons moved 1 mile.	TO—	Tons.	Miles.	Tons moved 1 mile.
Total.....	2,753,599		2,382,822,128	Greenville, Mississippi.....	10,000	1,465	14,650,000
Cincinnati, Ohio.....	1,287,394	467	601,212,998	Natchez, Mississippi.....	46,231	1,738	78,962,548
Cairo, Illinois.....	20,000	967	19,340,000	New Orleans, Louisiana.....	401,805	1,980	973,773,900
Saint Louis, Missouri.....	100,000	1,167	116,700,000	Louisville, Kentucky.....	596,249	598	356,556,902
Memphis, Tennessee.....	126,160	1,265	152,022,800	Baton Rouge, Louisiana.....	9,460	1,848	17,482,080
Helena, Arkansas.....	10,000	1,284	12,840,000	Madison, Indiana.....	44,000	570	25,080,000
White river, Arkansas.....	10,000	1,378	13,780,000	Parkersburg, West Virginia.....	2,300	183	420,900

C.—AMOUNT OF COAL SHIPPED FROM POINT PLEASANT TO PLACES NAMED.

Total.....	1,067,857		231,087,122	Greenville, Mississippi.....	652	1,201	783,052
Cincinnati, Ohio.....	1,010,181	203	205,066,743	Memphis, Tennessee.....	539	941	507,199
Louisville, Kentucky.....	46,315	334	15,469,210	Frankfort, Kentucky.....	506	338	171,028
New Orleans, Louisiana.....	481	1,716	825,396	Orange, Kentucky.....	1,567	373	584,491
Baton Rouge, Louisiana.....	1,176	1,584	1,862,784	Lawrenceburg, Kentucky.....	476	226	107,576
Donaldsonville, Louisiana.....	183	1,640	300,120	Vanceburg, Kentucky.....	109	111	12,099
Bayou Sara, Louisiana.....	1,602	1,549	2,481,498	Portsmouth, Ohio.....	1,639	90	147,510
Vicksburg, Mississippi.....	2,023	1,336	2,702,728	Augusta, Kentucky.....	408	161	65,688

RIVERS OF THE MISSISSIPPI VALLEY.

COAL TRAFFIC ON THE OHIO—Continued.

D.—AMOUNT OF COAL SHIPPED FROM POMEROY TO PLACES NAMED.

to—	Tons.	Miles.	Tons moved 1 mile.	to—	Tons.	Miles.	Tons moved 1 mile.
Total	136,900		23,783,483	Frankfort, Kentucky	1,691	353	596,923
				Maysville, Kentucky	49,383	156	7,703,748
				Vanceburg, Kentucky	2,400	126	302,400
Cincinnati, Ohio	30,324	218	6,610,632	Ripley, Ohio	8,800	165	1,452,000
Louisville, Kentucky	8,424	349	2,939,976	Richmond, Ohio	3,200	197	630,400
Portsmouth, Ohio	25,994	105	2,729,370	Manchester, Ohio	2,000	145	290,000
Huntington, West Virginia	2,684	60	161,040	Chilo, Ohio	2,000	182	364,000

E.—AMOUNT OF COAL SHIPPED FROM ASHLAND TO PLACES NAMED.

to—	Tons.	Miles.	Tons moved 1 mile.
Total	42,530		6,013,350
Cincinnati, Ohio	40,850	147	6,004,950
Ironton, Ohio	1,680	5	8,400

The 7 tables of classified details (Tables 13 to 19, inclusive) may safely be considered as self-explanatory, and as really being prepared and presented more as a matter of comprehensive convenience than as furnishing any new lesson.

STATISTICS OF 1880 AND 1889.

In considering the comparative statistics embraced in Tables 20 to 28, inclusive, some peculiar conditions are encountered. As will be seen by the comparative table of equipment (Table 20), there were registered in the ports of the Mississippi valley in 1880 1,198 steamers, which had a tonnage of 251,792.85 and a value of \$12,009,400, while in 1889 the registered steamers numbered 1,114, with a tonnage of 210,771.89 and a value of \$10,539,251, a decrease of 84 steamers, of 41,020.96 tonnage tons, and of \$1,470,149 in value. On the other hand, it will be found that while in 1880 the unrigged craft of the Mississippi valley numbered 3,854, with a tonnage of 909,824.01, the unrigged in 1889 had risen to 6,339 in number, with a tonnage of 3,182,608, an increased number of 2,485, with an increased tonnage of 2,272,783.99. Notwithstanding this increase of tonnage and number, the valuation of the unrigged remains almost stationary. So far as the valuations are concerned, however, they may be considered as a varying quantity. The schedule calls for "estimated commercial value", and the figures set down will run high or low according to the basis upon which the estimator places his value. In some cases a man estimates his vessels at what they cost, while in other cases he estimates them only at what he supposes they would realize in sale, while the insurance agent may have a third estimate; then, too, the depreciation in value has to be considered as a factor in these estimates, although in this case there is no depreciation sufficient to balance the positive increase of craft. A reasonable explanation of difference of estimate arises in the fact that the values given for 1880 are those which were made by local or general experts, while those for 1889 were returned by the owners themselves, and that these owners from first to last manifested a very conservative spirit in rating the value of their property. The same difference in values will be found in the total of all craft owned on the Mississippi valley, for while the total number for 1880 stands at 5,052 and that for 1889 at 7,453, an increase of 2,401, and the total tonnage for 1889 shows an increase of 2,231,763.03 tons; still the valuation remains almost stationary. It is repeated that it is a safe estimate that there is an undervaluation of at least 30 per cent on all these vessels reported for 1889, and calculating on this basis there is an omitted value of \$6,572,145 for 1889, which, added to the estimated commercial value as reported, will give the total valuation for all the craft of the Mississippi in 1889 of \$21,907,150, figures which are somewhat nearer the mark.

NEW METHODS OF TRANSPORTATION.

The decrease in the number of the Mississippi valley steamers must not be taken as an indication of a waning industry. The explanation lies in the new method of transportation as indicated in the increased number and value of unrigged. The exceedingly large barge tonnage on the Ohio has already been referred to, and in addition to this it may be said that at Pittsburg itself there are owned no fewer than 3,581 barges, having a tonnage of 1,982,407 and a value of \$2,145,765, or an average of nearly \$600. Some of the barges rise in value, however, to \$2,000, while there are others, employed by the wood sellers on the small streams, for which \$50 would be a generous estimate. Wood, of course, is the material most generally used, but iron is also freely employed, and steel appears to be coming into favor as a material of construction.

The main employment of the great Pittsburg fleet of barges is in the transportation of coal, and concerning this industry the text of the Tenth Census report on steam navigation of the United States contained the following interesting description:

COAL BARGES OF THE OHIO.

This coal is mined along the banks of the Monongahela river, which has been improved by a series of dams and locks, dividing it up into what are called pools or pockets. Here the small tows, consisting of 3 or 4 loaded barges, are made up and taken out through the locks to Pittsburg, where they are combined in still larger tows for transportation to Louisville. Here they are again combined into immense tows of 30 or more barges and boats for the final trip down the Mississippi. The steamer is put behind these barges and all are bound together in one firm mass by means of ropes and chains tightened by ratchets, and the steamer used as a rudder to guide the field of barges around the bends in the river, great skill being required in the strong currents in performing this task, called "flanking". * * * Coal boats contain about 24,000 bushels or 900 tons, and cost from \$700 to \$800 when new. A tow from Pittsburg to Louisville consists of from 12 to 16 barges, or 8 to 10 coal boats, and from Louisville to points below, from 16 to 20 boats and barges. One of the largest tows that was ever taken down from Louisville contained 38 pieces, measuring 862 feet in length, 260 feet in width, and contained 679,854 bushels, and beside this the steamer carried 19,500 bushels, making a grand total of 699,354 bushels, or 25,902 tons. It is claimed that in this traffic is found the cheapest freight rate in the country; as coal has been put into New Orleans, 2,000 miles from Pittsburg, at 60 cents per ton.

This change in method was indicated in the text of the Tenth Census. In speaking of the river interests of the Mississippi in that chapter of Volume IV entitled "Steam navigation in the United States", it says:

The growth of this model barge system on the western rivers has been steady for the past 4 years, and it is now assuming an importance in the commerce of the west worthy of attention. Of the better class of barges * * * there were on the Mississippi and Ohio 286 reported to this office, measuring 158,771.50 tons actual capacity. * * * In the movement of bulk grain and heavy freights this system is gradually supplanting the ordinary steamer, and it has many advantages. By economy of time and steady movement the barge tug would equal the steamer in speed, making the run from Saint Louis to New Orleans with 5 to 7 barges in about 5 days, at a cash expense of \$1,000. The round trip will not exceed 16 or 17 days. The capacity of the barges varies from 18,000 to 100,000 bushels, the medium being about 35,000 bushels, so that an average tow consists of 7 barges containing 232,834 bushels, or about 7,000 tons.

INCREASE OF TOWED FREIGHT.

This relation of cause and effect is seen to be consistently carried out in the fifth comparative table (Table 24), showing the comparative freight movement in 1880 and 1889. On the steamers, in the first-mentioned year, there were transported 13,557,884 tons of freight, while in 1889 the actual transportation of freight by steamer was but 10,345,504 tons, a decrease of 3,212,380 tons. But while the business of the freight steamer has decreased, it will be seen that the towed freight has very materially gone up, the figures for 1880 being 5,388,638 tons, while in 1889 they had risen to 19,059,542 tons, an increase of 13,670,904 tons of towed freight. The decreased steamer-carried freight will of course diminish this gain, but even when the 3,212,380 tons decrease in steamer freight is taken from the 13,670,904 tons of towed freight there remains a net increase of 10,458,524 tons of freight moved on the rivers of the Mississippi valley in 1889 over the total of 1880, although it is but proper to state here that this increase would probably suffer a diminution if the barge movement for 1880 had been as fully reported as it has been for 1889. On the other hand, it must be understood that 1889 was what is known as a poor year, nearly all of the rivers having suffered from low water. The passenger business has kept up much more steadily than it had been imagined would be the case, and it will be seen that in both the "ferry" and "regular" divisions of the passenger returns the ratio of increased travel has run very steadily with that of population.

COMPARED EARNINGS.

Turning back to the comparative expense account shown in Table 22, it will be seen that only the gross earnings are compared, this limitation being necessary because in the returns for 1880 only that portion of the account was asked for. There is an apparent contradiction here, for while the traffic has increased, as has been shown, the amount of gross earnings has diminished. In 1880 the gross earnings of the Mississippi valley fleet were \$20,293,173, while in 1889 they were reported at but \$16,337,533, a difference of \$3,855,640. Much of this difference can be ascribed to the same set of causes which operate in the returns of valuation, while much more can be ascribed to the diminished earnings of water transportation due to increased competition of railroads. A poor paying business especially affected the Upper Mississippi and the Missouri, as will be seen by the comparative returns for these two parts of the valley system. The business was done for whatever could be had, and in many cases the shipper fixed his own rates. Then, too, the diminution of earnings on the Upper Mississippi and Missouri is attributable to the fact that these are branches of the system where the old methods of transportation still largely obtain, while on the Lower Mississippi, where the new methods of transportation have so rapidly come into vogue, the increase of gross earnings is equally noticeable. On the Ohio the decrease can only be ascribed to the effect of ardent competition. It must be remembered, however, that these are gross earnings, and that in the absence of the expense account they offer no indication whatever of profits. The bulk of the business on the Mississippi and its branches is rapidly passing into the hands of large concerns, which are enabled to control their expenses in such a way as to considerably diminish their gross earnings and yet maintain their net profit.

In Table 23 there are two interesting columns which show the total crews and the amount paid in wages during 1880 and 1889. By the term "total crews", it is repeated, there must be understood the total number of men making up the totals of the ordinary crews required on board each craft, and not the total number of men employed during the year. Here it will be seen that the total number of men has fallen from 23,616 to 15,996, a diminution of 7,620 men, while the wages paid have only dropped from \$6,979,226 to \$5,338,862, a decrease of \$1,640,364, two decrements which do not preserve their ratio. On looking for an explanation of this, it is found set down in the last 3 columns, which show that the rate of wages per man per annum has increased in every part of the system with the exception of the Missouri, and that the whole annual rate of wages has increased \$38.23 per man. The increase, it will be observed, is largest on the Lower Mississippi, and next stands the Ohio, two branches of the valley system where transportation by barges is most practiced. Though the total number of crews has decreased in consequence of the diminution of freight steamers, the smaller number of men who are employed on the barges are men in the receipt of a much higher rate of wages than those whose services have been dispensed with.

FLUCTUATIONS OF FLEETS.

The fluctuations in the documented fleets of the Mississippi valley rivers for the 10 years 1880 to 1889, inclusive, are clearly shown in the 3 tables, 25, 26, and 27, which were carefully prepared from information furnished by the courtesy of the commissioner of navigation and the bureau of statistics.

Two things will be noted from a glance at Table 25: first, that the number of steamers which the commissioner reports as having been documented in 1880 is not the same number as is given by the census for that year as the fleet of the valley, and, second, the very decided drop from the barge fleet of 1880 to that of 1881.

With respect to the first difference it may be stated that the 1,225 steamers which the commissioner reports as the documented fleet of the Mississippi valley also include those steamers which traded from New Orleans seaward, while the 1,198 steamers which the census states formed the fleet for that year do not include those steamers. No division of this sort was made in the commissioner's report until the year 1883, when the New Orleans river fleet was segregated, the number for the port in that year standing at 132 as against 172 for the previous year, and the actual river fleet for the whole valley being set at 1,163 as against 1,226 for 1882.

The very remarkable drop in the barge fleet from 1,070 in 1880 to 233 in 1881 is due to the fact that it was about this time that the law went into effect by which the registration of barges was only compulsory in those cases wherein these craft were employed in the carriage of bonded goods. It may be added here that the still greater difference between the number of barges (1,070) reported on by the commissioner for 1880, and the number (3,854) reported on by the census for the same year is due to the other fact that for this year, as for every other year, the commissioner only reports upon registered barges, while the census reports on every unrigged craft owned and operated. The same explanation can be applied to the number of barges (132) given by the commissioner as the barge fleet in Table 25 for the year 1889, and the number (6,339) given in Tables 1 and 20 as the census barge fleet for the same year.

INDIVIDUAL CASES.

In looking at the number of steamers registered in the customs districts (Table 26), it is found that in this particular Cincinnati has almost stood still, its registration for 1880 being 116, and for 1889 115, its lowest point being in 1884, when its registered fleet was 101, and its highest number being the 116 which made its entry for both 1880 and 1888.

In point of number Saint Louis has very perceptibly and steadily decreased, the series running 162, 153, 163, 160, 136, 141, 129, 132, 123, 115.

Wheeling shows a similar decrease, its series being 142, 137, 144, 110, 109, 112, 101, 109, 109, 94.

Pittsburg, however, shows a far less depreciation, its series of registered fleets being 168, 160, 169, 157, 163, 155, 154, 158, 155, 152.

On the other hand, the customhouse books at Memphis have shown an increase in number, the 1880 fleet numbering 66 and the 1889 fleet numbering 71, the lowest point being 65 in 1881, and the highest being 82 in 1887.

Dubuque has remained almost stationary. In 1880 it had 29 registered steamers and in 1889 it had 28, the average annual registered fleet numbering 25.70.

Vicksburg, with the exception of a temporary obscuration in 1881 and 1882, has maintained a singularly unvarying fleet, the figures for 1883 onward being 28, 30, 32, 30, 30, 30, 30, this being the steadiest record of all the ports, with the exception, perhaps, of Natchez and the district of Minnesota, the first-mentioned district running 3, 5, 4, 4, 3, 3, 3, 4, 4, and the second 48, 45, 48, 46, 48, 44, 46, 49, 47, 46.

Louisville's variation has been but little, too, so far as the number of registered craft is concerned, the fleet of 1889 being 52 against a 53 fleet for 1880.

Burlington took a sudden advance in 1881, showing 42 registered steamers against 31 for the preceding year, but from 1881 onward the registrations have changed very little, the series being 42, 43, 45, 46, 45, 45, 43, 42, 43.

Lacrosse has a record of tolerably steady increase, its fleet running at 39, 44, 45, 35, 43, 40, 41, 45, 45, 47.

Galena also comes very close to maintaining the same standard, the series being 25, 23, 23, 25, 23, 24, 23, 26, 26, 27, a deflection of 2.50 from an average of 24.50.

Evansville shows more fluctuations, and Omaha still more, while New Orleans, from and inclusive of 1883, has experienced but few variations, the series being 132, 138, 127, 125, 129, 127, 126.

Nashville does not appear, it will be observed, after 1887, its registrations being now merged in those of Paducah, which port began registering in 1884. The latter's increase since that time has been the most remarkable of any on the list, the series being 9, 18, 23, 29, 42, 53.

Cairo ceased to be a port of entry in 1885, the 18 steamers it then had being distributed among other ports.

Chattanooga only came into record as a port of entry in 1882, the number of registered steamers that year standing at 13, and for the 7 succeeding years at 17, 16, 18, 15, 17, 20, 22.

Kansas city and Saint Joseph are also comparatively new ports of entry, the first beginning to record in 1883, the series since that time being 11, 11, 13, 13, 13, 16, and the second beginning to record in 1885, with a continued series of 3, 4, 6, 6, 6.

CHANGES IN REGISTERED TONNAGE.

Passing next to a consideration of the registered tonnage in the customs districts, it is found that New Orleans has experienced a moderate decrease, the figures running down from 21,199 tons in 1883 to 19,249 tons in 1889.

Natchez, on the other hand, has made a considerable advance, for though its registered tonnage was never large it has increased from 192 tons in the first year of the decade to 592 tons in the last year. Its average annual registration of tonnage was 359.11, the 2 years mentioned showing the highest point above and lowest point below the average, with 1885 as the year when the registered tonnage, 303 tons, was closest to the average.

Vicksburg shows an average annual registration of 2,735 tons, the year of greatest registration being 1885, with 3,638 tons, the year of lowest registration (omitting 1882) being 1886, with 2,556 tons, and the year 1887 coming closest to the average, with 2,723 tons.

Memphis has had many fluctuations of registration, that of the year 1889, being the year of average registration, with 12,114 tons; 1884, with 14,977 tons, marking the highest limit, and 1882, with 10,426 tons, marking the lowest limit.

As has been already stated, Nashville ceased to be a port of registration after 1887, its registered tonnage in that year being about the same as it was in 1880, the exact figures being 3,469 tons and 3,621 tons.

Chattanooga, on the other hand, and as has also been stated, only came into existence as a port of registration in 1882, the customhouse entries from that time onward being a continually increasing one and rising from 1,567 tons to 3,966 tons in 1889.

Louisville has experienced a marked declination, the registered tonnage in 1880 being 17,750 tons, and that in 1889 being 11,938 tons. The year 1884 was the year of highest registration of this port, the returns showing entries amounting to 18,175 tons.

The record of Paducah has been a very remarkable one. The first registrations of tonnage were made in 1884, when they amounted to 652 tons, while in 1889 they had risen to 8,781 tons.

Saint Louis's decline in registered tonnage has been even more marked than that of Louisville, for while in 1880 it was 59,699 tons, in 1889 it was but 42,827 tons. Its best year was 1883, when the registered tonnage amounted to 62,350 tons.

The record of Kansas city is almost as remarkable as that of Paducah, the first registrations being in 1883 and amounting to 113 tons, those of 1889 standing at 1,781 tons.

DISTRICT RECORDS.

The port of Saint Joseph, which only began an existence as a port of registration in 1885 with 297 tons, showed entries amounting to 747 tons in 1887, that number decreasing to 341 tons in 1889.

One of the ports of steadiest record has been that of Burlington, its tonnage list in 1880 being 2,414 tons and that of 1889 being 5,059 tons, the average registration being 4,510.40 tons.

Dubuque has an almost corresponding record, the registered tonnage for 1880 being 3,697 tons and that of 1889 being 6,355 tons, with an average registered tonnage of 4,455.30.

Lacrosse has experienced a very notable decline in importance as a port of registration. The records for 1880, 1881, and 1882 give over 6,000 tons for each year. Then came a drop to 3,028 tons in 1883, since which time, however, the entries have crept up little by little, until in 1889 they amounted to 3,884 tons.

The district of Minnesota has about stood still, the registrations in 1880 amounting to 5,873 tons, and those in 1889 amounting to 5,214 tons, the average annual registration being 6,146.80 tons.

The port of Galena has shown a slow but healthy increase, the tonnage registered in 1880 being 2,267 tons, and that in 1889 being 3,130 tons, the average annual registration being 2,634.60 tons.

Cairo ceased to be a port of registration in 1885, at which time the customhouse books showed a registration of 3,508 tons.

Though the registered tonnage of Evansville was greater in 1889 than it was in 1880, the figures being 6,951 tons against 5,709, each year was below the annual average registration of 7,123.30 tons, the years of largest entries being 1884, 1885, 1886, and 1888, when it was over 8,000 tons for each year.

Cincinnati has experienced the same decrease in registered tonnage that has marked so many of the other great ports of the Mississippi valley, the tonnage registered in 1880 being 39,931 tons and that in 1889 being 31,407, with an annual average registration of 34,170.50.

Wheeling, Pittsburg, and Omaha all show an equally perceptible diminution, the 1880 figures for these 3 ports being, respectively, 16,712 tons, 39,483 tons, and 5,887 tons, while the 1889 figures of the same ports are 9,769 tons, 32,263 tons, and 1,330 tons.

The records for all the ports of the Mississippi valley, in fact, show a steady diminution of registered steamer tonnage from 256,915.99 tons in 1880 to 209,826.07 tons in 1889, a loss of 47,089.92 tons. This decrease, however, it should be repeated, must not be taken as indicating a decaying industry, but only as an evidence of that gradual change in conducting transportation on the rivers of the Mississippi valley to which reference has already been made once or twice in the body of this text—the fact that the large-tonnaged freight-carrying steamers are each year dropping into disuse, their places being taken by small-tonnaged but powerful towing boats, which are employed in the movement of unregistered barges. A computation from the entries made on Table 26 of the number, tonnage, and average vessel tonnage for each port for each of the 10 years under consideration will furnish an additional evidence of this, for while the average vessel tonnage of all the craft in 1881 was 207, and 208 in 1884, it had dropped to 191 in 1887 and to 188 in 1889.

A RECORD OF SHIPBUILDING.

Still another evidence of the same altered condition of affairs is found in Table 28, which shows the number and tonnage of all steam vessels and barges built in the customs districts of the Mississippi valley during the 10 years 1880 to 1889, together with data showing the number and tonnage of side-wheel steamers, stern-wheel steamers, and propellers built during each year in each district. It will be seen from the figures therein presented that while in 1880 30 side-wheelers were built, with an aggregate tonnage of 11,449.60, in 1889 but 2 side-wheelers were built, with an aggregate tonnage of 980.54. At the same time the number of propellers rose from 12 in 1880, with an aggregate tonnage of 689.72, to 16 in 1889, with an aggregate tonnage of 1,286.69, the years 1881, 1882, and 1883 being marked by an exceptional activity in propeller building. The building of stern-wheel steamers of comparatively small tonnage has been marked by very little variation for the past 5 or 6 years.

One of the most interesting in the whole series is Table 29, which gives the amounts appropriated by Congress for the survey, improvement, and maintenance of the water ways of the Mississippi valley from 1819 to 1890, inclusive. Before referring to these figures, however, it would be well to make it clear that the rivers of the Mississippi valley must be consolidated in 3 groups:

First. The rivers, tributaries, and subtributaries making up the fluvial system of the Mississippi valley, irrespective of the questions of navigability or commercial operations.

Second. The rivers of the Mississippi valley which have either been improved or surveyed with a view to improvement by government aid.

Third. The rivers of the Mississippi valley on which a transportation was conducted in 1889.

THE NATURAL GROUP.

The rivers belonging to Group I are as follows: the Mississippi, the Ohio, and the Missouri.

The Ohio is formed by the junction of the Allegheny and Monongahela, which unite at Pittsburg, and these two rivers therefore may rather be considered as rivers of formation than as affluents.

The Allegheny has for its tributaries the Clarion, the Red Bank, and the Kiskiminitas.

Into the Monongahela flow the Buckhannon, the Cheat, and the Youghiogheny.

The tributaries of the Ohio, not considering the Allegheny and Monongahela as such, and which flow into it from the north, are the Muskingum, the Raccoon, the Scioto, the Little Miami, the Miami, and the Wabash.

The subtributaries of this part of the Ohio system are the Mohican, which flows into the Muskingum; the Point, which flows into the Scioto and the Tippecanoe, and the White, with its various forks, flowing into the Wabash.

The tributaries of the Ohio flowing into it from the south are the Little Kanawha, the Great Kanawha, the Guyandotte, the Big Sandy; the Licking, the Kentucky, the Green, the Tradewater, the Cumberland, and the Tennessee.

The Little Kanawha receives as its tributary the Hughes.

The Great Kanawha has several tributaries, chief of which are the Blue Stone, the New, the Greenbrier, the Gauley, the Elk, and the Pocatigo.

The Big Sandy has 3 important tributaries, although they may be considered as forks, their names being the West fork, the Levisa fork, and the Tug fork.

The Green receives the waters of the Rough and Barren.

The Cumberland has a fork, the Caney, and a tributary, the Obey river.

The tributaries of the Tennessee are numerous and mostly important. The list includes Powells, the Clinch, the Holston, the French Broad, the Little Tennessee, the Hiwassee, and the Duck.

The tributaries of the Upper Mississippi which flow into it from the north and east are the Prairie, the Rum, the Saint Croix, the Chippewa, the Black, the Wisconsin, the Galena, the Rock, and the Illinois.

The important tributaries of the Saint Croix are the Yellow and the Totogatic.

The Chippewa has a large tributary named the Flambeau.

Because of an artificial channel the Fox may now be considered as a tributary of the Wisconsin.

The Rock has a tributary named the Green.

The principal tributaries of the Illinois are the Kankakee, the Des Plaines, the Vermilion, the Mackinaw, the Spoon, the Sangamon, and the Fox, which of course must not be confounded with the Fox of Wisconsin.

The tributaries of the Upper Mississippi on the south and west are the Minnesota, the Cannon, the Grand, the Zumbro, the Iowa, the Des Moines, the Salt, and the Cuivre.

The Minnesota has as chief tributaries, the Yellow Medicine and the Chippewa, which must not be confounded with the Chippewa of Wisconsin.

The Red River of the North may now also be considered a tributary of the Minnesota, communication having been effected between the two via Portage lake.

The Iowa has for its tributary the Red Cedar.

The chief tributaries of the Missouri are the Big and Little Sioux, the James or Dakota, the Milk, the Yellowstone, the Little Missouri, the Cheyenne, the White, the Niobrara, the Platte, the Kansas, the Osage, and Gasconade, and the 3 rivers of formation, the Jefferson, the Madison, and the Gallatin.

The chief tributaries of the Yellowstone are the Bighorn and the Powder.

The principal tributaries of the Cheyenne are its forks and the Cherry creek.

The Niobrara has a number of tributaries, the principal of which are the Snake and the Keya Paha.

The Milk river has a number of tributaries, but the most important of them are known either as branches or forks.

The Platte can not be said to have any tributaries of importance, its formation occurring at North Platte, in Lincoln county, Nebraska, by the union of the North and South Platte rivers.

The Kansas has many tributaries, of which the principal are the Delaware, the Vermilion, the Big Blue, the Republican, the Solomon, the Saline, and the Smoky Hill.

The tributaries of the Lower Mississippi which flow into it on the east, omitting of course the Ohio, are the Kaskaskia, the Obion, the Forked Deer, the Big Hatchie, the Yazoo, and the Big Black.

The tributaries of the Forked Deer are all known as forks.

The Yazoo has for its chief tributaries the Big Sunflower, the Coldwater, the Tallahatchie, the Yalobusha, and the Tchula, although this latter is generally called a lake.

The tributaries of the Lower Mississippi which flow into it on the west are the Saint Francis, the Arkansas, the Red, and the Atchafalaya, and the many bayous, chief of which are the Bayou Lafourche and the Bayou Terrebonne.

The Saint Francis receives the waters of the Little (of Missouri) and the L'Anguille.

The White river can no longer be considered an individual affluent of the Lower Mississippi, the latest maps of the United States engineers showing it to empty into the Arkansas a few miles above the junction of that river with the Mississippi. It must therefore at this time be considered as a tributary of the Arkansas.

The other tributaries of the Arkansas are the Cimarron, the Canadian, the Petit Jean, and the Fourche la Pave.

The White has for tributaries the Little Red, the Black (of Missouri), the Current, and Cache creek.

Regarding the Washita and Red rivers, a difference of opinion seems to prevail as to which is the branch and which is the main stream, or whether each is distinct from the other; and, indeed, it is a difficult matter to keep any strict list of these constantly varying rivers. The identification of the streams is made all the more difficult because there are two Washitas and a Wichita. One of the Washitas flows southward through Arkansas into Louisiana, while the other comes down from Indian territory into Texas and joins the Red river not far below the confluence with the Wichita. In the present condition of the rivers, as shown by the engineers' map, it would seem best to set down the Red river as the main stream into which flows the Black as its principal tributary, the Black being made up of the Tensas, the Washita of Arkansas, the Saline, which must not be confounded with the tributary to the Kansas of the same name, and a number of bayous, the principal of which are the Bayou Macon, the Bayou Bœuf, the Bayou Bartholomew, the Bayou D'Arbonne, the Little river (of Arkansas), and the Caney.

THE IMPROVED GROUP.

The rivers belonging to Group II are as follows: the Mississippi, the Missouri, and the Ohio.

The Saint Croix, the Chippewa, the Illinois, the Galena, the Wisconsin by its junction with the Fox, the Minnesota, the Cuivre, and the Red Cedar.

The tributaries of the Ohio which have been improved or surveyed by congressional aid are: the Guyandotte, the Licking, the Tradewater, the Monongahela, the Muskingum, the Little Kanawha, the Great Kanawha, the Big Sandy, the Kentucky, the Green, the Wabash, the Cumberland, and the Tennessee.

The subtributaries which have been improved or surveyed by congressional aid are: the Cheat and the Buckhannon, belonging to the Monongahela; the Elk and the Gauley of the Great Kanawha; the Big fork and the Levisa fork of the Big Sandy; the Rough creek of the Green, and the White river (of Indiana) of the Wabash; the Obey river and Caney fork of the Cumberland, and the Tug, the Clinch, the Hiwassee, the French Broad, and the Little Tennessee of the Tennessee.

The tributaries of the Lower Mississippi which have received congressional aid either for improvement or survey are: the Forked Deer, the Saint Francis, the Big Black, the Big Hatchie, the Kaskaskia, the White, the Arkansas, the Yazoo, the Washita, the Black, and the Red.

The subtributaries of these various streams which have been improved or surveyed under congressional appropriations are: the L'Anguille and the Little (of Missouri), tributaries of the Saint Francis; the Black (of Missouri), the Little Red, and Cache creek, belonging to the White; the Fourche la Fave and the Petit Jean, tributaries of the Arkansas; the Big Sunflower, the Coldwater, the Yalobusha, the Tallahatchie, and the Tchula, tributaries of the Yazoo; the Little Missouri (of Arkansas), the Tensas, and Saline, tributaries of the Washita and Black, and the Little (of Louisiana) and the Caney, tributaries of the Red.

