MISSISSIPPI RIVER AND ITS TRIBUTARIES

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By Story B. Ladd.

The statistics of water transportation presented in this section are for the vessels operating on the Mississippi river and its tributaries. In accordance with the plan adopted at the Eleventh Census the rivers have been grouped under three heads, namely, the Upper Mississippi system, the Lower Mississippi system, and the Ohio system. St. Louis has been considered the point of separation between the Upper and the Lower Mississippi systems. The statistics of freight are shown for the leading ports and for the chief tributaries. At the Eleventh Census credit was given to every stream for such business as had its origin thereon, whether the finality of the operation was on that or some other stream. At the present census credit has been given to each stream for the freight shipped from ports or landings thereon, and in addition there are shown the freight deliveries by streams. This course has been adopted to avoid duplication of freight movement, although it is open to criticism that it does not show the total freight tonnage moved on certain rivers. For example, the Ohio river does not receive credit for freight shipped from St. Louis to ports on the Cumberland or the Tennessee rivers, nor for coal shipped from the Monongahela river to points on the lower Mississippi. It is, however, only in cases where a river serves as a highway and both the port of shipment and the port of delivery are on other streams that the plan fails to credit the river with all freight moved thereon.

The statistics with respect to ocean trade to and from New Orleans, for all boats operating below New Orleans or from New Orleans seaward, and for all boats operating on Lake Pontchartrain and its tributaries and on Grand Lake and the Gulf outlets to the bayous and rivers of lower Louisiana, have been included in the section on the Atlantic coast and Gulf of Mexico. All local traffic at New Orleans and all traffic on the bayous of Louisiana tributary to the Mississippi are included in this section of the report.

The water traffic for St. Louis has been credited to the Upper or to the Lower Mississippi system according as the freight was received from or shipped to ports above or below St. Louis, the local business of that port being credited to the Lower Mississippi. Likewise in the case of shipments from or to Cairo, Ill., the Ohio system has received credit for all freight that pertains to the Ohio river or any of its tributaries, while all Mississippi river freight has been credited to the Lower Mississippi system.

Separate statistics are given for all rivers for which reports were received for boats of 5 tons net register or over owned by three or more proprietors, whether individuals, firms, or corporations. The statistics for streams representing the operations of less than three proprietors can not be shown without disclosing the business of individual operations. The traffic reported for a specific stream includes the traffic on all branches thereof unless an exception is specifically noted. Thus the totals shown for the Tennessee river include data for all traffic on the French Broad, the Hiwassee, etc.; likewise freight on the Barren is included with that for the Green.

The Red River (of the North) was at the Eleventh Census included with the Mississippi river and its tributaries, under the group title, "rivers of the Mississippi valley." At the present census the statistics for the Red River (of the North) will be found in the section on canals and other inland waters.

COMPARISON WITH PRIOR CENSUSES.

The methods followed in the presentation of the statistics compiled at the Tenth and Eleventh censuses differ in so many particulars from the methods adopted for the present census that comparisons only of the most general character can be made.

The census of 1880 was for the steam navigation of the United States, and took cognizance, primarily, of steam craft and of freight carried on steam vessels, and incidentally, in the case of the Mississippi River traffic, of freight carried by the barge lines of St. Louis and by the coal barges of Pittsburg. No compilation of the statistics for unrigged craft in general was made.

In 1890 a comprehensive census of all craft was taken for the year 1889, both steam and unrigged, and the boats and their traffic were assigned to the river upon which they plied or on which the freight origi-

nated. In many cases boats ply upon several streams, for example, upon the Mississippi, the Ohio, and the Tennessee, or upon the Illinois and the Mississippi; and hence, as the data could not be apportioned, they have been assigned, where distribution has been attempted, to the river on which the boat's chief or home port is located or the port from which the bulk of its freight emanated.

The Mississippi river with its tributaries, comprising about 16,000 miles of river navigation or waters susceptible of navigation, constituted in the earlier days the commercial highway for half of the Republic. It is Nature's route to the seaboard for a territory extending from St. Paul to New Orleans, and from Pittsburg in the east to the headwaters of the Missouri in the west, a territory measured by 15 degrees of latitude and over 30 degrees of longitude. About one-half of the total number of states and territories are touched by its waters.

The general statistics for 1889 and 1906, with the per cent of increase or decrease for the several items, are shown in Table 1.

TABLE 1.—ALL VESSELS AND CRAFT: 1906 AND 1889.

[Vessels operating as connecting links in railroad systems did not uniformly report the tonnage of freight carried or income for the year. In addition to the craft reported in this table there were 171 vessels, with a gross tonnage of 15,038, reported as idle in 1906, and 138, with a gross tonnage of 17,364, reported as idle or untraceable in 1889.]

	TOTAL.			STEAM.[1]			UNRIGGED.		
	1906	1889	Per cent of increase.	1906	1889	Per cent of increase.	1906	1889	Per cent of increase.
Number of vessels	9,622	7,300	31.8	1,435	972	47.6	8,187	6,328	29.4
Gross tonnage	4,411,967	3,364,610	31.1	146,227	192,974	[2]24.2	4,265,740	3,171,636	34.5
Value of vessels	$22,852,142	$14,407,162	58.6	$13,196,770	$9,622,608	37.1	$9,655,372	$4,784,554	101.8
Gross income	$17,342,038	$16,331,872	6.2	$15,410,136	([3])	.....	$1,931,902	([3])	.....
Number of employees	15,016	15,951	[2]5.9	13,973	([3])	.....	1,043	([3])	.....
Wages	$5,692,117	$5,337,185	6.7	$5,148,581	([3])	.....	$543,536	([3])	.....
Number of passengers carried	14,122,241	10,858,894	30.1	13,890,850	([3])	.....	231,391	([3])	.....
Freight carried, including harbor work (net tons)	27,856,641	29,401,409	[2]5.3	4,551,014	10,345,504	[2]56.0	23,305,627	19,055,905	22.3

[1] Includes all craft propelled by machinery. [2] Decrease. [3] Not reported separately.

In addition to the vessels and craft included in this and other tables, 14 steamers or power boats of 653 gross tons were in service on the waters of the Upper Mississippi system. These boats were reported too late for tabulation and, moreover, no detailed statistics concerning them were furnished.

There was a material increase in the number of vessels of each class, but all the increase in tonnage was in unrigged vessels, the power vessels showing a large decrease. The fact that there was an increase in the number and at the same time a decrease in the tonnage of steam or power vessels, is due to the greatly increased number of small boats. This change is reflected in the quantity of freight handled, the amount carried by steam vessels in 1906, exclusive of harbor work, being about one-fourth of the amount carried in 1889. The decrease in the amount of barge freight along with an increase in the number and tonnage of the unrigged vessels will be noted, due apparently to the use of a relatively larger number of coal barges that make but a single trip. The coal traffic down the Ohio and the Mississippi is the chief freight factor on these rivers, and it is handled in the main by a comparatively few barge owners and shippers. A large number of coal boats are built to be used but once and sold for rough lumber on their arrival at lower river ports. This practice makes unnecessary the long tow back of empty barges that would otherwise result, since there is no adequate return freight. With the growing scarcity of lumber this plan of building coal flats for use for a single trip will probably be abandoned. Steel barges, some of which are now in use, besides being stronger than wooden barges, carry about 20 per cent more cargo on the same draft of water. In 1889 the barge freight was over six times as much as the barge tonnage, whereas in 1906 it was about four times as great, not including harbor work.

Tables 2 and 3 give the general statistics for the census of 1880 as presented in the comparative tables of the report for the census of 1889, and require no special comment.

TABLE 2.—*Water transportation on the rivers of the Mississippi valley: 1880.*[1]

	Total.	Steam.	Unrigged.
Number of vessels	5,052	1,198	3,854
Gross tonnage	1,161,617	251,793	909,824
Value of vessels	$16,379,400	$12,009,400	$4,370,000
Gross income	$20,293,173	([2])	([2])
Number of employees (ordinary crews)	23,616	([2])	([2])
Wages	$6,979,226	([2])	([2])
Number of passengers carried	6,728,067	([2])	([2])
Freight moved (net tons)	18,946,522	13,557,884	5,388,638

[1] From report on Transportation on the Rivers of the Mississippi Valley for the Eleventh Census, pages 448 and 449.
[2] Not reported separately.

TABLE 3.—*Steam vessels on the rivers of the Mississippi valley, by occupation: 1880.*[1]

OCCUPATION.	Number of vessels.	Gross tonnage.	Value.
Total	1,198	251,793	$12,009,400
Passenger and freight vessels	503	166,376	7,059,900
Ferryboats	177	21,307	1,022,900
Towing and harbor vessels	477	63,225	3,800,500
Miscellaneous	41	885	126,100

[1] From report on Transportation on the Rivers of the Mississippi Valley for the Eleventh Census, pages 448 and 449.

A comparison of the several tables compiled from the reports of the Commissioner of Navigation with the returns of the Census Office shows differences in the number of boats and in the tonnage. These differences are due in part to the fact that the Census statistics are for the calendar year and include all boats of 5 tons measurement, whether documented or undocumented, while the returns of the Commissioner of Navigation are for the fiscal year ending June 30 and are for documented boats only, and, further, to the fact that boats are carried on the documented rolls until it is shown that they have been abandoned.

The large number of small undocumented boats, particularly gasoline boats, results in making the total number of power boats returned by the Census exceed the number of boats reported by the Commissioner of Navigation, while the tonnage of a few large boats that have been abandoned but are still carried on the documented rolls operates as an offset to the tonnage of a large number of small undocumented craft.

It is probable, moreover, that in many cases differences will appear when the freight statistics herein given are compared with similar statistics shown in the reports of the Chief of Engineers, United States Army, for specific rivers or ports, or in the reports of the various commercial organizations of the cities of the Mississippi valley. Such differences are due, as a rule, to the lack of uniformity either in the time or in the scope of the statistics compared, or in the manner of presenting the data.

The total documented shipping of the Mississippi system on June 30, 1906, which includes documented steam and unrigged vessels, was 167,957 gross tons, compared with a total of 274,527 tons on June 30, 1896, a decrease of 38.8 per cent for the ten-year period. This decadence is in striking contrast with an increase in each of the other districts; the American documented shipping for the Atlantic coast and Gulf of Mexico increased 28.5 per cent during the decade; that for the Great Lakes, 70.1 per cent; and that for the Pacific coast, 86.7 per cent.[1]

The following statement gives, for the Mississippi River district, the number and gross tonnage of the documented vessels which could not be found and for which no reports were received in 1906:

Documented vessels for which no reports were received: 1906.

CLASS.	Number of vessels.	Gross tonnage.
Total	43	1,664
Steam	38	1,361
Unrigged	5	303

Growth of steam navigation.—A presentation of the number and tonnage of the Mississippi fleet of documented steam vessels for a series of years will help to show the rise and decline of steamboat navigation on the Mississippi.

Table 4 shows the number and tonnage of all documented steam vessels built on the Mississippi river and its tributaries for quinquennial groups of years from 1811 to 1906.

TABLE 4.—*Documented steam vessels built, by quinquennial periods: 1811 to 1906.*[1]

PERIOD.	TOTAL.		Average tonnage per vessel.	AVERAGE PER YEAR.	
	Number of vessels.	Gross tonnage.		Number of vessels.	Gross tonnage.
1906	144	4,586	32	144.0	4,586.0
1901 to 1905	728	42,592	59	145.6	8,518.4
1896 to 1900	480	59,184	123	96.0	11,836.8
1891 to 1895	392	51,864	132	78.4	10,372.8
1886 to 1890	369	54,683	148	73.8	10,936.6
1881 to 1885	551	97,577	177	110.2	19,515.4
1876 to 1880	596	124,275	209	119.2	24,855.0
1871 to 1875	588	128,054	218	117.6	25,610.8
1866 to 1870	504	142,578	283	100.8	28,515.6
1861 to 1865	706	153,573	218	141.2	30,714.6
1856 to 1860	675	147,465	218	135.0	29,493.0
1851 to 1855	671	160,157	239	134.2	32,031.4
1846 to 1850	638	124,534	195	127.6	24,906.8
1841 to 1845	495	87,552	177	99.0	17,510.4
1836 to 1840	459	72,284	157	91.8	14,456.8
1831 to 1835	270	35,720	132	54.0	7,144.0
1826 to 1830	156	27,225	175	31.2	5,445.0
1821 to 1825	69	10,075	146	13.8	2,015.0
1816 to 1820	62	12,620	204	12.4	2,524.0
1811 to 1815	9	1,589	177	1.8	317.8

[1] From the reports of the Commissioner of Navigation, Department of Commerce and Labor, for 1884 and subsequent years; from "Commerce and Navigation of the United States," Treasury Department, for 1881 to 1883, inclusive; and from the report on Transportation, Tenth Census of the United States, for years preceding 1881.

The first steamboat on the Mississippi was the *New Orleans*, a side wheeler, launched at Pittsburg in 1811.[2] It arrived at New Orleans, January 10, 1812, and was put in service between New Orleans and Natchez. The first towboat on the Mississippi river was put in service at New Orleans in November, 1815, and was used for towing vessels up to the city from the mouth of the river.

The second steamboat was built in 1813 and had a tonnage of 25; 2 with an aggregate tonnage of 386 were built in 1814; and 5 with a total tonnage of 1,078 were built in 1815. The steamer *Washington* made a memorable ascent of the Mississippi in 1817 and removed all doubts as to the practicability of steam navigation against the river currents, and from that time the business of steamboat building advanced rapidly. The period 1851 to 1860 marks the crest of steamboat building. Prior thereto the number of new boats increased year by year and there was a general increase in the tonnage; although a large number of new boats were built during the period 1861 to 1865 and the tonnage was large, yet from that time on the new yearly tonnage shows a striking decrease for almost every period. In the year 1871 there were 155 new boats, with an aggregate tonnage of 50,084, the largest tonnage for any one year, but the tonnage for preceding and following years was low. In 1864,

[1] Report of Commissioner of Navigation.

[2] J. H. Morrison. History of American Steam Navigation, page 190 ff.

1865, and 1866 steamboat building was active and the new tonnage in 1865 was 50,082 tons, next in amount to that of 1871, but the average tonnage per year for the five-year period of 1861 to 1865 was less than that for the period from 1851 to 1855, and the annual average for 1866 to 1870 was still lower, while the years immediately preceding the financial crisis of 1857 all showed large tonnage. The tonnage in 1906 is less than that for any year since 1831. The development of the gasoline power boat in the later years is responsible in part for the decline in the documented tonnage, and particularly so for the marked decrease in the average tonnage per vessel.

Table 5 gives the number and gross tonnage of the documented steam vessels, classified according to tonnage groups, for the years 1889 to 1906.