Of the various bayous which may be considered as tributaries to the Lower Mississippi system, those which have been either improved or surveyed by congressional aid are: the Bartholomew, the Black, the Bœuf, the Courtableau, the D'Arbonne, the Lafourche, the Loggy, the Pierre, the Atchafalaya, the Vidal, the Teche, the Terrebonne, the Steel, and the Cypress.

THE COMMERCIAL GROUP.

The rivers belonging to Group III are as follows: the Mississippi, the Ohio, and the Missouri.

Of the Ohio system there are: the Allegheny, the Monongahela with its tributaries, and the Buckhannon; the Little Kanawha, the Great Kanawha with its tributaries, the Elk and the Gauley; the Guyandotte, the Big Sandy, the Licking, the Kentucky, the Green and its tributary, the Barren; the Tradewater, the Cumberland and its tributary, the Caney fork; the Tennessee and its tributaries, the Clinch, the French Broad, and the Hiwassee; the Muskingum, the Wabash and its tributary, the White.

The tributaries of the Upper Mississippi on which a transportation business was done in 1889 were the Saint Croix, the Chippewa, the Minnesota, and the Illinois.

The tributaries of the Missouri on which a transportation business was done in 1889 were the Osage and Gasconade.

The tributaries of the Lower Mississippi system on which a transportation business was done in 1889 were the Saint Francis with its tributaries, the Little and the L'Anguille; the White with its tributaries, the Little Red, the Black, and Cache; the Arkansas and its tributaries, the Petit Jean and the Fourche la Fave; the Red and its tributaries, the Black, the D'Arbonne, the Washita, and the Saline; the Yazoo and its tributaries, the Big Sunflower, the Tallahatchie, and Coldwater; and the Atchafalaya.

The bayous on which a transportation business was done in 1889 were the Bayou Macon, the Bayou Bœuf, the Bayou Courtableau, the Bayou Lafourche, and the Bayou Terrebonne.

EXTENT OF THE MISSISSIPPI VALLEY.

There are no figures at hand from which to give the actual mileage of the streams embraced in Group I, but it is a very conservative estimate to place it at 100,000 miles. The extent of country included in the drainage area of the whole Mississippi valley is something enormous, including over 1,500,000 square miles. In the statistical atlas issued by the census for 1870 the following figures were given as the area of the valley, preceded by the subjoined text:

The Mississippi system is divided into the basin of the Mississippi, which is again divided as Upper and Lower, by a line drawn between Alton and Cairo; the basins of the Ohio, the Missouri, the Red, the Arkansas, and the Rio Grande (the portions of the latter outside the territory of the United States being excluded from the computation as respects both area and population); * * * the Alabama basin, * * * including large portions of Mississippi on the west and of Georgia and Florida on the east * * *; and, last, the basin of central Texas, embracing all the rivers between the Rio Grande and the Bayou Teche.

	AREA, SQUARE MILES.
Basin of the Upper Mississippi	179, 635
Basin of the Lower Mississippi	65, 646
Basin of the Ohio	207, 111
Basin of the Missouri	527, 690
Basin of the Red	92, 721
Basin of the Rio Grande	101, 334
Basin of the Arkansas	184, 742
The Alabama basin	145, 990
The Texas basin	178, 434
Total	1, 683, 303

The population of this area, it may be added, was 19,111,804 in 1870, the figures having risen to 24,298,332 in 1890. This population is found in those states which are immediately contiguous to the streams found in Group I,

which are traversed by them; or in those counties of the states lying immediately within their watershed, as, for instance, those counties of Pennsylvania which constitute the watershed of the Monongahela, Allegheny, and their tributaries. The rims of this great basin extend from the borders of New York to the central ranges of New Mexico, and from the eastern slopes of the Rockies in Montana to the peaks of the Great Smoky mountains of Tennessee.

NAVIGABLE AND UTILIZED WATERS.

The rivers contained in Groups II and III are, after all, those of the most practical importance, and in this respect Table 31 will be found of value. It has been made up in very many particulars from information courteously furnished the Census Office by Major H. M. Adams, of the corps of engineers, United States army, and shows the number of navigable miles of the rivers of the Mississippi valley, as they stood in 1889, and the number of miles over which a transportation business was conducted in the same year. From these parallel columns there can be seen with measurable exactness how many miles of navigable streams had been, so to speak, occupied. Of the navigable length of the great rivers, the Mississippi and Ohio, the whole was of course occupied, but in the various systems it will be seen there were many hundred miles of unemployed water. The navigable miles of the Upper Mississippi system, for instance, numbered 4,486, of which but 4,103 miles were operated on; the Ohio system had 4,406 of navigable miles, of which 4,178 were operated on, while out of the Lower Mississippi system of 6,228 navigable miles but 5,695 were operated on. The total navigable mileage of the valley was 15,410, of which 14,266 were reported on as having been used for purposes of transportation. Many of the unemployed 1,144 miles were probably unavailable during 1889 because of the prevailing low water, to which reference has already been made, while it is also quite within the possibilities that many of the miles of subtributaries were merged within the mileage of the larger streams without being individualized.

CONGRESSIONAL APPROPRIATIONS.

It was for the survey and improvement of these 15,410 miles of navigable rivers that \$76,827,463 has been appropriated by the United States government, less a small amount appropriated for the survey of some minor streams which have since been considered unworthy of improvement. Out of this amount, \$29,273,189 has been appropriated for the improvement of the Upper Mississippi system, which system, it will be remembered, includes not only the Saint Croix, Chippewa, Illinois, and Missouri, but also the subtributaries of these streams. Out of the \$29,273,189, \$12,792,679 was appropriated up to and including 1879, the earliest appropriation being made for the Missouri in 1832. In the 10 years 1880 to 1889, \$13,234,510 was appropriated for the streams of the Upper Mississippi system, while by the act of Congress passed in September, 1890, \$3,246,000 was appropriated.

The total appropriations for the Ohio system amounted to \$21,739,272. Of this amount \$9,396,351 was appropriated before or in 1879, the date of the earliest appropriation being 1827, the portion of the Tennessee below Chattanooga being the beneficiary. The balance was made up of \$10,011,921, appropriated in the decade 1880 to 1889, and \$2,331,000 appropriated by the act of Congress, September, 1890.

The total appropriations for the streams of the Lower Mississippi system were \$24,255,002, of which amount \$4,604,677 was appropriated, before or in 1879, the earliest appropriation being made for the survey of the Lower Mississippi itself in 1819. The appropriations for this system for the decade 1880 to 1889 were quite large, standing at \$15,916,125, while the appropriations by the September act of the 1890 Congress amounted to \$3,734,200.

Of course the largest appropriations for any one river were those made for the Father of Waters itself; the sum set aside by government for the survey, improvement, and conservation of the whole Mississippi river being \$42,086,536, which only leaves \$34,740,927 to be divided among all its various affluents, tributaries, and subtributaries. The largest sums out of this remainder were \$6,659,250, which was secured by the Missouri; \$9,156,313, expended on the Ohio; \$4,215,051, given to the Tennessee, and \$2,679,500 appropriated for the Great Kanawha. The only other streams which go above the million-dollar limit are the Illinois, \$1,588,651; the Kentucky, \$1,347,000; the Cumberland, \$1,379,500; the Arkansas, \$1,296,875, and the Red, \$1,733,265.

With respect to the amounts appropriated for the improvement of the Mississippi river, omission should not be made of the explanatory fact that the \$42,086,536 only includes the appropriations up to the close of 1890, and for that portion of the river only which extends from the headwaters to New Orleans, that being the only portion of the stream which is included in this report of valley traffic. In the second session of the Fifty-first Congress an additional \$1,000,000 was appropriated for the valley portion of the river, while for the improvement of the mouth of the river the appropriations have amounted to \$7,597,500. The addition of all these various sums means that for the entire river the appropriations have amounted to \$50,684,036.

It may be added that the engineers of the United States army who have been employed on the various works of improving and maintaining navigation state that \$28,829,490 is still needed to carry out the contemplated projects. Supposing therefore that \$25,000,000 of this amount be granted, it will mean a total appropriation for all the water ways of the Mississippi valley proper of \$102,827,463, and for the Mississippi valley and the Gulf portion of the Mississippi river of \$110,424,963.

In addition to the tables of appropriations, there is here presented a chart showing the same figures in a more graphic form, the plan of construction being a modification of the genealogical tree.

RIVERS OF THE MISSISSIPPI VALLEY.

DIAGRAM SHOWING THE MAIN STREAMS, TRIBUTARIES, AND SUBTRIBUTARIES OF THE GREAT FLUVIAL SYSTEM OF THE MISSISSIPPI VALLEY, WHOSE NAVIGABILITY HAS BEEN IMPROVED OR MAINTAINED BY CONGRESSIONAL APPROPRIATIONS; TOGETHER WITH THE SUMS OF MONEY SO APPROPRIATED FROM THE DATE OF EARLIEST APPROPRIATION UP TO AND INCLUDING THE ACT OF SEPTEMBER, 1890.

THE MISSISSIPPI VALLEY.	MAIN STREAMS OR SYSTEMS.	TRIBUTARIES.	SUBTRIBUTARIES.
	THE UPPER MISSISSIPPI.	The Saint Croix \$100,500 The Chippewa 173,215 The Illinois 1,583,650 The Wisconsin (and Fox) 2,899,974 The Minnesota 127,500 The Cuivre 12,000 The Red Cedar 1,500 The Galena 166,000 The Hennepin canal 545,000 All tributaries 5,614,339	
	River \$16,999,600 Tributaries 5,614,339 Total for system 22,613,939		
	THE MISSOURI.	The Osage 290,000 The Gasconade 46,500 The Yellowstone 118,750 All tributaries 425,250	
	River 6,284,000 Tributaries 425,250 Total for system 6,659,250		
	THE OHIO.	The Allegheny 252,500 The Monongahela \$755,733 } Tributaries 18,500 } 774,233 The Muskingum 449,500 The Little Kanawha 211,175 The Great Kanawha 2,644,500 } Tributaries 35,000 } 2,679,500 The Kentucky 1,347,000 The Green 135,000 } Tributary 25,000 } 160,000 The Big Sandy 296,500 } Tributaries 5,000 } 301,500 The Guyandotte 10,500 The Cumberland 1,343,000 } Tributaries 36,500 } 1,379,500 The Licking 6,000 The Wabash 706,000 } Tributary 107,000 } 813,000 Beaver river (dam) 250,000 The Tradewater 16,500 The Tennessee 4,006,551 } Tributaries 208,500 } 4,215,051 All tributaries 12,436,450 } Subtributaries 435,500 } 12,871,959	{The Cheat \$13,000 {The Buckhannon 5,500 {The Elk 29,000 {The Gauley 6,000 The Rough 25,000 {The Tug fork 2,500 {The Levisa fork 2,500 {Obey river 11,500 {The Caney fork 25,000 The White, of Indiana... 107,000 {The Duck 13,000 {The Clinch 35,000 {The Hiwassee 34,500 {The French Broad 121,000 {The Little Tennessee ... 5,000 Subtributaries 435,500
	River 8,867,313 Tributaries 12,871,959 Total for system 21,739,272		
THE MISSISSIPPI VALLEY.			
Upper Mississippi system \$22,613,939 The Missouri system... 6,659,250 The Ohio system 21,739,272 Lower Mississippi system 24,301,200 Whole river, unspecified localities 1,295,712 Total for the Mississippi system..... 76,609,463 Red River of the North 218,000 Grand total for the valley 76,827,463			
	THE LOWER MISSISSIPPI.	The Forked Deer 19,500 The Saint Francis (and Cache creek) 55,500 The White, of Arkansas. 366,500 } Tributaries 95,400 } 461,900 The Big Black 15,000 The Big Hatchie 32,000 L'Anguille 17,000 The Kaskaskia 6,000 The Arkansas 1,264,375 } Tributaries 32,500 } 1,296,875 The Washita 351,500 } Tributaries 62,500 } 414,000 The Little, of Missouri..... 8,000 The Yazoo 215,000 } Tributaries 141,000 } 356,000 The Red river 1,725,265 } Tributaries 8,000 } 1,733,265 Bayous 565,800 Miscellaneous 1,342,000 Miscellaneous 1,342,000 } All tributaries 4,075,640 } 6,322,840 All subtributaries ... 905,200 }	{The Current..... 7,000 {The Black, of Missouri. 80,000 {The Little Red. 8,400 {The Fourche la Pave ... 26,500 {Le Petit Jean..... 6,000 {The Little Missouri, Ark. 20,000 {The Saline 21,500 {The Tensas 21,000 {The Big Sunflower..... 57,000 {The Coldwater..... 21,000 {Tchula lake..... 15,000 {The Yalobusha 11,000 {The Tallahatchie 37,000 {The Little, of Louisiana. 5,500 {The Caney, via Little... 2,500 Bartholomew 33,000 Black 25,000 Boeuf 31,000 Courtableau 31,200 D'Arbonne 13,000 Lafourche 132,500 Loggy 10,000 Pierre 13,000 Vidal 2,000 Teche 100,700 Terrebonne 38,800 Cypress 127,000 Steels 10,000 Subtributaries 905,200
	River 17,978,450 Tributaries 6,322,840 Total for system 24,301,290		
	Whole river 1,295,712	{Early appropriations made for whole river without specified localities... 1,295,712	T. J. V.

DEVELOPMENT OF AREAS AND INTERESTS.

In a series of resolutions passed by the board of directors of the merchants' exchange of Saint Louis in 1890 it was stated that with the improvement of that portion of the Mississippi below the metropolis of Missouri the increase of exports via the Gulf had kept steady pace, and that from very small beginnings in 1872 they had increased yearly until in 1889 nearly 20 per cent of the entire exports of corn from the United States was by this route. The freight on corn from Saint Louis to New Orleans has been less than 6 cents per bushel, making the freight to Liverpool via the river route less than 17 cents per bushel, and by the maintenance of this rate the rail rate to the east, both for home consumption and for export, was reduced to the minimum, viz, 12.88 cents per bushel, which it is claimed would not have been secured except for the competition of the river route.

In this connection it is interesting to find that the estimate has been made that with the uninterrupted and unimpeded navigation throughout the Mississippi the business of all the river cities would increase at least tenfold.

INCREASE OF NAVIGABLE MILES.

A very instructive lesson in the laws of compensation is furnished by the statistics of water transportation for the Mississippi valley, for while business has decreased in certain localities because of the sharp competition of the railroads running through adjacent and tributary states, this diminution has been more than counteracted by the extension of territory consequent upon the opening up of new streams. The following facts and figures are an evidence:

The improvement of the Washita has considerably enhanced the value of timber lands bordering the stream, and a line of steamers has been started to build up a trade between Arkadelphia and Camden.

Transportation on the Bayou D'Arbonne is now being done by boats of 1,000 bales of cotton capacity, while before the improvement of the bayou it had been restricted to boats of 500-bale capacity.

Before improvements 3 months was the average duration of the navigable season on the Bayou Bartholomew. That time has since been increased to 6 months. The commerce of this bayou included last year the movement of 3,000 bales of cotton, 100,000 sacks of cotton seed, 300,000 staves, 2,000,000 feet of square oak timber, and 3,000,000 feet of cypress logs, besides large quantities of logs and sundries. Before 1881 it required 14 days to make a trip to the head of navigation; now the time has been diminished to 7.

Before the improvements of the Big Sunflower in 1880 the river was navigable for light boats about 6 months in the year. At the present time it is navigable the year round and for much larger boats. The time length of the round trip, 180 miles, has been diminished from 8 to 5 days. All the country adjacent to the river has been rapidly improved, and plantations are being cleared up all along its banks where a few years ago it was a wilderness.

Prior to 1883 the commerce of the Forked Deer river, Tennessee, consisted chiefly of staves and lumber brought out on flatboats and rafts of saw logs, while about 1 boat in 3 was lost. Now the trip is made with safety and with less cost, while the commerce indicates that the whole country along the river is finding an outlet for its products.

The amount of commerce done on the Red river, Arkansas, prior to 1884, amounted to the movement of about 20,000 tons, while the census report for 1889 shows that on this river, together with its tributaries, there were carried and towed no less than 105,145 tons.

OPENING UP NEW COUNTRY.

Already the country contributing to the commerce of the Arkansas river has considerably increased, and it has been calculated that with the further improvement of this river the vast acreage of Indian territory and the products of the large extent of Kansas will find Fort Smith or Little Rock its eventual water outlet. Commencing at the head of navigation on the Arkansas and then following down through the fertile valley tributary to it, the cities of Wichita, Arkansas city, Fort Smith, Dardanelle, Little Rock, and Pine Bluff, 6 of the largest cities in the valley, which, together with their surrounding counties, have a population of over 400,000 inhabitants, depend very largely for their commercial growth and prosperity on the outlet furnished by this river, which in the census year carried 1,663,817 tons of freight. With the continued improvement of this river freights will be still further reduced, fully another million tons of freight will be transported, and the counties of Butler, Chautauqua, Cowley, Elk, Harper, Kingman, Sedgwick, and Sumner, all in Kansas, will be brought into tribute.

When the work of improvement on the Petit Jean, Arkansas, was begun in 1884, commerce on that stream was confined to 2 or 3 high-water trips a year of a light-draft boat, which brought out from 200 to 300 bales of cotton, while now the exports have increased tenfold, and it is estimated that, with the completion of the work, from 5,000 to 6,000 bales of cotton will be annually moved. This stream is the only outlet to the rich Petit Jean valley, while so far the only method of transportation is by wagon, over 1,000 tons of freight being each year brought into the town of Danville, Arkansas, by that means.

A similar condition of affairs exists on the Fourche la Pave, which drains the valley of the same name, a valley which both in mineral and agricultural products is one of the most extensively rich in the state of Arkansas.

Since 1886 the country bordering on the upper reaches of the White river has begun to contribute to the transportation returns of that stream. A marked improvement is noticeable in the agricultural lands, and those products which used to be hauled across the country in wagons from 50 to 80 miles, to Springfield and other points

on the railroad, are beginning to find a more accessible outlet by way of the river to Batesville and Newport. In the census year the freight transportation on the White river was 86,393 tons.

The amount of commerce done on the Upper Black in 1880, when the work of improvement was begun, amounted to about 18,000 tons, with perhaps about as much more on the lower river, while the census report for 1889 shows a movement (on the Washita and Black) of 93,707 tons. The vast tract of land through which the Black river runs is said to be susceptible of unlimited development, and it is calculated that the further improvement of the Black river would be the means of opening up at least 1,000,000 acres of rich farm land within a limit of 5 miles on each side of the river, land that has a capacity of producing \$25 per acre of cotton or corn.

BUSINESS OF THE TRIBUTARIES.

The commerce of the Tennessee river itself, that is, the commerce originating on that river, can not be said to have increased, but that of its tributaries has been very materially enlarged. The trade of the French Broad, for instance, may be said to have almost come into existence during the 10 years dating from 1880. The commerce has already developed largely, having reached 37,000 tons in 1889, the principal products being marble, logs, lumber, shingles, grain, and general merchandise, while, with the further improvement of the upper waters, the mineral wealth of the mountains lying about the headwaters will seek this river as its highway. The commerce on the Hiwassee, another tributary of the Tennessee, is also increasing, while that of the Clinch has risen from almost nothing to an annual movement of over 60,000 tons during the past 10 years.

Very similar conditions are observable in the case of the tributaries of the Cumberland. The trade of the Cumberland as a river of origin has not perhaps shown any more increase than has the Tennessee, but the commerce of the Caney fork and Obey river has almost entirely come into existence since 1880.

So, too, in the case of the Ohio, Allegheny, Monongahela, and Kentucky. The trade originating on these large streams has not materially, if at all, increased, but new tributaries have been and are being brought into operation year after year, together with the consequent improvement of the adjacent country. The commerce of the Licking, which in the year 1889 amounted to 24,801 tons, may be said to date its activity from 1885, and a similar statement would apply to that of the Buckhannon, Elk, Cheat, and others.

Business on the tributaries of the Upper Mississippi and Missouri has also been marked by a promising extension.

CONDENSED RESULTS.

In looking over the list of rivers which form the great fluvial system of the Mississippi valley, it is found that during the census decade the trade of the valley has received accessions from the opening up of the Licking and Tradewater, tributaries of the Ohio; the Buckhannon and Cheat, tributaries of the Monongahela; the Gauley, a tributary of the Great Kanawha; the Tug fork and Levisa fork, tributaries of the Big Sandy; the Rough and Barren, tributaries of the Green; the South fork, Obey river, and Caney fork, tributaries of the Cumberland; the Duck, Clinch, French Broad, and Little Tennessee, tributaries of the Tennessee; the Forked Deer, Saint Francis, Cache creek, Big Black, Big Hatchie, and Little (of Missouri), tributaries of the Lower Mississippi; the Black (of Arkansas) and the Little Red, tributaries of the White; the Petit Jean and Fourche la Pave, tributaries of the Arkansas; the Tchula and the Yalobusha, tributaries of the Yazoo; the Tensas, Macon, and Saline, tributaries of the Washita and Black; the Little (of Louisiana) and the Caney as tributaries of the Red, and a long list of bayous along the Lower Mississippi. The opening up of these streams has meant the addition of 2,840 navigable miles to the valley's total of navigable waters, the development of many thousands of square miles of hitherto unutilized land, the exploitation of rich mines hitherto lying idle, a continuation of low freights which otherwise would have been so high as to seriously embarrass if not practically close the movement of products, and such an addition of traffic that notwithstanding a natural decrease of transportation originating on some rivers the transportation on the fluvial system of the whole valley has received such accessions from these new districts that the freight movement for 1889 stands at 28,293,140 tons against a freight movement of 18,946,522 tons for 1880, an increase for the decade of 9,346,618 tons.

RIVER LANDINGS AND DISTANCES.

This text can not be brought to a better close than by giving a list of the trading points and landings on the chief rivers of the Mississippi valley, and while it would be impossible to present a complete catalogue of these places, the list on the following pages will be found to contain the principal localities. Wherever possible the distance between the points named is given.

STATISTICS OF TRANSPORTATION.

MISSISSIPPI RIVER LANDINGS BETWEEN SAINT LOUIS AND SAINT PAUL (DISTANCES FROM SAINT LOUIS).

	Miles.		Miles.		Miles.
Saint Louis, Missouri	0	Rock Island, Illinois	329	De Soto, Wisconsin	534
Alton, Illinois	23	Davenport, Iowa	330	Victory, Wisconsin	540
Grafton, Illinois	39	Hampton, Illinois	340	Bad Axe, Wisconsin	548
Cap au Gris, Missouri	66	Le Claire, Iowa	346	Warners landing, Wisconsin	553
Hamburg, Illinois	88	Port Byron, Illinois	347	Brownsville, Minnesota	561
Clarksville, Missouri	102	Princeton, Iowa	352	Lacrosse, Wisconsin	571
Louisiana, Missouri	112	Cordova, Illinois	353	Dresbach, Minnesota	579
Hannibal, Missouri	140	Comanche, Iowa	362	Trempealeau, Wisconsin	589
Quincy, Illinois	160	Albany, Illinois	364	Winona, Minnesota	601
Lagrange, Missouri	170	Clinton, Iowa	369	Fountain city, Wisconsin	611
Canton, Missouri	177	Fulton, Illinois	371	Mount Vernon, Minnesota	620
Alexandria, Missouri	196	Lyons, Iowa	372	Minneiska, Minnesota	623
Warsaw, Illinois	197	Sabula, Iowa	388	Alma, Wisconsin	633
Keokuk, Iowa	202	Savanna, Illinois	390	Wabash, Minnesota	642
Montrose, Iowa	213	Bellevue, Iowa	410	Reads landing, Minnesota	645
Nauvoo, Illinois	216	Dubuque, Iowa	434	North Pepin, Wisconsin	649
Fort Madison, Iowa	224	East Dubuque, Illinois	435	Lake city, Minnesota	655
Pontoosac, Illinois	231	Wells landing, Iowa	448	Wacouta, Minnesota	669
Dallas, Illinois	234	Cassville, Wisconsin	463	Red Wing, Minnesota	676
Burlington, Iowa	248	Glenhaven, Wisconsin	474	Trenton, Wisconsin	680
Oquawka, Illinois	261	Clayton, Iowa	481	Diamond Bluff, Wisconsin	686
Keithsburg, Illinois	273	Wisconsin river, Wisconsin	488	Prescott, Wisconsin	698
New Boston, Illinois	279	McGregor, Iowa	492	Hastings, Minnesota	701
Port Louisa, Iowa	287	Prairie du Chien, Wisconsin	500	Newport, Minnesota	720
Muscatine, Iowa	301	Lynxville, Wisconsin	517	Saint Paul, Minnesota	729
Buffalo, Iowa	319	Lansing, Iowa	529		

MISSISSIPPI RIVER LANDINGS BETWEEN CAIRO AND SAINT LOUIS (DISTANCES FROM CAIRO).

Cairo, Illinois	0	Widow Poes, Missouri	59	Chester, Illinois	120
Birds, Missouri	0	Shepherd, jr., Missouri	59	Caldwell, Missouri	125
Saint Louis, Iron Mountain and Southern railway, Missouri	2	Schatts, Missouri	60	Logans, Missouri	125
Greenfields, Missouri	4	Bainbridge, Missouri	61	Roziars, Missouri	127
Pond Lily, Missouri	8	Hamburg, Illinois	61	Saint Marys, Missouri	128
Ables Field, Illinois	10	Widow Shepherds, Missouri	62	Whelans, Illinois	129
Greenleafs, Illinois	11	Willards, Illinois	65	Bogys, Missouri	129
Brewers, Missouri	13	Moccasinville, Missouri	65	Quarry town, Missouri	131
Thompsons, Missouri	15	Vancils, Missouri	66	Stones, Illinois	134
Orient Field, Missouri	17	Neeleys landing, Missouri	70	Kaskaskia, Illinois	135
Saladin Field, Missouri	19	Crawfords, Missouri	75	Saint Genevieve, Missouri	140
Haughs landing, Missouri	19	Springs, or Bennetts, Illinois	75	Mudds point, Illinois	142
Dogtooth island, Illinois	19	Preston, or Union point, Illinois	76	Little Rock, Missouri	142
Brooks point (Simons), Illinois	20	Hines landing, Missouri	76	Sand depot, Missouri	146
Davis, Illinois	21	Birmingham, Missouri	77	Fort Chartres, Frank Brickleys, Illinois	150
Browns, or Berrys, Illinois	22	Sauls, Illinois	78	Salt point, or Clifton, Missouri	150
Prices landing, Missouri	24	Grand Tower, Illinois	80	Jim Snells, Missouri	152
Daniels landing, Missouri	25	Wittenburg, Missouri	82	Sycamore landing, Illinois	153
West Philadelphia, Missouri	27	Shipyards, Illinois	83	Cliff, or John Brickeys, Missouri	153
Commercial point, Illinois	27	Youngs, Missouri	85	Morrisons, Missouri	154
Athertons Goose Island landing, Illinois	30	Gills, Missouri	85	Salt lake, Illinois	154
Jones, or Davis Store, Illinois	31	Estels, Illinois	88	Walkers, Illinois	155
Horse Shoe, Athertons, Illinois	31	Burfords, Missouri	92	Goodmans, Illinois	157
Burnham island, Jones, Illinois	34	'76 landing, Missouri	93	Rush Tower, or Perrys, Missouri	160
Santa Fe, Illinois	35	Wilkinsons island, Illinois	96	Forest Home, Illinois	164
Commerce, Missouri	35	Wilkinsons, Missouri	96	Lilleys, Missouri	165
Uncle Joes, Missouri	38	Baileys, Missouri	100	Selina, Missouri	165
Thebes, Illinois	40	Wilkinsons, Illinois	103	Hugs island, Missouri	168
Doughertys, Missouri	40	Prices, Illinois	104	Crystal city, Missouri	168
Grays point, Missouri	43	Ryans, Illinois	104	Platin Rock, Missouri	169
Jones, Missouri	46	McLeans, Illinois	106	Knowlens, Illinois	171
College farm, Missouri	47	Excelsior, or Jones, Missouri	106	Harrisonville, Illinois	172
Cape Girardeau, Missouri	50	Hamiltons, Illinois	107	Bushburg, Missouri	174
Wauhoo, Illinois	52	Rockwood, Illinois	110	Sulphur Springs, Missouri	176
Randals, Illinois	54	Nicks landing, Missouri	113	Kimmswick, Missouri	178
Hobbs, Missouri	55	Boise Brule, Missouri	111	Kirks landing, Illinois	180
Mintons point, Illinois	55	Allens, Missouri	114	Jim Smiths, or Hurricane point, Illinois	180
Devils island (McClures), Illinois	57	Waters, Missouri	115	Pull Tight, Illinois	184
Kinney point, Missouri	57	Mancoes, Illinois	115	Quarantine, Missouri	186
Taylor, Missouri	58	Darwins, Illinois	116	Jefferson barracks, Missouri	188
Davidsons, Missouri	59	Coles mill, Illinois	119	Saint Louis, Missouri	200
		Clareyville, Missouri	120		

MISSISSIPPI RIVER LANDINGS BETWEEN CAIRO AND NEW ORLEANS (DISTANCES FROM CAIRO).