TABLE 5.—NUMBER AND GROSS TONNAGE OF DOCUMENTED STEAM VESSELS, BY TONNAGE GROUPS: 1889 TO 1906.[1]

YEAR.	TOTAL.		5 TO 49 TONS.		50 TO 99 TONS.		100 TO 499 TONS.		500 TO 999 TONS.		1,000 TONS AND OVER.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
1906	1,451	152,592	754	14,057	300	22,508	339	72,289	51	33,784	7	9,954
1905	1,405	159,772	676	13,244	323	24,128	340	72,238	58	38,599	8	11,563
1904	1,342	165,877	596	12,187	326	24,385	349	74,477	62	41,257	9	13,571
1903	1,241	166,949	505	10,839	311	23,132	350	74,748	65	43,045	10	15,185
1902	1,193	166,574	450	10,429	314	23,498	356	76,812	65	43,208	8	12,627
1901	1,144	167,619	404	9,813	303	22,656	361	78,052	67	44,346	9	12,752
1900	1,101	168,406	369	9,290	285	21,259	370	78,926	67	44,171	10	14,760
1899	1,064	169,519	337	8,936	271	20,190	380	80,571	64	42,441	12	17,381
1898	1,064	167,297	335	9,103	274	20,405	380	80,729	66	43,947	9	13,113
1897	1,048	175,075	298	9,912	279	19,320	393	84,615	66	43,863	12	17,365
1896	1,047	176,344	292	8,413	274	20,399	405	86,696	63	41,940	13	18,896
1895	1,061	184,443	290	8,376	269	19,900	420	90,243	67	44,615	15	21,309
1894	1,087	191,142	294	8,344	279	20,637	426	90,742	71	47,763	17	23,656
1893	1,123	201,300	285	8,167	289	21,436	456	97,554	75	50,710	18	23,433
1892	1,122	207,001	270	7,815	285	20,988	470	100,263	76	51,156	21	26,779
1891	1,111	205,708	277	8,007	267	19,815	472	100,761	74	50,419	21	26,706
1890	1,087	205,277	261	7,494	258	18,981	475	101,336	71	48,878	22	28,588
1889	1,114	209,826	270	7,933	261	19,345	493	103,358	67	49,026	23	30,164

[1] From the reports of the Commissioner of Navigation, Department of Commerce and Labor.

The tonnage of all steam vessels shows a practically steady decrease—amounting, from 1889 to 1906, to 27.3 per cent. In certain years as compared with the preceding years a slight increase is apparent, but on the whole the shrinkage is quite uniform. The number of vessels varied within narrow limits from 1889 to 1899, but from the latter date the number increased from year to year. The increase in number is, however, in small boats, chiefly in the 5 to 49 ton class. The number of boats in this class increased 179.3 per cent, and the tonnage thereof increased 77.2 per cent, between 1889 and 1906. Vessels of the 50 to 99 ton class increased 14.9 per cent in number and 16.4 per cent in tonnage. The higher classes, on the other hand, show decreases. Boats of the 100 to 499 ton class decreased 31.2 per cent in number and 30.1 per cent in tonnage; boats of the 500 to 999 ton class decreased 23.9 per cent in number and 31.2 per cent in tonnage; and boats of 1,000 tons and over decreased 69.6 per cent in number and 67 per cent in tonnage.

For 1898 and the years prior thereto the reports of the Commissioner of Navigation give a segregation of steam vessels of a tonnage from 100 to 499 tons, in groups of a hundred, and they show that the lower groups thereof contain the larger number of boats and the bulk of the tonnage. The following tabular statement shows the distribution of such boats by groups of a hundred, for the years 1889 and 1898, and the percentage of decrease for each group:

Documented steam vessels of 100 to 499 tons, by tonnage groups: 1889 to 1898.

GROUP.	NUMBER OF VESSELS.			GROSS TONNAGE.		
	1898	1889	Per cent of decrease.	1898	1889	Per cent of decrease.
Total	380	493	22.9	80,729	103,358	21.9
100 to 199 tons	222	295	24.7	32,180	42,601	24.5
200 to 299 tons	85	92	7.6	20,990	22,747	7.7
300 to 399 tons	51	80	36.3	17,591	25,481	31.0
400 to 499 tons	22	26	15.4	9,968	12,529	20.4

The change in the size of boats is further illustrated by Table 6, which gives, for each year from 1889 to 1906, the percentage of the total number of boats and the total tonnage in each tonnage class.

TABLE 6.—PER CENT DISTRIBUTION OF NUMBER AND GROSS TONNAGE OF DOCUMENTED STEAM VESSELS, BY TONNAGE GROUPS: 1889 TO 1906.[1]

YEAR.	5 TO 49 TONS.		50 TO 99 TONS.		100 TO 499 TONS.		500 TO 999 TONS.		1,000 TONS AND OVER.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
1906	52.0	9.2	20.7	14.7	23.4	47.4	3.5	22.1	0.5	6.5
1905	48.1	8.3	23.0	15.1	24.2	45.2	4.1	24.2	0.6	7.2
1904	44.4	7.3	24.3	14.7	26.0	44.9	4.6	24.9	0.7	8.2
1903	40.7	6.5	25.1	13.9	28.2	44.8	5.2	25.8	0.8	9.1
1902	37.7	6.3	26.3	14.1	29.8	46.1	5.4	25.9	0.7	7.6
1901	35.3	5.9	26.5	13.5	31.6	46.6	5.9	26.5	0.8	7.6
1900	33.5	5.5	25.9	12.6	33.6	46.9	6.1	26.2	0.9	8.8
1899	31.7	5.3	25.5	11.9	35.7	47.5	6.0	25.0	1.1	10.3
1898	31.5	5.4	25.8	12.2	35.7	48.3	6.2	26.3	0.8	7.8
1897	28.5	5.6	26.6	11.0	37.5	48.3	6.3	25.1	1.1	9.9
1896	27.9	4.8	26.2	11.6	38.7	49.2	6.0	23.8	1.2	10.7
1895	27.3	4.5	25.4	10.8	39.6	48.9	6.3	24.2	1.4	11.6
1894	27.0	4.4	25.7	10.8	39.2	47.5	6.5	25.0	1.6	12.4
1893	25.4	4.1	25.7	10.6	40.6	48.5	6.7	25.2	1.6	11.6
1892	24.0	3.8	25.4	10.2	41.8	48.4	6.8	24.7	1.9	12.9
1891	24.9	3.9	24.0	9.6	42.5	49.0	6.7	24.5	1.9	13.0
1890	24.0	3.7	22.7	9.2	43.7	49.4	6.5	23.8	2.0	13.9
1889	24.2	3.8	23.4	9.2	44.3	49.3	6.0	23.4	2.1	14.4

[1] From the reports of the Commissioner of Navigation, Department of Commerce and Labor.

A marked increase is shown in the percentage that the number of boats with a tonnage of from 5 to 49 forms of the total number of vessels. The percentage for the number of boats with a tonnage of from 50 to 99 shows an increase, with fluctuations, followed by a decrease; while the percentages for number of boats in the groups with higher tonnage show decided decreases. The changes in tonnage percentages are not so great as those for the number of boats. In 1889 boats of from 5 to 99 tons constituted 47.7 per cent of all boats in number and 13 per cent in tonnage; in 1900 they constituted 59.4 per cent of the total number and 18.1 per cent of the tonnage; and in 1906 they formed 72.7 per cent of the total number and 23.9 per cent of the tonnage.

The change in steamboat equipment is further illustrated by Table 7.

TABLE 7.—NUMBER, GROSS TONNAGE, AND AVERAGE TONNAGE OF ALL DOCUMENTED STEAM VESSELS, AND OF SUCH VESSELS BUILT DURING EACH YEAR, WITH PER CENT NEW VESSELS ARE OF ALL VESSELS, AND NEW VESSELS, BY CHARACTER OF PROPULSION: 1880 TO 1906.[1]

YEAR.	ALL VESSELS.			VESSELS BUILT DURING THE YEAR.										AVERAGE TONNAGE PER VESSEL.	
	Number.	Gross tonnage.	Per cent of increase in tonnage.	Total.		Side wheel.		Stern wheel.		Screw propeller.		Per cent of all vessels.		All vessels.	New vessels.
				Number.	Gross tonnage.	Number.	Gross tonnage.	Number.	Gross tonnage.	Number.	Gross tonnage.	Number.	Gross tonnage.		
1906	1,451	152,592	[2] 4.5	144	4,586	5	82	108	4,127	31	377	9.9	3.0	105	32
1905	1,405	159,772	[2] 3.7	161	5,741	4	95	126	5,193	31	453	11.5	3.6	114	36
1904	1,342	165,877	[2] 0.6	176	9,439	6	1,242	131	7,399	39	798	13.1	5.7	124	54
1903	1,241	166,949	0.2	137	9,597	13	2,183	99	7,004	25	410	11.0	5.7	135	70
1902	1,193	166,574	[2] 0.6	139	8,888	8	176	99	7,834	32	878	11.7	5.3	140	64
1901	1,144	167,619	[2] 0.5	115	8,927	6	858	97	7,348	12	721	10.1	5.3	147	78
1900	1,101	168,406	[2] 0.7	109	8,823	8	1,662	86	6,888	15	273	9.9	5.2	153	81
1899	1,064	169,519	1.3	92	14,042	6	2,728	80	10,899	6	415	8.6	8.3	159	153
1898	1,064	167,297	[2] 4.4	106	12,211	10	2,330	87	9,699	9	182	10.0	7.3	157	115
1897	1,048	175,075	[2] 0.7	91	10,974	7	803	71	9,587	13	584	8.7	6.3	167	121
1896	1,047	176,344	[2] 4.4	82	13,134	6	2,868	62	9,852	14	414	7.8	7.4	168	160
1895	1,061	184,443	[2] 3.5	60	7,240	3	658	49	6,321	8	261	5.7	3.9	174	121
1894	1,087	191,142	[2] 5.0	61	7,305	6	1,909	44	5,204	11	192	5.6	3.8	176	120
1893	1,123	201,300	[2] 2.8	87	9,364	4	827	73	8,201	10	336	7.7	4.6	179	108
1892	1,122	207,001	0.6	89	12,482	8	1,595	72	10,571	9	316	7.9	6.0	184	140
1891	1,111	205,708	0.2	95	15,473	9	445	78	14,627	8	401	8.6	7.5	185	163
1890	1,087	205,277	[2] 2.2	82	11,886	9	3,882	61	7,745	12	259	7.5	5.8	189	145
1889	1,114	209,826	[2] 2.0	74	11,557	2	981	56	9,289	16	1,287	6.6	5.5	188	156
1888	1,122	214,036	[2] 1.8	74	11,372	9	4,313	59	6,831	6	228	6.6	5.3	191	154
1887	1,144	217,942	[2] 1.4	69	10,168	6	2,171	55	7,872	8	125	6.0	4.7	191	147
1886	1,105	221,089	[2] 4.6	70	9,700	8	1,333	58	8,227	4	140	6.3	4.4	200	139
1885	1,145	231,676	[2] 3.9	81	11,220	6	4,342	65	6,138	10	740	7.1	4.8	202	139
1884	1,157	241,007	[2] 0.9	91	16,219	12	3,786	70	12,076	9	357	7.9	6.7	208	178
1883	1,163	243,317	[2] 2.4	116	20,879	18	6,388	76	12,890	22	1,601	10.0	8.6	209	180
1882	1,226	249,210	0.9	134	24,672	12	6,576	100	17,124	22	972	10.9	9.9	203	184
1881	1,191	246,997	[2] 3.9	129	24,587	24	6,926	82	15,436	23	2,225	10.8	10.0	207	190
1880	1,225	256,916	.....	117	23,931	30	11,450	75	11,791	12	690	9.6	9.3	210	205

[1] From the reports of the Commissioner of Navigation, 1884 and subsequent years, and "Commerce and Navigation of the United States," Treasury Department, for years preceding 1884.
[2] Decrease.

The increase in the number of new vessels dating approximately from 1900, with a marked decrease in the average tonnage of the new boats, is due to the development and growing use of gasoline power boats.

The steady decrease, with but few exceptions, in total tonnage from year to year shows that the new boats have not made good the wear and tear of the fleet. The number of small boats built has caused an increase in the total number, but the average tonnage of the new boats has been below the average tonnage for the fleet in every year, the difference being especially great since 1899.

Table 8 shows the number and tonnage of the documented steam vessels built on the Mississippi river and its tributaries for each year from 1880 to 1906, by customs districts.

TABLE 8.—STEAM VESSELS BUILT AND DOCUMENTED, BY CUSTOMS DISTRICTS: 1880 TO 1906.[1]

YEAR.	TOTAL.		CINCINNATI, OHIO.		DUBUQUE, IOWA.		EVANSVILLE, IND.		LOUISVILLE, KY.		MEMPHIS, TENN.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
1906	144	4,586	9	152	4	215	12	225	15	1,286	10	192
1905	161	5,741	10	297	3	230	14	184	22	1,262	8	190
1904	176	9,439	7	281	4	863	16	438	15	1,434	15	342
1903	137	9,597	5	106	6	2,678	10	156	9	1,884	10	251
1902	139	8,888	10	500	.....	.....	16	341	16	2,081	17	665
1901	115	8,927	12	622	1	10	13	547	14	2,313	5	185
1900	109	8,823	9	553	.....	.....	13	415	14	2,660	11	276
1899	92	14,042	8	828	3	1,715	10	618	14	4,032	5	450
1898	106	12,211	8	521	.....	.....	16	459	16	4,500	9	398
1897	91	10,974	8	884	2	177	6	246	13	4,584	17	1,369
1896	82	13,134	7	2,318	3	868	6	532	9	2,864	10	661
1895	60	7,240	3	232	2	113	4	529	10	2,457	7	613
1894	61	7,305	2	72	2	95	3	185	7	3,264	8	427
1893	87	9,364	7	431	1	66	10	1,027	12	2,343	10	702
1892	89	12,482	7	2,312	.....	.....	4	128	17	4,111	6	299
1891	95	15,473	14	1,379	4	1,102	6	853	16	5,723	9	624
1890	82	11,886	2	89	.....	.....	5	282	16	5,569	7	1,101
1889	74	11,557	8	1,083	4	671	2	92	14	4,392	7	1,102
1888	74	11,372	4	315	2	238	5	186	12	4,351	8	1,371
1887	69	10,168	4	502	.....	.....	5	635	14	4,241	9	611
1886	70	9,700	4	718	2	260	1	235	11	2,270	8	818
1885	81	11,220	10	2,376	3	196	5	282	15	4,273	5	381
1884	91	16,219	6	1,009	1	27	6	539	15	6,106	4	522
1883	116	20,879	14	2,852	2	231	8	372	18	7,947	10	582
1882	134	24,672	18	3,064	1	192	6	337	18	8,430	6	250
1881	129	24,587	17	4,210	2	366	4	346	21	7,465	8	945
1880	117	23,931	18	6,484	1	457	8	356	17	5,302	5	435

YEAR.	NEW ORLEANS, LA.		PITTSBURG, PA.		ROCK ISLAND, ILL.		ST. LOUIS, MO.		WHEELING, W. VA.		ALL OTHER DISTRICTS.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
1906	13	415	1	151	19	367	4	107	13	559	44	917
1905	26	564	.....	.....	20	317	3	85	13	702	42	1,910
1904	18	700	9	1,621	16	610	5	128	24	1,463	47	1,559
1903	6	262	8	1,277	30	585	4	216	14	541	35	1,641
1902	9	651	9	836	20	563	3	207	18	989	21	2,055
1901	13	544	7	611	8	477	8	1,018	14	1,509	20	1,091
1900	7	654	8	1,630	5	205	2	25	12	1,285	28	1,120
1899	8	415	8	1,655	3	38	4	281	9	2,294	20	1,716
1898	8	538	4	770	4	419	11	1,879	10	1,094	20	1,633
1897	1	99	2	782	5	229	9	245	9	1,045	19	1,314
1896	6	183	3	1,263	7	733	3	1,057	4	705	24	1,950
1895	7	361	6	1,058	3	209	1	34	6	818	11	816
1894	4	108	6	962	3	206	3	118	6	646	17	1,222
1893	5	364	9	927	4	398	1	41	13	1,665	15	1,400
1892	6	336	7	999	4	432	4	137	10	1,865	24	1,863
1891	5	318	4	573	6	400	3	785	17	2,651	11	1,065
1890	5	156	6	728	.....	.....	6	313	13	1,714	22	1,934
1889	3	1,080	8	881	.....	.....	1	43	6	493	21	1,720
1888	6	392	6	1,468	.....	.....	.....	.....	12	1,065	19	1,986
1887	4	89	10	2,248	.....	.....	4	70	6	504	13	1,268
1886	2	96	12	2,886	.....	.....	2	87	8	724	20	1,606
1885	8	368	4	843	.....	.....	7	776	13	1,237	11	488
1884	6	504	18	4,392	.....	.....	5	466	13	1,332	17	1,322
1883	8	482	6	3,040	.....	.....	6	1,344	22	2,085	22	1,944
1882	7	337	27	6,424	.....	.....	11	1,440	18	1,981	22	2,217
1881	6	1,253	24	4,428	.....	.....	13	2,254	15	2,057	19	1,263
1880	7	448	10	4,330	.....	.....	18	2,024	12	1,084	21	3,011

[1] From the reports of the Commissioner of Navigation, 1884 and subsequent years, and "Commerce and Navigation of the United States," Treasury Department, for years preceding 1884.

Nearly one-third of the entire tonnage shown in the table is credited to the Louisville district. The table discloses certain marked changes in the boat building centers during the quarter of a century it covers. The following statement shows the number of boats built during the periods 1880 to 1885 and 1901 to 1906, the

total tonnage of such boats for the several districts, and the rank of the districts according to tonnage for the respective periods:

New steam vessels, by customs districts: 1880 to 1885 and 1901 to 1906.

CUSTOMS DISTRICT.	1880 TO 1885.		CUSTOMS DISTRICT.	1901 TO 1906.	
	Number of vessels.	Gross tonnage.		Number of vessels.	Gross tonnage.
Louisville, Ky	104	39,523	Louisville, Ky	91	10,260
Pittsburg, Pa	89	23,457	Wheeling, W. Va	96	5,763
Cincinnati, Ohio	83	19,995	Pittsburg, Pa	34	4,496
Wheeling, W. Va	93	9,776	Dubuque, Iowa	18	3,996
St. Louis, Mo	60	8,304	New Orleans, La	85	3,136
New Orleans, La	42	3,392	Rock Island, Ill	113	2,919
Memphis, Tenn	38	3,115	Cincinnati, Ohio	53	1,958
Evansville, Ind	37	2,232	Evansville, Ind	81	1,801
Dubuque, Iowa	10	1,469	Memphis, Tenn	65	1,825
Rock Island, Ill			St. Louis, Mo	27	1,761

The advance in relative rank of the Rock Island and Dubuque districts and the decline of Cincinnati and St. Louis are noticeable. Important districts included under "all other districts" in Table 8 are Chattanooga, Tenn., which is credited for the period 1880 to 1906 with 94 boats of 7,839 tonnage; Paducah, Ky., with 63 boats of 4,595 tonnage; Cairo, Ill., with 31 boats of 3,460 tonnage; Nashville, Tenn., with 49 boats of 3,417 tonnage; Burlington, Iowa, with 53 boats of 2,804 tonnage; and Vicksburg, Miss., with 29 boats of 1,100 tonnage.

Table 9 shows, for comparative purposes, the number, gross tonnage, and average tonnage per vessel of all documented steamers, by customs districts, for the years 1889, 1895, 1900, and 1906, covering approximately five-year intervals.

TABLE 9.—DOCUMENTED STEAM VESSELS, BY CUSTOMS DISTRICTS, ARRANGED BY SYSTEMS: 1906, 1900, 1895, AND 1889.[1]

CUSTOMS DISTRICT.	1906			1900			1895			1889		
	Number of vessels.	Gross tonnage.	Average tonnage.	Number of vessels.	Gross tonnage.	Average tonnage.	Number of vessels.	Gross tonnage.	Average tonnage.	Number of vessels.	Gross tonnage.	Average tonnage.
Aggregate	1,451	152,592	105	1,101	168,406	153	1,061	184,443	174	1,114	209,826	188
Upper Mississippi system	293	14,386	49	197	19,185	97	187	20,555	110	226	27,093	120
Burlington, Iowa	44	1,691	38	20	1,533	77	28	3,312	118	43	5,059	118
Dubuque, Iowa	15	385	26	12	3,858	322	18	4,239	236	28	6,355	227
Galena, Ill	4	102	26	3	112	37	1	65	65	27	3,130	116
La Crosse, Wis	21	1,271	61	41	3,555	87	41	3,624	88	47	3,884	83
Minnesota	34	1,767	52	29	1,549	53	19	1,546	81	46	5,214	113
Peoria, Ill	12	489	41	11	431	39	9	458	51			
Rock Island, Ill	100	4,717	47	46	4,079	89	45	5,031	112			
Missouri river—												
Kansas City, Mo	16	883	55	10	652	65	7	513	73	16	1,780	111
St. Joseph, Mo	4	138	35	1	27	27	2	44	22	6	341	57
Omaha, Nebr	1	16	16	14	1,269	91	12	1,162	97	13	1,330	102
North and South Dakota	8	470	59	4	555	139	2	349	175			
Montana and Idaho	7	1,035	148	6	1,565	261	3	212	71			
Sioux City, Iowa	27	1,422	53									
Ohio system	711	85,624	120	546	82,629	151	527	91,509	174	542	105,075	194
Cincinnati, Ohio	102	14,835	145	88	16,827	191	107	23,083	216	115	31,407	273
Chattanooga, Tenn	44	2,161	49	23	1,568	68	27	4,307	160	22	3,966	180
Evansville, Ind	136	7,043	52	90	4,772	53	50	5,106	102	54	6,951	129
Louisville, Ky	62	6,388	103	42	7,338	175	37	6,932	187	52	11,938	230
Nashville, Tenn	30	3,244	108	19	2,173	114	17	1,888	111			
Paducah, Ky	44	4,291	98	44	6,696	152	31	6,407	207	53	8,781	166
Pittsburg, Pa	168	38,688	230	152	34,221	225	148	33,566	227	152	32,263	212
Wheeling, W. Va	125	8,974	72	88	9,034	103	110	10,220	93	94	9,769	104
Lower Mississippi system	447	52,582	118	358	66,592	186	347	72,379	209	346	77,658	224
Cairo, Ill	21	2,323	111	20	2,928	146	17	3,954	233			
Memphis, Tenn	126	10,921	87	90	12,180	135	69	9,025	131	71	12,117	171
Natchez, Miss	6	1,135	189	2	349	175	4	580	145	4	592	148
New Orleans, La	174	14,204	82	113	16,423	145	127	17,298	136	126	19,246	153
St. Louis, Mo	88	20,795	236	107	30,860	288	109	38,703	355	115	42,827	372
Vicksburg, Miss	32	3,204	100	26	3,852	148	21	2,819	134	30	2,876	96

[1] From the reports of the Commissioner of Navigation, Department of Commerce and Labor.

As a rule the documented tonnage decreased for the several districts, the principal exceptions being Natchez and Vicksburg, on the lower Mississippi, Nashville on the Cumberland, and Pittsburg and Evansville on the Ohio. The decrease in the average tonnage of the documented steam vessels is specially marked for Dubuque, St. Louis, Chattanooga, Cincinnati, and Louisville.

A natural grouping of the customs districts is presented in Table 10.

TABLE 10.—*Tonnage of documented steam vessels, by customs districts groups, with per cent of decrease: 1906 and 1889.*[1]

CUSTOMS DISTRICTS GROUP.	GROSS TONNAGE.		Per cent of decrease.
	1906	1889	
Total	152,592	209,826	27.3
Upper Mississippi, including Burlington, Dubuque, Galena, La Crosse, Minnesota, Peoria, and Rock Island	10,422	23,642	55.9
Missouri, including Kansas City, St. Joseph, Omaha, North and South Dakota, Montana and Idaho, and Sioux City	3,964	3,451	[2] 14.9
Central, including St. Louis, Cairo, and Paducah	27,409	51,608	46.9
Ohio, including Cincinnati, Chattanooga, Evansville, Louisville, Nashville, Pittsburg, and Wheeling	81,333	96,294	15.5
Lower Mississippi, including Memphis, Natchez, New Orleans, and Vicksburg	29,464	34,831	15.4

[1] From the reports of the Commissioner of Navigation, Department of Commerce and Labor.
[2] Increase.

The percentage of decrease in the documented steam vessel tonnage has been heaviest on the upper Mississippi (exclusive of the Missouri); next heaviest in the central district, comprising the middle Mississippi and the mouth of the Ohio; and least on the lower Mississippi, although the percentage for the Ohio is almost the same as that for the lower Mississippi. In the Missouri district alone there was an increase, but the actual amount of the tonnage is small.

CONSTRUCTION.

Statistics concerning the material of construction and the character of service or occupation of all vessels in service, as reported for 1906, are presented in Table 11.

TABLE 11.—NUMBER, GROSS TONNAGE, AND VALUE OF VESSELS, BY CHARACTER OF CONSTRUCTION AND BY OCCUPATION, WITH AVERAGE TONNAGE PER VESSEL AND AVERAGE VALUE PER TON: 1906.

CLASS AND OCCUPATION.	TOTAL.			WOOD.			IRON.			STEEL.		
	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.
Aggregate	9,622	4,411,967	22,852,142	9,513	4,377,480	20,213,460	26	2,748	436,988	81	31,145	2,143,694
Steam	1,435	146,227	13,196,770	1,358	129,141	10,870,593	25	2,115	404,488	50	14,377	1,863,689
Freight and passenger	390	55,779	3,737,450	379	52,692	3,407,950	1	50	4,500	9	2,912	317,000
Tugs and other towing vessels	619	62,836	6,822,210	578	55,881	5,571,777	18	1,398	245,988	22	5,088	954,445
Ferryboats	166	22,180	1,776,360	153	15,604	1,156,616	3	517	85,000	10	6,059	534,744
Yachts	222	3,255	503,400	211	2,887	471,900	2	50	34,000	9	318	57,500
All other	38	2,177	297,350	37	2,077	262,350	1	100	35,000	.....	.....	.....
Unrigged	8,187	4,265,740	9,655,372	8,155	4,248,339	9,342,867	1	633	32,500	31	16,768	280,005

CLASS AND OCCUPATION.	COMPOSITE.			AVERAGE TONNAGE PER VESSEL.					AVERAGE VALUE PER TON.				
	Number of vessels.	Gross tonnage.	Value of vessels.	All vessels.	Wood.	Iron.	Steel.	Composite.	All vessels.	Wood.	Iron	Steel.	Composite.
Aggregate	2	594	58,000	459	460	106	385	297	$5	$5	$159	$69	$98
Steam	2	594	58,000	102	95	85	288	297	90	84	191	130	98
Freight and passenger	1	125	8,000	143	139	50	324	125	67	65	90	109	64
Tugs and other towing vessels	1	469	50,000	102	97	78	231	469	109	100	176	188	107
Ferryboats	.....	.....	.....	134	102	172	606	.....	80	74	164	88	.....
Yachts	.....	.....	.....	15	14	25	35	.....	173	163	680	181	.....
All other	.....	.....	.....	57	56	100	.....	.....	137	126	350	.....	.....
Unrigged	.....	.....	.....	521	521	633	541	.....	2	2	51	17	.....

The number of wooden vessels propelled by steam constituted 94.6 per cent of the total number of the steam vessels, and their tonnage formed 88.3 per cent of the steam tonnage. The tonnage of steel vessels constituted 9.8 per cent of the tonnage of all steam vessels, while the tonnage of vessels of iron and of composite construction constituted 1.4 per cent and four-tenths of 1 per cent, respectively. Of the tonnage of unrigged craft, but four-tenths of 1 per cent was for vessels of iron or steel construction and 99.6 per cent for those of wood.

For 1889 the character of construction was not reported, but on the assumption that all the vessels were of wood, a comparative presentation by character of construction is given in Table 12, for all boats in service as reported at the censuses of 1906 and 1889.

TABLE 12.—*Number, gross tonnage, and value of vessels, by character of construction, with per cent of increase: 1906 and 1889.*

	1906	1889	Per cent of increase.
Total:			
Number of vessels	9,622	7,300	31.8
Gross tonnage	4,411,967	3,364,610	31.1
Value of vessels	$22,852,142	$14,407,162	58.6
Wood:			
Number of vessels	9,513	7,300	30.3
Gross tonnage	4,377,480	3,364,610	30.1
Value of vessels	$20,213,460	$14,407,162	40.3
Iron, steel, and composite:			
Number of vessels	109	.....	.....
Gross tonnage	34,487	.....	.....
Value of vessels	$2,638,682	.....	.....

The 26 iron boats in use in 1906 had a gross tonnage of 2,748 and were valued at $436,988; the 81 steel boats had a gross tonnage of 31,145 and were valued at $2,143,694; and the 2 composite vessels had a gross tonnage of 594 and were valued at $58,000. The wood vessels comprised 99.2 per cent of the total when measured by gross tonnage.

CHARACTER OF PROPULSION.

Table 13 gives the number and gross tonnage of all power boats or vessels of the steam class, classified according to rig or means of propulsion.

TABLE 13.—NUMBER AND GROSS TONNAGE OF ALL POWER VESSELS, BY CHARACTER OF PROPULSION AND BY OCCUPATION: 1906.

OCCUPATION.	TOTAL.		STERN WHEEL.		SIDE WHEEL.		CENTER WHEEL.		SCREW.		PER CENT OF TOTAL.							
											Stern wheel.		Side wheel.		Center wheel.		Screw.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number.	Gross tonnage.	Number.	Gross tonnage.	Number.	Gross tonnage.	Number.	Gross tonnage.
Total	1,435	146,227	990	108,405	85	28,372	4	616	356	8,834	69.0	74.1	5.9	19.4	0.3	0.4	24.8	6.0
Freight and passenger	390	55,779	287	39,447	36	15,280	.....	.....	67	1,052	73.6	70.7	9.2	27.4	.....	(1)	17.2	1.9
Tugs and other towing vessels	619	62,836	506	57,213	7	174	.....	.....	106	5,449	81.7	91.1	1.1	0.3	.....	.....	17.1	8.7
Ferryboats	166	22,180	105	8,257	35	12,598	4	616	22	709	63.3	37.2	21.1	56.8	2.4	2.8	13.3	3.2
Yachts	222	3,255	70	1,774	6	96	.....	.....	146	1,385	31.5	54.5	2.7	2.9	.....	.....	65.8	42.5
All other	38	2,177	22	1,714	1	224	.....	.....	15	239	57.9	78.7	2.6	10.3	.....	.....	39.5	11.0

[1] Less than one-tenth of 1 per cent.