	Miles.		Miles.		Miles.
Cairo, Illinois	0	Fletchers landing, Arkansas	158	Glendale, Mississippi	306
Norfolk landing, Missouri	7	Elmot landing, Arkansas	160	Williams landing, Arkansas	309
O'Briens, Missouri	14	Plum point, Tennessee	164	Thompsons landing, Mississippi	312
Columbus, Kentucky	21	Osceola, Arkansas	164	Delta, Mississippi	314
Belmont, Missouri	21	Drivers landing, Arkansas	166	Craigs landing, Arkansas	316
Farris landing, Missouri	29	Tanzals landing, Arkansas	167	Westover landing, Arkansas	318
Hickman, Kentucky	36	Fort Pillow, Tennessee	172	Friars point, Mississippi	319
Frenchs point, Kentucky	42	Hatchie landing, Tennessee	173	Old Town landing, Arkansas	324
Saint James bayou, Missouri	44	Fulton, Tennessee	175	Allisons landing, Arkansas	327
La Valles landing, Missouri	47	Falls landing, Arkansas	175	Hulberton, Mississippi	333
Newsoms landing, Missouri	49	Dixie landing, Island 34, Arkansas	178	Modoc landing, Arkansas	334
Lesters landing, Kentucky	53	Jones landing, Island 34, Arkansas	178	Hugheys landing, Arkansas	336
Kentucky and Tennessee state line	55	Mouth of Hatchie river, Tennessee	179	Jacksons Point landing, Mississippi	341
Port Polk, Tennessee	57	Randolph, Tennessee	182	Ludlows landing, Arkansas	346
Stewarts landing, Tennessee	59	Fort Wright, Tennessee	184	Saint Louis landing, Arkansas	349
Tolers landing, Tennessee	61	Richardsons landing, Tennessee	185	Sunflower landing, Mississippi	352
Kentucky and Tennessee state line	63	Prestons landing, Arkansas	186	Robinsonville landing, Mississippi	354
Morrisons landing, Missouri	69	Hampson & Fergusons landing, Arkan- sas	188	New Hope landing, Mississippi	355
Watsons point, Kentucky	69	Idaho landing, Arkansas	191	Malones landing, Mississippi	356
New Madrid, Missouri	70	Golden Lake landing, Arkansas	191	Lake Charles landing, Mississippi	357
Lower Madrid landing, Missouri	71	Tuckers landing, Arkansas	193	Andersons landing, Mississippi	359
Nolands landing, Kentucky	75	Pecan Point landing, Arkansas	196	Pushmataha landing, Mississippi	359
Toney landing, Missouri	75	Deans landing, Arkansas	197	Ludlows landing, Arkansas	359
Marrs landing, Tennessee	77	Andrews landing, Arkansas	198	Crows landing, Mississippi	365
Darnells landing, Tennessee	78	Thomas landing, Tennessee	201	Beiths landing, Arkansas	366
Point Pleasant, Missouri	79	Corona landing, Arkansas	203	Parkers landing, Mississippi	367
Williams landing, Missouri	80	Randolph point, Tennessee	210	Anstralia, Mississippi	369
Phillips landing, Missouri	81	Woodwards landing, Arkansas	212	Australia landing, Mississippi	370
Lazells landing, Missouri	82	Eldorado, Arkansas	212	Dyers landing, Mississippi	370
Ruddles landing, Missouri	84	Bradleys landing, Arkansas	214	Dennis landing, Mississippi	372
Tiptonville, Tennessee	85	Hollybush landing, Arkansas	219	Laconia, Arkansas	373
Shaws landing, Tennessee	85	Redmans landing, Arkansas	220	Lulu landing, Arkansas	376
Reelfoot landing, Tennessee	86	Mound city landing, Arkansas	226	Concordia, Mississippi	378
Rileys landing, Tennessee	87	Mouth of Loosahatchie river, Tennessee	229	Maysonia, Mississippi	378
Stewarts landing, Missouri	88	Hopefield, Arkansas	229	Hills landing, Arkansas	380
Batsells landing, Missouri	90	Mouth of Wolf river, Tennessee	229	Frawleys landing, Mississippi	382
Atkinsons landing, Missouri	91	Memphis, Tennessee	230	Henrico landing, Arkansas	383
Stewarts lower landing, Missouri	94	Forrest landing	233	Graddys landing, Arkansas	384
Bass landing, Tennessee	95	Lakes landing, Arkansas	236	McGehees landing, Mississippi	391
D. Phillips landing, Missouri	96	McConnells landing, Arkansas	238	Waxhaw landing, Mississippi	392
Reelfoot landing, Tennessee	98	Rowleys landing, Arkansas	238	Mouth of White river, Arkansas	393
Le Dukes landing, Tennessee	101	Jones landing, Arkansas	238	Terrene, Mississippi	394
Hathaways landing, Tennessee	102	Reeves landing, Arkansas	243	Cumbyville, Arkansas	394
Gayoso, Missouri	105	Harris landing, Arkansas	244	Malones landing, Arkansas	397
Ferris landing, Missouri	108	Horn Lake landing, Tennessee	244	Rosedale landing, Mississippi	398
Caruthersville, Missouri	110	Collins landing, Tennessee	245	Riverton landing, Mississippi	399
Linwood landing, Tennessee	115	Scanlans landing, Arkansas	247	Black Hawk landing, Arkansas	401
Booths Point landing, Tennessee	117	Fairview landing, Arkansas	251	Mouth of Arkansas river, Arkansas	401
Loves landing, Tennessee	120	Pinkney's landing, Arkansas	252	Glen Lou landing, Arkansas	401
Pates landing, Tennessee	121	Cat Island landing, Arkansas	252	Prentiss landing, Mississippi	403
Mitchells landing, Tennessee	122	Norfolk landing, Mississippi	254	Holly Ridge landing, Arkansas	411
Cottonwood Point landing, Missouri	123	Star landing, Mississippi	258	Caulks landing, Arkansas	413
Helms landing, Missouri	123	Hareklerodes landing, Arkansas	259	Niblets landing, Mississippi	414
Lintdale landing, Missouri	125	Bennetts landing, Mississippi	263	Bolivar landing, Mississippi	416
Midway landing, Missouri	126	Polks landing, Mississippi	264	Buck Ridge landing, Mississippi	418
Missouri and Arkansas state line	127	Commerce landing, Mississippi	269	Kentucky landing, Mississippi	418
Secoy landing, Arkansas	128	Peters landing, Arkansas	271	Home landing, Mississippi	419
Meadows landing, Arkansas	128	Campbells landing, Arkansas	272	Content landing, Mississippi	420
Hoffman landing, Arkansas	129	Ashley Point landing, Arkansas	274	Williams landing, Arkansas	420
Hickmans landing, Arkansas	131	Mhoons landing, Mississippi	275	Franklin landing, Mississippi	422
Wrights Point landing, Arkansas	134	Bordeaux Point landing, Arkansas	278	Catfish Point landing, Mississippi	423
Mouth of Obion river, Tennessee	135	Walnut Bend landing, Arkansas	282	Good Luck landing, Arkansas	423
Hales Point landing, Tennessee	135	Smiths landing, Arkansas	285	Cypress Creek landing, Arkansas	426
Nebraska landing, Tennessee	138	Frederick landing, Mississippi	287	Lucca landing, Arkansas	427
Buckners landing, Arkansas	140	Austin landing, Mississippi	288	Chicora landing, Arkansas	429
Snows landing, Arkansas	140	O. K. landing, Mississippi	289	Chicot, Arkansas	431
Barfield landing, Arkansas	141	Harberts landing, Mississippi	292	Eutaw landing, Mississippi	433
Wards landing, Arkansas	148	Sterling, Arkansas, mouth Saint Francis river	297	Jenkins landing, Mississippi	433
O'Donnells landing, Arkansas	149	Trotter landing, Mississippi	304	Stop landing, Mississippi	434
Ashport, Tennessee	153	Helena, Arkansas	306	Easton landing, Mississippi	434
Mud Point landing, Tennessee	154			Mound landing, Mississippi	435
Johnsons landing, Tennessee	156			Glencoe landing, Mississippi	436

MISSISSIPPI RIVER LANDINGS BETWEEN CAIRO AND NEW ORLEANS (DISTANCES FROM CAIRO)—Continued.

	Miles.		Miles.		Miles.
Deioulme landing, Mississippi	436	Sparta, or Duckport landing, Louisiana		Tarbert, Mississippi	757
Arkansas city, Arkansas	438	ana	589	Car Point landing, Louisiana	760
Offutt's landing, Mississippi	444	Nebraska landing, Louisiana	591	Angola landing, Louisiana	762
Gaines landing, Arkansas	449	Youngs Point landing, Louisiana	593	Mouth of Red river, Louisiana	762
Point Comfort landing, Arkansas	454	Mouth of Yazoo river, Mississippi	594	Red River landing, Louisiana	763
Woodstock landing, Mississippi	464	Butler landing, Mississippi	594	Smiths landing, Louisiana	765
Linwood landing, Arkansas	464	Kings Point landing, Mississippi	596	Miles landing, Louisiana	765
Bellevue landing, Arkansas	465	Vicksburg, Mississippi	599	Coal landing, Louisiana	770
Luna landing, Arkansas	467	Delta, Louisiana	597	Upper Tunica landing, Louisiana	770
Columbia landing, Arkansas	469	Bedfords landing, Louisiana	606	Lower Tunica landing, Louisiana	771
Chicot landing, Arkansas	473	Warrenton, Mississippi	606	Greenwood landing, Louisiana	775
Barns landing, Mississippi	476	Oak Bend landing, Mississippi	609	Sebastopol, Louisiana	780
Greenville, Mississippi	478	Diamond point, Mississippi	611	Raccourci landing, Louisiana	782
Craigs landing, Arkansas	483	Moore's landing, Louisiana	614	New Texas landing, Louisiana	783
Jones landing, Arkansas	485	Kelloggs landing, Louisiana	616	Morganza landing, Louisiana	786
Vancluse landing, Arkansas	486	Upper New Town, Mississippi	618	Point Coupee, Louisiana	793
Sunnyside landing, Arkansas	490	Lower New Town, Louisiana	618	Bayou Sara, Louisiana	797
Refuse, Mississippi	491	Point Pleasant landing, Louisiana	622	Waterloo, Louisiana	803
Lakeport landing, Arkansas	495	Blands store, Louisiana	623	Hermitage landing, Louisiana	805
Island 86 landing, Arkansas	501	Buck Ridge landing, Louisiana	624	Port Hickey landing, Louisiana	808
Longwood landing, Mississippi	501	Brooks landing, Mississippi	626	Kelson landing, Louisiana	811
Lake Washington landing, Mississippi	504	Wilsons Point landing, Louisiana	630	Highland landing, Louisiana	813
Grand Lake landing, Arkansas	510	Ship Bayou landing, Louisiana	631	Lower Springfield landing, Louisiana	816
Leota landing, Mississippi	511	Hard Times landing, Louisiana	633	Grossmans landing, Louisiana	820
Cracraft landing, Arkansas	513	Grand Gulf, Mississippi	636	Barroza landing, Louisiana	821
Sterling landing, Arkansas	515	Whitehall landing, Mississippi	637	Lobdells landing, Louisiana	823
Carolina landing, Mississippi	516	Hardscrabble, Louisiana	640	Quornor landing, Louisiana	824
Ashton landing, Arkansas	520	Bruensburg landing, Mississippi	643	Point Lace landing, Louisiana	826
Pilehers Point landing, Louisiana	523	Bondurant, Louisiana	643	Port Allen, Louisiana	830
Pitmans landing, Louisiana	525	Saint Joseph, Louisiana	648	Baton Rouge, Louisiana	831
Bunchs landing, Louisiana	528	Rodney Ferry landing, Louisiana	651	Cinclare landing, Louisiana	835
Duncansby landing, Mississippi	529	Rodney, Mississippi	652	Missouri landing, Louisiana	837
Skipworth landing, Mississippi	530	Gilliams landing, Mississippi	654	Manchac landing, Louisiana	843
Wilsons Point landing, Louisiana	531	Beelers landing, Louisiana	655	Brooksville landing, Louisiana	847
Wilderness landing, Mississippi	531	Kemps landing, Louisiana	659	Plaquemine landing, Louisiana	851
Cottonwood landing, Louisiana	534	Waterproof, Louisiana	663	Forlorn Hope landing, Louisiana	856
Homochitta landing, Mississippi	535	Durango landing, Louisiana	668	Arcadia landing, Louisiana	857
Holly Ridge landing, Mississippi	536	Cypress Grove landing, Mississippi	669	Browns landing, Louisiana	859
Vista landing, Louisiana	536	Coles Creek landing, Mississippi	672	Dunboine landing, Louisiana	862
Longwood landing, Louisiana	537	Kings woodyard, Mississippi	674	Ophelia landing, Louisiana	862
Oakley landing, Mississippi	537	Rosedale landing, Louisiana	674	Bayou Goula landing, Louisiana	864
Reserve landing, Mississippi	537	Habbards landing, Mississippi	675	Belle Grove landing, Louisiana	867
Arlington landing, Louisiana	541	Mercer landing, Mississippi	677	Cannon Store landing, Louisiana	868
Ben Lomond landing, Mississippi	541	L'Argent, Louisiana	679	Hard Times landing, Louisiana	869
Lake Providence, Louisiana	542	Mononar landing, Louisiana	680	Southwood landing, Louisiana	872
Shipland landing, Mississippi	544	Hole in Wall landing, Louisiana	680	Woodstock landing, Louisiana	875
Halls landing, Mississippi	544	Covington landing, Louisiana	680	Linwood landing, Louisiana	875
Tallula landing, Mississippi	552	Gibbons landing, Louisiana	683	Ashland landing, Louisiana	876
Bass landing, Louisiana	552	Good Hope landing, Louisiana	691	Ascension landing, Louisiana	879
Hays landing, Mississippi	553	Stacy plantation, Louisiana	698	Evan Hall landing, Louisiana	880
Shiloh landing, Mississippi	554	Natchez, Mississippi	698	Ferry landing, Louisiana	883
Christmas landing, Mississippi	555	Vidalia, Louisiana	698	Donaldsonville, Louisiana	883
Cottonwood landing, Mississippi	556	Arnolla landing, Louisiana	700	Batean, or Larcular landing, Louisiana	885
Arcadia landing, Mississippi	557	Whitehall landing, Louisiana	701	Whitehall landing, Louisiana	891
Wilton landing (upper), Louisiana	559	Boles Point landing, Louisiana	705	College point, Louisiana	901
Wilton landing (lower), Louisiana	560	Morville landing, Louisiana	708	Mount Airy plantation, Louisiana	913
Alsatia landing, Louisiana	561	Hutchins landing, Mississippi	713	Terre Haute plantation, Louisiana	918
Melville landing, Louisiana	562	Avalanchelanding, Mississippi	716	Bonnet Carre, Louisiana	924
Edgewood landing, Louisiana	563	Fairview landing, Louisiana	725	Hermitage plantation, Louisiana	930
Raleigh landing, Louisiana	564	Jacksons point, Mississippi	735	Prospect plantation, Louisiana	933
Tennessee landing, Mississippi	564	Ashland landing, Louisiana	735	Hahnville, Louisiana	933
Pecan Grove landing, Louisiana	566	Bougeres landing, Louisiana	735	Speranza plantation, Louisiana	935
Chotard landing, Mississippi	570	Union Point landing, Louisiana	740	Destrahan plantation, Louisiana	937
Brunswick landing, Mississippi	573	Kienstia landing, Mississippi	740	Lone Star plantation, Louisiana	938
Henderson landing, Louisiana	573	Black Hawk landing, Louisiana	745	Kennerville, Louisiana	945
Villa Vista landing, Louisiana	574	Black Hawk Point landing, Louisiana	748	Twelve Mile point, Louisiana	949
Omega landing, Louisiana	578	Stamps landing, Mississippi	748	Jefferson, Louisiana	949
Rose Hill landing, Louisiana	579	Bartlett plantation, Mississippi	750	Nine Mile point, Louisiana	953
Millikens Bend landing, Louisiana	581	Knoxs landing, Louisiana	751	Carrollton, Louisiana	955
Cabin Teele landing, Louisiana	584	Fort Adams landing, Mississippi	753	Gretna, Louisiana	960
Forest Home landing, Mississippi	584	Point Breeze, Louisiana	756	New Orleans, Louisiana	961
Halpino landing, Mississippi	585	Langside, Mississippi	756		

RIVERS OF THE MISSISSIPPI VALLEY.

OHIO RIVER LANDINGS BETWEEN PITTSBURG AND CAIRO (DISTANCES FROM PITTSBURG).

	Miles.		Miles.		Miles.
Pittsburg, Pennsylvania.....	0	Newberry bar, Ohio.....	193	Palestine, Ohio.....	450
Saw Mill run, Pennsylvania.....	2	Big Hockhocking, Ohio.....	198	Buzzards roost, Ohio.....	454
Corks run, Pennsylvania.....	3	Bellville island, Ohio.....	202	Little Miami river, Ohio.....	460
Chariers creek, Pennsylvania.....	3	Murraysville, West Virginia.....	207	Jamestown, Kentucky.....	464
Jacks run, Pennsylvania.....	5	Portland, Ohio.....	214	Cincinnati, Ohio.....	467
Horsetail ripple, Pennsylvania.....	6	Ravenswood, West Virginia.....	219	Sedamsville, Ohio.....	470
Lowries ripple, Pennsylvania.....	7	Goose island, Ohio.....	228	McCulloms bar, Ohio.....	472
Duff's bar, Pennsylvania.....	8	Letart falls, Ohio.....	234	Andersons ferry, Ohio.....	474
Merrimans ripple, Pennsylvania.....	10	Grahams station, West Virginia.....	239	Rapid run, Ohio.....	477
Whites ripple, Pennsylvania.....	11	Hartford city, West Virginia.....	244	Taylorsville, Kentucky.....	478
Deadmans island, Pennsylvania.....	14	Pomeroy, Ohio.....	249	Muddy creek, Ohio.....	480
Flathertys run, Pennsylvania.....	15	Eight Mile island, Ohio.....	255	Chamberlains, Kentucky.....	482
Big Sewickley creek, Pennsylvania.....	16	Campaign creek, Ohio.....	260	Indian creek, Ohio.....	482
Little Sewickley creek, Pennsylvania.....	17	Big Kanawha river, West Virginia.....	264	Big Miami, Ohio and Indiana boundary.....	487
Logstown bar, Pennsylvania.....	19	Gallipolis, Ohio.....	267	Lawrenceburg, Indiana.....	489
Baden, Pennsylvania.....	21	Carrion ripple, Ohio.....	271	Petersburg landing, Kentucky.....	491
Freedom, Pennsylvania.....	24	Raccoon island, Ohio.....	273	Aurora, Indiana.....	493
Lacocks bar, Pennsylvania.....	25	Chambersburg, Ohio.....	278	Longhreys creek, Indiana.....	495
Big Beaver river, Pennsylvania.....	25	Bladensburg, Ohio.....	279	Kirbys rock, Indiana.....	496
Vanport, Pennsylvania.....	28	Eighteen Mile creek, Ohio.....	283	Loughreys island, Indiana.....	498
Raccoon bar, Pennsylvania.....	29	Little Guyandotte river, West Virginia.....	285	Rising Sun, Indiana.....	502
Raccoon creek, Pennsylvania.....	30	Green Bottom ripple, Ohio.....	290	Arnolds creek, Indiana.....	505
Montgomery island, Pennsylvania.....	32	Millersport and Federal creek, Ohio.....	293	Gunpowder creek, Kentucky.....	510
Safe Harbor, Pennsylvania.....	32	Haskellville, Ohio.....	295	Big Boone creek, Kentucky.....	513
Shippenport, Pennsylvania.....	35	Dogham bar, Ohio.....	299	Goose creek, Indiana.....	514
Potts run, Pennsylvania.....	37	Big Guyandotte river, West Virginia.....	303	Patriot, Indiana.....	515
Little Beaver river, Pennsylvania.....	40	Symms creek, Ohio.....	306	Sugar creek, Kentucky.....	519
Boundary line, Pennsylvania and Ohio.....	41	Buffalo creek bar, Ohio.....	308	Bryants creek, Indiana.....	523
Liverpool, Ohio.....	44	Burlington, Ohio.....	311	Warsaw, Kentucky.....	524
Wellsville, Ohio.....	48	Ceredo, West Virginia.....	312	Florence, Indiana.....	525
Yellow creek, Ohio.....	50	Catlettsburg, Kentucky.....	315	Craigs creek, Indiana.....	526
Tumblesons run, West Virginia.....	53	Sheridan coal works, Ohio.....	318	Storns creek, Indiana.....	527
New Cumberland, West Virginia.....	56	Ashland, Kentucky.....	320	Loglick creek, Indiana.....	529
Kings creek, Ohio.....	60	Ironton, Ohio.....	325	Vevay island, Indiana.....	532
Cables eddy, Ohio.....	64	Hanging Rock, Ohio.....	328	Vevay, Indiana, and Ghent, Kentucky.....	533
Steubenville, Ohio.....	68	Union landing, Ohio.....	330	Indian creek, Kentucky.....	536
Wellsburg, West Virginia.....	74	Greenupsburg, Kentucky.....	334	Craigs bar, Indiana.....	537
Beech Bottom bar, Ohio.....	78	Burks point, Ohio.....	341	Carrolton, Kentucky.....	541
Warrenton, Ohio.....	81	Pine creek, Ohio.....	345	Notchlick creek, Kentucky.....	544
Pike island, Ohio.....	83	Sciotoville, Ohio.....	347	Captain J. Armstrongs, Indiana.....	544
Burlington, Ohio.....	86	Tiger creek, Kentucky.....	351	Locust creek, Kentucky.....	545
Martinsville, Ohio.....	89	Portsmouth, Ohio.....	354	Indian, Indiana.....	546
Wheeling (creek), West Virginia.....	90	Turkey creek, Ohio.....	359	Eagle Hollow, Indiana.....	551
McMahons Creek bar, Ohio.....	94	Quincy, Kentucky.....	364	Lonesome Hollow, Indiana.....	551
Kates rock, West Virginia.....	97	Rock Port, Kentucky.....	368	Madison, Indiana.....	553
Middle of Little Grave Creek bar, Ohio.....	100	Buena Vista, Ohio.....	371	Clifty creek, Indiana.....	556
Moundsville, West Virginia.....	101	Rockville, Ohio.....	372	Hanover landing, Indiana.....	558
Captina creek, Ohio.....	109	Yanceburg, Kentucky.....	375	Reeds landing, Indiana.....	562
Fish creek, West Virginia.....	113	Rome, Ohio.....	381	New London, Indiana.....	563
Sunfish creek, Ohio.....	117	Brush creek, Ohio.....	385	Big Solady creek, Indiana.....	565
Proctors run, West Virginia.....	121	Concord, Kentucky.....	387	Corn creek, Kentucky.....	567
Fishing creek, West Virginia.....	127	Wrightsville, Ohio.....	389	Bethlehem, Indiana.....	570
Sardis, Ohio.....	130	Manchester, Ohio.....	394	Westport, Kentucky.....	576
Whittons house, Ohio.....	134	Cabin creek, Kentucky.....	400	Eighteen Mile island, Indiana.....	578
Sisterville, West Virginia.....	136	Brooks bar, Ohio.....	402	Herculeaneum, Kentucky.....	581
Matamoros, Ohio.....	141	Maysville, Kentucky.....	406	Fourteen Mile creek, Indiana.....	586
Petticoat bar, Ohio.....	147	Charleston bar, Ohio.....	412	Charleston landing, Indiana.....	587
Reas run, West Virginia.....	151	Ripley, Ohio.....	414	Twelve Mile island, Indiana.....	589
Saint Marys, West Virginia.....	155	Levana, or Dover, Ohio.....	416	Utica, Indiana.....	592
Newport, Ohio.....	156	Straight creek, Ohio.....	418	Six Mile island, Indiana.....	593
Cow creek, West Virginia.....	161	Higginsport, Ohio.....	422	Louisville, Kentucky.....	596
Carpenters bar, Ohio.....	166	Augusta, Kentucky.....	424	Jeffersonville, Indiana.....	596
Marietta, Ohio.....	171	Utopia, Ohio.....	427	Silver creek, Indiana.....	601
Briscoe run, West Virginia.....	177	Bull creek, Ohio.....	428	New Albany, Indiana.....	603
Cole island, Ohio.....	181	Chilo, Ohio.....	431	Middle creek, Indiana.....	608
Kanawha river, Parkersburg, West Vir- ginia.....	184	Neville, Ohio.....	435	Hughes bar, Indiana.....	609
Blennerhassets island, foot, West Vir- ginia.....	189	Fosters landing, Kentucky.....	435	Knob creek, Indiana.....	612
Hockingport, Ohio.....	191	Moscow, Ohio.....	439	Christopher crossing, Kentucky.....	617
		Point Pleasant, Ohio.....	442	Salt river, Kentucky.....	624
		New Richmond, Ohio.....	446	New Boston, Kentucky.....	628

STATISTICS OF TRANSPORTATION.

OHIO RIVER LANDINGS BETWEEN PITTSBURG AND CAIRO (DISTANCES FROM PITTSBURG)—Continued.

	Miles.		Miles.		Miles.
Otter creek, Kentucky	631	Tell city, Indiana	720	Raleigh, Kentucky	843
Tobacco landing, Kentucky	635	Troy, Indiana	724	Shawneetown, Illinois	848
Brandenburg, Kentucky	640	Lewisport, Kentucky	731	Coal banks, Illinois	850
Mauport, Indiana	643	Grandview, Indiana	736	Saline river, Illinois	857
Amsterdam, Indiana	650	Honey creek, Indiana	739	Shotwells coal bank, Illinois	859
Head of Upper Blue River island, Indiana	654	Rockport, Indiana	741	Caseyville, Kentucky	861
Leavenworth, Indiana	658	Upper Yellow Bank island, head, Indiana	745	Treadwater river, Kentucky	862
Fredonia, Indiana	661	Owensboro, Kentucky	749	Weston, Kentucky	865
Schooner point, Indiana	664	Bonharbor, Kentucky	752	Fords ferry, Kentucky	866
Hawkins landing, Kentucky	668	Enterprise, Indiana	756	Cave in Rock, Illinois	869
Peckenpaws landing, Kentucky	669	Point Isabel, Indiana	758	Head Big Hurricane island, Kentucky	873
Wolf creek, Kentucky	671	French island, Kentucky	760	Elizabethtown, Illinois	877
Little Blue river, Indiana	673	Pigeon creek, Indiana	766	Roseclair, Illinois	880
Alton, Indiana	673	Cypress creek, Indiana	768	Carrsville, Kentucky	882
Reno, Indiana	677	Newburg, Indiana	770	Golconda, Illinois	890
Hatfields house, Kentucky	679	Green river, Kentucky	775	Prior island, Kentucky	893
Concordia, Kentucky	681	Evansville, Indiana	783	Head Sisters island, Kentucky	896
Davis landing, Indiana	682	Henderson, Kentucky	795	Bay city, Illinois	899
Oil creek, Indiana	686	Henderson, Indiana	796	Head Stewarts island, Illinois	901
Derby, Indiana	687	West Franklin, Indiana	808	Head Dry island, Illinois	906
Yellow Bank creek, Kentucky	690	Diamond island, foot, Indiana	812	Smithland, Kentucky	908
Shenautts Reach, foot, Kentucky	692	Mount Vernon, Indiana	819	Pull Tight, or West Liberty, Kentucky	910
Stevens port, Kentucky	695	Slim island, head, Indiana	822	Paducah, Kentucky	920
Bear creek, Kentucky	697	Slim island, foot, Indiana	826	Brooklyn, Illinois	923
Holts bar, Kentucky	698	Louisiana rocks, Kentucky	831	Metropolis, Illinois	929
Gregorys, Kentucky	703	Uniontown, Kentucky	833	Hillermans, Illinois	939
Cloverport, Kentucky	705	Lower Highland rocks, Kentucky	834	Caledonia, Illinois	951
Faucetts creek, Indiana	706	Head Wabash island, Indiana	836	Mound city, Illinois	959
Millston creek, Indiana	711	Wabash river, Illinois and Indiana boundary	838	Cairo, mouth of Ohio river, Illinois	967
Rock island, Kentucky	713	Fort Wabash island, Indiana	841		
Hawsville, Kentucky	717				

MISSOURI RIVER LANDINGS BETWEEN SAINT LOUIS AND FORT BENTON (DISTANCES FROM SAINT LOUIS).

Saint Louis, Missouri	0	Grand River agency, South Dakota	1,479	Round Butte, Montana	2,304
Mouth of Missouri, Missouri	20	Standing Rock agency, South Dakota	1,535	Troyer Point, Montana	2,344
Jefferson city, Missouri	164	Fort Yates, North Dakota	1,535	Mussellshell river, Montana	2,387
Glasgow, Missouri	212	Fort Rice, North Dakota	1,569	Fort Hawley, Montana	2,424
Lexington, Missouri	337	Fort Lincoln, North Dakota	1,609	Carroll, Montana	2,446
Kansas city, Missouri	405	Bismarck, North Dakota	1,614	Little Rocky, Montana	2,461
Leavenworth, Kansas	438	Mandan, North Dakota	1,617	Harrietts island, Montana	2,473
Saint Joseph, Missouri	501	Fort Stevenson, North Dakota	1,724	Two Calf island, Montana	2,488
Omaha, Nebraska	686	Port Berthold, North Dakota	1,749	Cow island, Montana	2,508
Sioux city, Iowa	861	White Earth river, North Dakota	1,869	Buds rapids, Montana	2,523
Vermilion, Kansas	953	Fort Buford, North Dakota	1,994	Dauphins rapids, Montana	2,538
Yankton, South Dakota	1,006	Mouth of Yellowstone, North Dakota	1,996	Fort Claggett, Montana	2,561
Fort Randall, South Dakota	1,102	Mouth of Little Muddy, Montana	2,016	Drowned Mans rapids, Montana	2,563
Brule city, South Dakota	1,192	Mouth of Big Muddy, Montana	2,046	Arrowhead, Montana	2,577
Brule agency, South Dakota	1,223	Mouth of Poplar creek, Montana	2,096	Steamboat rock, Montana	2,581
Fort Hale, South Dakota	1,223	Spread Eagle, Montana	2,121	Hole in the Wall, Montana	2,587
Fort Thompson, South Dakota	1,230	Wolf Creek agency, Montana	2,147	Citadel rock, Montana	2,590
Head of Big Bend, South Dakota	1,270	Porcupine creek, Montana	2,177	Eagle creek, Montana	2,598
Old Fort Pierre, South Dakota	1,330	Milk river, Montana	2,202	Coal banks, Montana	2,613
Black Hills landing, South Dakota	1,330	Fort Copelin, Montana	2,212	Fort Assinaboine landing, Montana	2,613
Fort Sully, South Dakota	1,359	Fort Peck, Montana	2,227	Mouth of Marias river, Montana	2,637
Cheyenne agency, South Dakota	1,371	Bouches Grave, Montana	2,267	Fort Benton, Montana	2,663
Fort Bennett, South Dakota	1,371				

YELLOWSTONE RIVER LANDINGS BETWEEN FORT BUFORD AND LITTLE BIG HORN (DISTANCES FROM FORT BUFORD).

Fort Buford, North Dakota	0	Tongue river, Montana	237	Bighorn, Montana	348
Glendive, Montana	148	Fort Keogh, Montana	237	Little Bighorn, Montana	398
Powder river, Montana	200	Rosebud, Montana	274		

STATISTICS OF TRANSPORTATION ON THE RIVERS OF THE MISSISSIPPI VALLEY.

TABLE I.—EQUIPMENT.