The flat-bottomed stern wheeler is and has been the prevailing type of steamboat on the Mississippi. Boats of this class constituted in 1906 more than two-thirds of the total number of power boats and nearly three-fourths of the total tonnage of such vessels. The side wheelers were chiefly employed in freight and passenger and in ferry service, and the center wheelers are steam catamarans chiefly used in ferry service. Boats of the screw propeller class formed nearly one-fourth of the total number, but had only 6 per cent of the total tonnage.

CHARACTER OF POWER.

Table 14 gives the number, gross tonnage, and horsepower of all power vessels, classified according to character of power and according to occupation, or character of service.

TABLE 14.—NUMBER, GROSS TONNAGE, AND HORSEPOWER OF ALL POWER VESSELS, BY CHARACTER OF POWER AND BY OCCUPATION: 1906.

OCCUPATION.	TOTAL.			STEAM.			GASOLINE.			PER CENT.					
										Steam.			Gasoline.		
	Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.	Number.	Gross tonnage.	Horsepower	Number.	Gross tonnage.	Horsepower.
Total	1,435	146,227	236,969	884	139,965	227,802	551	6,262	9,167	61.6	95.7	96.1	38.4	4.3	3.9
Freight and passenger	390	55,779	80,692	259	54,092	78,451	131	1,687	2,241	66.4	97.0	97.2	33.6	3.0	2.8
Tugs and other towing vessels	619	62,836	117,547	454	61,100	114,696	165	1,736	2,851	73.3	97.2	97.6	26.7	2.8	2.4
Ferryboats	166	22,180	28,220	117	21,321	27,372	49	859	848	70.5	96.1	97.0	29.5	3.9	3.0
Yachts	222	3,255	6,542	34	1,425	3,571	188	1,830	2,971	15.3	43.8	54.6	84.7	56.2	45.4
All other	38	2,177	3,968	20	2,027	3,712	18	150	256	52.6	93.1	93.5	47.4	6.9	6.5

Nearly two-fifths of the boats employed gasoline as the source of power, but their tonnage was only 4.3 per cent of the total tonnage and their horsepower only 3.9 per cent of the total horsepower. As the census was restricted to boats of 5 tons measurement or over, a very large number of small gasoline power boats was excluded. The use of the small gasoline boats has developed greatly within the last few years, and they are employed in all kinds of work—in freight and passenger and ferry service and in towing. The number and tonnage of these small excluded boats and the transportation service performed by them

must amount in the aggregate to large figures, and, if included in these statistics, would add materially to the totals. For example, one party does a large amount of business with a fleet of 5 gasoline towboats, each under 5 tons, and hence not included in the canvass. If a bargeload is too heavy for one boat, two or more are used as the case requires. A large amount of the river business is being captured by the small gasoline boats, since they do not require license or inspection, and since the economical advantages favor them; while the regulations governing steam craft and the requirements in regard to the employment of licensed engineers therefor operate against the use of small steam craft. Consequently the statistics of steam craft are more nearly complete, for there are few steampower craft of less than 5 tons measurement.

The average tonnage and the average horsepower per vessel, classified by character of propulsion and by character of power, are given in Table 15 for the several classes of service.

TABLE 15.—AVERAGE GROSS TONNAGE AND HORSEPOWER OF ALL POWER VESSELS, BY CHARACTER OF PROPULSION AND POWER, AND BY OCCUPATION: 1906.

OCCUPATION.	AVERAGE TONNAGE PER VESSEL.							AVERAGE HORSEPOWER PER VESSEL.		
	All vessels.	Character of propulsion.				Character of power.		All vessels.	Character of power.	
		Stern wheel.	Side wheel.	Center wheel.	Screw.	Steam.	Gasoline.		Steam.	Gasoline.
Total	102	110	334	154	25	158	11	165	258	17
Freight and passenger	143	137	424	.....	16	209	13	207	303	17
Tugs and other towing vessels	102	113	25	.....	51	135	11	190	253	17
Ferryboats	134	79	360	154	32	182	18	170	234	17
Yachts	15	25	16	.....	9	42	10	29	105	16
All other	57	78	224	.....	16	101	8	104	186	14

A summary of the vessels in service in 1906, by character of power and propulsion, with the percentage that each class of power formed of the total, is presented in Table 16.

TABLE 16.—*Number, gross tonnage, and horsepower of power vessels, by character of power and propulsion: 1906.*

	All vessels.	Stern wheel.	Side wheel.	Center wheel.	Screw.
Number	1,435	990	85	4	356
Steam	884	678	72	4	130
Gasoline	551	312	13	.....	226
Gross tonnage	146,227	108,405	28,372	616	8,834
Steam	139,965	104,476	28,221	616	6,652
Gasoline	6,262	3,929	151	.....	2,182
Horsepower	236,969	174,121	39,889	535	22,424
Steam	227,802	169,210	39,731	535	18,326
Gasoline	9,167	4,911	158	.....	4,098
	PER CENT OF TOTAL.				
Number	100.0	100.0	100.0	100.0	100.0
Steam	61.6	68.5	84.7	100.0	36.5
Gasoline	38.4	31.5	15.3	.....	63.5
Gross tonnage	100.0	100.0	100.0	100.0	100.0
Steam	95.7	96.4	99.5	100.0	75.3
Gasoline	4.3	3.6	0.5	.....	24.7
Horsepower	100.0	100.0	100.0	100.0	100.0
Steam	96.1	97.2	99.6	100.0	81.7
Gasoline	3.9	2.8	0.4	.....	18.3

The steam vessels show an average of 158 gross tons and 258 horsepower per vessel, and the gasoline boats an average of 11 gross tons and 17 horsepower per vessel.

In the 5 to 49 ton class in 1906, there were 788 power boats of 12,346 gross tonnage, the majority being gasoline, or motor boats. The gasoline boats in this class average per boat less than one-half the tonnage of the steam vessels. Table 17 shows the number and tonnage of the gasoline power boats, by tonnage groups.

TABLE 17.—*Number and gross tonnage of gasoline power boats, by tonnage groups: 1906.*

GROUP.	Number of vessels.	Gross tonnage.
Total	551	6,262
5 to 9 tons	291	2,001
10 to 19 tons	226	2,831
20 to 29 tons	11	250
30 to 39 tons	11	372
40 to 49 tons	3	129
50 to 99 tons	9	679

In 1906, 517 boats, or 36 per cent of all vessels in the steamer class, were gasoline power boats of less than 20 tons. More than one-third of all gasoline power boats were pleasure craft, as shown in Table 18, which gives the distribution of the boats according to occupation, or character of service.

TABLE 18.—*Number and gross tonnage of gasoline power boats, by occupation: 1906.*

OCCUPATION.	Number of vessels.	Gross tonnage.
Total	551	6,262
Freight and passenger	131	1,687
Tugs and other towing vessels	165	1,736
Ferryboats	49	859
Yachts	188	1,830
All other	18	150

The distribution of all craft by tonnage groups as reported for 1906 is shown in Table 19, which gives the number and tonnage of all vessels, by character of ownership and by character of service or occupation, with groupings by river districts.

TABLE 19.—VESSELS GROUPED ACCORDING TO GROSS TONNAGE, BY CLASS, OWNERSHIP, RIVER SYSTEMS, AND OCCUPATION: 1906.

CLASS, OWNERSHIP, RIVER SYSTEM, AND OCCUPATION.	TOTAL.		5 TO 49 TONS.		50 TO 99 TONS.		100 TO 199 TONS.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
Aggregate	9,622	4,411,967	1,383	31,759	682	48,654	1,912	295,536
Steam	1,435	146,227	788	12,346	265	19,991	183	26,898
Unrigged	8,187	4,265,740	595	19,413	417	28,663	1,729	268,638
Character of ownership:								
Steam	1,435	146,227	788	12,346	265	19,991	183	26,898
Individual	687	27,524	539	7,247	92	6,804	31	4,540
Firm	211	11,360	134	2,251	47	3,548	20	2,664
Incorporated company	524	106,575	105	2,646	126	9,639	131	19,594
Miscellaneous	13	768	10	202	.....	.....	1	100
Unrigged	8,187	4,265,740	595	19,413	417	28,663	1,729	268,638
Individual	631	107,131	178	4,542	105	7,079	195	23,456
Firm	322	37,986	74	1,615	92	6,890	121	18,131
Incorporated company	7,228	4,120,025	343	13,256	218	14,594	1,409	226,553
Miscellaneous	6	598	.....	.....	2	100	4	498
River systems and occupation:								
Steam	1,435	146,227	788	12,346	265	19,991	183	26,898
Freight and passenger	390	55,779	180	2,904	72	5,537	47	7,255
Tugs and other towing vessels	619	62,836	291	5,448	150	11,183	102	14,598
Ferryboats	166	22,180	84	1,727	30	2,254	21	3,121
Yachts	222	3,255	210	1,983	7	559	5	683
All other	38	2,177	23	284	6	428	8	1,241
Upper Mississippi system	417	21,313	308	4,288	57	4,284	32	4,691
Freight and passenger	133	12,440	80	1,229	22	1,652	14	2,155
Tugs and other towing vessels	89	4,506	55	1,070	24	1,803	7	987
Ferryboats	51	2,408	35	734	9	681	7	993
Yachts	129	1,753	124	1,099	1	98	4	556
All other	15	206	14	156	1	50	.....	.....
Ohio system	700	81,645	332	5,224	136	10,284	118	17,273
Freight and passenger	167	25,865	70	1,056	29	2,295	26	3,850
Tugs and other towing vessels	399	48,326	168	2,866	87	6,574	81	11,677
Ferryboats	63	5,276	36	702	14	978	4	625
Yachts	56	644	54	532	2	112	.....	.....
All other	15	1,534	4	68	4	325	7	1,141
Lower Mississippi system	318	43,269	148	2,834	72	5,423	33	4,934
Freight and passenger	90	17,474	30	619	21	1,590	7	1,270
Tugs and other towing vessels	131	10,004	68	1,512	39	2,806	14	1,934
Ferryboats	52	14,496	13	291	7	595	10	1,503
Yachts	37	858	32	352	4	379	1	127
All other	8	437	5	60	1	53	1	100
Unrigged	8,187	4,265,740	595	19,413	417	28,663	1,729	268,638
Upper Mississippi system	429	24,799	200	4,777	165	10,636	57	7,481
Ohio system	7,404	4,146,728	367	13,855	189	13,886	1,582	249,203
Lower Mississippi system	354	94,213	28	781	63	4,141	90	11,954

TABLE 19.—VESSELS GROUPED ACCORDING TO GROSS TONNAGE, BY CLASS, OWNERSHIP, RIVER SYSTEMS, AND OCCUPATION: 1906—Continued.

CLASS, OWNERSHIP, RIVER SYSTEM, AND OCCUPATION.	200 TO 299 TONS.		300 TO 399 TONS.		400 TO 499 TONS.		500 TO 999 TONS.		1,000 TONS AND OVER.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
Aggregate	784	196,099	105	34,990	424	181,044	2,087	1,215,430	2,245	2,408,455
Steam	76	18,839	39	13,893	21	9,482	56	34,824	7	9,954
Unrigged	708	177,260	66	21,097	403	171,562	2,031	1,180,606	2,238	2,398,501
Character of ownership:										
Steam	76	18,839	39	13,893	21	9,482	56	34,824	7	9,954
Individual	13	3,217	3	1,035			9	4,681		
Firm	9	2,468			1	429				
Incorporated company	52	12,688	36	12,858	20	9,053	47	30,143	7	9,954
Miscellaneous	2	466								
Unrigged	708	177,260	66	21,097	403	171,562	2,031	1,180,606	2,238	2,398,501
Individual	74	17,693	5	1,717	4	1,621	58	35,823	12	15,200
Firm	24	6,250	7	2,500			4	2,000		
Incorporated company	610	153,317	54	16,880	399	169,941	1,969	1,142,183	2,226	2,383,301
Miscellaneous										
River systems and occupation:										
Steam	76	18,839	39	13,893	21	9,482	56	34,824	7	9,954
Freight and passenger	37	9,375	14	5,134	10	4,462	27	16,682	3	4,420
Tugs and other towing vessels	29	7,002	16	5,532	7	3,206	23	14,368	1	1,479
Ferryboats	9	2,238	9	3,227	4	1,814	6	3,754	3	4,045
Yachts										
All other	1	224								
Upper Mississippi system	11	2,522	1	360	2	919	6	4,249		
Freight and passenger	8	1,876	1	360	2	919	6	4,249		
Tugs and other towing vessels	3	646								
Ferryboats										
Yachts										
All other										
Ohio system	43	10,853	28	9,880	10	4,505	30	19,020	3	4,606
Freight and passenger	19	4,858	9	3,304	3	1,299	9	6,096	2	3,127
Tugs and other towing vessels	20	5,033	15	5,142	7	3,206	20	12,349	1	1,479
Ferryboats	4	962	4	1,434			1	575		
Yachts										
All other										
Lower Mississippi system	22	5,464	10	3,653	9	4,058	20	11,555	4	5,348
Freight and passenger	10	2,641	4	1,470	5	2,244	12	6,337	1	1,303
Tugs and other towing vessels	6	1,323	1	390			3	2,039		
Ferryboats	5	1,276	5	1,793	4	1,814	5	3,179	3	4,045
Yachts										
All other	1	224								
Unrigged	708	177,260	66	21,097	403	171,562	2,031	1,180,606	2,238	2,398,501
Upper Mississippi system	5	1,112	1	355	1	438				
Ohio system	651	163,757	29	10,008	371	157,653	1,988	1,154,220	2,227	2,384,146
Lower Mississippi system	52	12,391	36	10,734	31	13,471	43	26,386	11	14,355

The bulk of the freight business is handled on barges. Unrigged craft—barges, coal boats, etc.—constitute 85.1 per cent of the total number of vessels and 96.7 per cent of the total tonnage; and of the steam vessels, towboats constitute 43.1 per cent of the total number and 43 per cent of the total tonnage.

OWNERSHIP OF VESSELS.

Corporate ownership controlled 96.6 per cent of the tonnage of unrigged vessels and 72.9 per cent of the tonnage of steam vessels. In the case of the steam vessels owned by individuals the percentage for number is relatively large in comparison with the percentage for tonnage, as a result of the fact that the majority of such boats are of low tonnage. A large majority of the yachts or pleasure boats are owned by individuals, while corporate control prevails in the case of the larger boats. Thus in boats of the 5 to 49 ton class individual ownership was reported for 68.4 per cent of the number and 58.7 per cent of the tonnage of the steam vessels, as compared with 13.3 per cent of the number and 21.4 per cent of the tonnage for corporate ownership. In all the other tonnage groups for steam vessels corporate ownership is in a large majority, and with respect to unrigged vessels ownership by corporations leads in all tonnage groups. The number, gross tonnage, and value of the vessels in active service, by character of ownership, with the percentage in each class, is given in Table 20.

TABLE 20.—NUMBER, GROSS TONNAGE, AND VALUE OF VESSELS, BY CLASS AND CHARACTER OF OWNERSHIP: 1906.

CLASS AND OWNERSHIP.	VESSELS.		TONNAGE.		VALUE OF VESSELS.	
	Number.	Per cent.	Gross tons.	Per cent.	Amount.	Per cent.
Total	9,622	100.0	4,411,967	100.0	$22,852,142	100.0
Individual	1,318	13.7	134,655	3.1	3,114,755	13.6
Firm	533	5.5	49,346	1.1	1,341,901	5.9
Incorporated company	7,752	80.6	4,226,600	95.8	18,292,186	80.0
Miscellaneous	19	0.2	1,366	(1)	103,300	0.5
Steam	1,435	100.0	146,227	100.0	13,196,770	100.0
Individual	687	47.9	27,524	18.8	2,394,680	18.1
Firm	211	14.7	11,360	7.8	935,875	7.1
Incorporated company	524	36.5	106,575	72.9	9,783,915	74.1
Miscellaneous	13	0.9	768	0.5	82,300	0.6
Unrigged	8,187	100.0	4,265,740	100.0	9,655,372	100.0
Individual	631	7.7	107,131	2.5	720,075	7.5
Firm	322	3.9	37,986	0.9	406,026	4.2
Incorporated company	7,228	88.3	4,120,025	96.6	8,508,271	88.1
Miscellaneous	6	0.1	598	(1)	21,000	0.2

[1] Less than one-tenth of 1 per cent.

The large ownership by corporations is a striking feature of the table, likewise the comparatively small portion under firm control, the latter being less than the portion owned by individuals in number of vessels, tonnage, and value for both steam and unrigged vessels.

A showing of the number and tonnage of the vessels, according to character of ownership and by occupation, or character of service, is given in Table 21.

TABLE 21.—NUMBER AND GROSS TONNAGE OF VESSELS, BY CHARACTER OF OWNERSHIP AND BY CLASS AND OCCUPATION: 1906.

CLASS AND OCCUPATION.	TOTAL.		INDIVIDUAL.		FIRM.		INCORPORATED COMPANY.		MISCELLANEOUS.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
Total	9,622	4,411,967	1,318	134,655	533	49,346	7,752	4,226,600	19	1,366
Steam	1,435	146,227	687	27,524	211	11,360	524	106,575	13	768
Freight and passenger	390	55,779	179	11,472	71	5,822	139	38,243	1	242
Tugs and other towing vessels	619	62,836	232	10,441	85	3,944	298	48,351	4	100
Ferryboats	166	22,180	73	2,349	27	1,384	65	18,403	1	44
Yachts	222	3,255	185	2,815	26	183	7	206	4	51
All other	38	2,177	18	447	2	27	15	1,372	3	331
Unrigged	8,187	4,265,740	631	107,131	322	37,986	7,228	4,120,025	6	598

The extent of concentration of the transportation business in the hands of the larger operators is indicated in Table 22.

TABLE 22.—*Number of proprietors owning three or more steam vessels, classified by occupation of vessel and by river systems: 1906.*

OCCUPATION AND RIVER SYSTEM.	VESSELS.		PROPRIETORS OWNING THREE OR MORE VESSELS.				
				Vessels.			
						Per cent of total.	
	Number.	Gross tonnage.	Number.	Number.	Gross tonnage.	Number.	Gross tonnage.
Freight and passenger	390	55,779	20	84	28,142	21.5	50.5
Upper Mississippi system			5	18	6,045		
Lower Mississippi system			3	15	6,649		
Ohio system			12	51	15,448		
Tugs and other towing vessels	619	62,836	12	131	32,609	21.2	51.9
Upper and Lower Mississippi systems			6	23	2,238		
Ohio system			6	108	30,371		
Ferryboats	166	22,180	[1] 4	21	5,609	12.7	25.7

[1] Lower Mississippi system, 2; Ohio system, 2.

In freight and passenger service more than one-fifth of the total number of vessels and one-half of the tonnage is in the hands of 20 owners; and of the towboats, more than one-fifth of the number and one-half of the tonnage is in the hands of 12 owners. Less concentration is shown for the ferryboats, ownership of 3 or more vessels being reported in only four cases.

The unrigged vessels show a materially greater degree of concentrated ownership, as indicated by the statistics presented in Table 23.

A little more than two-thirds of all unrigged vessels, the same constituting nearly four-fifths of the total tonnage, were reported for 10 owners, all of the Ohio system, each with 100 or more boats in operation. These represent the large coal companies of the Pittsburg district. The barge equipment of these 10 owners handled 43.4 per cent of all barge freight, including harbor work and the car freight transferred by railroad companies on barges. There were 58 owners each with from 10 to 99 boats in operation, and they are credited with 19.4 per cent of all unrigged boats, 17 per cent of the tonnage, and nearly one-third of the merchandise handled on unrigged boats.

TABLE 23.—PROPRIETORS OF UNRIGGED CRAFT, GROUPED ACCORDING TO NUMBER OF VESSELS OWNED AND RIVER SYSTEMS: 1906.

GROUP, AND RIVER SYSTEM.	Number of proprietors.	Number of boats.	Gross tonnage.	Freight and harbor work (net tons).	PER CENT.		
					Number of boats.	Gross tonnage.	Freight and harbor work.
Total	.....	[1] 8,187	4,265,740	[2] 23,305,627	100.0	100.0	100.0
Proprietors owning less than 10 boats	.....	1,089	138,346	5,949,783	13.3	3.2	25.5
Upper Mississippi system	.....	336	18,184	979,903	4.1	0.4	4.2
Ohio system	.....	517	65,799	1,846,128	6.3	1.5	7.9
Lower Mississippi system	.....	236	54,363	3,123,752	2.9	1.3	13.4
Proprietors owning 10 but less than 100 boats	58	1,592	723,412	7,232,040	19.4	17.0	31.0
Upper Mississippi system	6	92	6,601	534,926	1.1	0.2	2.3
Ohio system	44	1,381	676,947	4,504,212	16.9	15.9	19.3
Lower Mississippi system	8	119	39,864	2,192,902	1.5	0.9	9.4
Proprietors owning 100 or more boats:							
Ohio system	10	[3] 5,506	3,403,982	10,123,804	67.3	79.8	43.4

[1] Active boats.
[2] Includes harbor work and railway car freight amounting to 6,129,920 tons, distributed as follows: Upper Mississippi system, 30,090 tons; Ohio system, 2,493,776 tons; Lower Mississippi system, 3,606,054 tons.
[3] Includes 2,054 coal boats, 2,037,526 gross tonnage, sold with cargo.

As shown in Table 19, less than one-half of the steam vessels and more than one-half of the tonnage of such vessels are credited to the Ohio system.

The Ohio system had the largest tonnage employed in freight and passenger service, while the Lower Mississippi, which was second in rank in this respect, had the largest average tonnage per vessel. The average tonnage per vessel for the 90 freight and passenger boats of the Lower Mississippi system was 194 tons, as compared with an average of 155 tons for the 167 similar boats of the Ohio system, and 94 tons for the 133 boats of like service for the Upper Mississippi system.

To handle its large fleet of barges, the Ohio system had nearly two-thirds of the towboats and a little more than three-fourths of the total towboat tonnage. The Lower Mississippi had over three-fifths of the ferryboat tonnage and the Upper Mississippi the majority of the yachts, in number and tonnage.

The miscellaneous class includes boats hired out for fishing or pleasure parties, dredges and work boats provided with propelling power, and in general all power craft not coming within the range of the other groups.

The Ohio system is credited with 90.4 per cent of the number and 97.2 per cent of the tonnage of the unrigged boats; the Lower Mississippi system, with 4.3 per cent of the number and 2.2 per cent of the tonnage; and the Upper Mississippi system, with 5.2 per cent of the number and six-tenths of 1 per cent of the tonnage.

VALUATION OF VESSELS.

Statistics in regard to vessel values, and the average value per ton and per vessel for both steam and unrigged craft, are shown in Table 24, which presents the figures for 1906 in comparison with 1889.

TABLE 24.—*Number, gross tonnage, and value of vessels by class: 1906 and 1889.*

CLASS.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	Average tonnage per vessel.	Average value per ton.	Average value per vessel.
Total	1906	9,622	4,411,967	$22,852,142	459	$5	$2,375
	1889	7,300	3,364,610	14,407,162	461	4	1,974
Steam	1906	1,435	146,227	13,196,770	102	90	9,196
	1889	972	192,974	9,622,608	199	50	9,900
Unrigged	1906	8,187	4,265,740	9,655,372	521	2	1,179
	1889	6,328	3,171,636	4,784,554	501	2	756

Steam vessels show a large increase in the average value per ton and a large decrease in the average tonnage per vessel, and unrigged vessels an increase in average tonnage, and an increase in the average value per vessel of 56 per cent.

VALUE OF LAND PROPERTY.

The value of all property other than vessels, but incident to their operation, was $5,685,900, comprising $5,570,823, the value of land, wharves, warehouses and other buildings, fixtures, machinery, implements, tools, cash on hand, etc., and $115,077, the value of leases. The addition of these amounts to the value of the vessels gives $28,538,042 as the aggregate value of all property in 1906.

Much of the land property owned by parties operating vessels and used in conjunction with the operation of the vessels, is used also for railroad, storage, mercantile, or other purposes; a large amount of wharf property, however, is owned by parties other than those operating water craft, and hence is not reported. The statistics in regard to the value of land property are therefore far from being complete.

EMPLOYEES AND WAGES.

Table 25 shows the statistics relating to the number of employees on vessels and on land, and the amounts paid in salaries and wages, for the different classes of vessels.

TABLE 25.—EMPLOYEES, AND SALARIES AND WAGES, BY OCCUPATION OF VESSEL: 1906.

OCCUPATION.	TOTAL.		ON VESSELS.		ON LAND.					
					Total.		Officers, managers, clerks, etc.		All other.	
	Number of employees.	Salaries and wages.	Number of employees.	Wages.	Average number of employees.	Salaries and wages.	Average number of employees.	Salaries.	Average number of employees.	Wages.
Total	17,473	$7,063,776	15,016	$5,692,117	2,457	$1,371,659	1,011	$686,536	1,446	$685,123
Freight and passenger	7,333	2,335,977	6,746	2,019,202	587	316,775	296	219,828	291	96,947
Towing vessels and unrigged craft	8,668	3,926,242	7,152	3,055,644	1,516	870,598	560	364,366	956	506,232
Ferryboats	838	493,961	699	413,553	139	80,408	120	72,192	19	8,216
Yachts	177	62,218	165	59,168	12	3,050	10	2,850	2	200
All other	457	245,378	254	144,550	203	100,828	25	27,300	178	73,528
	PER CENT OF TOTAL.									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Freight and passenger	42.0	33.1	44.9	35.5	23.9	23.1	29.3	32.0	20.1	14.2
Towing vessels and unrigged craft	49.6	55.6	47.6	53.7	61.7	63.5	55.4	53.1	66.1	73.9
Ferryboats	4.8	7.0	4.7	7.3	5.7	5.9	11.9	10.5	1.3	1.2
Yachts	1.0	0.9	1.1	1.0	0.5	0.2	1.0	0.4	0.1	(1)
All other	2.6	3.5	1.7	2.5	8.3	7.4	2.5	4.0	12.3	10.7

[1] Less than one-tenth of 1 per cent.

Towing vessels and unrigged craft gave employment to nearly one-half of all the employees, and the employees on such craft received more than one-half of the total amount paid in salaries and wages.

The crews on the vessels formed 85.9 per cent of the total number of employees, and they received in wages 80.6 per cent of the total amount paid to all employees, the land employees constituting 14.1 per cent of the total number and their salaries and wages 19.4 per cent of the total amount. In the case of towing vessels and ferries the land employees constituted a larger portion of all employees than they did in the case of freight and passenger boats. The amount paid in salaries and wages to land employees is, for all craft, about equally divided between the administrative and superintending employees, listed as officers, managers, clerks, etc., and the wage-earners. In the case of freight and passenger steamers the numbers in these two groups are nearly equal, while for ferryboats the land employees are chiefly officers, managers, and clerks, and for towing vessels and barges the "all other" class of employees is naturally largely in excess of the administrative men.

As a rule, the loading and unloading of freight on Mississippi river boats is done by roustabouts carried on the boats as part of the crew. Hence the crews of Mississippi river vessels are relatively larger than those for vessels operating on the Atlantic coast and Gulf of Mexico, the Pacific coast, or the Great Lakes. In handling coal and sand, which are the largest factors of the barge freight, machinery is extensively used. Moreover, the coal barges are frequently loaded by the regular employees of the coal companies and the unloading on delivery is frequently done by the consignees.

The crews of freight and passenger steam vessels for the Atlantic coast and the Gulf of Mexico average a man for every 42 tons of the gross tonnage of the vessels, and for freight and passenger vessels operating on the Great Lakes and the St. Lawrence river the average is a man for 107 tons of gross tonnage; whereas the freight and passenger vessels of the Mississippi river and its tributaries average a man for every 8 tons of gross tonnage. Of course, a large part of the difference is due to the fact that the Mississippi river vessels are much smaller boats than the ocean or lake steamers.

The "all other" employees on land constitute 22.1 per cent of the total number of employees on vessels and on land for the Atlantic coast and Gulf of Mexico district, and 14 per cent of the total number for the Great Lakes and St. Lawrence river, whereas for the Mississippi river and its tributaries this class constitutes but 8.3 per cent of the total number of employees.

GROSS INCOME.

The gross income from freight, passenger, and all other sources by class of vessels and the per cent each is of the total are shown in Table 26.

TABLE 26.—*Gross income of all vessels and craft, by source of income and by occupation of vessel: 1906.*

OCCUPATION.	Total.	SOURCE OF INCOME.		
		Freight.	Passengers.	All other.
Total	$17,342,038	$7,450,869	$2,281,243	$7,609,926
Freight and passenger	5,934,629	4,038,002	1,766,581	130,046
Towing vessels and unrigged craft	9,342,145	3,412,867	15,780	5,913,498
Ferryboats	1,553,121	.....	498,747	1,054,374
All other	512,143	.....	135	512,008
	PER CENT OF TOTAL.			
Total	100.0	100.0	100.0	100.0
Freight and passenger	34.2	54.2	77.4	1.7
Towing vessels and unrigged craft	53.9	45.8	0.7	77.7
Ferryboats	9.0	.....	21.9	13.9
All other	3.0	.....	(1)	6.7

[1] Less than one-tenth of 1 per cent.

The income of towing vessels and the unrigged craft towed by them exceeded the income of all other vessels. It will be observed that the income reported under "all other" for towing vessels and unrigged craft largely exceeds the amount reported for freight. This is due to the fact that the income for towboats reported separately, being for towing service only, is included under "all other income," and in certain cases operators owning both unrigged boats and towing vessels segregated the income and reported separate amounts for freight and for towing service, which latter appears under "all other."