NUMBER, TONNAGE, AND VALUE OF ALL STEAMERS AND UNRIGGED CRAFT (OVER 5 TONS) OWNED ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	TOTAL.			STEAMERS.			UNRIGGED.		
	Number.	Tonnage.	Value.	Number.	Tonnage.	Value.	Number.	Tonnage.	Value.
Total for Mississippi valley.....	7,453	3,393,379.89	\$15,835,005	1,114	210,771.89	\$10,539,251	6,339	3,182,608.00	\$4,795,754
Upper Mississippi.....	473	190,663.21	1,699,387	188	24,978.21	1,485,369	285	165,685.00	214,018
Saint Croix.....	26	11,258.35	110,000	15	1,258.35	99,000	11	10,000.00	11,000
Chippewa.....	1	108.00	7,000	1	108.00	7,000			
Illinois.....	9	1,860.25	80,200	9	1,860.25	80,200			
Missouri, Osage, and Gasconade.....	104	9,657.84	240,405	52	4,759.84	209,700	52	4,898.00	30,705
Total for Upper Mississippi system.	613	213,547.65	2,136,992	265	32,964.65	1,881,209	348	180,583.00	255,723
Ohio.....	4,868	2,440,881.62	6,957,513	380	85,035.62	4,099,177	4,488	2,355,846.00	2,858,336
Allegheny.....	32	3,055.84	63,400	6	715.84	53,000	26	2,340.00	10,400
Monongahela.....	158	22,887.15	449,700	48	6,234.15	419,600	110	16,653.00	30,100
Muskingum.....	79	8,370.79	53,515	7	567.79	25,050	72	7,803.00	28,465
Little Kanawha.....	53	4,972.18	30,000	5	228.18	18,000	48	4,744.00	12,000
Great Kanawha.....	893	412,366.13	645,038	21	2,386.13	123,333	872	409,980.00	521,705
Big Sandy.....	17	3,937.67	44,000	8	787.67	40,000	9	3,150.00	4,000
Kentucky.....	8	539.31	22,100	5	374.31	21,000	3	163.00	1,100
Green.....	5	316.68	13,500	5	316.68	13,500			
Wabash.....	3	297.00	10,000	3	297.00	10,000			
Cumberland.....	37	4,805.57	113,600	17	2,935.57	109,300	20	1,870.00	4,300
Tennessee.....	92	18,038.89	293,975	32	7,316.89	260,750	60	10,722.00	33,225
Total for Ohio system.....	6,245	2,920,468.83	8,696,341	537	107,195.83	5,192,710	5,708	2,813,273.00	3,593,631
Lower Mississippi.....	515	237,986.07	4,153,622	265	62,476.07	3,152,372	250	175,510.00	1,001,250
White.....	6	1,269.71	45,100	5	1,229.71	45,000	1	40.00	100
Arkansas.....	22	2,408.73	67,600	15	2,098.73	66,200	7	310.00	1,400
Yazoo.....	20	3,079.68	79,450	11	1,409.68	62,000	9	1,670.00	17,450
Washita.....	3	994.52	45,000	3	994.52	45,000			
Red.....	14	2,218.88	85,700	9	1,968.88	80,700	5	250.00	5,000
Total for Lower Mississippi system.	580	247,957.59	4,476,472	308	70,177.59	3,451,272	272	177,780.00	1,025,200
Red River of the North.....	15	11,405.82	25,200	4	433.82	14,000	11	10,972.00	11,200

STATISTICS OF TRANSPORTATION.

TABLE 2.—EQUIPMENT BY CLASSES.

NUMBER, TONNAGE, AND VALUE OF ALL VESSELS (OVER 5 TONS), BY CLASSES, AND OWNED ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	Classes.	Number of vessels in each class.	Tonnage.	Value.
Total for Mississippi valley.....		7,453	3,393,379.89	\$15,335,005
UPPER MISSISSIPPI SYSTEM.				
Upper Mississippi.....	Passenger and freight.....	23	5,732.91	281,700
	Towing.....	77	9,736.51	621,800
	Ferry.....	24	2,144.39	170,200
	Harbor.....	25	994.26	62,250
	Miscellaneous.....	10	1,999.75	139,800
	No traffic report.....	29	4,370.39	209,619
	Unrigged.....	285	165,685.00	214,018
Total.....		473	190,663.21	1,099,387
Saint Croix.....	Towing.....	10	1,129.82	88,500
	Ferry.....	1	26.98	3,000
	Harbor.....	4	101.55	7,500
	Unrigged.....	11	10,000.00	11,000
Total.....		26	11,258.35	110,000
Chippewa.....	Towing.....	1	108.00	7,000
Illinois.....	Passenger and freight.....	7	1,811.80	70,200
	Ferry.....	2	48.45	1,000
Total.....		9	1,860.25	80,200
Missouri, Osage, and Gasconade.....	Passenger and freight.....	15	2,458.85	76,300
	Towing and harbor.....	10	573.37	41,700
	Ferry.....	24	1,685.49	94,100
	Unrigged.....	52	4,898.00	30,705
	No traffic report.....	3	42.13	3,600
Total.....		104	9,657.84	240,405
Total for Upper Mississippi system.....		613	213,547.65	2,136,992
OHIO SYSTEM.				
Ohio.....	Passenger and freight.....	85	32,688.82	1,209,825
	Towing.....	114	26,708.08	1,680,600
	Ferry.....	54	10,918.00	350,250
	Harbor.....	48	4,275.11	301,000
	Miscellaneous.....	25	2,978.83	169,200
	Unrigged.....	4,488	2,355,846.00	2,858,336
	No traffic report.....	54	7,466.78	388,302
Total.....		4,868	2,440,881.02	6,937,513
Allegheny.....	Passenger and freight.....	6	715.84	53,000
	Unrigged.....	26	2,340.00	10,400
Total.....		32	3,055.84	63,400
Monongahela.....	Passenger and freight.....	8	1,471.48	75,700
	Towing.....	25	3,441.97	246,700
	Ferry.....	3	263.39	15,000
	Miscellaneous.....	12	1,057.31	82,200
	Unrigged.....	110	16,653.00	30,100
Total.....		158	22,887.15	449,700
Muskingum.....	Passenger and freight.....	4	333.35	16,750
	Towing.....	2	219.35	7,000
	Harbor.....	1	15.09	1,300
	Unrigged.....	72	7,803.00	28,465
Total.....		79	8,370.79	53,515
Little Kanawha.....	Passenger and freight.....	2	148.56	10,000
	Towing.....	1	34.93	4,000
	Harbor.....	1	25.64	3,000
	Miscellaneous.....	1	24.05	1,000
	Unrigged.....	48	4,744.00	12,000
Total.....		53	4,972.18	30,000

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 2.—EQUIPMENT BY CLASSES—Continued.

NUMBER, TONNAGE, AND VALUE OF ALL VESSELS (OVER 5 TONS), BY CLASSES, AND OWNED ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889—Continued.

RIVERS.	Classes.	Number of vessels in each class.	Tonnage.	Value.
OHIO SYSTEM—Continued.				
Ohio—Continued.				
Great Kanawha.....	Passenger and freight.....	5	427.55	\$23,500.
	Towing.....	4	692.66	39,333.
	Harbor.....	6	822.40	41,000.
	Ferry.....	2	102.47	8,000.
	Miscellaneous.....	2	58.78	3,500.
	Unrigged.....	872	409,980.00	521,705.
	No traffic report.....	2	282.18	8,000.
Total.....		893	412,366.13	645,038.
Big Sandy.....	Passenger and freight.....	5	443.65	16,000.
	Harbor.....	3	344.02	24,000.
	Unrigged.....	9	3,150.00	4,000.
Total.....		17	3,937.67	44,000.
Kentucky.....	Passenger and freight.....	3	246.52	15,000.
	Towing.....	1	77.88	4,000.
	Unrigged.....	3	165.00	1,100.
	No traffic report.....	1	49.91	2,000.
Total.....		8	539.31	22,100.
Green.....	Passenger and freight.....	5	316.68	13,500.
Wabash.....	Passenger and freight.....	2	243.33	7,500.
	No traffic report.....	1	53.67	2,500.
Total.....		3	297.00	10,000.
Cumberland.....	Passenger and freight.....	13	2,631.48	100,800.
	Towing.....	4	304.09	8,500.
	Unrigged.....	20	1,870.00	4,300.
Total.....		37	4,805.57	113,600.
Tennessee.....	Passenger and freight.....	23	5,851.24	210,500.
	Towing.....	6	1,183.71	46,250.
	Ferry.....	2	259.67	3,000.
	Unrigged.....	60	10,722.00	33,225.
	No traffic report.....	1	22.27	1,000.
Total.....		92	18,038.89	293,975.
Total for Ohio system.....		6,245	2,920,468.83	8,696,341.
LOWER MISSISSIPPI SYSTEM.				
Lower Mississippi.....	Passenger and freight.....	74	31,898.33	1,186,300.
	Towing.....	35	9,665.18	627,600.
	Harbor.....	53	12,403.80	588,300.
	Ferry.....	45	2,831.74	392,200.
	Miscellaneous.....	11	599.93	70,350.
	Unrigged.....	250	175,510.00	1,001,250.
	No traffic report.....	47	5,077.09	287,622.
Total.....		515	237,986.07	4,153,622.
White.....	Passenger and freight.....	5	1,229.71	45,000.
	Unrigged.....	1	40.00	100.
Total.....		6	1,269.71	45,100.
Arkansas.....	Passenger and freight.....	9	1,785.91	46,700.
	Ferry.....	6	312.82	19,500.
	Unrigged.....	7	310.00	1,400.
Total.....		22	2,408.73	67,600.
Yazoo.....	Passenger and freight.....	11	1,409.68	62,000.
	Unrigged.....	9	1,670.00	17,450.
Total.....		20	3,079.68	79,450.

STATISTICS OF TRANSPORTATION.

TABLE 2.—EQUIPMENT BY CLASSES—Continued.

NUMBER, TONNAGE, AND VALUE OF ALL VESSELS (OVER 5 TONS), BY CLASSES, AND OWNED ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889—Continued.

RIVERS.	Classes.	Number of vessels in each class.	Tonnage.	Value.
LOWER MISSISSIPPI SYSTEM—Continued.				
Lower Mississippi—Continued.				
Washita	Passenger and freight	3	994.52	\$45,000
Red	Passenger and freight	9	1,968.88	80,700
	Unrigged	5	250.00	5,000
Total		14	2,218.88	85,700
Total for Lower Mississippi system		580	247,957.59	4,476,472
RED RIVER OF THE NORTH.				
Red River of the North	Freight	3	411.17	12,500
	Unrigged	11	10,972.00	11,200
	No traffic report	1	22.65	1,500
Total		15	11,405.82	25,200

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 3.—EQUIPMENT BY TONNAGE GROUPS.

NUMBER AND TONNAGE OF ALL STEAMERS (OVER 5 TONS) DOCUMENTED IN CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY IN 1889, GIVEN BY TONNAGE GROUPS FOR EACH DISTRICT. (a)

CUSTOMS DISTRICTS.	TOTAL.		5 TO 50 TONS.		50 TO 100 TONS.		100 TO 200 TONS.	
	Number.	Tons.	Number.	Tons.	Number.	Tons.	Number.	Tons.
Total	1, 114	209, 826. 07	270	7, 933. 26	261	19, 344. 92	295	42, 601. 42
New Orleans, Louisiana	126	19, 248. 58	35	1, 199. 49	37	2, 667. 20	27	3, 822. 59
Natchez, Mississippi	4	592. 35	1	44. 49	1	72. 71	1	186. 03
Vicksburg, Mississippi	30	2, 875. 99	10	257. 00	11	815. 67	5	634. 36
Memphis, Tennessee	71	12, 113. 76	24	645. 00	16	1, 144. 57	12	1, 808. 04
Chattanooga, Tennessee	22	3, 966. 09	5	180. 21	1	63. 01	8	1, 224. 13
Paducah, Kentucky	53	8, 781. 24	17	573. 29	9	643. 73	11	1, 518. 43
Louisville, Kentucky	52	11, 979. 92	9	286. 07	13	935. 54	15	2, 260. 05
Saint Louis, Missouri	115	42, 827. 04	23	646. 72	19	1, 525. 42	12	1, 695. 14
Kansas city, Missouri	16	1, 781. 35	4	110. 01	7	547. 58	4	613. 33
Saint Joseph, Missouri	6	340. 53	3	84. 56	2	153. 53	1	102. 44
Omaha, Nebraska	13	1, 329. 55	4	70. 51	6	370. 62	.....	.....
Burlington, Iowa	43	5, 059. 39	10	366. 43	11	786. 81	18	2, 881. 38
Dubuque, Iowa	28	6, 355. 26	6	129. 83	6	448. 61	7	1, 001. 18
Minnesota (b)	46	5, 213. 56	16	409. 66	6	447. 47	18	2, 603. 01
Lacrosse, Wisconsin	47	3, 884. 03	16	441. 95	15	1, 187. 58	16	2, 254. 50
Galena, Illinois	27	3, 129. 60	4	130. 06	5	366. 20	18	2, 633. 34
Evansville, Indiana	54	6, 950. 76	23	565. 31	12	904. 84	10	1, 392. 77
Cincinnati, Ohio	115	31, 406. 87	21	601. 05	24	1, 713. 40	30	4, 412. 29
Wheeling, West Virginia	94	9, 768. 97	22	703. 87	36	2, 697. 50	27	3, 884. 94
Pittsburg, Pennsylvania	152	32, 263. 23	17	486. 25	24	1, 852. 93	55	7, 577. 47

CUSTOMS DISTRICTS.	200 TO 300 TONS.		300 TO 400 TONS.		400 TO 500 TONS.		500 TO 1,000 TONS.		1,000 TO 2,500 TONS.	
	Number.	Tons.	Number.	Tons.	Number.	Tons.	Number.	Tons.	Number.	Tons.
Total	92	22, 746. 92	74	25, 481. 02	28	12, 528. 88	71	40, 025. 68	23	30, 163. 97
New Orleans, Louisiana	12	2, 918. 50	7	2, 485. 90	2	966. 07	4	3, 129. 85	2	2, 058. 98
Natchez, Mississippi	1	289. 12	.....	.....	.....	.....	.....	.....	.....	.....
Vicksburg, Mississippi	2	473. 91	2	694. 15	.....	.....	.....	.....	.....	.....
Memphis, Tennessee	5	1, 190. 59	5	1, 715. 58	2	934. 93	6	3, 615. 34	1	1, 059. 71
Chattanooga, Tennessee	4	912. 32	3	1, 021. 08	.....	.....	1	565. 34	.....	.....
Paducah, Kentucky	5	1, 203. 66	7	2, 319. 73	1	467. 17	3	2, 055. 23	.....	.....
Louisville, Kentucky	2	491. 78	7	2, 417. 12	1	438. 17	4	3, 054. 25	1	2, 048. 34
Saint Louis, Missouri	8	2, 002. 36	12	4, 376. 21	12	5, 287. 10	18	11, 879. 81	11	15, 414. 28
Kansas city, Missouri .....	.....	.....	.....	.....	.....	.....	1	510. 43	.....	.....
Saint Joseph, Missouri .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Omaha, Nebraska	2	536. 11	1	352. 31	.....	.....	.....	.....	.....	.....
Burlington, Iowa	3	712. 02	1	312. 75	.....	.....	.....	.....	.....	.....
Dubuque, Iowa	3	723. 95	2	673. 57	1	456. 96	2	1, 340. 05	1	1, 491. 11
Minnesota	3	739. 88	3	1, 013. 54	.....	.....	.....	.....	.....	.....
Lacrosse, Wisconsin .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Galena, Illinois .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evansville, Indiana	4	927. 95	1	319. 46	.....	.....	4	2, 840. 43	.....	.....
Cincinnati, Ohio	10	2, 512. 52	6	1, 950. 16	4	1, 682. 61	13	10, 443. 29	7	8, 091. 55
Wheeling, West Virginia	7	1, 789. 27	2	693. 39	.....	.....	.....	.....	.....	.....
Pittsburg, Pennsylvania	21	5, 322. 98	15	5, 136. 07	5	2, 295. 87	15	9, 591. 66	.....	.....

^a Compiled from reports furnished by commissioner of navigation.

^b Comprising the ports of Saint Vincent and Saint Paul.

STATISTICS OF TRANSPORTATION.

TABLE 4.—INCOME AND EXPENDITURE.

GROSS EARNINGS, EXPENSES, AND NET EARNINGS OF ALL STEAMERS (OVER 5 TONS)
OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889. (a)

RIVERS.	Gross earnings.	Expenses.	Net earnings.
Total for Mississippi valley	\$16,337,533	\$12,600,342	\$3,737,191
Upper Mississippi.....	1,994,786	1,403,746	591,040
Saint Croix.....	169,184	93,703	75,481
Chippewa.....	18,244	9,844	8,400
Illinois.....	135,801	114,047	21,754
Missouri, Osage, and Gasconade.....	294,470	229,477	64,993
Total for Upper Mississippi system.....	2,612,485	1,850,817	761,668
Ohio.....	5,070,654	4,000,777	1,069,877
Allegheny.....	20,630	18,449	2,181
Monongahela.....	496,930	398,861	98,069
Muskingum.....	55,482	40,589	14,893
Little Kanawha.....	30,921	17,343	13,578
Great Kanawha.....	193,006	139,677	53,329
Big Sandy.....	94,918	69,879	25,039
Kentucky.....	58,821	33,866	24,955
Green.....	31,889	27,154	4,735
Wabash.....	42,320	22,140	20,180
Cumberland.....	205,636	170,939	34,697
Tennessee.....	400,806	330,893	69,913
Total for Ohio system.....	6,702,013	5,270,567	1,431,446
Lower Mississippi.....	6,236,310	4,840,939	1,395,371
White.....	100,697	82,443	18,254
Arkansas.....	86,383	56,549	29,834
Yazoo.....	144,068	125,469	18,599
Washita.....	125,180	103,220	21,960
Red.....	324,736	257,092	67,644
Total for Lower Mississippi system.....	7,017,374	5,474,712	1,542,662
Red River of the North.....	5,661	4,246	1,415

a The expense accounts of the barges, flats, and other unrigged are included, wherever practicable, in those of the towing steamers.

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 5.—INCOME AND EXPENDITURE BY CLASSES.

GROSS EARNINGS, EXPENSES, AND NET EARNINGS OF ALL STEAMERS, BY CLASSES, (a) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	Classes.	Number of vessels in each class.	Gross earnings.	Expenses.	Net earnings.
Total for Mississippi valley.....		975	\$16,337,533	\$12,600,342	\$3,737,191
UPPER MISSISSIPPI SYSTEM.					
Upper Mississippi.....	Passenger and freight.....	23	463,872	380,375	83,497
	Towing.....	77	1,249,850	812,401	437,449
	Ferry.....	24	131,528	92,078	39,450
	Harbor.....	25	102,147	71,503	30,644
	Miscellaneous.....	10	47,389	47,389	.....
Total.....		159	1,994,786	1,403,746	591,040
Saint Croix.....	Towing.....	10	154,597	83,481	71,116
	Ferry.....	1	1,485	1,050	435
	Harbor.....	4	13,102	9,172	3,930
Total.....		15	169,184	93,703	75,481
Chippewa.....	Towing.....	1	18,244	9,844	8,400
Illinois.....	Passenger and freight.....	7	133,764	112,321	21,443
	Ferry.....	2	2,037	1,726	311
Total.....		9	135,801	114,047	21,754
Missouri, Osage, and Gasconade.....	Passenger and freight.....	15	129,620	106,288	23,332
	Ferry.....	24	102,493	72,772	29,721
	Towing and harbor.....	10	62,357	50,417	11,940
Total.....		49	294,470	229,477	64,993
Total for Upper Mississippi system.....		233	2,612,485	1,850,817	761,668
OHIO SYSTEM.					
Ohio.....	Passenger and freight.....	85	2,168,215	1,850,248	317,967
	Towing.....	114	2,168,020	1,657,136	510,884
	Ferry.....	54	431,267	246,893	184,374
	Harbor.....	48	254,034	198,282	55,752
	Miscellaneous.....	25	48,218	48,218	.....
Total.....		326	5,070,054	4,000,777	1,069,277
Allegheny.....	Passenger and freight.....	6	20,630	18,449	2,181
Monongahela.....	Passenger and freight.....	8	130,064	107,179	22,885
	Towing.....	25	306,810	233,447	73,363
	Ferry.....	3	11,238	10,017	1,221
	Miscellaneous.....	12	48,218	48,218	.....
Total.....		48	496,030	398,861	97,169
Muskingum.....	Passenger and freight.....	4	47,571	35,254	12,317
	Towing.....	2	7,361	4,915	2,446
	Harbor.....	1	550	420	130
Total.....		7	55,482	40,589	14,893
Little Kanawha.....	Passenger and freight.....	2	24,471	12,075	12,396
	Towing.....	1	2,000	1,068	932
	Harbor.....	1	3,450	2,600	850
	Miscellaneous.....	1	1,000	1,000	.....
Total.....		5	30,921	17,343	13,578
Great Kanawha.....	Passenger and freight.....	5	46,339	36,288	10,051
	Towing.....	4	47,809	31,938	15,871
	Ferry.....	2	13,283	6,965	6,318
	Harbor.....	6	82,575	61,486	21,089
	Miscellaneous.....	2	3,000	3,000	.....
Total.....		19	193,006	139,677	53,329
Big Sandy.....	Passenger and freight.....	5	62,075	46,572	15,503
	Harbor.....	3	32,843	23,307	9,536
Total.....		8	94,918	69,879	25,039

a The expense accounts of the barges, flats, and other unrigged are included, wherever practicable, in those of the towing steamers.

STATISTICS OF TRANSPORTATION.

TABLE 5.—INCOME AND EXPENDITURE BY CLASSES—Continued.

GROSS EARNINGS, EXPENSES, AND NET EARNINGS OF ALL STEAMERS, BY CLASSES, OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889—Continued.

RIVERS.	Classes.	Number of vessels in each class.	Gross earnings.	Expenses.	Net earnings.
OHIO SYSTEM—Continued.					
Ohio—Continued.					
Kentucky	Passenger and freight	3	\$40,910	\$23,145	\$17,765
	Towing	1	17,911	10,721	7,190
Total		4	58,821	33,866	24,955
Green	Passenger and freight	5	31,889	27,154	4,735
Wabash	Passenger and freight	2	42,320	22,140	20,180
Cumberland	Passenger and freight	13	179,688	153,412	26,276
	Towing	4	25,948	17,527	8,421
Total		17	205,636	170,939	34,697
Tennessee	Passenger and freight	23	331,345	289,699	41,646
	Towing	6	37,328	28,160	9,168
	Ferry	2	32,133	13,034	19,099
Total		31	400,806	330,893	69,913
Total for Ohio system		478	6,702,013	5,270,567	1,431,446
LOWER MISSISSIPPI SYSTEM.					
Lower Mississippi	Passenger and freight	74	3,040,334	2,742,406	297,928
	Towing	35	1,938,513	1,157,068	781,445
	Ferry	45	442,169	362,431	79,738
	Harbor	53	801,479	574,219	227,260
	Miscellaneous	11	13,815	13,815	.....
Total		218	6,236,310	4,840,930	1,395,371
White	Passenger and freight	5	100,697	82,443	18,254
Arkansas	Passenger and freight	9	57,199	44,881	12,318
	Ferry	6	29,184	11,668	17,516
Total		15	86,383	56,540	29,843
Yazoo	Passenger and freight	11	144,068	125,469	18,599
Washita	Passenger and freight	3	125,180	103,220	21,960
Red	Passenger and freight	9	324,736	257,092	67,644
Total for Lower Mississippi system		261	7,017,374	5,474,712	1,542,662
RED RIVER OF THE NORTH.					
Total	Freight	3	5,661	4,246	1,415

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 6.—EMPLOYÉS.

NUMBER OF OFFICERS AND MEN MAKING UP THE TOTALS OF THE ORDINARY CREWS OF ALL VESSELS, BY CLASSES, IN OPERATION ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889, TOGETHER WITH THE TOTAL WAGES PAID DURING THAT YEAR.

RIVERS.	Classes.	Number of vessels in each class.	Number making up totals of ordinary crews.	Total wages paid during the year.	RIVERS.	Classes.	Number of vessels in each class.	Number making up totals of ordinary crews.	Total wages paid during the year.
Total for Mississippi valley.		975	15,996	\$5,338,862	OHIO SYSTEM—Cont'd.				
UPPER MISSISSIPPI SYSTEM.					Ohio—Continued.				
Upper Mississippi	Passenger and freight.	23	576	143,333	Great Kanawha	Passenger and freight.	5	62	\$19,410
	Towing	77	1,239	385,364		Towing	4	63	16,919
	Ferry	24	125	53,505		Ferry	2	8	3,420
	Harbor	25	117	37,075		Harbor	6	72	23,070
	Miscellaneous	10	111	20,206		Miscellaneous	2	5	2,366
Total		159	2,168	639,483	Total		19	210	65,185
Saint Croix	Towing	10	159	41,601	Big Sandy	Passenger and freight.	5	99	30,485
	Ferry	1	2	700		Harbor	3	42	13,440
	Harbor	4	15	5,287	Total		8	141	43,925
Total		15	176	47,588	Kentucky	Passenger and freight.	3	66	12,220
Chippewa	Towing	1	16	5,046		Towing	1	15	4,110
Illinois	Passenger and freight.	7	162	35,661	Total		4	81	16,330
	Ferry	2	4	1,100	Green	Passenger and freight.	5	43	5,416
Total		9	166	36,761	Wabash	Passenger and freight.	2	50	13,020
Missouri, Osage, and Gasconade.	Passenger and freight.	15	243	41,794	Cumberland	Passenger and freight.	13	440	73,345
	Ferry	24	104	47,352		Towing	4	25	11,085
	Towing and harbor	10	70	24,995	Total		17	465	84,430
Total		49	417	114,141	Tennessee	Passenger and freight.	23	609	140,537
Total for Upper Mississippi system.		233	2,943	843,019		Towing	6	63	13,398
OHIO SYSTEM.						Ferry	2	15	10,800
Ohio	Passenger and freight.	85	2,559	688,407	Total		31	687	164,735
	Towing	114	2,069	910,946	Total for Ohio system.		478	7,663	2,545,625
	Ferry	54	266	142,126	LOWER MISSISSIPPI SYSTEM.				
	Harbor	48	462	152,497	Lower Mississippi	Passenger and freight.	74	2,968	1,032,012
	Miscellaneous	25	68	23,869		Towing	35	720	240,927
Total		326	5,424	1,917,845		Ferry	45	337	183,972
Allegheny	Passenger and freight.	6	31	10,670		Harbor	53	301	176,573
Monongahela	Passenger and freight.	8	81	45,448		Miscellaneous	11	17	12,232
	Towing	25	287	120,408	Total		218	4,343	1,654,716
	Ferry	3	12	7,485	White	Passenger and freight.	5	119	41,997
	Miscellaneous	12	42	22,680	Arkansas	Passenger and freight.	9	141	27,753
Total		48	422	196,021		Ferry	6	20	6,216
Muskingum	Passenger and freight.	4	67	17,305	Total		15	161	33,969
	Towing	2	11	3,406	Yazoo	Passenger and freight.	11	255	60,754
	Harbor	1	3	240	Washita	Passenger and freight.	3	144	43,756
Total		7	81	20,951	Red	Passenger and freight.	9	323	113,349
Little Kanawha	Passenger and freight.	2	18	4,682	Total for Lower Mississippi system.		261	5,345	1,948,541
	Towing	1	5	790	RED RIVER OF THE NORTH.				
	Harbor	1	4	1,085	Total	Freight	3	45	1,677
	Miscellaneous	1	1	540					
Total		5	28	7,097					

STATISTICS OF TRANSPORTATION.

TABLE 7.—TRAFFIC—ALL OPERATING CRAFT.

PASSENGERS CARRIED AND TONS OF FREIGHT MOVED BY ALL CRAFT AND MILES TRAVELED BY ALL STEAMERS (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS AND THEIR TRIBUTARIES.	PASSENGERS CARRIED.			Freight moved, in tons.	Miles traveled by all steamers.
	Total.	Regular and excursion.	Ferry.		
Grand total for Mississippi valley	10,858,894	2,384,248	8,474,646	<i>a</i> 29,405,046	7,316,545
Upper Mississippi	1,478,085	285,676	1,192,409	4,486,421	1,101,990
Saint Croix	12,304	<i>b</i> 304	12,000	846,816	67,990
Chippewa	4,441	<i>b</i> 4,441	.....	325,477	12,000
Illinois	50,368	21,768	28,600	180,264	83,436
Missouri, Osage, and Gasconade	276,536	26,561	249,975	1,119,362	159,230
Total for Upper Mississippi system	1,821,734	338,750	1,482,984	6,958,340	1,424,655
Ohio	5,115,806	1,191,732	3,924,074	7,770,565	2,696,020
Allegheny	5,319	5,319	.....	365,946	2,040
Monongahela	261,387	130,537	130,850	3,294,932	130,898
Muskingum	37,681	37,681	.....	10,281	27,055
Little Kanawha	9,451	9,451	.....	115,657	14,740
Great Kanawha	92,124	53,599	38,525	1,145,202	59,680
Big Sandy	11,000	11,000	.....	286,483	47,350
Kentucky	9,550	9,550	.....	256,950	12,588
Green	11,200	11,200	.....	819,278	10,300
Wabash	180	180	.....	93,178	12,700
Cumberland	19,160	19,160	.....	974,316	144,968
Tennessee	930,285	27,185	903,100	909,078	420,894
Total for Ohio system	6,503,143	1,506,594	4,996,549	16,041,866	3,579,233
Lower Mississippi	2,451,315	518,267	1,933,048	<i>a</i> 4,374,761	1,826,254
White	4,183	4,183	.....	86,393	68,786
Arkansas	64,716	2,651	62,065	1,663,817	61,689
Yazoo	5,391	5,391	.....	77,380	121,216
Washita	1,204	1,204	.....	93,707	60,828
Red	7,208	7,208	.....	105,145	172,800
Total for Lower Mississippi system	2,534,017	538,904	1,995,113	<i>a</i> 6,401,203	2,311,573
Red River of the North .....	.....	.....	.....	3,637	1,084

a Respectively, 32,993,792 tons, 7,963,507 tons, and 9,989,949 tons, including the coal and lumber which were brought into and carried on the Lower Mississippi from the Upper Mississippi and Ohio rivers. (See page 46.)

b These were excursion passengers carried on towboats.

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 8.—TRAFFIC—FREIGHT CARRIED AND TOWED.

FREIGHT CARRIED BY PASSENGER AND FREIGHT STEAMERS AND ON FERRIES AND FREIGHT TOWED BY PASSENGER AND FREIGHT STEAMERS AND TOWBOATS OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	Total tons freight carried and towed.	FREIGHT CARRIED.			FREIGHT TOWED.		
		Total tons carried.	On passenger and freight steamers.	On ferry steamers.	Total tons towed.	By passenger and freight steamers.	By towboats.
Total for Mississippi valley.....	29,405,046	10,345,504	9,233,598	1,111,906	19,059,542	1,926,200	17,133,342
Upper Mississippi.....	4,486,421	1,057,873	518,816	539,057	3,428,548		3,428,548
Saint Croix.....	846,816	800		800	846,016		846,016
Chippewa.....	325,477				325,477		325,477
Illinois.....	180,264	135,572	135,572		44,692	44,692	
Missouri, Osage, and Gasconade.....	1,110,362	957,379	799,344	158,035	161,983		161,983
Total for Upper Mississippi system.....	6,958,340	2,151,624	1,453,732	697,892	4,806,716	44,692	4,762,024
Ohio.....	7,770,565	2,559,446	2,314,548	244,898	5,211,119		5,211,119
Allegheny.....	365,946	115,696	115,696		250,250	250,250	
Monongahela.....	3,294,932	151,725	151,725		3,143,207		3,143,207
Muskingum.....	10,281	10,281	10,281				
Little Kanawha.....	115,657	2,968	2,968		112,689		112,689
Great Kanawha.....	1,145,202	112,838	112,838		1,032,364		1,032,364
Big Sandy.....	286,483	156,074	156,074		130,409	130,409	
Kentucky.....	256,950	53,047	53,047		203,903		203,903
Green.....	819,278	172,508	172,508		646,770	646,770	
Wabash.....	93,178	35,378	35,378		57,800	57,800	
Cumberland.....	974,316	217,534	217,534		756,782		756,782
Tennessee.....	909,078	219,170	219,170		689,908		689,908
Total for Ohio system.....	16,041,866	3,806,665	3,561,767	244,898	12,235,201	1,085,229	11,149,972
Lower Mississippi.....	4,374,761	3,153,415	2,985,399	168,016	1,221,346		1,221,346
White.....	86,393	22,537	22,537		63,856	63,856	
Arkansas.....	1,663,817	1,020,023	1,018,923	1,100	643,794	643,794	
Yazoo.....	77,380	37,138	37,138		40,242	40,242	
Washita.....	93,707	64,597	64,597		29,110	29,110	
Red.....	105,145	89,505	89,505		15,640	15,640	
Total for Lower Mississippi system.....	6,401,203	4,387,215	4,218,099	169,116	2,013,988	792,642	1,221,346
Red River of the North.....	3,637				3,637	3,637	

STATISTICS OF TRANSPORTATION.

TABLE 9.—FREIGHT TRAFFIC BY COMMODITIES.

PRINCIPAL COMMODITIES OF THE FREIGHT, IN TONS, CARRIED ON PASSENGER AND FREIGHT STEAMERS (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	Total.	PRODUCTS OF AGRICULTURE.								PRODUCTS OF MINES.				
		Wheat.	Corn.	Other grain.	Mill products.	Cotton.	Tobacco.	Fruit and vegetables.	Hay.	Bituminous coal.	Iron ore.	Other ore.	Stone and gravel.	Clay and sand.
Total Mississippi valley.	9,233,598	836,386	311,598	88,949	89,992	808,135	27,707	41,748	33,944	313	894	450	21,932	959
Upper Mississippi.....	518,816	23,000			630									
Illinois.....	135,572	18,000			747					300				
Missouri, Osage, and Gasconade.	799,344	136,000	50,000		9,275									
Total Upper Mississippi system.	1,453,732	177,000	50,000		10,652					309				
Ohio.....	2,314,548	124,405			620	9,412					894			
Allegheny.....	115,696							21	890					
Monongahela.....	151,725													
Muskingum.....	10,281	1,693												
Little Kanawha.....	2,968													
Great Kanawha.....	112,838				2,577									
Big Sandy.....	156,074		423					2,511						
Kentucky.....	53,047			5,949	1,503		2,783		4,407					
Green.....	172,508			1,431	773		4,723	501	319					
Wabash.....	35,378	1,811	15,849	99									1,754	
Cumberland.....	217,534			20,983	3,628		10,201		895					
Tennessee.....	219,170	5,477	17,984	5,351	2,267	10,138	10,000	18,657	2,440	13			20,178	959
Total Ohio system.....	3,561,767	133,386	34,256	33,813	11,368	19,550	27,707	21,690	8,951	13	894		21,932	959
Lower Mississippi.....	2,985,399	420,000	77,543	33,332	9,462	716,503			504					
White.....	22,537					7,403						450		
Arkansas.....	1,018,923	100,000	110,282	21,804	57,655	35,003		20,058	24,489					
Yazoo.....	37,138		22,865											
Washita.....	64,597		16,652											
Red.....	89,505	6,000			855	29,676								
Total Lower Mississippi system.	4,218,099	526,000	227,342	55,136	67,972	788,585		20,058	24,993			450		

RIVERS.	OTHER PRODUCTS.			MANUFACTURES.								Merchandise, etc.
	Ice.	Lumber and forest products.	Animal products.	Petroleum and other oils.	Sugar.	Iron, pig and bloom.	Other iron manufactures.	Bar and sheet metal.	Cement, brick, and lime.	All other manufactures.	Cotton seed and oil.	
Total Mississippi valley...	10	547,545	170,518	3,534	90,844	5,275	92,110	112	1,265	48,536	388,684	5,622,158
Upper Mississippi.....			2,356									492,830
Illinois.....			2,094									114,431
Missouri, Osage, and Gasconade.			6,175									597,804
Total Upper Mississippi system.			10,625									1,205,155
Ohio.....					57,881		54,297			29,113		2,037,926
Allegheny.....		97,360		2,450			300			2,025		12,650
Monongahela.....		30,806	1,407				2,177					117,335
Muskingum.....		475										8,113
Little Kanawha.....				678								2,290
Great Kanawha.....									213			110,048
Big Sandy.....		12,541	676							34		139,889
Kentucky.....		9,547	2,350				1,903			5,051		19,554
Green.....		152,541	501				98		90	2,598		8,933
Wabash.....		9,500								271		6,094
Cumberland.....		146,398	5,023			3,006				5,028		21,772
Tennessee.....	10	44,732	1,048	406	1,015	2,269	50	112	962	4,416	1,800	68,886
Total Ohio system.....	10	503,900	11,605	3,534	58,896	5,275	58,825	112	1,265	48,536	1,800	2,553,490
Lower Mississippi.....					30,828						271,809	1,425,418
White.....											2,338	12,346
Arkansas.....		40,784	148,125				33,285				85,784	341,654
Yazoo.....		2,861	65								8,020	3,327
Washita.....			98								5,058	42,789
Red.....					1,120						13,875	37,979
Total Lower Mississippi system.		43,645	148,288		31,948		33,285				386,884	1,863,513

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 10.—FREIGHT TRAFFIC (IN TONS), BY COMMODITIES, ON UNRIGGED CRAFT.

RIVERS.	Total.	PRODUCTS OF AGRICULTURE.						PRODUCTS OF MINES.			
		Wheat.	Corn.	Other grain.	Mill products.	Cotton.	Hay.	Bituminous coal.	Iron ore.	Stone and gravel.	Clay and sand.
Total for Mississippi valley.....	19,059,542	3,595	471,203	3,767	580	87,607	57,635	8,527,115	573,896	156,699	141,464
Upper Mississippi.....	3,428,548							10,624			
Saint Croix.....	846,016										
Chippewa.....	325,477										
Illinois.....	44,692							2,000			
Missouri, Osage, and Gasconade.....	161,983						5,000	51,162	1,500		
Total for Upper Mississippi system.....	4,806,716						5,000	63,786	1,500		
Ohio.....	5,211,119	595				9,110	635	4,018,787	10,762		
Allegheny.....	250,250									19,050	51,500
Monongahela.....	3,143,207							3,059,418	33,386		
Little Kanawha.....	112,689							1,100			
Great Kanawha.....	1,032,364							941,446			
Big Sandy.....	130,409										
Kentucky.....	203,903*			1,042						12,861	
Green.....	646,770							45,904		788	
Wabash.....	57,800									4,000	
Cumberland.....	756,782										89,964
Tennessee.....	689,908					2,404	5,000	35,875	528,248		
Total for Ohio system.....	12,235,201	595		1,042		11,514	5,635	8,102,530	572,396	36,699	141,464
Lower Mississippi.....	1,221,346		421,203	2,725		66,955	5,000	183,843			
White.....	63,856										
Arkansas.....	643,794		50,000					165,888		120,000	
Yazoo.....	40,242										
Washita.....	29,110					9,138					
Red.....	15,640							11,063			
Total for Lower Mississippi system.....	2,013,988		471,203	2,725		76,093	47,000	360,799		120,000	
Red River of the North.....	3,037	3,000			580						

RIVERS.	OTHER PRODUCTS.		MANUFACTURES.					Merchandise, etc.
	Ice.	Lumber and forest products.	Sugar.	Iron (pig and bloom).	Cement, brick, and lime.	All other manufactures.	Cotton seed and oil.	
Total for Mississippi valley.....	91,000	8,652,696	100,000	2,500	928	26,050	6,104	156,793
Upper Mississippi.....	45,050	3,372,874						
Saint Croix.....		846,016						
Chippewa.....		325,477						
Illinois.....	41,950	742						
Missouri, Osage, and Gasconade.....		104,321						
Total for Upper Mississippi system.....	87,000	4,649,480						
Ohio.....		1,131,755				26,050		13,425
Allegheny.....		179,500				200		
Monongahela.....		50,403						
Little Kanawha.....		109,079						2,510
Great Kanawha.....		80,468				650		9,800
Big Sandy.....		130,409						
Kentucky.....		190,000						
Green.....		600,000				78		
Wabash.....		53,800						
Cumberland.....		664,318		2,500				
Tennessee.....		118,381						
Total for Ohio system.....		3,308,113		2,500	928	26,050		25,735
Lower Mississippi.....		310,654	100,000					130,961
White.....		63,856						
Arkansas.....	4,000	261,906						
Yazoo.....		25,000					6,104	
Washita.....		29,110						
Red.....		4,577						
Total for Lower Mississippi system.....	4,000	695,103	100,000				6,104	130,961
Red River of the North.....		50						7

STATISTICS OF TRANSPORTATION.

TABLE 11.—FREIGHT TRAFFIC BY COMMODITIES.

PRINCIPAL COMMODITIES OF THE FREIGHT, IN TONS, MOVED BY FERRYBOATS (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	Total.	PRODUCTS OF AGRICULTURE.						
		Wheat.	Corn.	Other grain.	Mill products.	Cotton.	Tobacco.	Fruit and vegetables.
Total Mississippi valley	1, 111, 906	8, 461	4, 087	2, 872	323	550	252	17, 862
Upper Mississippi	539, 057		1, 000	2, 870				700
Saint Croix	800							
Missouri, Osage, and Gasconade	158, 035	5, 658	502		323		252	62
Total Upper Mississippi system	697, 892	5, 658	1, 502	2, 870	323		252	762
Ohio	244, 898	3	2, 585	2				
Lower Mississippi	168, 016	2, 800				550		16, 000
Arkansas	1, 100							1, 100
Total Lower Mississippi system	169, 116	2, 800				550		17, 100

RIVERS.	Bituminous coal.	OTHER PRODUCTS.		MANUFACTURES.					Merchandise, etc.
		Lumber.	Animal products.	Petroleum and other oils.	Sugar.	Bar and sheet metal.	Cement, brick, and lime.	All other manufactures.	
Total Mississippi valley	11, 801	100, 400	6, 858	4	29	1	182	10	958, 214
Upper Mississippi	11, 800	100, 315	1, 144				160	10	421, 058
Saint Croix									800
Missouri, Osage, and Gasconade		63	5, 249	4	29		18		145, 875
Total Upper Mississippi system	11, 800	100, 378	6, 393	4	29		178	10	567, 793
Ohio	1	22	165			1	4		242, 115
Lower Mississippi			300						148, 366
Arkansas									
Total Lower Mississippi system			300						148, 366

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 12.—FREIGHT TRAFFIC BY COMMODITIES.

PRINCIPAL COMMODITIES OF THE TOTAL FREIGHT, IN TONS, MOVED BY FREIGHT AND PASSENGER STEAMERS, FERRYBOATS, AND UNRIGGED CRAFT (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	Total.	PRODUCTS OF AGRICULTURE.								PRODUCTS OF MINES.				
		Wheat.	Corn.	Other grain.	Mill products.	Cotton.	Tobacco.	Fruit and vegetables.	Hay.	Bituminous coal.	Iron ore.	Other ore.	Stone and gravel.	Clay and sand.
Total Mississippi valley...	29,405,046	848,442	786,888	95,588	90,895	896,292	27,959	59,610	91,579	8,539,229	574,790	450	178,631	142,423
Upper Mississippi.....	4,486,421	23,000	1,000	2,870	630			700		22,424				
Saint Croix.....	846,816													
Chippewa.....	325,477													
Illinois.....	180,264	18,000			747					2,300				
Missouri, Osage, and Gasconade	1,119,362	141,658	50,502		9,598		252	62	5,000	51,162	1,500			
Total for Upper Mississippi system.	6,958,340	182,658	51,502	2,870	10,975		252	762	5,000	75,886	1,500			
Ohio.....	7,770,565	125,003	2,585	2	620	18,522			635	4,018,788	11,656		19,050	51,500
Allegheny.....	365,946								21	890				
Monongahela.....	3,294,932									3,059,418	33,386			
Muskingum.....	10,281	1,693												
Little Kanawha.....	115,657									1,100				
Great Kanawha.....	1,145,202				2,577					941,446				
Big Sandy.....	286,483		423					2,511						
Kentucky.....	256,950			6,991	1,503		2,783		4,407				12,861	
Green.....	819,278			1,431	773		4,723	501	319	45,904			788	
Wabash.....	93,178	1,811	15,849	90									5,754	
Cumberland.....	974,316			20,983	3,628		10,201		895					89,964
Tennessee.....	909,078	5,477	17,984	5,351	2,267	12,542	10,000	18,657	7,440	35,888	528,248		20,178	959
Total for Ohio system.....	16,041,866	133,984	36,841	34,857	11,368	31,064	27,707	21,690	14,586	8,102,544	573,290		58,631	142,423
Lower Mississippi.....	4,374,761	422,800	498,746	36,057	9,462	784,008		16,000	5,504	183,848				
White.....	86,393					7,403						450		
Arkansas.....	1,663,817	100,000	160,282	21,804	57,655	35,003		21,158	66,489	165,888			120,000	
Yazoo.....	77,380		22,865			9,138								
Washita.....	93,707		16,652											
Red.....	105,145	6,000			855	29,676				11,063				
Total for Lower Mississippi system.	6,401,203	528,800	698,545	57,861	67,972	865,228		37,158	71,993	360,799		450	120,000	
Red River of the North.....	3,637	3,000			580									

STATEMENT OF FREIGHT CARRIED AND TOWED ON THE LOWER MISSISSIPPI, INCLUDING COAL AND LUMBER FROM UPPER MISSISSIPPI AND OHIO RIVER SYSTEMS. (a)

Lower Mississippi.....	7,963,507	422,800	498,746	36,057	9,462	784,008		16,000	5,504	2,288,529				
Total Lower Mississippi system...	9,989,949	528,800	698,545	57,861	67,972	865,228		37,158	71,993	2,465,480		450	120,000	
Total Mississippi valley.....	32,993,792	848,442	786,888	95,588	90,895	896,292	27,959	59,610	91,579	10,643,910	574,790	450	178,631	142,423

a See page 15.

STATISTICS OF TRANSPORTATION.

TABLE 12.—FREIGHT TRAFFIC BY COMMODITIES—Continued.

PRINCIPAL COMMODITIES OF THE TOTAL FREIGHT, IN TONS, MOVED BY FREIGHT AND PASSENGER STEAMERS, FERRYBOATS, AND UNRIGGED CRAFT (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889—Continued.

RIVERS.	OTHER PRODUCTS.			MANUFACTURES.								Merchandise, etc.
	Ice.	Lumber and forest products.	Animal products.	Petroleum and other oils.	Sugar.	Iron (pig and bloom).	Other iron manufactures.	Bar and sheet metal.	Cement, brick, and lime.	All other manufactures.	Cotton seed and cotton-seed oil.	
Total Mississippi valley...	91,010	9,300,641	177,376	3,538	190,873	7,775	92,110	113	2,375	74,596	394,788	6,737,075
Upper Mississippi.....	45,050	3,473,189	3,500						160	10		913,888
Saint Croix.....		846,016										800
Chippewa.....		325,477										
Illinois.....	41,950	742	2,094									114,431
Missouri, Osage, and Gasconade.....		104,384	11,424	4	29				18			743,769
Total.....	87,000	4,740,808	17,018	4	29				178	10		1,772,888
Ohio.....		1,131,777	165		57,881		54,297	1	4	55,163		2,293,466
Allegheny.....		276,860		2,450			300		200	2,025		12,650
Monongahela.....		81,209	1,407				2,177					117,335
Muskingum.....		475										8,113
Little Kanawha.....		109,079		678								4,800
Great Kanawha.....		80,468							863			119,848
Big Sandy.....		142,950	676							34		130,889
Kentucky.....		199,547	2,350				1,903			5,051		19,554
Green.....		752,541	501				98		168	2,598		8,933
Wabash.....		63,300								271		6,094
Cumberland.....		810,716	5,623			5,506				5,028		21,772
Tennessee.....	10	163,113	1,048	406	1,015	2,269	50	112	962	4,416	1,800	68,886
Total.....	10	3,812,035	11,770	3,534	58,896	7,775	58,825	113	2,197	74,586	1,800	2,821,340
Lower Mississippi.....		310,654	300		130,828						271,809	1,704,745
White.....		63,856									2,338	12,346
Arkansas.....	4,000	302,600	148,125				33,285				85,784	341,654
Yazoo.....		27,861	65								14,124	3,327
Washita.....		29,110	98								5,058	42,789
Red.....		4,577			1,120						13,875	37,979
Total.....	4,000	738,748	148,588		131,948		33,285				392,988	2,142,840
Red River of the North.....		50										7

STATEMENT OF FREIGHT CARRIED AND TOWED ON THE LOWER MISSISSIPPI, INCLUDING COAL AND LUMBER FROM UPPER MISSISSIPPI AND OHIO RIVER SYSTEMS—Continued.

Lower Mississippi.....		1,794,719	300		130,828						271,809	1,704,745
Total Lower Mississippi system.....	4,000	2,222,813	148,588		131,948		33,285				392,988	2,142,840
Total Mississippi valley.....	91,010	10,784,706	177,376	3,538	190,873	7,775	92,110	113	2,375	74,596	394,788	6,737,075

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 13.—GENERAL ACCOUNT—PASSENGER AND FREIGHT STEAMERS.

NUMBER, TONNAGE, VALUE, OPERATIONS, FINANCIAL ACCOUNT, AND EMPLOYÉS, WITH WAGES PAID, OF PASSENGER AND FREIGHT STEAMERS (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	EQUIPMENT.			TRAFFIC.		INCOME AND EXPENDITURE.			EMPLOYÉS. (a)	
	Number.	Tonnage.	Value.	Tons of freight moved.	Passengers carried.	Gross earnings.	Expenses.	Net earnings.	Men employed.	Total wages paid.
Total for Mississippi valley.....	320	95,215.26	\$3,661,475	11,150,798 9,233,598 b1,926,200	2,384,248	\$7,651,248	\$6,580,356	\$1,070,892	9,101	\$2,603,031
Upper Mississippi.....	23	5,732.91	281,700	518,816	285,676	463,872	380,375	83,497	576	143,333
Saint Croix.....					c304					
Chippewa.....					64,441					
Illinois.....	7	1,811.80	79,200	{ 135,572 b44,692 }	21,768	133,764	112,321	21,443	162	35,661
Missouri, Osage, and Gasconade.....	15	2,458.85	70,300	799,344	26,561	129,620	106,288	23,332	243	41,794
Total for Upper Mississippi system.	45	10,003.56	431,200	1,498,424 1,453,732 b44,692	338,750	727,256	598,984	128,272	981	220,788
Ohio.....	85	32,688.82	1,209,825	2,314,548	1,191,732	2,168,215	1,850,248	317,967	2,559	688,407
Allegheny.....	6	715.84	53,000	{ 115,696 b250,250 }	5,319	20,630	18,449	2,181	31	10,670
Monongahela.....	8	1,471.48	75,700	151,725	130,537	130,664	107,179	23,485	81	45,448
Muskingum.....	4	333.35	16,750	10,281	37,681	47,571	35,254	12,317	67	17,305
Little Kanawha.....	2	143.56	10,000	2,968	9,451	24,471	12,075	12,396	18	4,682
Great Kanawha.....	5	427.55	23,500	112,838	53,599	46,339	36,288	10,051	62	19,410
Big Sandy.....	5	443.65	16,000	{ 156,074 b130,409 }	11,000	62,075	46,572	15,503	99	30,485
Kentucky.....	3	246.52	15,000	53,047	9,550	40,910	23,145	17,765	66	12,220
Green.....	5	316.68	13,500	{ 172,508 b646,770 }	11,206	31,889	27,154	4,735	43	5,416
Wabash.....	2	243.33	7,500	{ 35,378 b57,800 }	180	42,320	22,140	20,180	50	13,020
Cumberland.....	13	2,631.48	100,800	217,534	19,160	179,688	153,412	26,276	440	73,345
Tennessee.....	23	5,851.24	210,500	219,170	27,185	331,345	289,699	41,646	609	140,537
Total for Ohio system.....	161	45,513.50	1,752,075	4,646,996 3,561,767 b1,085,229	1,506,594	3,126,117	2,621,615	504,502	4,125	1,060,945
Lower Mississippi.....	74	31,898.33	1,186,300	2,985,399	518,267	3,040,334	2,742,406	297,928	2,968	1,032,012
White.....	5	1,229.71	45,000	{ 22,537 b63,856 }	4,183	100,697	82,443	18,254	119	41,997
Arkansas.....	9	1,785.91	46,700	{ 1,018,923 b643,794 }	2,651	57,199	44,881	12,318	141	27,753
Yazoo.....	11	1,409.68	62,000	{ 37,138 b40,242 }	5,391	144,068	125,469	18,599	255	60,754
Washita.....	3	994.52	45,000	{ 64,597 b29,110 }	1,204	125,180	103,220	21,960	144	43,756
Red.....	9	1,968.88	80,700	{ 89,505 b15,640 }	7,208	324,736	257,092	67,644	323	113,349
Total for Lower Mississippi system.	111	39,287.03	1,465,700	5,010,741 4,218,099 b792,642	538,904	3,792,214	3,355,511	436,703	3,950	1,319,621
Red River of the North.....	3	411.17	12,500	38,637		5,661	4,246	1,415	45	1,677

a See page 13.

b Towed by passenger and freight steamers.

c These were excursion passengers carried on towboats.

STATISTICS OF TRANSPORTATION.

TABLE 14.—GENERAL ACCOUNT—TOWBOATS.

NUMBER, TONNAGE, VALUE, OPERATIONS, FINANCIAL ACCOUNT, AND EMPLOYÉS, WITH WAGES PAID, OF TOWING STEAMERS (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	EQUIPMENT.			Tons of freight moved.	INCOME AND EXPENDITURE.			EMPLOYÉS. (a)	
	Number.	Tonnage.	Value.		Gross earnings.	Expenses.	Net earnings.	Men employed.	Total wages paid.
Total for Mississippi valley.....	290	53,875.55	\$3,422,983	17,133,342	\$6,036,748	\$4,098,723	\$1,938,025	4,742	\$1,787,995
Upper Mississippi.....	77	9,736.51	621,800	3,428,548	1,249,850	812,401	437,449	1,239	385,364
Saint Croix.....	10	1,120.82	88,500	846,016	-154,597	83,481	71,116	159	41,601
Chippewa.....	1	108.00	7,000	325,477	18,244	9,844	8,400	16	5,046
Illinois.....									
Missouri, Osage, and Gasconade.....	10	573.37	41,700	161,983	62,357	50,417	11,940	70	24,995
Total for Upper Mississippi system.....	98	11,547.70	759,000	4,762,024	1,485,048	956,143	528,905	1,484	457,006
Ohio.....	114	26,708.08	1,680,600	5,211,119	2,168,020	1,657,136	510,884	2,069	910,946
Allegheny.....									
Monongahela.....	25	3,441.97	246,700	3,143,207	306,810	233,447	73,363	287	120,408
Muskingum.....	2	219.35	7,000	(b)	7,861	4,915	2,446	11	3,406
Little Kanawha.....	1	34.93	4,000	112,689	2,000	1,668	332	5	790
Great Kanawha.....	4	692.66	39,333	1,032,364	47,809	31,938	15,871	63	16,919
Big Sandy.....									
Kentucky.....	1	77.88	4,000	203,903	17,911	10,721	7,190	15	4,110
Green.....									
Wabash.....									
Cumberland.....	4	304.09	8,500	756,782	25,948	17,527	8,421	25	11,085
Tennessee.....	6	1,183.71	46,250	689,908	37,328	28,160	9,168	63	13,398
Total for Ohio system.....	157	32,662.67	2,036,383	11,149,972	2,613,187	1,985,512	627,675	2,538	1,081,062
Lower Mississippi.....	35	9,665.18	627,600	1,221,346	1,938,513	1,157,068	781,445	720	249,927
White.....									
Arkansas.....									
Yazoo.....									
Washita.....									
Red.....									
Total for Lower Mississippi system.....	35	9,665.18	627,600	1,221,346	1,938,513	1,157,068	781,445	720	249,927
Red River of the North.....									

a See page 13.

b Chartered to the United States government in 1889.

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 15.—GENERAL ACCOUNT—FERRYBOATS.

NUMBER, TONNAGE, VALUE, OPERATIONS, FINANCIAL ACCOUNT, AND EMPLOYÉS, WITH WAGES PAID, OF FERRY STEAMERS (OVER 5 TONS) OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	EQUIPMENT.			TRAFFIC.		INCOME AND EXPENDITURE.			EMPLOYÉS. (a)	
	Number.	Tonnage.	Value.	Tons of freight moved.	Passengers carried.	Gross earnings.	Expenses.	Net earnings.	Men employed.	Total wages paid.
Total for Mississippi valley	163	18,593.40	\$1,056,250	1,111,906	8,474,646	\$1,196,817	\$818,634	\$378,183	893	\$456,676
Upper Mississippi	24	2,144.39	170,200	539,057	1,192,409	131,528	92,078	39,450	125	53,505
Saint Croix	1	26.98	3,000	800	12,000	1,485	1,050	435	2	700
Chippewa										
Illinois	2	48.45	1,000		28,600	2,037	1,726	311	4	1,100
Missouri, Osage, and Gasconade	24	1,685.49	94,100	158,035	249,975	102,493	72,772	29,721	104	47,352
Total for Upper Mississippi system	51	3,905.31	268,300	697,892	1,482,984	237,543	167,626	69,917	235	102,657
Ohio	54	10,918.00	350,250	244,898	3,924,074	431,267	246,893	184,374	266	142,126
Allegheny										
Monongahela	3	263.39	15,000		130,850	11,238	10,017	1,221	12	7,485
Muskingum										
Little Kanawha										
Great Kanawha	2	102.47	8,000		38,525	13,283	6,965	6,318	8	3,420
Big Sandy										
Kentucky										
Green										
Wabash										
Cumberland										
Tennessee	2	259.67	3,000		903,100	32,133	13,034	19,099	15	10,800
Total for Ohio system	61	11,543.53	376,250	244,898	4,996,549	487,921	276,909	211,012	301	163,831
Lower Mississippi	45	2,831.74	392,200	168,016	1,933,048	442,169	362,431	79,738	337	183,972
White										
Arkansas	6	312.82	19,500	1,100	62,065	29,184	11,668	17,516	20	6,216
Yazoo										
Washita										
Red										
Total for Lower Mississippi system	51	3,144.56	411,700	169,116	1,995,113	471,353	374,099	97,254	357	190,188
Red River of the North										

a See page 13.

STATISTICS OF TRANSPORTATION.

TABLE 16.—GENERAL ACCOUNT—HARBOR BOATS.

NUMBER, TONNAGE, VALUE, FINANCIAL ACCOUNT, AND EMPLOYÉS, WITH WAGES PAID, OF HARBOR BOATS OPERATING IN THE PORTS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	EQUIPMENT.			INCOME AND EXPENDITURE.			EMPLOYÉS. (a)	
	Number.	Tonnage.	Value.	Gross earnings.	Expenses.	Net earnings.	Men employed.	Total wages paid.
Total for Mississippi valley.....	141	18,981.96	\$1,028,350	\$1,291,080	\$940,989	\$350,091	1,016	\$409,267
Upper Mississippi.....	25	994.26	62,250	102,147	71,503	30,644	117	37,075
Saint Croix.....	4	101.55	7,500	13,102	9,172	3,930	15	5,287
Chippewa.....								
Illinois.....								
Missouri, Osage, and Gasconade.....								
Total for Upper Mississippi system.....	20	1,095.81	69,750	115,249	80,675	34,574	132	42,362
Ohio.....	48	4,275.11	301,000	254,934	198,282	56,652	462	152,497
Allegheny.....								
Monongahela.....								
Muskingum.....	1	15.09	1,300	550	420	130	3	240
Little Kanawha.....	1	25.64	3,000	3,450	2,600	850	4	1,085
Great Kanawha.....	6	822.49	41,000	82,575	61,486	21,089	72	23,070
Big Sandy.....	3	344.02	24,000	32,845	23,307	9,536	42	13,440
Kentucky.....								
Green.....								
Wabash.....								
Cumberland.....								
Tennessee.....								
Total for Ohio system.....	50	5,482.35	370,300	374,352	286,095	88,257	583	190,332
Lower Mississippi.....	53	12,403.80	588,300	801,479	574,219	227,260	301	176,573
White.....								
Arkansas.....								
Yazoo.....								
Washita.....								
Red.....								
Total for Lower Mississippi system.....	53	12,403.80	588,300	801,479	574,219	227,260	301	176,573
Red River of the North.....								

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RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 17.—GENERAL ACCOUNT—MISCELLANEOUS CRAFT.

NUMBER, TONNAGE, VALUE, FINANCIAL ACCOUNT, AND EMPLOYÉS, WITH WAGES PAID, OF MISCELLANEOUS CRAFT OPERATING IN THE PORTS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	EQUIPMENT.			INCOME AND EXPENDITURE.			EMPLOYÉS. (a)	
	Number.	Tonnage.	Value.	Gross earnings.	Expenses.	Net earnings.	Men employed.	Total wages paid.
Total for Mississippi valley	61	0,718.65	\$466,050	\$161,640	\$161,640		244	\$81,893
Upper Mississippi.....	10	1,999.75	139,800	47,389	47,389		111	20,206
Saint Croix								
Chippewa.....								
Illinois.....								
Missouri, Osage, and Gasconade.....								
Total for Upper Mississippi system	10	1,999.75	139,800	47,389	47,389		111	20,206
Ohio.....	25	2,978.83	169,200	48,218	48,218		68	23,869
Allegheny								
Monongahela	12	1,057.31	82,200	48,218	48,218		42	22,680
Muskingum								
Little Kanawha	1	24.05	1,000	1,000	1,000		1	540
Great Kanawha.....	2	58.78	3,500	3,000	3,000		5	2,366
Big Sandy								
Kentucky								
Green.....								
Wabash								
Cumberland								
Tennessee								
Total for Ohio system	40	4,118.97	255,900	100,436	100,436		116	49,455
Lower Mississippi.....	11	599.93	70,350	13,815	13,815		17	12,232
White								
Arkansas								
Yazoo								
Washita								
Red.....								
Total for Lower Mississippi system	11	599.93	70,350	13,815	13,815		17	12,232
Red River of the North.....								

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TABLE 18.—GENERAL ACCOUNT—NO TRAFFIC REPORT.

NUMBER, TONNAGE, AND VALUE OF ALL CRAFT (OVER 5 TONS) OWNED IN THE PORTS OF THE MISSISSIPPI VALLEY, FOR WHICH NO TRAFFIC REPORT WAS RECEIVED FOR 1889.