To arrive at the total income derived from the handling of freight on barges, the amount paid for the towing service should be taken as a part of the freight income as well as the amount paid for the service rendered by the barge; except that when the barge owner does not own towing vessels, but hires them, the gross freight income of the barges includes the amount paid by the barge owner for towing, and hence in such cases the sum of the barge income and the towboat income involves a duplication. On the other hand, when barges and towing vessels are owned by the same party the income covers the entire service and is all directly chargeable to freight, even though a segregation of the income be made for towing service and for barge income.

A very large part of the $5,913,498 reported as "all other" income for towing vessels and unrigged craft represents towing service, and should be included along with the $3,412,867 reported as freight income to give the true income for the handling of freight on unrigged vessels.

The amount reported as income from "all other" sources for ferryboats represents all income for ferryboats except that derived from passengers, and the bulk of it is for the ferrying of teams, loaded vehicles, live stock, etc.

FREIGHT.

The freight handled by all water craft was 31,626,981 net tons of the following character:

Aggregate freight, all craft: 1906.

Aggregate net tons		31,626,981
Total shipped from one port to another		19,531,093
Carried on steamers	2,355,386	
Towed on barges	17,175,707	
Total lightered and transferred		12,095,888
Harbor work or lighterage	5,190,291	
Transferred by railway car ferries	6,905,597	

Included in the above, under car freight, are 3,770,340 tons, the estimated contents of 188,517 loaded cars, the freight contents of which were not reported (see Table 48). The total quantity of freight reported was therefore 27,856,641 tons. Ferry freight, live stock, and that carried in wagons are not included in these freight statistics for 1906, as the returns therefor were in the majority of cases not obtainable.

Freight proper, or merchandise shipped from one port to another, constituted 61.8 per cent of the total quantity handled by vessels; harbor work, or merchandise handled within the confines of a port, formed 16.4 per cent of the total; and freight ferried in cars, which is akin to lighterage, or harbor work, formed 21.8 per cent of the total.

The freight carried on the Mississippi river system decreased in quantity between 1889 and 1906, as shown by Table 27.

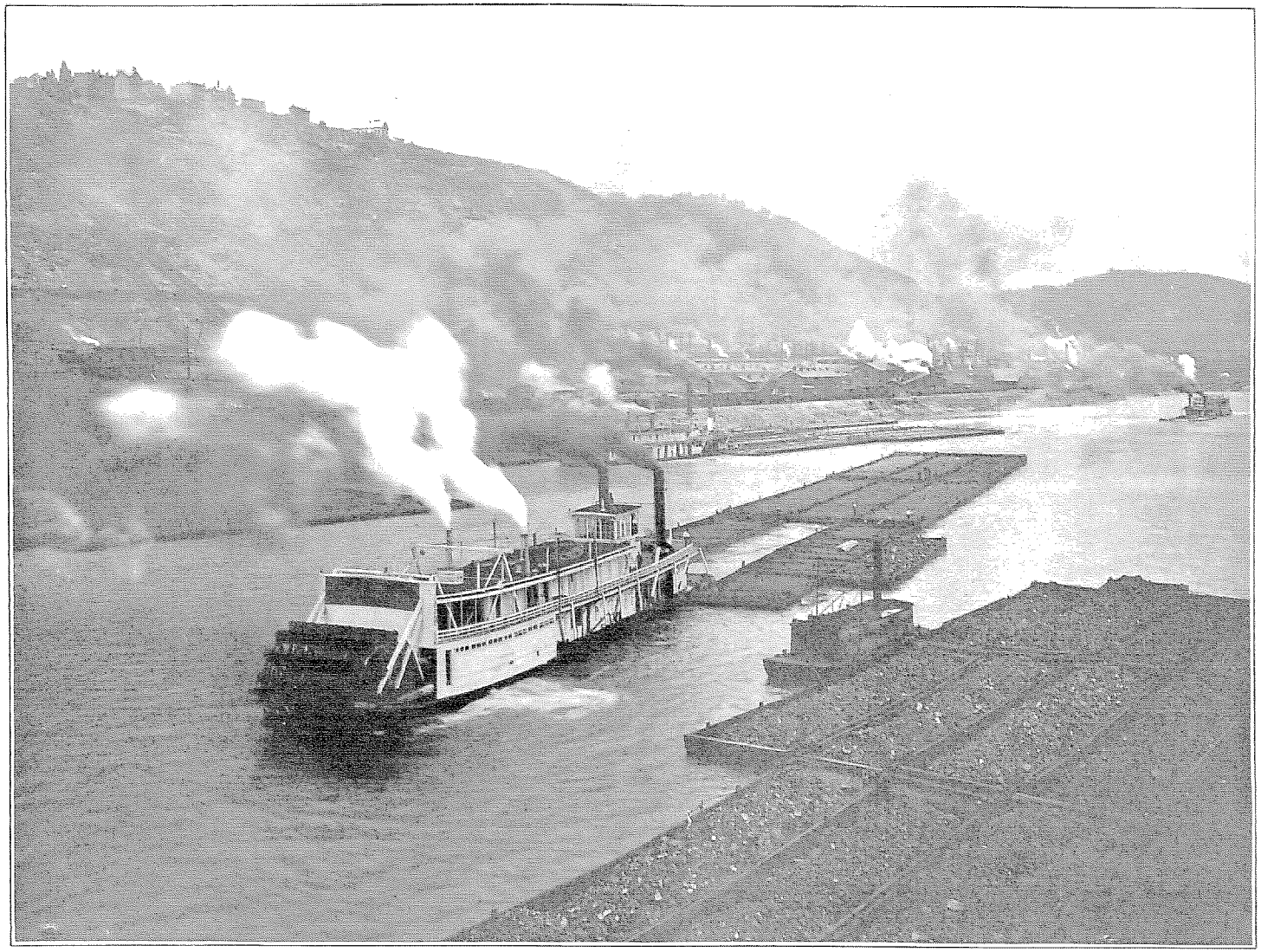
TABLE 27.—*Freight shipments, by river systems, with amount and per cent of decrease: 1906 and 1889.*

RIVER SYSTEM.	FREIGHT (NET TONS).			Per cent of decrease.
	1906	1889	Decrease.	
Total	19,531,093	28,289,503	8,758,410	31.0
Upper Mississippi	1,758,101	6,260,448	4,502,347	71.9
Ohio	15,226,805	15,796,968	570,163	3.6
Lower Mississippi	2,546,187	6,232,087	3,685,900	59.1

The heaviest decrease both in tonnage and in percentage is for the Upper Mississippi system, and the least is for the Ohio system. The above does not of course show the total freight movement on the several river systems, but as the statistics for both years are on a like basis they are properly comparable.

A showing of the chief freight commodities for 1906 in comparison with 1889 is given in Table 28.

The decrease in lumber tonnage nearly equals the net decrease in all freight, while the decrease in all other commodities is 73,169 tons, or four-tenths of 1 per cent of the tonnage of the remaining commodities. But there is a very heavy increase in stone, sand, etc. (chiefly sand), and a large tonnage increase in coal. These two commodity groups now constitute more than three-fourths of the freight. The decreases in grain, cotton, iron ore, ice, and miscellaneous merchandise are all large.



DEPARTURE OF COAL FLEETS FROM PITTSBURG, PA.

TABLE 28.—*Freight, by commodities, with amount and per cent of increase: 1906 and 1889.*

COMMODITY.	FREIGHT (NET TONS).			
	1906	1889	Increase.	
			Amount.	Per cent.
Total	19,531,093	28,289,503	[1] 8,758,410	[1] 31.0
Cement, brick, and lime	95,443	2,193	93,250	4,252.2
Coal	11,033,011	8,527,428	2,505,583	29.4
Cotton	146,975	895,742	[1] 748,767	[1] 83.6
Flour	81,900	[2] 89,992	[1] 8,092	[1] 9.0
Fruits and vegetables	55,703	41,748	13,955	33.4
Grain	380,721	1,712,498	[1] 1,331,777	[1] 77.8
Ice	17,229	91,010	[1] 73,781	[1] 81.1
Iron ore	171,779	574,790	[1] 403,011	[1] 70.1
Lumber	514,950	[3] 9,200,191	[1] 8,685,241	[1] 94.4
Petroleum and other oils	365,479	3,534	361,945	10,241.8
Pig iron and steel rails	55,346	[4] 7,775	47,571	611.8
Stone, sand, etc	4,004,259	321,054	3,683,205	1,147.2
Tobacco	114,000	27,707	86,293	311.4
Miscellaneous merchandise	2,494,298	6,793,841	[1] 4,299,543	[1] 63.3

[1] Decrease.
[2] Mill products.
[3] Lumber and forest products.
[4] Iron, pig and bloom.

Since the reports for both 1889 and 1906 show under "miscellaneous merchandise" considerable freight that could not be segregated by commodities, for the reason that in many cases no record was kept of the kind of freight handled, considerable quantities of the specified commodities are necessarily included with commodities not specifically called for by the schedule. Hence, except in the case of coal, stone, and sand, or such commodities as are freighted in bulk, the tonnage shown for specific commodities is less than the actual amounts.

Table 29 is a presentation of freight, by commodities, and by river systems and rivers, for 1889 and 1906. Each river has been credited with the freight shipped from its ports or landings, and the table shows freight shipments only—or the freight emanating on the respective rivers. For comparative purposes, lumber and petroleum and other oils, which commodities are expressed in feet and barrels, respectively, in other tables, are here given in net tons.

TABLE 29.—FREIGHT SHIPMENTS, BY COMMODITIES, AND BY RIVER SYSTEMS AND RIVERS: 1906 AND 1889.

RIVER SYSTEM AND RIVER.	Year.	Total (net tons).	Cement, brick, and lime (net tons).	Coal (net tons).	Cotton (net tons).	Fruits and vegetables (net tons).	Grain (net tons).	Ice (net tons).	Iron ore (net tons).	Lumber (net tons).	Petroleum and other oils (net tons).	Stone, sand, etc. (net tons).	Tobacco (net tons).	Miscellaneous merchandise (net tons).
Total	1906	19,531,093	95,443	11,033,011	146,975	55,703	380,721	17,229	171,779	514,950	365,479	4,004,259	114,000	2,631,544
	1889	28,289,503	2,193	8,527,428	895,742	41,748	1,712,498	91,010	574,790	9,200,191	3,534	321,054	27,707	6,891,068
Upper Mississippi system	1906	1,758,101	15,238	27,421	.....	11,397	92,868	1,792	2	12,676	526	1,274,785	318	321,078
	1889	6,260,448	.....	64,086	.....	.....	227,000	87,000	1,500	4,649,430	.....	.....	.....	1,231,432
Upper Mississippi	1906	595,885	14,546	20,110	.....	10,845	30,813	1,743	2	6,494	347	363,859	210	146,916
	1889	3,947,364	.....	10,624	.....	.....	23,000	45,050	.....	3,372,874	.....	.....	.....	495,816
Illinois	1906	105,826	50	6,245	.....	140	31,936	.....	.....	114	135	160	100	66,946
	1889	180,264	.....	2,300	.....	.....	18,000	41,950	.....	742	.....	.....	.....	117,272
All others rivers[2]	1906	1,056,390	642	1,066	.....	412	30,119	49	.....	6,068	44	910,766	8	107,216
	1889	2,132,820	.....	51,162	.....	.....	186,000	.....	1,500	1,275,814	.....	.....	.....	618,344
Ohio system	1906	15,226,805	70,329	10,968,307	40,628	39,743	230,705	11,387	171,777	279,436	18,477	1,969,732	112,453	1,313,831
	1889	15,796,968	2,193	8,102,543	31,064	21,699	203,092	10	573,290	3,812,013	3,534	201,054	27,707	2,818,778
Ohio	1906	3,142,097	59,099	1,048,638	2,848	36,587	171,346	6,554	71,777	78,568	17,031	901,586	91,630	656,433
	1889	7,525,667	.....	4,018,787	18,522	.....	125,000	.....	11,656	1,131,755	.....	.....	.....	2,219,947
Big Sandy	1906	1,776	3	.....	.....	15	100	.....	.....	1,077	11	.....	3	567
	1889	286,483	.....	.....	.....	2,511	423	.....	.....	142,950	.....	.....	.....	140,599
Cumberland	1906	348,697	1,485	450	.....	1,100	6,570	400	.....	64,577	54	85,000	3,620	185,441
	1889	974,316	.....	.....	.....	.....	20,983	.....	.....	810,716	.....	89,964	10,201	42,452
Green	1906	305,144	865	125,301	.....	29	1,590	145	.....	64,829	236	4,050	500	107,599
	1889	819,278	168	45,904	.....	501	1,431	.....	.....	752,541	.....	788	4,723	13,222
Kanawha	1906	975,031	1,802	934,608	.....	1,582	6,420	813	.....	3,308	810	2,200	891	22,597
	1889	1,145,202	863	941,446	.....	.....	.....	.....	.....	80,468	.....	.....	.....	122,425
Little Kanawha	1906	11,239	38	.....	.....	.....	847	.....	.....	.....	110	.....	.....	10,244
	1889	115,057	.....	1,100	.....	.....	.....	.....	.....	109,079	678	.....	.....	4,800
Monongahela	1906	8,925,923	3,600	8,828,315	.....	.....	.....	200	.....	100	.....	72,000	.....	21,648
	1889	3,294,932	.....	3,059,418	.....	.....	.....	.....	33,386	81,209	.....	.....	.....	120,919
Muskingum	1906	13,826	800	710	.....	280	2,090	150	.....	287	79	50	100	9,280
	1889	10,281	.....	.....	.....	.....	1,693	.....	.....	475	.....	.....	.....	8,113
Tennessee	1906	678,501	2,573	30,285	37,780	100	17,143	3,125	100,000	55,368	146	148,153	700	283,119
	1889	909,078	962	35,888	12,542	18,657	28,812	10	528,248	163,113	400	21,137	10,000	89,303
Wabash	1906	42,427	64	.....	.....	.....	24,599	.....	.....	10,667	.....	1,000	.....	5,827
	1889	93,178	.....	.....	.....	.....	17,759	.....	.....	63,300	.....	5,734	.....	6,365
All other rivers[3]	1906	782,144	.....	.....	.....	59	.....	.....	.....	1,225	.....	774,763	15,060	11,076
	1889	622,896	200	.....	.....	21	6,991	.....	.....	476,497	2,450	83,411	2,783	50,633

[1] Lumber and forest products, including rafted forest products.
[2] Includes in 1906, Gasconade, Kansas, Minnesota, Missouri, Osage, St. Croix, Salt of Iowa; in 1889, Chippewa, Gasconade, Missouri, Osage, and St. Croix.
[3] Includes in 1906, Allegheny, Kentucky, and Salt of Kentucky; in 1889, Allegheny and Kentucky.

TABLE 29.—FREIGHT SHIPMENTS, BY COMMODITIES, AND BY RIVER SYSTEMS AND RIVERS: 1906 AND 1889—Cont'd.