RIVERS.	EQUIPMENT.			RIVERS.	EQUIPMENT.		
	Number.	Tonnage.	Value.		Number.	Tonnage.	Value.
Total for Mississippi valley.....	139	17,387.07	\$904,143	Ohio—Continued.			
Upper Mississippi.....	29	4,370.39	209,619	Green.....			
Saint Croix				Wabash	1	53.07	\$2,500
Chippewa.....				Cumberland			
Illinois.....				Tennessee	1	22.27	1,000
Missouri, Osage, and Gasconade.....	3	42.13	3,600	Total for Ohio system	59	7,874.81	401,802
Total for Upper Mississippi system.....	32	4,412.52	213,219	Lower Mississippi.....	47	5,077.09	287,622
Ohio.....	54	7,466.78	388,302	White			
Allegheny				Arkansas.....			
Monongahela				Yazoo			
Muskingum				Washita			
Little Kanawha.....				Red.....			
Great Kanawha.....	2	282.18	8,000	Total for Lower Mississippi system.....	47	5,077.09	287,622
Big Sandy				Red River of the North.....	1	22.65	1,500
Kentucky	1	49.91	2,000				

STATISTICS OF TRANSPORTATION.

TABLE 19.—GENERAL ACCOUNT—RESUME.

NUMBER, TONNAGE, VALUE, OPERATIONS, FINANCIAL ACCOUNT, EMPLOYÉS, AND WAGES PAID OF ALL STEAMERS REGISTERED IN THE PORTS OF THE RIVERS OF THE MISSISSIPPI VALLEY IN 1889.

RIVERS.	EQUIPMENT.			TRAFFIC.			INCOME AND EXPENDITURE.			EMPLOYÉS. (a)	
	Number.	Tonnage.	Value.	Miles traveled.	Freight moved. (Tons.)	Passengers carried.	Gross earnings.	Expenses.	Net earnings.	Number making up ordinary crews.	Total wages paid during year.
Total for Mississippi valley.	1, 114	210, 771. 89	\$10, 539, 251	7, 316, 545	29, 405, 046	10, 858, 894	\$16, 337, 533	\$12, 600, 342	\$3, 737, 191	15, 996	\$5, 338, 862
Upper Mississippi:											
Passenger and freight	23	5, 732. 91	281, 700	.....	518, 816	285, 676	463, 872	380, 375	83, 497	576	143, 333
Towboats.....	77	9, 736. 51	621, 800	.....	3, 428, 548	.....	1, 249, 850	812, 401	437, 449	1, 239	385, 364
Ferryboats.....	24	2, 144. 39	170, 200	.....	539, 057	1, 192, 409	131, 528	92, 078	39, 450	125	53, 505
Harbor boats.....	25	994. 26	62, 250	.....	.....	.....	102, 147	71, 503	30, 644	117	37, 075
Miscellaneous.....	10	1, 999. 75	139, 800	.....	.....	.....	47, 389	47, 389	.....	111	20, 206
No traffic reported.....	29	4, 370. 39	209, 619	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	188	24, 978. 21	1, 485, 369	1, 101, 990	4, 486, 421	1, 478, 085	1, 994, 786	1, 403, 746	591, 040	2, 108	639, 483
Saint Croix:											
Towboats.....	10	1, 129. 82	88, 500	.....	846, 016	304	154, 597	83, 481	71, 116	159	41, 001
Ferryboats.....	1	26. 98	3, 000	.....	800	12, 000	1, 485	1, 050	435	2	700
Harbor boats.....	4	101. 55	7, 500	.....	.....	.....	13, 102	9, 172	3, 930	15	5, 287
Total.....	15	1, 258. 35	99, 000	67, 990	846, 816	12, 304	169, 184	93, 703	75, 481	176	47, 588
Chippewa:											
Towboats.....	1	108. 00	7, 000	12, 000	325, 477	4, 441	18, 244	9, 844	8, 400	16	5, 046
Illinois:											
Passenger and freight	7	1, 811. 80	79, 200	.....	180, 264	21, 788	133, 764	112, 321	21, 443	162	35, 661
Ferryboats.....	2	48. 45	1, 000	.....	.....	28, 600	2, 037	1, 726	311	4	1, 100
Total.....	9	1, 860. 25	80, 200	83, 436	180, 264	50, 368	135, 801	114, 047	21, 754	166	36, 761
Missouri, Osage, and Gasconade:											
Passenger and freight	15	2, 458. 85	70, 300	.....	799, 344	26, 561	129, 620	106, 288	23, 332	243	41, 794
Towboats.....	10	573. 37	41, 700	.....	161, 983	.....	62, 357	50, 417	11, 940	70	24, 995
Ferryboats.....	24	1, 685. 49	94, 100	.....	158, 035	240, 975	102, 493	72, 772	29, 721	104	47, 352
No traffic reported.....	3	42. 13	3, 600	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	52	4, 759. 84	209, 700	159, 239	1, 119, 362	276, 536	294, 470	229, 477	64, 993	417	114, 141
Ohio:											
Passenger and freight	85	32, 688. 82	1, 200, 825	.....	2, 314, 548	1, 191, 732	2, 168, 215	1, 850, 248	317, 967	2, 559	688, 407
Towboats.....	114	26, 708. 08	1, 680, 600	.....	5, 211, 119	.....	2, 168, 020	1, 657, 136	510, 884	2, 069	910, 946
Ferryboats.....	54	10, 918. 00	350, 250	.....	244, 898	3, 924, 074	491, 267	246, 893	184, 374	266	142, 126
Harbor boats.....	48	4, 275. 11	301, 000	.....	.....	.....	254, 934	198, 282	56, 652	462	152, 497
Miscellaneous.....	25	2, 978. 83	169, 200	.....	.....	.....	48, 218	48, 218	.....	68	23, 869
No traffic reported.....	54	7, 406. 78	388, 302	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	380	85, 035. 62	4, 099, 177	2, 696, 020	7, 770, 565	5, 115, 806	5, 070, 654	4, 000, 777	1, 069, 877	5, 424	1, 917, 845
Allegheny:											
Passenger and freight	6	715. 84	53, 000	2, 040	365, 946	5, 319	20, 630	18, 449	2, 181	31	10, 670
Monongahela:											
Passenger and freight	8	1, 471. 48	75, 700	.....	151, 725	130, 537	130, 664	107, 179	23, 485	81	45, 448
Towboats.....	25	3, 441. 97	246, 700	.....	3, 143, 207	.....	306, 810	233, 447	73, 363	287	120, 408
Ferryboats.....	3	263. 39	15, 000	.....	.....	130, 850	11, 238	10, 017	1, 221	12	7, 485
Miscellaneous.....	12	1, 057. 31	82, 200	.....	.....	.....	48, 218	48, 218	.....	42	22, 680
Total.....	48	6, 234. 15	419, 600	130, 893	3, 294, 932	261, 387	496, 930	398, 861	98, 069	422	196, 021
Muskingum:											
Passenger and freight	4	333. 35	16, 750	.....	10, 281	37, 681	47, 571	35, 254	12, 317	67	17, 305
Towboats.....	2	219. 35	7, 000	.....	.....	.....	7, 361	4, 915	2, 446	11	3, 406
Harbor boats.....	1	15. 09	1, 300	.....	.....	.....	550	420	130	3	240
Total.....	7	567. 79	25, 050	27, 055	10, 281	37, 681	55, 482	40, 589	14, 893	81	20, 951
Little Kanawha:											
Passenger and freight	2	143. 56	10, 000	.....	2, 968	9, 451	24, 471	12, 075	12, 396	18	4, 682
Towboats.....	1	34. 93	4, 000	.....	112, 689	.....	2, 000	1, 668	332	5	790
Harbor boats.....	1	25. 64	3, 000	.....	.....	.....	3, 450	2, 600	850	4	1, 085
Miscellaneous.....	1	24. 05	1, 000	1, 000	1, 000	1	540
Total.....	5	228. 18	18, 000	14, 740	115, 657	9, 451	30, 921	17, 343	13, 578	28	7, 097

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RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 19.—GENERAL ACCOUNT—RÉSUMÉ—Continued.

NUMBER, TONNAGE, VALUE, OPERATIONS, FINANCIAL ACCOUNT, EMPLOYÉS, AND WAGES PAID OF ALL STEAMERS, ETC.—Continued.

RIVERS.	EQUIPMENT.			TRAFFIC.			INCOME AND EXPENDITURE.			EMPLOYÉS.		
	Number.	Tonnage.	Value.	Miles traveled.	Freight moved. (Tons.)	Passengers carried.	Gross earnings.	Expenses.	Net earnings.	Number making up ordinary crews.	Total wages paid during year.	
Great Kanawha:												
Passenger and freight	5	427.55	\$23,500	.....	112,838	53,509	\$46,339	\$36,288	\$10,051	62	\$19,410
Towboats	4	692.66	39,333	.....	1,032,364		47,809	31,938	15,871	63	16,919
Ferryboats	2	102.47	8,000	.....		38,525	13,283	6,965	6,318	8	3,420
Harbor boats	6	822.40	41,000	.....			82,575	61,486	21,089	72	23,070
Miscellaneous	2	58.78	3,500	.....			3,000	3,000		5	2,366
No traffic reported	2	282.18	8,000	.....							
Total	21	2,386.13	123,333	59,680	1,145,202	92,124	193,006	139,677	53,320	210	65,185	
Big Sandy:												
Passenger and freight	5	443.65	16,000	.....	286,483	11,000	62,075	46,572	15,503	99	30,485
Harbor boats	3	344.02	24,000	.....			32,843	23,307	9,536	42	13,440
Total	8	787.67	40,000	47,350	286,483	11,000	94,918	69,879	25,039	141	43,925	
Kentucky:												
Passenger and freight	3	246.52	15,000	.....	53,047	9,550	40,910	23,145	17,765	66	12,220
Towboats	1	77.88	4,000	.....	203,903		17,911	10,721	7,190	15	4,110
No traffic reported	1	49.91	2,000	.....							
Total	5	374.31	21,000	12,588	256,950	9,550	58,821	33,866	24,955	81	16,330	
Green:												
Passenger and freight	5	316.08	13,500	.....	10,300	819,278	31,889	27,154	4,785	43	5,416
Wabash:												
Passenger and freight	2	243.33	7,500	.....	93,178	180	42,320	22,140	20,180	50	13,020
No traffic reported	1	53.67	2,500	.....							
Total	3	297.00	10,000	12,700	93,178	180	42,320	22,140	20,180	50	13,020	
Cumberland:												
Passenger and freight	13	2,631.48	100,800	.....	217,534	19,160	179,688	153,412	26,276	440	73,345
Towboats	4	304.09	8,500	.....	756,782		25,948	17,527	8,421	25	11,685
Total	17	2,935.57	109,300	144,968	974,316	19,160	205,636	170,939	34,697	465	84,430	
Tennessee:												
Passenger and freight	23	5,851.24	210,500	.....	219,170	27,185	331,345	280,690	41,640	609	140,537
Towboats	6	1,183.71	46,250	.....	689,908		37,328	28,160	9,168	63	13,398
Ferryboats	2	259.67	3,000	.....		903,100	32,133	13,034	19,069	15	10,800
No traffic reported	1	22.27	1,000	.....							
Total	32	7,316.89	260,750	420,894	909,078	930,285	400,806	330,893	69,913	687	164,735	
Lower Mississippi:												
Passenger and freight	74	31,898.33	1,186,300	.....	2,985,399	518,267	3,040,334	2,742,406	297,928	2,968	1,032,012
Towboats	35	9,665.18	627,600	.....	1,221,346		1,938,513	1,157,068	781,445	720	249,927
Ferryboats	45	2,831.74	392,200	.....	168,016	1,933,048	442,169	362,431	79,738	337	183,972
Harbor boats	53	12,403.80	588,300	.....			801,479	574,219	227,260	301	176,573
Miscellaneous	11	599.93	70,350	.....			13,815	13,815		17	12,232
No traffic reported	47	5,077.09	287,622	.....							
Total	265	62,476.07	3,152,372	1,826,254	4,374,761	2,451,315	6,236,310	4,849,939	1,386,371	4,343	1,654,716	
White:												
Passenger and freight	5	1,229.71	45,000	68,786	86,393	4,183	100,697	82,443	18,254	119	41,607
Arkansas:												
Passenger and freight	9	1,785.91	46,700	.....	1,662,717	2,651	57,199	44,881	12,318	141	27,753
Ferryboats	6	312.82	19,500	.....	1,100	62,065	29,184	11,668	17,516	20	6,216
Total	15	2,098.73	66,200	61,689	1,663,817	64,716	86,383	56,549	29,834	161	33,969	
Yazoo:												
Passenger and freight	11	1,409.68	62,000	121,216	77,380	5,391	144,068	125,469	18,599	255	60,754
Washita:												
Passenger and freight	3	994.52	45,000	60,828	93,707	1,204	125,180	103,220	21,960	144	43,756
Red:												
Passenger and freight	9	1,968.88	80,700	172,800	105,145	7,208	324,736	257,092	67,644	323	113,349
Red River of the North:												
Freight	3	411.17	12,500	.....	3,637		5,661	4,346	1,415	45	1,077
No traffic reported	1	22.65	1,500	.....							
Total	4	433.82	14,000	1,034	3,637		5,661	4,246	1,415	45	1,077	

STATISTICS OF TRANSPORTATION.

TABLE 20.—COMPARATIVE STATISTICS.

NUMBER, TONNAGE, AND VALUE OF STEAMERS AND UNRIGGED CRAFT OWNED ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1880 AND 1889, GIVEN BY LOCALITIES.

RIVERS.	Year.	TOTAL, ALL CRAFT.			STEAMERS.			UNRIGGED.		
		Number.	Tonnage.	Value.	Number.	Tonnage.	Value.	Number.	Tonnage.	Value.
Total Mississippi valley	1880	5,052	1,161,616.86	\$16,379,400	1,198	251,792.85	\$12,009,400	3,854	909,824.01	\$4,370,000
	1889	7,453	3,393,379.89	15,335,005	1,114	210,771.89	10,539,251	6,339	3,182,608.00	4,795,754
Upper Mississippi	1880	652	242,689.59	4,339,050	366	83,918.09	3,004,050	^a 286	158,771.50	1,335,000
	1889	509	203,889.81	1,896,587	213	28,204.81	1,671,569	296	175,685.00	225,018
Ohio	1880	4,041	858,524.99	8,696,500	473	107,472.48	5,661,500	3,568	751,052.51	3,035,000
	1889	6,245	2,920,468.33	8,696,341	537	107,195.83	5,192,710	5,708	2,813,273.00	3,503,631
Lower Mississippi	1880	315	48,303.06	2,851,550	315	48,303.06	2,851,550			
	1889	580	247,957.59	4,476,472	308	70,177.59	3,451,272	272	177,780.00	1,025,200
Missouri, etc.	1880	44	12,099.22	492,300	44	12,099.22	492,300			
	1889	119	21,063.66	265,605	56	5,193.66	223,700	63	15,870.00	41,905

^a Including all unriggered owned on both the Upper and Lower Mississippi.

TABLE 21.—COMPARATIVE STATISTICS.

NUMBER, TONNAGE, AND VALUE OF ALL STEAM VESSELS OWNED ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1880 AND 1889, GIVEN BY OCCUPATIONS.

CLASSES.	Year.	Number.	Tonnage.	Value.
Total, all classes	1880	1,198	251,792.85	\$12,009,400
	1889	1,114	210,771.89	10,539,251
Passenger and freight	1880	503	166,375.82	7,059,900
	1889	320	95,215.26	3,661,475
Ferry	1880	177	21,306.59	1,022,900
	1889	163	18,593.40	1,056,250
Towing and harbor	1880	477	63,224.95	3,800,500
	1889	431	72,857.51	4,451,333
Miscellaneous	1880	41	885.49	126,100
	1889	200	24,105.72	1,370,193

TABLE 22.—COMPARATIVE STATISTICS.

GROSS EARNINGS BY ALL CRAFT OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1880 AND 1889, TOGETHER WITH THE AMOUNT PAID OUT IN WAGES DURING THOSE YEARS.

RIVERS.	Year.	Gross earnings.	Paid in wages.
Total Mississippi valley	1880	\$20,293,173	\$6,979,226
	1889	16,337,533	5,338,862
Upper Mississippi	1880	7,668,864	2,204,644
	1889	2,318,015	728,878
Ohio	1880	7,628,924	2,847,085
	1889	6,702,013	2,545,025
Lower Mississippi	1880	4,168,989	1,626,029
	1889	7,017,374	1,948,541
Missouri, etc.	1880	826,396	301,468
	1889	300,131	115,813

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 23.—COMPARATIVE STATISTICS.

NUMBER OF MEN CONSTITUTING TOTALS OF ORDINARY CREWS EMPLOYED ON ALL CRAFT OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1880 AND 1889, TOGETHER WITH WAGES PAID, AND CALCULATED AVERAGES OF ANNUAL PAY, AND DECREASE OR INCREASE PER MAN, GIVEN BY LOCALITIES.

RIVERS.	Year.	Total number men ordinary crews.	Total wages paid.	Average annual wages per man.	Average annual increase in wages per man.	Average annual decrease in wages per man.
Total Mississippi valley.....	1880	23, 616	\$6, 979, 226	\$295. 53	-----	-----
	1889	15, 996	5, 338, 862	333. 76	\$38. 23	-----
Upper Mississippi.....	1880	7, 824	2, 204, 644	281. 78	-----	-----
	1889	2, 526	728, 878	288. 55	6. 77	-----
Ohio.....	1880	9, 090	2, 847, 085	313. 21	-----	-----
	1889	7, 663	2, 545, 025	332. 20	18. 99	-----
Lower Mississippi.....	1880	5, 655	1, 626, 029	287. 54	-----	-----
	1889	5, 345	1, 948, 541	364. 55	77. 01	-----
Missouri, etc.....	1880	1, 047	301, 408	287. 94	-----	-----
	1889	462	115, 818	250. 69	-----	\$37. 25

TABLE 24.—COMPARATIVE STATISTICS.

NUMBER OF TONS OF FREIGHT MOVED AND NUMBER OF PASSENGERS CARRIED BY ALL CRAFT OPERATING ON THE RIVERS OF THE MISSISSIPPI VALLEY IN 1880 AND 1889, GIVEN BY LOCALITIES.

RIVERS.	Year.	FREIGHT.			PASSENGER.		
		Total.	By steamers.	On barges.	Total.	Regular.	Ferry.
Total Mississippi valley.....	1880	18, 946, 522	13, 557, 884	5, 388, 638	6, 728, 007	1, 528, 083	5, 199, 984
	1889	29, 405, 046	10, 345, 504	19, 059, 542	10, 858, 894	2, 384, 248	8, 474, 646
Upper Mississippi.....	1880	3, 565, 338	698, 218	2, 867, 120	1, 299, 553	341, 371	958, 182
	1889	5, 838, 978	1, 194, 245	4, 644, 733	1, 545, 198	312, 189	1, 233, 009
Ohio.....	1880	11, 738, 909	9, 217, 391	2, 521, 518	3, 961, 798	960, 936	3, 000, 862
	1889	16, 041, 866	3, 806, 665	12, 235, 201	6, 503, 143	1, 506, 594	4, 996, 549
Lower Mississippi.....	1880	3, 576, 972	3, 576, 972	-----	1, 385, 357	212, 417	1, 172, 940
	1889	6, 401, 203	4, 387, 215	2, 013, 988	2, 534, 017	538, 904	1, 995, 113
Missouri, etc.....	1880	65, 303	65, 303	-----	81, 359	13, 359	68, 000
	1889	1, 122, 999	957, 379	165, 620	276, 536	26, 561	249, 975

STATISTICS OF TRANSPORTATION.

TABLE 25.—COMPARATIVE STATISTICS.

NUMBER AND TONNAGE OF ALL STEAMERS AND BARGES REGISTERED IN THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY FOR THE YEARS 1880 TO 1889, INCLUSIVE. (a)

CUSTOMS DISTRICTS.	1880						1881					
	TOTAL.		STEAMERS.		BARGES.		TOTAL.		STEAMERS.		BARGES.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
Total	2,295	473,792.03	1,225	256,915.99	1,070	216,876.04	1,424	393,946.89	1,191	246,997.37	233	146,949.52
New Orleans, Louisiana	173	30,113.39	167	29,413.31	6	700.08	177	31,432.02	171	30,731.94	6	700.08
Natchez, Mississippi	3	191.83	3	191.83								
Vicksburg, Mississippi	29	3,436.49	27	2,903.32	2	473.17						
Memphis, Tennessee	66	10,779.65	66	10,779.65				11,302.58	65	11,302.58		
Nashville, Tennessee	26	3,621.37	26	3,621.37			29	4,599.08	29	4,599.08		
Louisville, Kentucky	53	17,749.68	53	17,749.68			58	17,539.28	58	17,539.28		
Saint Louis, Missouri	319	141,974.94	162	59,699.13	157	82,275.81	313	180,119.99	153	54,392.72	160	125,727.27
Burlington, Iowa	31	2,414.25	31	2,414.25			42	4,624.03	42	4,624.03		
Dubuque, Iowa	29	3,696.79	29	3,696.79			31	3,757.13	31	3,757.13		
Lacrosse, Wisconsin	40	6,227.86	39	6,200.61	1	27.25	45	6,626.74	44	6,599.49	1	27.25
Minnesota (b)	80	8,141.78	48	5,873.06	32	2,268.72	54	6,908.80	45	6,003.50	9	905.30
Galena, Illinois	25	2,267.41	25	2,267.41			23	2,119.97	23	2,119.97		
Cairo, Illinois	41	7,888.58	23	4,323.36	13	3,565.22	43	7,194.76	31	3,849.03	12	3,345.73
Evansville, Indiana	67	6,403.87	66	5,708.97	1	694.90	60	5,564.53	60	5,564.53		
Cincinnati, Ohio	174	50,551.95	116	39,931.44	58	10,620.51	110	38,628.88	110	38,628.88		
Wheeling, West Virginia	492	43,419.05	142	16,711.88	290	26,707.17	137	16,056.20	137	16,056.20		
Pittsburg, Pennsylvania	673	129,025.97	168	39,482.76	510	89,543.21	205	50,752.58	160	34,508.69	45	16,243.89
Omaha, Nebraska	29	5,887.17	29	5,887.17			32	6,720.32	32	6,720.32		

CUSTOMS DISTRICTS.	1882						1883					
	TOTAL.		STEAMERS.		BARGES.		TOTAL.		STEAMERS.		BARGES.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
Total	1,438	389,644.39	1,226	249,210.10	212	140,434.29	1,312	361,047.68	1,163	243,317.19	149	117,730.49
New Orleans, Louisiana	177	28,306.53	172	28,075.83	5	230.70	132	21,199.21	132	21,199.21		
Natchez, Mississippi	5	254.33	5	254.33			4	239.87	4	239.87		
Vicksburg, Mississippi	3	44.67	3	44.67			28	3,583.33	28	3,583.33		
Memphis, Tennessee	65	10,426.37	65	10,426.37			73	11,503.30	73	11,503.30		
Nashville, Tennessee	15	2,527.93	15	2,527.93			18	3,876.32	18	3,876.32		
Chattanooga, Tennessee	13	1,567.44	13	1,567.44			17	1,936.11	17	1,936.11		
Louisville, Kentucky	60	17,938.08	60	17,938.08			57	18,118.07	57	18,118.07		
Saint Louis, Missouri	308	178,598.35	163	57,933.02	145	120,665.33	295	178,276.29	160	62,349.88	135	115,926.41
Kansas city, Missouri							1	112.57	1	112.57		
Burlington, Iowa	43	4,305.05	43	4,305.05			45	4,815.52	45	4,815.52		
Dubuque, Iowa	24	3,369.81	24	3,369.81			27	4,719.56	27	4,719.56		
Lacrosse, Wisconsin	46	6,436.36	45	6,409.11	1	27.25	35	3,027.59	35	3,027.59		
Minnesota	58	7,473.66	48	6,452.21	10	1,021.45	59	7,861.19	46	6,328.49	13	1,532.70
Galena, Illinois	23	2,518.37	23	2,518.37			25	2,771.63	25	2,771.63		
Cairo, Illinois	36	5,744.58	30	3,498.91	6	2,245.67	32	3,940.42	31	3,669.04	1	271.38
Evansville, Indiana	58	5,842.88	58	5,842.88			64	6,051.50	64	6,051.50		
Cincinnati, Ohio	114	37,486.94	114	37,486.94			110	35,013.12	110	35,013.12		
Wheeling, West Virginia	144	17,329.99	144	17,329.99			110	14,704.74	110	14,704.74		
Pittsburg, Pennsylvania	214	52,710.55	169	36,466.66	45	16,243.89	157	34,803.49	157	34,803.49		
Omaha, Nebraska	32	6,762.50	32	6,762.50			23	4,493.85	23	4,493.85		

a Compiled from reports furnished by commissioner of navigation.

b Comprising the ports of Saint Vincent and Saint Paul.

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 25.—COMPARATIVE STATISTICS—Continued.

NUMBER AND TONNAGE OF ALL STEAMERS AND BARGES REGISTERED IN THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY FOR THE YEARS 1880 TO 1889, INCLUSIVE—Continued.

CUSTOMS DISTRICTS.	1884						1885					
	TOTAL.		STEAMERS.		BARGES.		TOTAL.		STEAMERS.		BARGES.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
Total	1,302	356,263.61	1,157	241,007.35	145	115,256.26	1,289	346,054.19	1,149	231,075.84	140	114,378.35
New Orleans, Louisiana	138	20,834.85	138	20,834.85			127	20,147.83	127	20,147.83		
Natchez, Mississippi	4	452.25	4	452.25			3	303.23	3	303.23		
Vicksburg, Mississippi	30	3,298.74	30	3,298.74			32	3,637.74	32	3,637.74		
Memphis, Tennessee	73	14,977.04	73	14,977.04			72	13,807.31	72	13,807.31		
Nashville, Tennessee	22	4,020.17	22	4,020.17			16	3,562.51	16	3,562.51		
Chattanooga, Tennessee	16	2,771.84	16	2,771.84			18	3,052.59	18	3,052.59		
Paducah, Kentucky	9	651.62	9	651.62			18	1,412.84	18	1,412.84		
Louisville, Kentucky	53	18,175.15	53	18,175.15			56	15,902.25	56	15,902.25		
Saint Louis, Missouri	268	168,824.60	136	53,345.60	132	113,479.00	269	165,924.62	141	53,052.15	128	112,872.47
Kansas city, Missouri	11	1,129.20	11	1,129.20			11	1,125.20	11	1,125.20		
Saint Joseph, Missouri							3	297.06	3	297.06		
Burlington, Iowa	46	4,984.63	46	4,984.63			45	4,828.52	45	4,828.52		
Dubuque, Iowa	22	4,368.02	22	4,368.02			23	4,299.70	23	4,299.70		
Omaha, Nebraska	19	3,787.46	19	3,787.46			21	4,013.28	21	4,013.28		
Minnesota	60	8,271.10	48	6,765.22	12	1,505.88	56	7,416.37	44	5,910.49	12	1,505.88
Lacrosse, Wisconsin	43	3,026.31	43	3,026.31			40	3,666.65	40	3,666.65		
Galena, Illinois	23	2,319.23	23	2,319.23			24	2,527.21	24	2,527.21		
Cairo, Illinois	25	4,269.91	24	3,998.53	1	271.38	18	3,508.36	18	3,508.36		
Evansville, Indiana	67	8,710.09	67	8,710.09			60	8,727.89	60	8,727.89		
Cincinnati, Ohio	101	31,610.42	101	31,610.42			110	32,746.76	110	32,746.76		
Wheeling, West Virginia	109	14,583.83	109	14,583.83			112	13,479.07	112	13,479.07		
Pittsburg, Pennsylvania	163	34,597.15	163	34,597.15			155	31,667.20	155	31,667.20		

CUSTOMS DISTRICTS.	1886						1887					
	TOTAL.		STEAMERS.		BARGES.		TOTAL.		STEAMERS.		BARGES.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
Total	1,247	334,810.06	1,105	221,088.76	142	113,721.30	1,292	327,313.55	1,144	217,941.56	148	109,371.99
New Orleans, Louisiana	125	20,395.66	125	20,395.66			129	19,808.80	129	19,808.80		
Natchez, Mississippi	3	303.23	3	303.23			3	303.23	3	303.23		
Vicksburg, Mississippi	30	2,555.51	30	2,555.51			30	2,723.39	30	2,723.39		
Memphis, Tennessee	70	13,774.98	70	13,774.98			82	14,901.67	82	14,901.67		
Nashville, Tennessee	19	4,088.45	19	4,088.45			17	3,469.40	17	3,469.40		
Chattanooga, Tennessee	15	2,665.32	15	2,665.32			17	3,546.92	17	3,546.92		
Paducah, Kentucky	23	3,496.24	23	3,496.24			29	4,270.03	29	4,270.03		
Louisville, Kentucky	57	14,997.73	57	14,997.73			55	12,176.58	55	12,176.58		
Saint Louis, Missouri	252	161,478.54	129	49,738.90	123	111,739.64	250	153,829.16	132	47,153.20	118	106,675.96
Kansas city, Missouri	14	1,185.35	13	1,159.54	1	25.81	13	1,164.66	13	1,164.66		
Saint Joseph, Missouri	4	687.55	4	687.55			6	746.57	6	746.57		
Omaha, Nebraska	22	3,636.56	22	3,636.56			19	2,934.96	19	2,934.96		
Burlington, Iowa	49	5,250.75	45	4,908.84	4	341.91	52	5,182.35	43	4,656.02	9	526.33
Dubuque, Iowa	24	4,564.89	24	4,564.89			22	4,370.74	22	4,370.74		
Minnesota	50	8,010.15	46	6,431.21	13	1,578.94	65	8,272.87	49	6,504.93	16	1,767.94
Lacrosse, Wisconsin	41	3,383.25	41	3,383.25			48	3,932.78	45	3,655.02	3	277.76
Galena, Illinois	24	2,577.81	23	2,542.81	1	35.00	28	3,170.85	26	3,046.85	2	124.00
Evansville, Indiana	55	8,198.62	55	8,198.62			53	7,309.70	53	7,309.70		
Cincinnati, Ohio	106	31,594.03	106	31,594.03			107	30,535.73	107	30,535.73		
Wheeling, West Virginia	101	10,475.45	101	10,475.45			109	11,951.21	109	11,951.21		
Pittsburg, Pennsylvania	154	31,489.99	154	31,489.99			158	32,711.86	158	32,711.86		

STATISTICS OF TRANSPORTATION.

TABLE 25.—COMPARATIVE STATISTICS—Continued.

NUMBER AND TONNAGE OF ALL STEAMERS AND BARGES REGISTERED IN THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY FOR THE YEARS 1880 TO 1889, INCLUSIVE—Continued.

CUSTOMS DISTRICTS.	1888						1889					
	TOTAL.		STEAMERS.		BARGES.		TOTAL.		STEAMERS.		BARGES.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
Total	1,253	304,990.93	1,122	214,035.55	131	90,955.38	1,246	299,335.54	1,114	209,826.07	132	89,509.47
New Orleans, Louisiana.....	127	19,447.03	127	19,447.03			126	19,248.58	126	19,248.58		
Natchez, Mississippi.....	4	592.35	4	592.35			4	592.35	4	592.35		
Vicksburg, Mississippi.....	30	2,932.28	30	2,932.28			30	2,875.99	30	2,875.99		
Memphis, Tennessee.....	66	11,167.28	66	11,167.28			71	12,113.76	71	12,113.76		
Chattanooga, Tennessee.....	20	4,048.30	20	4,048.30			22	3,966.09	22	3,966.09		
Paducah, Kentucky.....	42	6,555.71	42	6,555.71			53	8,781.24	53	8,781.24		
Louisville, Kentucky.....	45	11,024.75	45	11,024.75			52	11,937.92	52	11,937.92		
Saint Louis, Missouri.....	219	134,103.07	123	46,210.35	96	87,892.72	208	129,249.39	115	42,827.04	93	86,422.35
Kansas city, Missouri.....	16	1,381.63	13	1,185.00	3	196.63	16	1,781.35	16	1,781.35		
Saint Joseph, Missouri.....	6	368.72	6	368.72			6	340.53	6	340.53		
Omaha, Nebraska.....	19	2,687.46	19	2,687.46			13	1,329.55	13	1,329.55		
Burlington, Iowa.....	51	4,987.01	42	4,506.75	9	480.26	56	5,718.95	43	5,059.39	13	659.56
Dubuque, Iowa.....	28	5,100.10	27	5,050.44	1	49.66	29	6,408.82	28	6,355.26	1	53.56
Minnesota.....	61	7,758.76	47	5,986.17	14	1,772.59	61	6,091.30	46	5,213.56	15	1,477.74
Lacrosse, Wisconsin.....	50	4,191.55	45	3,768.56	5	422.99	54	4,639.76	47	3,884.03	7	755.73
Galena, Illinois.....	29	3,243.23	26	3,102.70	3	140.53	30	3,270.13	27	3,129.60	3	140.53
Evansville, Indiana.....	60	8,166.47	60	8,166.47			54	6,950.76	54	6,950.76		
Cincinnati, Ohio.....	116	32,751.31	116	32,751.31			115	31,406.87	115	31,406.87		
Wheeling, West Virginia.....	109	11,611.52	109	11,611.52			94	9,768.97	94	9,768.97		
Pittsburg, Pennsylvania.....	155	32,872.40	155	32,872.40			152	32,263.23	152	32,263.23		

RECAPITULATION FOR THE 10 YEARS.

YEARS.	TOTAL.		STEAMERS.		BARGES.	
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.
1880.....	2,295	473,792.03	1,225	256,915.09	1,070	216,876.04
1881.....	1,424	393,946.89	1,191	246,997.37	233	146,949.52
1882.....	1,438	389,644.39	1,226	249,210.10	212	140,434.29
1883.....	1,312	361,047.68	1,163	243,317.19	149	117,730.49
1884.....	1,302	356,263.61	1,157	241,007.35	145	115,256.26
1885.....	1,289	346,054.19	1,149	231,675.84	140	114,378.35
1886.....	1,247	334,810.06	1,105	221,088.76	142	113,721.30
1887.....	1,292	327,313.55	1,144	217,941.56	148	109,371.99
1888.....	1,253	304,990.93	1,122	214,035.55	131	90,955.38
1889.....	1,246	299,335.54	1,114	209,826.07	132	89,509.47

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 26.—NUMBER, AGGREGATE TONNAGE, AND AVERAGE VESSEL TONNAGE OF ALL STEAMERS REGISTERED AT THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY IN THE YEARS 1880 TO 1889, INCLUSIVE. (a)

CUSTOMS DISTRICTS.	1880			1881			1882			1883			1884		
	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.
New Orleans, Louisiana . . .	167	29,413	176	171	30,732	180	172	28,076	163	132	21,199	161	138	20,835	151
Natchez, Mississippi	3	192	64				5	254	51	4	240	60	4	452	113
Vicksburg, Mississippi	27	2,903	110				3	45	15	28	3,583	128	30	3,299	110
Memphis, Tennessee	66	10,780	163	65	11,303	174	65	10,426	160	73	11,503	158	73	14,977	205
Nashville, Tennessee	26	3,621	139	29	4,599	159	15	2,528	169	18	3,876	215	22	4,020	183
Chattanooga, Tennessee							13	1,567	121	17	1,936	114	16	2,772	173
Louisville, Kentucky	53	17,750	335	53	17,530	302	60	17,938	299	57	18,118	318	53	18,175	343
Paducah, Kentucky													9	652	72
Saint Louis, Missouri	102	59,699	369	153	54,393	356	163	57,933	355	100	62,350	390	136	55,346	407
Kansas city, Missouri										1	113	113	11	1,129	108
Saint Joseph, Missouri															
Burlington, Iowa	31	2,414	78	42	4,024	110	43	4,305	100	45	4,816	107	46	4,985	108
Dubuque, Iowa	29	3,697	127	31	3,757	121	24	3,370	140	27	4,720	175	22	4,368	199
Lacrosse, Wisconsin	39	6,201	159	44	6,599	150	45	6,409	142	35	3,028	87	43	3,026	84
Minnesota (b)	48	5,873	122	45	6,004	133	48	6,452	134	46	6,328	138	48	6,765	141
Galena, Illinois	25	2,267	91	23	2,120	92	23	2,518	109	25	2,772	111	23	2,319	101
Cairo, Illinois	28	4,323	154	31	3,849	124	30	3,499	117	31	3,669	118	24	3,999	167
Evansville, Indiana	66	5,709	87	60	5,565	93	58	5,843	101	64	6,052	95	67	8,710	130
Cincinnati, Ohio	116	39,931	344	110	38,029	351	114	37,487	329	110	35,013	318	101	31,610	313
Wheeling, West Virginia	142	16,712	118	137	16,056	117	144	17,330	120	110	14,705	134	109	14,584	134
Pittsburg, Pennsylvania	168	39,483	235	160	34,509	216	169	36,467	216	157	34,803	222	163	34,597	212
Omaha, Nebraska	29	5,887	203	32	6,720	210	32	6,763	211	23	4,494	195	19	3,787	199

CUSTOMS DISTRICTS.	1885			1886			1887			1888			1889		
	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.	Num-ber.	Tonnage.	Aver-age.
New Orleans, Louisiana	127	20,148	159	125	20,396	163	129	19,809	154	127	19,447	153	126	19,249	153
Natchez, Mississippi	3	303	101	3	303	101	3	303	101	4	592	148	4	592	148
Vicksburg, Mississippi	32	3,638	114	30	2,556	85	30	2,723	91	30	2,932	98	30	2,876	96
Memphis, Tennessee	72	13,807	192	70	13,775	197	82	14,902	182	66	11,167	169	71	12,114	171
Nashville, Tennessee	16	3,563	223	19	4,088	215	17	3,469	204						
Chattanooga, Tennessee	18	3,053	170	15	2,665	178	17	3,547	209	20	4,043	202	22	3,966	180
Louisville, Kentucky	56	15,902	284	57	14,998	263	55	12,177	221	45	11,025	245	52	11,938	230
Paducah, Kentucky	18	1,413	79	23	3,406	152	29	4,270	147	42	6,556	156	53	8,781	166
Saint Louis, Missouri	141	53,052	376	129	49,739	386	132	47,153	357	123	46,210	376	115	42,827	372
Kansas city, Missouri	11	1,125	102	13	1,160	89	13	1,165	90	13	1,185	91	16	1,781	111
Saint Joseph, Missouri	3	297	99	4	688	172	6	747	125	6	369	62	6	341	57
Burlington, Iowa	45	4,829	107	45	4,900	109	43	4,656	108	42	4,507	107	43	5,059	118
Dubuque, Iowa	23	4,300	187	24	4,565	190	22	4,371	199	27	5,050	187	28	6,355	227
Lacrosse, Wisconsin	40	3,667	92	41	3,383	83	45	3,655	81	45	3,769	84	47	3,884	83
Minnesota	44	5,910	134	46	6,431	140	49	6,505	133	47	5,986	127	46	5,214	113
Galena, Illinois	24	2,527	105	23	2,543	111	26	3,047	117	26	3,103	119	27	3,130	116
Cairo, Illinois	18	3,508	195												
Evansville, Indiana	60	8,728	145	55	8,199	149	53	7,310	138	60	8,166	136	54	6,951	129
Cincinnati, Ohio	110	32,747	298	106	31,594	298	107	30,536	285	116	32,751	282	115	31,407	273
Wheeling, West Virginia	112	13,479	120	101	10,475	104	109	11,951	110	109	11,612	107	94	9,769	104
Pittsburg, Pennsylvania	155	31,667	204	154	31,490	204	158	32,712	207	155	32,872	212	152	32,263	212
Omaha, Nebraska	21	4,013	191	22	3,637	165	19	2,935	154	19	2,687	141	13	1,330	102

a Compiled from information furnished by commissioner of navigation.

b Comprising the ports of Saint Vincent and Saint Paul.

STATISTICS OF TRANSPORTATION.

TABLE 27.—AVERAGE ANNUAL NUMBER OF STEAMERS AND AVERAGE ANNUAL TONNAGE REGISTERED AT THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY IN THE YEARS 1880 TO 1889, INCLUSIVE, TOGETHER WITH THE INDICATED YEARS OF HIGHEST, LOWEST, AND MEAN REGISTRATION. (a)

CUSTOMS DISTRICTS.	Annual average number of vessels registered.	HIGHEST ABOVE AVERAGE.		LOWEST BELOW AVERAGE.		CLOSEST TO AVERAGE.		Fluctuation.	Annual average registered tonnage.	HIGHEST ABOVE AVERAGE.		LOWEST BELOW AVERAGE.		CLOSEST TO AVERAGE.		Fluctuation.
		Year.	Number.	Year.	Number.	Year.	Number.			Year.	Number of tons.	Year.	Number of tons.	Year.	Number of tons.	
New Orleans, Louisiana.....	141.40	1882	172	1886	125	1884	138	47	22,930.40	1881	30,732	1889	19,249	1883	21,199	11.483
Natchez, Mississippi.....	3.67	1882	5	1880	3	1883	4	2	359.11	1883	592	1880	192	1885	303	400
Vicksburg, Mississippi.....	26.67	1885	32	1882	3	1880	27	29	2,735.00	1885	3,638	1886	2,556	1887	2,723	1,082
Memphis, Tennessee.....	70.30	1887	82	1881	65	1886	70	17	12,475.40	1884	14,977	1882	10,426	1889	12,114	4,551
Nashville, Tennessee.....	20.25	1881	29	1882	15	1886	19	14	3,720.50	1881	4,599	1882	2,528	1880	3,621	2,071
Chattanooga, Tennessee...	17.25	1889	22	1882	13	1883	17	9	2,944.25	1888	4,048	1882	1,567	1885	3,053	2,481
Louisville, Kentucky.....	54.60	1882	60	1888	45	1887	55	15	15,556.00	1884	18,175	1888	11,025	1885	15,902	7,150
Paducah, Kentucky.....	29.00	1889	53	1884	9	1887	29	44	4,194.67	1889	8,781	1884	652	1887	4,270	8,129
Saint Louis, Missouri.....	141.40	1882	163	1889	115	1885	141	48	52,870.20	1883	62,350	1889	42,827	1885	53,052	19,523
Kansas city, Missouri.....	11.14	1889	16	1883	1	1884	11	15	1,094.00	1889	1,781	1883	113	1885	1,125	1,668
Saint Joseph, Missouri.....	5.00	1887	6	1885	3	1887	6	3	488.40	1887	747	1885	297	1888	369	450
Burlington, Iowa.....	42.50	1884	46	1880	31	1881	42	15	4,510.40	1889	5,059	1880	2,414	1888	4,507	2,045
Dubuque, Iowa.....	25.70	1881	31	1884	22	1883	27	9	4,455.30	1889	6,355	1882	3,370	1887	4,371	2,985
Lacrosse, Wisconsin.....	42.40	1889	47	1883	35	1884	43	12	4,422.10	1881	6,599	1883	3,028	1889	3,884	3,571
Minnesota (b).....	40.70	1887	49	1885	44	1888	47	5	6,146.80	1884	6,765	1889	5,214	1881	6,004	1,551
Galena, Illinois.....	24.50	1889	27	1881	23	1885	24	4	2,634.60	1889	3,130	1881	2,120	1886	2,543	1,010
Cairo, Illinois.....	27.00	1881	31	1885	18	1880	28	13	3,807.83	1880	4,323	1882	3,499	1881	3,849	824
Evansville, Indiana.....	59.70	1884	67	1887	53	1881	60	14	7,123.30	1885	8,728	1881	5,565	1889	6,951	3,163
Cincinnati, Ohio.....	110.50	1880	116	1884	101	1881	110	15	34,170.50	1880	39,931	1887	30,536	1883	35,013	9,395
Wheeling, West Virginia..	116.70	1882	144	1889	94	1885	112	50	13,697.30	1882	17,330	1889	9,769	1885	13,479	7,561
Pittsburg, Pennsylvania...	159.10	1882	169	1889	152	1881	160	17	34,086.30	1880	39,483	1886	31,490	1881	34,509	7,993
Omaha, Nebraska.....	22.90	1881	32	1889	13	1883	23	19	4,225.30	1882	6,763	1889	1,330	1885	4,013	5,433

a Compiled from information furnished by commissioner of navigation.

b Comprising ports of Saint Vincent and Saint Paul.

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 28.—COMPARATIVE STATISTICS.

NUMBER AND TONNAGE OF ALL STEAMERS AND BARGES BUILT IN THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY DURING THE YEARS 1880 TO 1889, INCLUSIVE, TOGETHER WITH DATA SHOWING THE NUMBER AND TONNAGE OF SIDE-WHEEL STEAMERS, STERN-WHEEL STEAMERS, AND PROPELLERS BUILT DURING EACH YEAR AT EACH PORT. (a)

1880.

CUSTOMS DISTRICTS.	CLASS.						METHOD OF STEAMERS' PROPULSION.							
	Total.		Steamers.		Barges.		Total.		Side-wheel.		Stern-wheel.		Propeller.	
	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.
Total	135	32,791.31	117	23,930.92	18	8,860.39	117	23,930.92	30	11,449.60	75	11,791.60	12	689.72
New Orleans, Louisiana	7	448.09	7	448.09			7	448.09			2	80.51	5	361.58
Memphis, Tennessee	5	434.50	5	434.50			5	434.50			5	434.50		
Nashville, Tennessee	4	390.36	4	390.36			4	390.36			4	390.36		
Louisville, Kentucky	21	8,953.93	17	5,302.11	4	3,651.82	17	5,302.11	4	2,186.02	12	3,069.69	1	46.40
Saint Louis, Missouri	22	3,755.27	18	2,023.52	4	1,731.75	18	2,023.52	10	1,647.88	8	373.64		
Dubuque, Iowa	1	456.96	1	456.96			1	456.96			1	456.96		
Burlington, Iowa	3	155.61	3	155.61			3	155.61			2	146.60	1	9.01
Omaha, Nebraska	1	78.08	1	78.08			1	78.08			1	78.08		
Lacrosse, Wisconsin	4	277.70	4	277.70			4	277.70			4	277.70		
Minnesota (b)	7	652.59	6	581.03	1	71.56	6	581.03			5	558.11	1	22.92
Cairo, Illinois	2	1,513.14	2	1,513.14			2	1,513.14	1	1,477.27	1	35.87		
Galena, Illinois	1	16.34	1	16.34			1	16.34	1	16.34				
Evansville, Indiana	8	355.96	8	355.96			8	355.96			6	201.04	2	154.92
Cincinnati, Ohio	24	7,882.67	18	6,484.08	6	1,399.59	18	6,484.08	6	3,902.59	12	2,581.49		
Wheeling, West Virginia	12	1,083.70	12	1,083.70			12	1,083.70	3	334.92	7	653.89	2	94.80
Pittsburg, Pennsylvania	13	6,335.41	10	4,329.74	3	2,005.67	10	4,329.74	5	1,884.58	5	2,445.16		

1881.

Total	182	81,188.88	129	24,587.06	53	56,601.82	129	24,587.06	24	6,925.70	82	15,435.70	23	2,225.66
New Orleans, Louisiana	6	1,252.54	6	1,252.54			6	1,252.54	3	1,096.01			3	156.53
Memphis, Tennessee	8	945.15	8	945.15			8	945.15			7	903.18	1	41.97
Nashville, Tennessee	5	363.75	5	363.75			5	363.75			5	363.75		
Louisville, Kentucky	28	15,398.79	21	7,464.93	7	7,933.86	21	7,464.93	10	3,315.14	8	3,418.87	3	730.92
Saint Louis, Missouri	42	34,019.09	18	2,253.95	29	31,765.14	18	2,253.95	6	1,315.47	7	938.48		
Dubuque, Iowa	2	365.74	2	365.74			2	365.74			2	365.74		
Burlington, Iowa	2	219.20	2	219.20			2	219.20			1	178.82	1	40.38
Omaha, Nebraska	2	87.16	2	87.16			2	87.16			2	87.16		
Minnesota	4	418.35	4	418.35			4	418.35	1	237.09	2	150.71	1	30.55
Lacrosse, Wisconsin	3	100.11	3	100.11			3	100.11	2	83.20	1	16.91		
Cairo, Illinois	3	1,222.60	2	64.10	1	1,158.50	2	64.10			1	48.26	1	15.84
Galena, Illinois	1	10.30	1	10.30			1	10.30					1	10.30
Evansville, Indiana	4	346.46	4	346.46			4	346.46			2	227.47	2	118.99
Cincinnati, Ohio	29	15,625.75	17	4,209.93	12	11,415.82	17	4,209.93	1	555.50	10	2,863.21	6	791.22
Wheeling, West Virginia	17	4,075.01	15	2,057.19	2	2,017.82	15	2,057.19			11	1,768.23	4	288.96
Pittsburg, Pennsylvania	26	6,738.88	24	4,428.20	2	2,310.68	24	4,428.20	1	323.29	23	4,104.91		

1882.

Total	152	35,816.95	134	24,671.90	18	11,145.05	134	24,671.90	12	6,576.18	100	17,123.97	22	971.75
New Orleans, Louisiana	7	337.35	7	337.35			7	337.35	1	23.61	1	149.91	5	163.83
Memphis, Tennessee	6	249.85	6	249.85			6	249.85	1	8.99	3	199.52	2	41.34
Nashville, Tennessee	2	83.13	2	83.13			2	83.13	1	24.30	1	58.74		
Chattanooga, Tennessee	1	153.90	1	153.90			1	153.90			1	153.90		
Louisville, Kentucky	24	15,176.07	18	8,429.81	6	6,746.26	18	8,429.81	5	6,001.47	13	2,428.34		
Saint Louis, Missouri	20	3,281.81	11	1,439.50	9	1,842.31	11	1,439.50			9	1,264.92	2	174.58
Dubuque, Iowa	1	191.55	1	191.55			1	191.55			1	191.55		
Burlington, Iowa	2	253.62	2	253.62			2	253.62			1	234.16	1	19.46
Omaha, Nebraska	1	33.06	1	33.06			1	33.06					1	33.06
Lacrosse, Wisconsin	4	320.97	4	320.97			4	320.97			4	320.97		
Minnesota	4	489.43	3	373.28	1	116.15	3	373.28			3	373.28		
Cairo, Illinois	5	531.36	5	531.36			5	531.36			1	168.87	4	362.49
Galena, Illinois	4	468.64	4	468.64			4	468.64			4	468.64		
Evansville, Indiana	6	336.92	6	336.92			6	336.92	1	9.59	3	254.19	2	73.14
Cincinnati, Ohio	20	5,504.33	18	3,064.00	2	2,440.33	18	3,064.00	3	508.13	13	2,488.66	2	67.21
Wheeling, West Virginia	18	1,981.16	18	1,981.16			18	1,981.16			18	1,981.16		
Pittsburg, Pennsylvania	27	6,423.80	27	6,423.80			27	6,423.80			24	6,387.16	3	36.64

^a Compiled from information furnished by commissioner of navigation.

^b Comprising ports of Saint Vincent and Saint Paul.

STATISTICS OF TRANSPORTATION.

TABLE 28.—COMPARATIVE STATISTICS—Continued.

NUMBER AND TONNAGE OF ALL STEAMERS AND BARGES BUILT IN THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY DURING THE YEARS 1880 TO 1889, INCLUSIVE, ETC.—Continued.

1883.

CUSTOMS DISTRICTS.	CLASS.						METHOD OF STEAMERS' PROPULSION.							
	Total.		Steamers.		Barges.		Total.		Side-wheel.		Stern-wheel.		Propeller.	
	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.
Total	125	26,442.92	116	20,879.07	9	5,563.85	116	20,879.07	18	6,388.03	76	12,890.00	22	1,601.04
New Orleans, Louisiana.....	8	482.22	8	482.22			8	482.22	1	155.58	4	238.89	3	87.75
Memphis, Tennessee.....	10	582.04	10	582.04			10	582.04	3	283.39	1	27.97	6	270.68
Nashville, Tennessee.....	3	224.10	3	224.10			3	224.10	2	154.83	1	69.27		
Chattanooga, Tennessee.....	3	448.29	3	448.29			3	448.29			3	448.29		
Louisville, Kentucky.....	22	11,629.74	18	7,946.57	4	3,683.17	18	7,946.57	2	1,959.23	11	5,215.87	5	771.47
Saint Louis, Missouri.....	7	1,538.57	6	1,343.76	1	194.81	6	1,343.76	2	914.61	2	313.81	2	115.34
Burlington, Iowa.....	4	289.74	4	289.74			4	289.74			3	246.50	1	43.24
Dubuque, Iowa.....	2	231.06	2	231.06			2	231.06					2	231.06
Omaha, Nebraska.....	3	221.68	3	221.68			3	221.68			3	221.68		
Minnesota.....	8	880.23	5	368.98	3	511.25	5	368.98	1	35.87	2	277.22	2	55.89
Cairo, Illinois.....	3	242.74	3	242.74			3	242.74			3	242.74		
Galena, Illinois.....	1	148.48	1	148.48			1	148.48			1	148.48		
Evansville, Indiana.....	8	372.21	8	372.21			8	372.21	2	74.08	6	298.13		
Cincinnati, Ohio.....	15	4,026.27	14	2,851.65	1	1,174.62	14	2,851.65	2	251.13	11	2,574.91	1	25.61
Wheeling, West Virginia.....	22	2,085.30	22	2,085.30			22	2,085.30	1	196.21	21	1,889.09		
Pittsburg, Pennsylvania.....	6	3,040.25	6	3,040.25			6	3,040.25	2	2,363.10	4	677.15		

1884.

Total	93	16,664.32	91	16,219.44	2	444.88	91	16,219.44	12	3,786.24	70	12,075.66	9	357.54
New Orleans, Louisiana.....	6	504.19	6	504.19			6	504.19			1	218.01	5	286.18
Vicksburg, Mississippi.....	1	110.34	1	110.34			1	110.34			1	110.34		
Memphis, Tennessee.....	4	522.44	4	522.44			4	522.44			4	522.44		
Nashville, Tennessee.....	2	384.93	2	384.93			2	384.93			2	384.93		
Chattanooga, Tennessee.....	1	32.72	1	32.72			1	32.72			1	32.72		
Louisville, Kentucky.....	15	6,105.72	15	6,105.72			15	6,105.72	3	2,677.31	12	3,428.41		
Saint Louis, Missouri.....	7	910.88	5	466.00	2	444.88	5	466.00	2	221.04	2	237.11	1	7.85
Burlington, Iowa.....	1	96.89	1	96.89			1	96.89			1	96.89		
Dubuque, Iowa.....	1	26.92	1	26.92			1	26.92					1	26.92
Omaha, Nebraska.....	3	73.17	3	73.17			3	73.17			3	73.17		
Minnesota.....	2	102.64	2	102.64			2	102.64	1	70.56	1	32.08		
Lacrosse, Wisconsin.....	4	236.73	4	236.73			4	236.73	1	61.10	1	139.04	2	36.59
Cairo, Illinois.....	1	31.74	1	31.74			1	31.74			1	31.74		
Galena, Illinois.....	2	253.26	2	253.26			2	253.26	1	198.31	1	54.95		
Evansville, Indiana.....	6	538.57	6	538.57			6	538.57	1	43.70	5	494.87		
Cincinnati, Ohio.....	6	1,009.35	6	1,009.35			6	1,009.35	1	140.46	5	868.89		
Wheeling, West Virginia.....	13	1,332.13	13	1,332.13			13	1,332.13	2	373.76	11	958.37		
Pittsburg, Pennsylvania.....	18	4,391.70	18	4,391.70			18	4,391.70			18	4,391.70		

1885.

Total	81	11,220.37	81	11,220.37			81	11,220.37	6	4,342.18	65	6,137.95	10	740.24
New Orleans, Louisiana.....	8	367.73	8	367.73			8	367.73			5	257.82	3	109.91
Vicksburg, Mississippi.....	2	29.18	2	29.18			2	29.18			1	15.73	1	13.45
Memphis, Tennessee.....	5	380.66	5	380.66			5	380.66			5	380.66		
Chattanooga, Tennessee.....	1	31.30	1	31.30			1	31.30			1	31.30		
Louisville, Kentucky.....	15	4,273.00	15	4,273.00			15	4,273.00	2	2,200.32	13	2,072.68		
Saint Louis, Missouri.....	7	776.06	7	776.06			7	776.06	1	580.56	5	148.05	1	47.45
Kansas city, Missouri.....	1	20.45	1	20.45			1	20.45			1	20.45		
Omaha, Nebraska.....	2	60.55	2	60.55			2	60.55			2	60.55		
Burlington, Iowa.....	3	195.84	3	195.84			3	195.84			3	195.84		
Dubuque, Iowa.....	3	195.98	3	195.98			3	195.98	1	50.00	2	145.98		
Minnesota.....	1	103.54	1	103.54			1	103.54			1	103.54		
Cairo, Illinois.....	1	48.01	1	48.01			1	48.01			1	48.01		
Evansville, Indiana.....	5	281.94	5	281.94			5	281.94			4	217.98	1	63.96
Cincinnati, Ohio.....	10	2,375.99	10	2,375.99			10	2,375.99	2	1,511.30	6	451.98	2	412.71
Wheeling, West Virginia.....	13	1,237.02	13	1,237.02			13	1,237.02			12	1,225.20	1	11.82
Pittsburg, Pennsylvania.....	4	843.12	4	843.12			4	843.12			3	762.18	1	80.94

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 28.—COMPARATIVE STATISTICS—Continued.

NUMBER AND TONNAGE OF ALL STEAMERS AND BARGES BUILT IN THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY DURING THE YEARS 1880 TO 1889, INCLUSIVE, ETC.—Continued.

1886.

CUSTOMS DISTRICTS.	CLASS.						METHOD OF STEAMERS' PROPULSION.							
	Total.		Steamers.		Barges.		Total.		Side-wheel.		Stern-wheel.		Propeller.	
	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.
Total	76	10,594.93	70	9,699.70	6	895.23	70	9,699.70	8	1,333.42	58	8,226.71	4	139.57
New Orleans, Louisiana.....	2	95.87	2	95.87			2	95.87			1	36.80	1	59.07
Vicksburg, Mississippi.....	2	63.80	2	63.80			2	63.80			2	63.80		
Memphis, Tennessee.....	8	818.27	8	818.27			8	818.27	3	271.78	5	546.49		
Nashville, Tennessee.....	2	131.67	2	131.67			2	131.67			2	131.67		
Chattanooga, Tennessee.....	2	505.91	2	505.91			2	505.91			2	505.91		
Paducah, Kentucky.....	2	305.20	2	305.20			2	305.20			2	305.20		
Louisville, Kentucky.....	11	2,269.87	11	2,269.87			11	2,269.87	1	714.87	10	1,555.00		
Saint Louis, Missouri.....	2	86.68	2	86.68			2	86.68	1	14.04	1	72.64		
Kansas city, Missouri.....	1	25.81	1	25.81			1	25.81			1	25.81		
Omaha, Nebraska.....	2	50.52	2	50.52			2	50.52			2	50.52		
Burlington, Iowa.....	5	303.56	2	144.07	3	159.49	2	144.07			2	144.07		
Dubuque, Iowa.....	2	260.35	2	260.35			2	260.35			2	260.35		
Minnesota.....	4	309.06	3	235.20	1	73.86	3	235.20			2	212.55	1	22.65
Lacrosse, Wisconsin.....	4	142.57	4	142.57			4	142.57	1	24.47	2	90.88	1	27.22
Galena, Illinois.....	1	35.00			1	35.00								
Evansville, Indiana.....	1	235.20	1	235.20			1	235.20			1	235.20		
Cincinnati, Ohio.....	5	1,344.92	4	718.04	1	626.88	4	718.04			4	718.04		
Wheeling, West Virginia.....	8	724.25	8	724.25			8	724.25	1	39.93	6	653.69	1	30.63
Pittsburg, Pennsylvania.....	12	2,886.42	12	2,886.42			12	2,886.42	1	268.33	11	2,618.09		

1887.

Total	79	10,900.93	69	10,167.73	10	733.20	69	10,167.73	6	2,170.99	55	7,872.06	8	124.63
New Orleans, Louisiana.....	4	89.37	4	89.37			4	89.37			2	52.38	2	36.99
Vicksburg, Mississippi.....	1	22.27	1	22.27			1	22.27			1	22.27		
Memphis, Tennessee.....	9	610.78	9	610.78			9	610.78			7	592.02	2	18.76
Chattanooga, Tennessee.....	1	565.34	1	565.34			1	565.34			1	565.34		
Paducah, Kentucky.....	1	235.20	1	235.20			1	235.20			1	235.20		
Louisville, Kentucky.....	15	4,422.82	14	4,240.80	1	182.02	14	4,240.80	2	1,950.73	12	2,290.07		
Saint Louis, Missouri.....	4	70.08	4	70.08			4	70.08	1	23.16	2	28.52	1	18.40
Kansas city, Missouri.....	1	21.86	1	21.86			1	21.86			1	21.86		
Burlington, Iowa.....	5	184.42			5	184.42								
Dubuque, Iowa.....	1	89.00			1	89.00								
Minnesota.....	8	487.53	7	413.42	1	74.11	7	413.42			6	373.17	1	40.25
Lacrosse, Wisconsin.....	4	213.93	2	10.28	2	203.65	2	10.28					2	10.28
Evansville, Indiana.....	5	634.81	5	634.81			5	634.81			5	634.81		
Cincinnati, Ohio.....	4	501.95	4	501.95			4	501.95	1	65.73	3	436.22		
Wheeling, West Virginia.....	6	503.86	6	503.86			6	503.86	1	52.93	5	450.93		
Pittsburg, Pennsylvania.....	10	2,247.71	10	2,247.71			10	2,247.71	1	78.44	9	2,169.27		

1888.