RIVER SYSTEM AND RIVER.	Year.	Total (net tons).	Cement, brick, and lime (net tons).	Coal (net tons).	Cotton (net tons).	Fruits and vegetables (net tons).	Grain (net tons).	Ice (net tons).	Iron ore (net tons).	Lumber (net tons).	Petroleum and other oils (net tons).	Stone, sand, etc. (net tons).	Tobacco (net tons).	Miscellaneous merchandise (net tons).
Lower Mississippi system	1906	2,546,187	9,876	37,283	106,347	4,563	57,148	4,050	.....	222,838	346,476	759,742	1,229	996,635
	1889	6,232,087	.....	360,799	864,678	20,058	1,282,406	4,000	.....	738,748	.....	120,000	.....	2,841,398
Lower Mississippi [1]	1906	2,329,350	8,339	36,849	64,709	3,991	51,334	3,786	.....	198,936	346,084	756,716	1,180	857,426
	1889	4,206,745	.....	183,848	783,458	.....	954,803	.....	.....	310,654	.....	.....	.....	1,973,982
Arkansas	1906	24,994	110	410	4,489	317	1,777	112	.....	3,130	161	.....	7	14,481
	1889	1,662,717	.....	165,888	35,003	20,058	282,086	4,000	.....	302,690	.....	120,000	.....	732,992
Ouachita (or Wichita) and Black of Louisiana	1906	25,136	64	.....	7,933	20	1,357	32	.....	3,638	92	3,016	15	8,969
	1889	93,707	.....	.....	.....	.....	16,652	.....	.....	29,110	.....	.....	.....	47,945
Red	1906	14,417	135	.....	6,480	.....	365	.....	.....	432	6	.....	.....	6,999
	1889	105,145	.....	11,063	29,676	.....	6,000	.....	.....	4,577	.....	.....	.....	53,829
White	1906	43,933	.....	.....	282	.....	.....	.....	.....	13,250	.....	.....	.....	30,401
	1889	86,393	.....	.....	7,403	.....	.....	.....	.....	63,856	.....	.....	.....	15,134
Yazoo	1906	108,357	1,228	24	22,454	235	2,315	120	.....	3,452	133	10	27	78,359
	1889	77,380	.....	.....	9,138	.....	22,865	.....	.....	27,861	.....	.....	.....	17,516

[1] Includes the Atchafalaya, Black of Arkansas, Black bayou, Lafourche, Macon bayou, St. Francis, and Tensas.

Under "all other merchandise," as shown in Table 29, are included certain commodities that are given separately in other tables, namely, canned goods, flour, naval stores, pig iron and steel rails, and phosphate and fertilizer, for which the returns for 1889 and 1906 are not specifically comparable.

The grain traffic has suffered a heavy decline, the aggregate of shipments shrinking from 1,712,498 tons in 1889 to 380,721 tons in 1906, a decrease of 77.8 per cent. This decrease has been for the Mississippi, the Ohio system showing a small gain. The decrease in shipments on the Upper Mississippi was from 227,000 tons to 92,868 tons, or 59.1 per cent, and on the Lower Mississippi, from 1,282,406 tons to 57,148 tons, or 95.5 per cent. The latter reflects the decrease in the grain barge traffic from St. Louis to the seaboard, as further shown by the following statement, which is taken from the report of the Merchants' Exchange of St. Louis for 1903, and gives the grain shipment by barges for a series of years.

The decrease in the grain barge traffic for the period from 1889 to 1903 amounted to 80.6 per cent.

Shipment of bulk grain by river from St. Louis to New Orleans: 1889 to 1903.

YEAR.	Quantity (bushels).	YEAR.	Quantity (bushels).
1903	2,749,441	1895	1,690,417
1902	2,591,735	1894	2,345,503
1901	2,363,949	1893	7,079,598
1900	3,314,160	1892	8,414,940
1899	2,233,235	1891	8,468,546
1898	6,600,707	1890	10,217,244
1897	5,475,342	1889	14,158,046
1896	10,527,208		

The movement of petroleum and other oils shows a very large increase, due chiefly to the development of the oil fields of Louisiana, which state first became a producer of petroleum in 1902. The bulk of the oil movement is on the Lower Mississippi.

The bulk of the freight is towed on barges, a little less than one-eighth being carried on freight and passenger vessels. The quantity of freight which is carried and towed in the several river districts and the leading rivers thereof is shown in Table 30, by commodities.

TABLE 30.—FREIGHT SHIPMENTS ON STEAM VESSELS AND ON UNRIGGED CRAFT, BY COMMODITIES AND BY RIVER SYSTEMS AND RIVERS: 1906.

CLASS, RIVER SYSTEM, AND RIVER.	Total (net tons).	Canned goods (net tons).	Cement, brick, lime (net tons).	Coal (net tons).	Cotton (net tons).	Flour (net tons).	Fruits and vegetables (net tons).	Grain (net tons).	Ice (net tons).	Iron ore (net tons).	Lumber (M feet).	Naval stores (net tons).	Petroleum and other oils (barrels).	Phosphate and fertilizer (net tons).	Pig iron and steel rails (net tons).	Stone, sand, etc. (net tons).	Tobacco (net tons).	Miscellaneous merchandise (net tons).
Total	19,531,093	63,697	95,443	11,033,011	146,975	81,900	55,703	380,721	17,229	171,779	[1] 225,545	770	[2] 2,256,230	44,413	55,346	4,004,259	114,000	2,385,418
Steam	2,355,386	62,949	43,185	50,361	140,022	80,426	50,627	235,550	16,592	402	61,815	770	96,919	41,433	47,092	59,343	113,937	1,275,661
Unrigged	17,175,707	748	52,258	10,982,650	6,953	1,474	5,076	145,171	637	171,377	163,730	.....	2,159,311	2,980	8,254	3,944,916	63	1,109,757
Upper Mississippi system	1,758,101	2,763	15,238	27,421	.....	5,061	11,397	92,868	1,792	2	7,164	58	2,336	179	400	1,274,785	318	312,617
Steam	273,362	2,566	1,208	1,027	.....	4,596	9,837	47,832	1,695	2	3,129	58	1,915	154	400	23,680	310	174,029
Unrigged	1,484,739	197	14,030	26,394	.....	465	1,560	45,036	97	.....	4,035	.....	421	25	.....	1,251,105	8	138,588
Upper Mississippi	595,885	1,998	14,546	20,110	.....	4,238	10,845	30,813	1,743	2	3,752	58	1,540	149	.....	363,859	210	140,473
Steam	153,932	1,991	713	26	.....	4,218	9,385	30,480	1,661	2	1,302	58	1,295	149	.....	22,850	207	79,646
Unrigged	441,953	7	13,833	20,084	.....	20	1,460	333	82	.....	2,450	.....	245	.....	.....	341,009	3	60,827
Illinois	105,826	510	50	6,245	.....	500	140	31,936	.....	.....	72	.....	600	.....	.....	160	100	65,936
Steam	32,764	510	50	15	.....	200	105	2,500	.....	.....	40	.....	600	.....	.....	160	100	28,926
Unrigged	73,062	.....	.....	6,230	.....	300	35	29,436	.....	.....	32	.....	.....	.....	.....	.....	.....	37,010
Missouri	1,037,059	170	530	889	.....	225	260	25,743	49	.....	2,272	.....	120	30	400	910,221	8	94,270
Steam	84,790	65	445	868	.....	157	197	14,121	34	.....	1,752	.....	20	5	400	250	3	65,081
Unrigged	952,269	105	85	21	.....	68	63	11,622	15	.....	520	.....	100	25	.....	909,971	5	29,189
All other rivers [3]	19,331	85	112	177	.....	98	152	4,376	.....	.....	1,068	.....	76	.....	.....	545	.....	11,938
Steam	1,876	.....	.....	118	.....	21	150	731	.....	.....	35	.....	.....	.....	.....	420	.....	376
Unrigged	17,455	85	112	59	.....	77	2	3,645	.....	.....	1,033	.....	76	.....	.....	125	.....	11,562
Ohio system	15,226,805	46,793	70,329	10,968,307	40,628	55,836	39,743	230,705	11,387	171,777	141,173	105	82,121	36,094	54,410	1,969,732	112,453	1,120,593
Steam	1,246,437	46,578	35,532	48,616	40,628	55,560	36,258	137,447	10,967	400	38,957	105	81,751	35,649	46,306	35,034	112,403	509,448
Unrigged	13,980,368	215	34,797	10,919,691	.....	276	3,485	93,258	420	171,377	102,216	.....	370	445	8,104	1,934,698	50	611,145
Ohio	3,142,097	42,468	59,099	1,048,638	2,848	33,851	36,587	171,346	6,554	71,777	38,661	.....	75,691	31,753	53,810	901,586	91,630	494,551
Steam	888,562	42,360	31,678	46,941	2,848	33,790	33,152	105,376	6,134	400	19,685	.....	75,661	31,748	46,306	4,831	91,580	354,390
Unrigged	2,253,535	108	27,421	1,001,697	.....	61	3,435	65,970	420	71,377	18,976	.....	30	5	7,504	896,755	50	140,161
Big Sandy	1,776	22	3	.....	.....	70	15	100	.....	.....	540	.....	50	.....	.....	.....	3	475
Steam	779	22	3	.....	.....	70	15	100	.....	.....	40	.....	50	.....	.....	.....	3	475
Unrigged	997	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	.....	.....	.....	.....	.....	.....	.....
Cumberland	348,697	154	1,485	450	.....	3,571	1,100	6,570	400	.....	34,635	105	240	1,020	.....	85,000	3,620	180,591
Steam	70,440	154	455	.....	.....	3,571	1,100	6,570	400	.....	3,520	105	240	1,020	.....	30,000	3,620	16,828
Unrigged	278,257	.....	1,030	450	.....	.....	.....	.....	.....	.....	31,115	.....	.....	.....	.....	55,000	.....	163,763
Green	305,144	60	865	125,301	.....	480	29	1,590	145	.....	30,936	.....	1,050	275	.....	4,050	500	106,784
Steam	19,106	60	865	.....	.....	480	29	1,240	145	.....	590	.....	1,050	275	.....	.....	500	14,040
Unrigged	286,038	.....	.....	125,301	.....	.....	.....	350	.....	.....	30,346	.....	.....	.....	.....	4,050	.....	92,744
Kanawha	975,031	3,720	1,802	934,608	.....	2,885	1,582	6,420	813	.....	2,113	.....	3,600	305	.....	2,200	891	15,687
Steam	36,621	3,720	1,172	.....	.....	2,885	1,582	6,420	813	.....	2,013	.....	3,600	305	.....	.....	891	14,872
Unrigged	938,410	.....	630	934,608	.....	.....	.....	.....	.....	.....	100	.....	.....	.....	.....	2,200	.....	815
Little Kanawha	11,239	84	38	.....	.....	355	.....	847	.....	.....	.....	.....	490	.....	.....	.....	.....	9,805
Steam	9,496	12	3	.....	.....	140	.....	393	.....	.....	.....	.....	200	.....	.....	.....	.....	8,903
Unrigged	1,743	72	35	.....	.....	215	.....	454	.....	.....	.....	.....	290	.....	.....	.....	.....	902
Monongahela	8,925,923	.....	3,600	8,828,315	.....	.....	.....	.....	200	.....	97	.....	.....	.....	.....	72,000	.....	21,648
Steam	13,319	.....	.....	.....	.....	.....	.....	.....	200	.....	72	.....	.....	.....	.....	.....	.....	13,000
Unrigged	8,912,604	.....	3,600	8,828,315	.....	.....	.....	.....	.....	.....	25	.....	.....	.....	.....	72,000	.....	8,648
Muskingum	13,826	60	800	710	.....	1,015	280	2,090	150	.....	170	.....	350	400	.....	50	100	7,805
Steam	13,826	60	800	710	.....	1,015	280	2,090	150	.....	170	.....	350	400	.....	50	100	7,805
Unrigged	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee	678,501	225	2,573	30,285	37,780	5,609	100	17,143	3,125	100,000	30,130	.....	650	2,341	600	148,153	709	274,344
Steam	167,494	190	556	965	37,780	5,609	100	15,048	3,125	.....	12,786	.....	600	1,901	.....	153	709	75,785
Unrigged	511,007	35	2,017	29,320	.....	.....	.....	2,095	.....	100,000	17,344	.....	50	440	600	148,000	.....	198,559
Wabash	42,427	.....	64	.....	.....	.....	.....	24,599	.....	.....	3,276	.....	.....	.....	.....	1,900	.....	5,827
Steam	1,264	.....	.....	.....	.....	.....	.....	210	.....	.....	66	.....	.....	.....	.....	.....	.....	850
Unrigged	41,163	.....	64	.....	.....	.....	.....	24,389	.....	.....	3,210	.....	.....	.....	.....	1,900	.....	4,977
All other rivers [4]	782,144	.....	.....	.....	.....	8,000	50	.....	.....	.....	615	.....	.....	.....	.....	754,793	15,000	3,076
Steam	25,530	.....	.....	.....	.....	8,000	.....	.....	.....	.....	15	.....	.....	.....	.....	.....	15,000	2,500
Unrigged	756,614	.....	.....	.....	.....	.....	50	.....	.....	.....	600	.....	.....	.....	.....	754,793	.....	576

[1] Net tons, 514,950.
[2] Net tons, 365,479.
[3] Includes Gasconade, Minnesota, Osage, St. Croix, and Salt of Iowa.
[4] Includes Allegheny, Kentucky, and Salt of Kentucky.

TABLE 30.—FREIGHT SHIPMENTS ON STEAM VESSELS AND ON UNRIGGED CRAFT, BY COMMODITIES AND BY RIVER SYSTEMS AND RIVERS: 1906—Continued.