Total	84	11,859.15	74	11,371.56	10	487.59	74	11,371.56	9	4,312.73	59	6,830.91	6	227.92
New Orleans, Louisiana.....	6	391.91	6	391.91			6	391.91			5	265.33	1	126.58
Memphis, Tennessee.....	8	1,371.10	8	1,371.10			8	1,371.10	2	1,196.67	6	174.43		
Nashville, Tennessee.....	1	102.48	1	102.48			1	102.48			1	102.48		
Chattanooga, Tennessee.....	5	810.53	5	810.53			5	810.53			5	810.53		
Paducah, Kentucky.....	3	493.75	3	493.75			3	493.75			3	493.75		
Louisville, Kentucky.....	13	4,532.43	12	4,351.42	1	181.01	12	4,351.42	4	2,956.39	8	1,895.03		
Saint Louis, Missouri.....	3	35.13			3	35.13								
Kansas city, Missouri.....	1	80.35	1	80.35			1	80.35			1	80.35		
Saint Joseph, Missouri.....	1	19.36	1	19.36			1	19.36			1	19.36		
Dubuque, Iowa.....	2	237.66	2	237.66			2	237.66			2	237.66		
Minnesota.....	7	334.57	6	311.92	1	22.65	6	311.92			5	301.95	1	9.97
Lacrosse, Wisconsin.....	3	235.67	1	121.92	2	113.75	1	121.92			1	121.92		
Galena, Illinois.....	2	63.16	1	46.63	1	16.53	1	46.63	1	46.63				
Evansville, Indiana.....	5	185.57	5	185.57			5	185.57	1	20.49	2	136.49	2	28.59
Cincinnati, Ohio.....	4	314.62	4	314.62			4	314.62	1	92.55	3	222.07		
Wheeling, West Virginia.....	12	1,064.57	12	1,064.57			12	1,064.57			10	1,001.79	2	62.78
Pittsburg, Pennsylvania.....	8	1,536.29	6	1,467.77	2	118.52	6	1,467.77			6	1,467.77		

STATISTICS OF TRANSPORTATION.

TABLE 28.—COMPARATIVE STATISTICS—Continued.

NUMBER AND TONNAGE OF ALL STEAMERS AND BARGES BUILT IN THE CUSTOMS DISTRICTS OF THE MISSISSIPPI VALLEY DURING THE YEARS 1880 TO 1889, INCLUSIVE, ETC.—Continued.

1889.

CUSTOMS DISTRICTS.	CLASS.						METHOD OF STEAMERS' PROPULSION.							
	Total.		Steamers.		Barges.		Total.		Side-wheel.		Stern-wheel.		Propeller.	
	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.
Total	83	12,202.36	74	11,556.73	9	645.63	74	11,556.73	2	980.54	56	9,289.50	16	1,286.69
New Orleans, Louisiana.....	3	1,079.75	3	1,079.75	.....	.....	3	1,079.75	1	957.81	.....	.....	2	122.44
Memphis, Tennessee.....	7	1,101.98	7	1,101.98	.....	.....	7	1,101.98	1	23.23	6	1,078.75	.....	.....
Chattanooga, Tennessee.....	3	134.88	3	134.88	.....	.....	3	134.88	.....	.....	2	112.61	1	22.27
Paducah, Kentucky.....	7	980.65	6	730.01	1	250.64	6	730.01	.....	.....	5	686.26	1	43.75
Louisville, Kentucky.....	14	4,392.15	14	4,392.15	.....	.....	14	4,392.15	.....	.....	14	4,392.15	.....	.....
Saint Louis, Missouri.....	1	43.05	1	43.05	.....	.....	1	43.05	.....	.....	1	43.05	.....	.....
Kansas city, Missouri.....	1	20.53	1	20.53	.....	.....	1	20.53	.....	.....	1	20.53	.....	.....
Saint Joseph, Missouri.....	1	36.00	1	36.00	.....	.....	1	36.00	.....	.....	1	36.00	.....	.....
Burlington, Iowa.....	4	157.11	.....	.....	4	157.11	.....	.....	.....	.....	.....	.....	.....	.....
Dubuque, Iowa.....	5	724.08	4	670.52	1	53.56	4	670.52	.....	.....	2	644.60	2	25.92
Omaha, Nebraska.....	1	21.71	1	21.71	.....	.....	1	21.71	.....	.....	1	21.71	.....	.....
Minnesota.....	5	432.28	3	330.06	2	102.22	3	330.06	.....	.....	2	317.86	1	12.20
Lacrosse, Wisconsin.....	5	353.29	4	271.19	1	82.10	4	271.19	.....	.....	4	271.19	.....	.....
Galena, Illinois.....	2	175.62	2	175.62	.....	.....	2	175.62	.....	.....	1	142.76	1	32.86
Evansville, Indiana.....	2	92.40	2	92.40	.....	.....	2	92.40	.....	.....	1	68.08	1	24.32
Cincinnati, Ohio.....	8	1,082.90	8	1,082.90	.....	.....	8	1,082.90	.....	.....	1	79.97	7	1,002.93
Wheeling, West Virginia.....	6	493.42	6	493.42	.....	.....	6	493.42	.....	.....	6	493.42	.....	.....
Pittsburg, Pennsylvania.....	8	880.56	8	880.56	.....	.....	8	880.56	.....	.....	8	880.56	.....	.....

RECAPITULATION FOR THE 10 YEARS.

Total for 10 years.....	1,090	249,682.12	955	164,304.48	135	85,377.64	955	164,304.48	127	48,265.61	696	107,074.06	132	8,364.81
1880.....	135	32,791.31	117	23,930.92	18	8,860.39	117	23,930.92	30	11,449.60	75	11,791.60	12	689.72
1881.....	182	81,188.88	129	24,587.06	53	56,601.82	129	24,587.06	24	6,925.70	82	15,435.70	23	2,225.66
1882.....	152	35,816.95	134	24,671.90	18	11,145.05	134	24,671.90	12	6,576.18	100	17,123.97	22	971.75
1883.....	125	26,442.92	116	20,879.07	9	5,563.85	116	20,879.07	18	6,388.03	76	12,890.00	22	1,601.04
1884.....	93	16,664.32	91	16,219.44	2	444.88	91	16,219.44	12	3,786.24	70	12,075.66	9	857.54
1885.....	81	11,220.37	81	11,220.37	.....	.....	81	11,220.37	6	4,342.18	65	6,137.95	10	740.24
1886.....	76	10,594.93	70	9,699.70	6	895.23	70	9,699.70	8	1,333.42	58	8,226.71	4	139.57
1887.....	79	10,900.93	69	10,167.73	10	733.20	69	10,167.73	6	2,170.99	55	7,872.06	8	124.68
1888.....	84	11,859.15	74	11,371.56	10	487.59	74	11,371.56	9	4,312.73	59	6,830.91	6	227.92
1889.....	83	12,202.36	74	11,556.73	9	645.63	74	11,556.73	2	980.54	56	9,289.50	16	1,286.69

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 29.—CONGRESSIONAL APPROPRIATIONS.

ITEMIZED STATEMENT OF THE SUMS APPROPRIATED BY CONGRESS FOR THE SURVEYS, IMPROVEMENT, AND MAINTENANCE OF THE WATER WAYS AND HARBORS OF THE MISSISSIPPI VALLEY, BY PERIODS, FROM THE EARLIEST DATE OF APPROPRIATION TO 1890, INCLUSIVE. (a)

LOCALITIES.	Date of earliest appropriation.	Appropriations up to and including 1879.	Appropriations from 1880 to 1889, inclusive.	Appropriations by act of Congress, September, 1890.	Total appropriations up to date.
Grand total.....	1819	\$28,200,707	\$39,290,550	\$9,336,200	\$76,827,457
Total for Upper Mississippi system	1832	12,792,679	13,234,510	3,246,000	29,273,189
Total for Ohio system	1827	9,396,351	10,011,921	2,331,000	21,739,272
Total for Lower Mississippi system	1827	4,604,677	15,916,125	3,734,200	24,255,002
Total for Red River of the North	1876	65,000	128,000	25,000	218,000
Miscellaneous	1819	1,342,000	.....	.....	1,342,000
UPPER MISSISSIPPI SYSTEM.					
Upper Mississippi:					
At sources.....	1879	25,000	634,500	80,000	739,500
Above Falls of Saint Anthony.....	1875	120,000	45,000	18,000	183,000
At Falls of Saint Anthony.....	1870	480,000	60,000	.....	540,000
Meekers Island	1873	25,000	.....	.....	25,000
Saint Paul to Des Moines.....	1844	533,600	1,972,500	500,000	3,006,100
Des Moines rapids.....	1852	4,268,500	386,250	22,000	4,676,750
Rock Island rapids	1866	1,150,650	16,000	.....	1,166,650
Des Moines to mouth of Illinois.....	1852	150,000	1,131,000	165,000	1,446,000
Illinois to Ohio river.....	1836	1,554,600	2,705,000	582,000	4,841,600
Snagging	1870	115,000	200,000	.....	375,000
Total for Upper Mississippi.....	1836	8,422,350	7,210,250	1,367,000	16,999,600
Tributaries:					
Galena.....	1878	42,000	24,000	6100,000	166,000
Fox and Wisconsin (c).....	1839	2,028,714	771,260	100,000	2,899,974
Minnesota.....	1867	117,500	10,000	.....	127,500
Hennepin canal.....	1882	.....	45,000	500,000	545,000
Cuivre.....	1880	.....	12,000	.....	12,000
Red Cedar	1830	1,500	.....	.....	1,500
Total for tributaries	1839	2,189,714	802,260	700,000	3,751,974
Total for Upper Mississippi	1836	8,422,350	7,210,250	1,367,000	16,999,600
Total for Upper Mississippi and tributaries	1836	10,612,064	8,072,510	2,067,000	20,751,574
Saint Croix	1878	18,000	74,500	8,000	100,500
Chippewa	1876	34,465	128,750	10,000	173,215
Illinois	1852	639,150	947,500	2,000	1,588,650
Missouri:					
Upper	1876	100,000	375,000	300,000	775,000
Lower	1878	451,500	2,175,000	800,000	3,426,500
Whole river	1832	492,500	1,000,000	.....	1,492,500
Snagging	1836	200,000	145,000	.....	345,000
Surveys	1878	80,000	115,000	.....	195,000
Total for Missouri	1832	1,324,000	3,810,000	1,100,000	6,234,000
Tributaries:					
Osage.....	1871	140,000	65,000	55,000	260,000
Gasconade	1880	.....	42,500	4,000	46,500
Yellowstone	1879	25,000	93,750	.....	118,750
Total for tributaries.....	1871	165,000	201,250	59,000	425,250
Total for the Missouri	1832	1,324,000	3,810,000	1,100,000	6,234,000
Total for Missouri and tributaries.....	1832	1,489,000	4,011,250	1,159,000	6,659,250
Total for Upper Mississippi system	1832	12,792,679	13,234,510	3,246,000	29,273,189

a Compiled from information furnished by chief of engineers, United States army.

b Conditional.

c The appropriations were made "for the improvement of the water communication between Lake Michigan and the Mississippi river".

STATISTICS OF TRANSPORTATION.

TABLE 29.—CONGRESSIONAL APPROPRIATIONS—Continued.

LOCALITIES.	Date of earliest appropriation.	Appropriations up to and including 1879.	Appropriations from 1880 to 1889, inclusive.	Appropriations by act of Congress, September, 1890.	Total appropriations up to date.
OHIO SYSTEM.					
Ohio:					
General improvements.....	1835	\$2, 781, 500	\$2, 459, 250	\$300, 000	\$5, 490, 750
Falls of Ohio and canal.....	1852	1, 805, 000	736, 563	85, 000	2, 126, 563
Together with purchase of Louisville and Portland canal.....	1873	1, 250, 000	.....	.....	1, 250, 000
Total for Ohio.....	1835	5, 286, 500	3, 195, 813	385, 000	8, 867, 313
Tributaries:					
Guyandotte.....	1878	3, 000	11, 500	2, 000	16, 500
Licking.....	1888	.....	3, 000	3, 000	6, 000
Beaver River dam.....	1890	.....	.....	250, 000	250, 000
Tadewater.....	1881	.....	16, 500	.....	16, 500
Total for tributaries.....	1878	3, 000	31, 000	255, 000	289, 000
Total for Ohio.....	1835	5, 286, 500	3, 195, 813	385, 000	8, 867, 313
Total for Ohio and tributaries.....	1835	5, 289, 500	3, 226, 813	640, 000	9, 156, 313
Allegheny.....	1879	10, 000	222, 500	20, 000	252, 500
Monongahela.....	1872	187, 000	406, 733	162, 000	755, 733
Cheat.....	1890	.....	.....	13, 000	13, 000
Buckhannon.....	1884	.....	4, 500	1, 000	5, 500
Total for Monongahela and tributaries.....	1872	187, 000	411, 233	176, 000	774, 233
Muskingum.....	1879	30, 000	389, 500	30, 000	449, 500
Little Kanawha.....	1876	43, 300	127, 875	40, 000	211, 175
Great Kanawha.....	1873	992, 000	1, 337, 500	300, 000	2, 629, 500
Harbor at mouth of.....	1884	.....	15, 000	.....	15, 000
Elk.....	1875	10, 500	16, 000	2, 500	29, 000
Gauley.....	1888	.....	3, 000	3, 000	6, 000
Total for Great Kanawha and tributaries.....	1873	1, 002, 500	1, 371, 500	305, 500	2, 679, 500
Big Sandy.....	1878	24, 000	241, 500	31, 000	296, 500
Tug fork.....	1890	.....	.....	2, 500	2, 500
Levisa fork.....	1890	.....	.....	2, 500	2, 500
Total for Big Sandy and tributaries.....	1878	24, 000	241, 500	36, 000	301, 500
Kentucky.....	1879	100, 000	1, 067, 000	180, 000	1, 347, 000
Green (purchase of locks and dams).....	1888	.....	135, 000	.....	135, 000
Rough creek.....	1890	.....	.....	25, 000	25, 000
Total for Green and tributaries.....	1888	.....	135, 000	25, 000	160, 000
Wabash.....	1829	321, 500	319, 000	65, 500	706, 000
White, of Indiana.....	1879	25, 000	82, 000	.....	107, 000
Total for Wabash and tributaries.....	1829	346, 500	401, 000	65, 500	813, 000
Cumberland:					
Above Nashville.....	1876	151, 000	470, 000	250, 000	871, 000
Below Nashville.....	1832	340, 000	80, 000	40, 000	460, 000
South fork of.....	1882	.....	12, 000	.....	12, 000
Total for Cumberland.....	1832	491, 000	562, 000	290, 000	1, 343, 000
Tributaries:					
Obey.....	1880	.....	11, 500	.....	11, 500
Caney fork.....	1880	.....	22, 500	2, 500	25, 000
Total for tributaries.....	1880	.....	34, 000	2, 500	36, 500
Total for Cumberland.....	1832	491, 000	562, 000	290, 000	1, 343, 000
Total for Cumberland and tributaries.....	1832	491, 000	566, 000	292, 500	1, 379, 500

RIVERS OF THE MISSISSIPPI VALLEY.

TABLE 29.—CONGRESSIONAL APPROPRIATIONS—Continued.

LOCALITIES.	Date of earliest appropriation.	Appropriations up to and including 1879.	Appropriations from 1880 to 1889, inclusive.	Appropriations by act of Congress, September, 1890.	Total appropriations up to date.
Tennessee: OHIO SYSTEM—Continued.					
Below Chattanooga.....	1827	\$1,548,051	\$1,662,500	\$475,000	\$3,685,551
Above Chattanooga.....	1852	241,500	49,500	30,000	321,000
Total for Tennessee.....	1827	1,789,551	1,712,000	505,000	4,006,551
Tributaries:					
Duck.....	1880		13,000		13,000
Clinch.....	1880		31,000	4,000	35,000
Hivassee.....	1876	23,000	10,000	1,500	34,500
French Broad, of Tennessee.....	1876	60,000	51,000	10,000	121,000
Little Tennessee.....	1882		5,000		5,000
Total for tributaries.....	1876	83,000	110,000	15,500	208,500
Total for Tennessee.....	1827	1,789,551	1,712,000	505,000	4,006,551
Total for Tennessee and tributaries.....	1827	1,872,551	1,822,000	520,500	4,215,051
Total for Ohio system.....	1827	9,396,351	10,011,921	2,331,000	21,739,272
LOWER MISSISSIPPI SYSTEM.					
Lower Mississippi (exclusive of passes) (a):					
From Ohio river to head of passes.....	1878	527,000	13,438,000	63,200,000	17,165,000
Snagging.....	1836	225,000	536,750		761,750
Water gauges.....	1876	15,000	36,700		51,700
Total for Lower Mississippi.....	1836	767,000	14,011,450	3,200,000	17,978,450
Bayous:					
Bartholomew.....	1881		28,000	5,000	33,000
Black.....	1881		25,000		25,000
Bœuf.....	1881		26,000	5,000	31,000
Courtableau.....	1880		29,000	2,200	31,200
D'Arbonne.....	1884		9,000	2,000	11,000
Lafourche.....	1852	22,500	60,000	50,000	132,500
Loggy.....	1884		10,000		10,000
Pierre.....	1884		13,600		13,600
Atchafalaya (c).....	1888				
Vidal.....	1880		1,000	1,000	2,000
Teche.....	1829	18,200	77,500	5,000	100,700
Terrebonne.....	1880		38,800		38,800
Steels.....	1884		7,500	2,500	10,000
Cypress.....	1872	94,000	23,000	10,000	127,000
Total for bayous.....	1829	134,700	348,400	82,700	565,800
Tributaries:					
Forked Deer, south fork of.....	1882		17,000	2,500	19,500
Saint Francis and Cache creek.....	1880		41,000	14,500	55,500
Big Black.....	1884		10,000	5,000	15,000
Big Hatchie.....	1880		27,000	5,000	32,000
L'Anguille.....	1878	15,000	2,000		17,000
Kaskaskia.....	1890			6,000	6,000
Little, of Missouri.....	1888		5,000	3,000	8,000
Total for tributaries.....	1878	15,000	102,000	36,000	153,000
Early appropriations for whole river, 1827 to 1879.....	1827	1,295,712			1,295,712
Total for tributaries.....	1878	15,000	102,000	36,000	153,000
Total for bayous.....	1829	134,700	348,400	82,700	565,800
Total for Lower Mississippi.....	1836	767,000	14,011,450	3,200,000	17,978,450
Total for Lower Mississippi, tributaries, and bayous.....	1827	2,212,412	14,461,850	3,318,700	19,992,962

a For the appropriations for the improvement at the mouth of the Mississippi, consisting of surveys, channel work, and jetties, amounting to \$7,597,500, see

Table of appropriations for Gulf of Mexico.

b In the second session of Congress, in 1891, an additional \$1,000,000 was appropriated.

c Amount included in general appropriation for the Lower Mississippi.

STATISTICS OF TRANSPORTATION.

TABLE 29.—CONGRESSIONAL APPROPRIATIONS—Continued.

LOCALITIES.	Date of earliest appropriation.	Appropriations up to and including 1879.	Appropriations from 1880 to 1889, inclusive.	Appropriations by act of Congress, September, 1890.	Total appropriations up to date.
LOWER MISSISSIPPI SYSTEM—Continued.					
White, of Arkansas.....	1874	\$183,500	\$153,000	\$30,000	\$366,500
Tributaries:					
Current.....	1872	5,000	2,000		7,000
Black, of Missouri.....	1880		68,000	12,000	80,000
Little Red.....	1886		8,400		8,400
Total for tributaries.....	1872	5,000	78,400	12,000	95,400
Total for White.....	1874	183,500	153,000	30,000	366,500
Total for White and tributaries.....	1872	188,500	231,400	42,000	461,900
Arkansas:					
Above Fort Smith.....	1876	40,000	113,000		153,000
At Fort Smith.....	1876	20,000	18,000		38,000
At Pine Bluff.....	1880		131,000		131,000
From Little Rock to mouth.....	1884		19,000		19,000
General improvement.....	1832	512,500		180,000	692,500
Snagging.....	1878	35,000	175,875	20,000	230,875
Total for Arkansas.....	1832	607,500	456,875	200,000	1,264,375
Tributaries:					
Fourche la Pave.....	1879	10,000	16,000	500	26,500
Petit Jean.....	1886		6,000		6,000
Total for tributaries.....	1879	10,000	22,000	500	32,500
Total for Arkansas.....	1832	607,500	456,875	200,000	1,264,375
Total for Arkansas and tributaries.....	1832	617,500	478,875	200,500	1,296,875
Yazoo.....	1873	107,000	83,000	25,000	215,000
Tributaries:					
Big Sunflower.....	1879	29,000	32,000	5,000	57,000
Coldwater.....	1879	7,000	4,000	10,000	21,000
Tehula lake.....	1881		12,000	3,000	15,000
Yalobusha.....	1881		11,000		11,000
Tallahatchie.....	1879	6,000	26,000	5,000	37,000
Total for tributaries.....	1879	33,000	85,000	23,000	141,000
Total for Yazoo.....	1873	107,000	83,000	25,000	215,000
Total for Yazoo and tributaries.....	1873	140,000	168,000	48,000	356,000
Washita and Black.....	1871	243,000	93,500	15,000	351,500
Little Missouri, of Arkansas.....	1871	20,000			20,000
Tensas.....	1881		16,000	5,000	21,000
Saline.....	1880		21,500		21,500
Total for Washita, Black, and tributaries.....	1871	263,000	131,000	20,000	414,000
Red.....	1828	1,183,265	440,000	102,000	1,725,265
Tributaries:					
Little, of Louisiana.....	1888		2,500	3,000	5,500
Caney via Little.....	1884		2,500		2,500
Total for tributaries.....	1884		5,000	3,000	8,000
Total for Red.....	1828	1,183,265	440,000	102,000	1,725,265
Total for Red and tributaries.....	1828	1,183,265	445,000	105,000	1,733,265
Total for Lower Mississippi system.....	1827	4,604,677	15,916,125	3,734,200	24,255,002
RED RIVER OF THE NORTH.					
Total.....	1876	65,000	128,000	25,000	218,000
MISCELLANEOUS.					
Construction of snag and dredge boats.....	1852	846,000			846,000
Surveys.....	1819	286,000			286,000
Surveys and estimates of canal from Cumberland to mouth of Youghiogheny, 1874 and 1875.	1874	210,000			210,000
Total for miscellaneous.....	1819	1,342,000			1,342,000

RIVERS OF THE MISSISSIPPI VALLEY.

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TABLE 30.—CONGRESSIONAL APPROPRIATIONS.

STATEMENT BY TOTALS OF THE APPROPRIATIONS GIVEN BY LOCALIZED ITEMS IN THE PRECEDING TABLE.

LOCALITIES.	Date of earliest appropriation.	Appropriations up to and including 1879.	Appropriations from 1880 to 1889, inclusive.	Appropriations by act of Congress, September, 1890.	Total appropriations up to date.
Grand total for the Valley	1819	\$28,200,707	\$39,290,556	\$9,336,200	\$76,827,463
Upper Mississippi	1836	10,612,064	8,072,510	2,067,000	20,751,574
Saint Croix	1878	18,000	74,500	8,000	100,500
Chippewa	1876	34,465	128,750	10,000	173,215
Illinois	1852	639,150	947,500	2,000	1,588,650
Missouri	1832	1,489,000	4,011,250	1,159,000	6,659,250
Total for Upper Mississippi system	1832	12,792,679	13,234,510	3,246,000	29,273,189
Ohio	1835	5,289,500	3,226,813	640,000	9,156,313
Allegheny	1879	10,000	222,500	20,000	252,500
Monongahela	1872	187,000	411,233	176,000	774,233
Muskingum	1879	30,000	389,500	30,000	449,500
Little Kanawha	1876	43,300	127,875	40,000	211,175
Great Kanawha	1873	1,002,500	1,371,500	305,500	2,679,500
Big Sandy	1878	24,000	241,500	36,000	301,500
Kentucky	1879	100,000	1,067,000	180,000	1,347,000
Green	1888	-----	135,000	25,000	160,000
Wabash	1829	346,500	401,000	65,500	813,000
Cumberland	1832	491,000	596,000	292,500	1,379,500
Tennessee	1827	1,872,551	1,822,000	520,500	4,215,051
Total for Ohio system	1827	9,396,351	10,011,921	2,331,000	21,739,272
Lower Mississippi	1827	2,212,412	14,461,850	3,318,700	19,992,962
White	1872	188,500	231,400	42,000	461,900
Arkansas	1832	617,500	478,875	200,500	1,296,875
Yazoo	1873	140,000	168,000	48,000	356,000
Washita	1871	263,000	131,000	20,000	414,000
Red	1828	1,183,265	445,000	105,000	1,733,265
Total for Lower Mississippi system	1827	4,004,677	15,016,125	3,734,200	24,255,002
Red River of the North	1876	65,000	128,000	25,000	218,000
Miscellaneous	1819	1,342,000	-----	-----	1,342,000

STATISTICS OF TRANSPORTATION.

TABLE 31.—NAVIGABLE WATERS.

NUMBER OF NAVIGABLE MILES ON THE RIVERS OF THE MISSISSIPPI VALLEY AND NUMBER OF MILES OVER WHICH A TRANSPORTATION BUSINESS WAS CONDUCTED IN 1889.

LOCALITIES.	Miles of operated rivers in 1889.	Miles of navigable rivers in 1889.	LOCALITIES.	Miles of operated rivers in 1889.	Miles of navigable rivers in 1889.
Grand total for the Valley	14,266	15,410	OHIO SYSTEM—Continued.		
Total for Upper Mississippi system.....	4,103	4,486	Big Sandy	26	26
Total for Ohio system.....	4,178	4,406	Tug fork.....	100	100
Total for Lower Mississippi system.....	5,095	6,228	Levisa fork.....	86	86
Total for Red River of the North.....	290	290	Total for Big Sandy and tributaries.....	212	212
UPPER MISSISSIPPI SYSTEM.			Kentucky.....	261	261
Upper Mississippi:			Green.....	150	150
Headwaters to Saint Louis.....	870	870	Rough creek (or Barren).....	25	25
Tributaries:			Total for Green and tributaries.....	175	175
Galena.....		0	Wabash.....	183	183
Fox and Wisconsin.....		62	White, of Indiana.....	27	27
Minnesota.....	25	25	Total for Wabash and tributaries.....	210	210
Hennepin canal.....		15	Cumberland:		
Cuivre.....		15	Headwaters to mouth.....	578	578
Total for tributaries.....	25	108	Tributaries:		
Total for Upper Mississippi.....	870	870	Obey.....		58
Total for Upper Mississippi and tributaries.....	895	978	Caney fork.....	92	92
Saint Croix.....	120	120	Total for tributaries.....	92	150
Chippewa.....	57	57	Total for Cumberland.....	578	578
Illinois.....	225	225	Total for Cumberland and tributaries.....	670	728
Missouri:			Tennessee:		
Headwaters to Saint Louis.....	2,519	2,519	Headwaters to mouth.....	650	650
Tributaries:			Tributaries:		
Osage.....	200	200	Duck.....		67
Gasconade.....	87	87	Clinch.....	70	70
Yellowstone.....		300	Hiwassee.....	43	43
Total for tributaries.....	287	587	French Broad, of Tennessee.....	90	90
Total for the Missouri.....	2,519	2,519	Little Tennessee.....		13
Total for Missouri and tributaries.....	2,806	3,106	Total for tributaries.....	203	283
Total for Upper Mississippi system.....	4,103	4,486	Total for the Tennessee.....	650	650
OHIO SYSTEM.			Total for Tennessee and tributaries.....	853	933
Ohio:			Total for Ohio system.....	4,178	4,406
Pittsburg to the mouth.....	967	967	LOWER MISSISSIPPI SYSTEM.		
Tributaries:			Lower Mississippi:		
Guyandotte.....	80	80	From Saint Louis to head of passes.....	1,264	1,264
Licking.....	90	90	Bayous:		
Tradewater.....	22	22	Bartholomew.....	85	85
Total for tributaries.....	192	192	Black.....		14
Total for the Ohio.....	967	967	Beauf.....	261	261
Total for Ohio and tributaries.....	1,159	1,159	Courtableau.....	25	25
Allegheny.....	180	180	D'Arbonne.....	43	43
Monongahela.....	102	102	Lafourche.....	110	110
Cheat.....		90	Loggy.....		
Buckhannon.....	48	48	Pierre.....	60	60
Total for Monongahela and tributaries.....	150	240	Teche.....		80
Muskingum.....	91	91	Terrebonne.....	46	46
Little Kanawha.....	49	49	Steels.....	85	85
Great Kanawha.....	96	96	Cypress.....		65
Elk.....	45	45	Total for bayous.....	715	874
Gauley.....	27	27	Tributaries:		
Total for Great Kanawha and tributaries.....	168	168	Forked Deer, south fork of.....		10
			Saint Francis and Cache creek, via White.....	285	285
			Big Black.....		65
			Big Hatchie.....		100
			L'Anguille via Saint Francis.....	38	38

TABLE 31.—NAVIGABLE WATERS—Continued.
NUMBER OF NAVIGABLE MILES ON THE RIVERS OF THE MISSISSIPPI VALLEY, ETC.—Continued.

LOCALITIES.	Miles of operated rivers in 1889.	Miles of navigable rivers in 1889.	LOCALITIES.	Miles of operated rivers in 1889.	Miles of navigable rivers in 1889.
LOWER MISSISSIPPI SYSTEM—Continued.			LOWER MISSISSIPPI SYSTEM—Continued.		
Lower Mississippi tributaries—Continued.			Yazoo	173	173
Kaskaskia		24	Tributaries:		
Little, of Missouri, via Saint Francis	85	85	Big Sunflower	144	144
Total for tributaries	408	607	Coldwater	25	25
Total for bayous	715	874	Tchula lake		60
Total for Lower Mississippi	1,264	1,264	Yalobusha		90
Total for Lower Mississippi, bayous, and tributaries.	2,387	2,745	Tallahatchie	100	100
White, of Arkansas	300	300	Total for tributaries	269	419
Tributaries:			Total for Yazoo	173	173
Current			Total for Yazoo and tributaries	442	592
Black, of Missouri	100	100	Washita and Black	306	306
Little Red	90	90	Tributaries:		
Total for tributaries	190	190	Little Missouri, of Arkansas		
Total for White	300	300	Tensas and Macon	130	130
Total for White and tributaries	490	490	Saline	80	80
Arkansas:			Total for tributaries	210	210
Headwaters to mouth	771	771	Total for Washita and Black	306	306
Tributaries:			Total for Washita, Black, and tributaries	516	516
Fourche la Pave	44	44	Red:		
Petit Jean	45	45	Headwaters to mouth	1,000	1,000
Total for tributaries	89	89	Tributaries:		
Total for the Arkansas	771	771	Little, of Louisiana		25
Total for Arkansas and tributaries	860	860	Total for tributaries		25
			Total for Red	1,000	1,000
			Total for Red and tributaries	1,000	1,025
			Total for Lower Mississippi system	5,695	6,228
			RED RIVER OF THE NORTH.		
			Total	290	290