CLASS, RIVER SYSTEM, AND RIVER.	Total (net tons).	Canned goods (net tons).	Cement, brick, lime (net tons).	Coal (net tons).	Cotton (net tons).	Flour (net tons).	Fruits and vegetables (net tons).	Grain (net tons).	Ice (net tons).	Iron ore (net tons).	Lumber (M feet).	Naval stores (net tons).	Petroleum and other oils (barrels).	Phosphate and fertilizer (net tons).	Pig iron and steel rails (net tons).	Stone, sand etc. (net tons).	Tobacco (net tons).	Miscellaneous merchandise (net tons).
Lower Mississippi system.	2,546,187	14,141	9,876	37,283	106,347	21,003	4,563	57,148	4,050	.....	77,208	607	2,171,773	8,140	536	759,742	1,220	952,208
Steam	835,587	13,805	6,445	718	99,394	20,270	4,532	50,271	3,930	.....	19,729	607	13,253	5,630	386	629	1,224	592,184
Unrigged	1,710,600	336	3,431	36,565	6,953	733	31	6,877	120	.....	57,479	.....	2,158,520	2,510	150	759,113	5	360,024
Lower Mississippi	2,168,581	13,317	8,194	36,549	60,789	16,081	3,946	50,809	3,716	.....	46,098	607	2,026,885	3,526	376	756,716	1,159	756,396
Steam	693,516	13,081	4,819	284	58,064	15,601	3,915	44,239	3,666	.....	9,514	607	11,415	3,516	376	613	1,154	529,894
Unrigged	1,475,065	236	3,375	36,265	2,725	480	31	6,570	50	.....	36,584	.....	2,015,470	10	.....	756,103	5	226,502
Arkansas	24,994	125	110	410	4,489	233	317	1,777	112	.....	2,065	.....	714	4	.....	.....	7	14,119
Steam	23,175	125	110	410	4,489	233	317	1,777	112	.....	865	.....	714	4	.....	.....	7	14,119
Unrigged	1,819	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,200	.....	.....	.....	.....	.....	.....	.....
Black of Arkansas	20,059	.....	.....	.....	410	50	.....	.....	20	.....	3,714	.....	.....	.....	.....	.....	.....	12,300
Steam	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....
Unrigged	20,036	.....	.....	.....	410	50	.....	.....	20	.....	3,702	.....	.....	.....	.....	.....	.....	12,300
Ouachita (or Wichita) and Black of Louisiana	25,136	70	64	.....	7,933	1,063	20	1,357	32	.....	2,971	.....	410	2,025	.....	3,016	15	5,811
Steam	18,125	70	28	.....	7,900	1,060	20	1,350	32	.....	678	.....	410	2,025	.....	16	15	4,687
Unrigged	7,011	.....	36	.....	33	3	.....	7	.....	.....	2,293	.....	.....	.....	.....	3,000	.....	1,124
Red	14,417	100	135	.....	6,480	276	.....	365	.....	.....	240	.....	25	85	.....	.....	.....	6,538
Steam	14,147	100	135	.....	6,480	276	.....	365	.....	.....	90	.....	25	85	.....	.....	.....	6,538
Unrigged	270	.....	.....	.....	.....	.....	.....	.....	.....	.....	150	.....	.....	.....	.....	.....	.....	.....
White	43,933	.....	.....	.....	282	.....	.....	.....	.....	.....	6,525	.....	.....	.....	.....	.....	.....	30,401
Steam	25,433	.....	.....	.....	282	.....	.....	.....	.....	.....	6,525	.....	.....	.....	.....	.....	.....	11,901
Unrigged	18,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18,500
Yazoo	108,357	279	1,228	24	22,454	2,950	235	2,315	120	.....	1,425	.....	589	.....	10	10	27	75,120
Steam	52,751	279	1,228	24	19,579	2,950	235	2,315	120	.....	1,375	.....	589	.....	10	.....	27	22,520
Unrigged	55,606	.....	.....	.....	2,875	.....	.....	.....	.....	.....	50	.....	.....	.....	.....	10	.....	52,600
All other rivers and bayous[1]	140,710	250	145	300	3,510	350	45	525	50	.....	14,170	.....	143,150	2,500	150	.....	21	51,523
Steam	8,417	150	125	.....	2,600	150	45	225	.....	.....	670	.....	100	.....	.....	.....	21	2,525
Unrigged	132,293	100	20	300	910	200	.....	300	50	.....	13,500	.....	143,050	2,500	150	.....	.....	48,998

[1] Includes Atchafalaya, Black bayou, Lafourche, Macon bayou, St. Francis, and Tensas.

The quantity of freight towed exceeds the quantity carried on steamers in the case of a large majority of the rivers shown in detail.

Table 31 shows the percentages for the several rivers of the freight carried on steamers and that towed on unrigged vessels.

TABLE 31.—*Per cent of freight carried on steamers and towed on unrigged vessels: 1906.*

RIVER SYSTEM AND RIVER.	Carried on steamers.	Towed on unrigged vessels.
Total	12.1	87.9
Upper Mississippi system	15.5	84.5
Upper Mississippi	25.8	74.2
Illinois	31.0	69.0
Missouri	8.2	91.8
All other rivers	9.7	90.3

TABLE 31.—*Per cent of freight carried on steamers and towed on unrigged vessels: 1906*—Continued.

RIVER SYSTEM AND RIVER.	Carried on steamers.	Towed on unrigged vessels.
Ohio system	8.2	91.8
Ohio	28.3	71.7
Big Sandy	43.9	56.1
Cumberland	20.2	79.8
Green	6.3	93.7
Kanawha	3.8	96.2
Little Kanawha	84.5	15.5
Monongahela	0.1	99.9
Muskingum	100.0	.....
Tennessee	24.7	75.3
Wabash	3.0	97.0
All other rivers	3.3	96.7
Lower Mississippi system	32.8	67.2
Lower Mississippi	32.0	68.0
Arkansas	92.7	7.3
Black of Arkansas	0.1	99.9
Ouachita and Black of Louisiana	72.1	27.9
Red	98.1	1.9
White	57.9	42.1
Yazoo	48.7	51.3
All other rivers and bayous	6.0	94.0

The rivers on which steamer freight is in excess of barge freight are the Muskingum and Little Kanawha of the Ohio system and the Red, Arkansas, Ouachita and Black of Louisiana, and White of the Lower Mississippi system. It should be remembered that rafts and logs towed in the water are not included in any of the freight statistics for 1906.

Coal and sand, stone, etc., constituted 86.9 per cent of all barge freight. For the Upper Mississippi system these commodities formed 86 per cent of all barge freight; for the Ohio system, 91.9 per cent; and for the Lower Mississippi system, 46.5 per cent.

The freight receipts for the different commodities are shown by river systems and rivers in Table 32.

TABLE 32.—FREIGHT RECEIPTS, BY COMMODITIES AND BY RIVER SYSTEMS AND RIVERS: 1906.

RIVER SYSTEM AND RIVER.	Total (net tons).	Canned goods (net tons).	Cement, brick, and lime (net tons).	Coal (net tons).	Cotton (net tons).	Flour (net tons).	Fruits and vegetables (net tons).	Grain (net tons).	Ice (net tons).	Iron ore (net tons).	Lumber (M ft.).	Naval stores (net tons).	Petroleum and other oils (barrels).	Phosphate and fertilizer (net tons).	Pig iron and steel rails (net tons).	Stone, sand, etc. (net tons).	Tobacco (net tons).	Miscellaneous merchandise (net tons).
Total	19,531,093	63,697	95,443	11,033,011	146,975	81,900	55,703	380,721	17,229	171,779	[1]225,545	776	[2]2,256,230	44,413	55,346	4,004,259	114,600	2,385,418
Upper Mississippi system	1,753,501	6,258	15,803	27,492	50	5,726	5,674	68,756	2,297	2	7,194	108	2,996	264	400	1,274,654	548	330,872
Upper Mississippi	597,025	4,948	15,026	20,145	.....	5,138	5,190	7,406	2,203	2	3,871	103	2,750	209	.....	363,503	410	164,422
Illinois	105,002	810	50	6,260	50	250	130	31,936	40	.....	62	5	.....	.....	.....	360	125	64,841
Missouri	1,045,300	415	615	910	.....	240	202	26,932	54	.....	3,091	.....	170	55	400	910,371	13	99,371
All other rivers[3]	6,174	85	112	177	.....	98	152	2,476	.....	.....	170	.....	76	.....	.....	420	.....	2,238
Ohio system	14,036,946	46,793	65,970	9,798,750	40,218	57,617	39,748	229,212	11,687	171,777	139,768	105	82,321	36,094	54,410	1,925,442	112,480	1,107,663
Ohio	12,296,037	39,140	50,987	9,321,447	3,580	30,450	36,657	169,555	6,619	71,777	103,185	100	73,246	29,794	43,250	1,268,501	104,821	859,159
Big Sandy	4,887	30	3	8	.....	100	15	205	.....	.....	40	.....	110	.....	.....	.....	3	4,365
Cumberland	178,951	184	1,470	450	.....	4,425	1,300	6,472	400	.....	20,385	5	150	1,020	1,000	85,600	4,770	24,246
Green	80,902	285	1,247	32,970	.....	1,330	349	540	200	.....	1,580	.....	2,905	500	.....	3,300	.....	36,932
Kanawha	63,832	4,720	4,072	9,670	.....	5,915	1,047	6,265	1,345	.....	1,927	.....	4,160	1,857	1,950	2,250	2,343	17,746
Little Kanawha	6,953	109	38	40	.....	580	.....	889	.....	.....	.....	.....	250	.....	.....	.....	.....	5,241
Monongahela	545,716	.....	3,600	420,780	.....	.....	.....	.....	200	.....	97	.....	.....	.....	7,504	91,472	.....	22,000
Muskingum	11,073	100	1,140	650	.....	540	280	1,780	300	.....	140	.....	850	670	100	50	100	4,935
Tennessee	472,759	225	3,349	12,735	36,638	6,277	100	16,690	2,563	100,000	9,123	.....	650	2,253	600	151,711	443	124,636
Wabash	30,537	.....	64	.....	.....	.....	.....	15,316	.....	.....	3,276	.....	.....	.....	.....	1,900	.....	5,827
All other rivers[4]	345,299	2,000	.....	.....	.....	8,000	.....	11,500	.....	.....	15	.....	.....	.....	.....	321,198	.....	2,576
Lower Mississippi system	3,740,646	10,646	13,670	1,206,769	106,707	18,557	10,281	82,759	3,245	.....	78,583	557	2,170,913	8,055	530	804,163	972	946,883
Lower Mississippi	3,487,137	5,407	10,459	1,205,985	91,425	7,466	9,322	59,318	1,679	.....	63,922	557	2,023,841	3,741	386	801,026	795	814,972
Arkansas	35,871	758	110	410	1,399	1,345	633	9,849	112	.....	1,952	.....	1,606	4	.....	.....	47	18,743
Black of Arkansas	20,049	.....	.....	.....	410	50	.....	.....	20	.....	3,702	.....	.....	.....	.....	.....	.....	12,300
Ouachita (or Wichita) and Black of Louisiana	18,998	731	464	.....	1,750	1,760	10	2,650	204	.....	328	.....	526	1,525	.....	3,000	65	6,016
Red	8,481	220	160	.....	480	416	.....	625	.....	.....	215	.....	55	125	.....	.....	.....	5,988
White	25,433	.....	.....	.....	282	.....	.....	.....	.....	.....	6,525	.....	.....	.....	.....	.....	.....	11,901
Yazoo	62,325	3,257	2,307	74	10,761	7,140	316	9,952	916	.....	1,677	.....	1,730	160	.....	137	45	23,393
All other rivers and bayous[5]	82,352	273	170	300	200	380	.....	365	320	.....	1,162	.....	143,155	2,500	150	.....	20	53,570

[1] Net tons, 514,950.
[2] Net tons, 365,479.
[3] Includes Gasconade, Minnesota, Osage, St. Croix, and Salt of Iowa.
[4] Includes Allegheny, Kentucky, and Salt of Kentucky.
[5] Includes Atchafalaya, Black bayou, Lafourche, Macon bayou, St. Francis, and Tensas.

For the Upper Mississippi system the difference in quantity between the freight shipments (Table 30) and the freight receipts (Table 32) is small, but for the Ohio and the Lower Mississippi systems there are material differences. The freight shipments for the Ohio system exceed the receipts by 1,189,859 tons, chiefly represented by the 1,169,557 tons of excess of coal shipments over receipts. This coal goes to lower river ports and appears under coal receipts in the Lower Mississippi system, the coal receipts of the latter district exceeding the coal shipments of the same by 1,169,486 tons.

The freight receipts for the Ohio river exceed the shipments by 9,153,940 tons, which excess is composed chiefly of 8,272,809 tons of coal received from the Monongahela and Kanawha rivers; of 64,524,215 feet of lumber coming from the Cumberland, Green, and Tennessee rivers; of 366,915 tons of stone, sand, etc., from tributaries of the Ohio; and 364,608 tons of miscellaneous merchandise, from tributaries of the Ohio and other rivers. Shipments materially in excess of receipts are shown for each tributary of the Ohio, with the exception of the Big Sandy, the freight movements being chiefly to lower river ports.

Next to coal the chief commodity is sand, but the water transportation of sand is in general restricted to short hauls, which seldom extend farther than the river on which they emanate. Hence the shipments and deliveries of stone, sand, etc., approximate each other closely for most of the rivers, the chief exceptions being the Ohio and "all other rivers" of the Ohio system; the exception in these cases, however, is more apparent than real, as the difference is due chiefly to sand shipped from the Allegheny river to Pittsburg.

Table 33 shows the tons of freight shipped from and received at the leading ports, the chief commodities, coal and stone, sand, etc., being shown separately for the several ports.

TABLE 33.—FREIGHT SHIPMENTS AND RECEIPTS AND TOTAL FREIGHT HANDLED, BY RIVER SYSTEMS AND PORTS: 1906.

RIVER SYSTEM AND PORT.	Total freight movement (net tons).	SHIPMENTS.				RECEIPTS.			
		Total (net tons).	Coal (net tons).	Stone, sand, etc. (net tons).	All other merchandise (net tons).	Total (net tons).	Coal (net tons).	Stone, sand, etc. (net tons).	All other merchandise (net tons).
Aggregate	.....	19,531,093	11,033,011	4,004,259	4,493,823	19,531,093	11,033,011	4,004,259	4,493,823
Upper Mississippi system	.....	1,758,101	27,421	1,274,785	455,895	1,753,501	27,492	1,274,654	451,355
Alton, Ill	33,604	5,987	20	.....	5,967	27,617	.....	22,331	5,286
Burlington, Iowa	35,777	4,856	.....	1	4,855	30,921	.....	19,500	11,421
Clinton, Iowa	37,503	1,898	.....	.....	1,898	35,605	.....	28,995	6,610
Davenport, Iowa	95,163	11,735	.....	8,100	3,635	83,428	.....	80,100	3,328
Dubuque, Iowa	10,260	526	.....	.....	526	9,734	.....	.....	9,734
Galena, Ill	5,439	1	.....	.....	1	5,438	.....	5,311	127
Kansas City, Mo.[1]	645,954	250	.....	.....	250	645,704	.....	645,064	640
Moline, Ill	56,336	2,219	.....	.....	2,219	54,117	.....	54,111	6
Muscatine, Iowa	21,934	1,392	6	.....	1,386	20,542	.....	12,000	8,542
Pekin, Ill	10,050	.....	.....	.....	.....	10,050	.....	.....	10,050
Peoria, Ill	29,277	21,409	15	160	21,234	7,868	180	.....	7,688
Quincy, Ill	39,222	5,221	.....	.....	5,221	34,001	.....	20,000	14,001
Rock Island, Ill	84,594	23,202	14,000	8,100	1,102	61,392	.....	60,600	792
All other ports	.....	1,679,405	13,380	1,258,424	407,601	727,084	27,312	326,642	373,130
Ohio system	.....	15,226,805	10,968,307	1,969,732	2,288,766	14,036,946	9,798,750	1,925,442	2,312,754
Allegheny, Pa	81,209	7,960	.....	3,460	4,500	73,249	57,749	.....	15,500
Bowling Green, Ky	50,367	13,119	.....	.....	13,119	37,248	28,705	3,250	5,293
Burnside, Ky	32,175	4,708	450	.....	4,258	27,467	.....	.....	27,467
Catlettsburg, Ky.[1]	9,694	4,254	8	.....	4,246	5,440	.....	5,000	440
Charleston, W. Va.[1]	38,650	21,430	.....	.....	21,430	17,220	.....	.....	17,220
Chattanooga, Tenn	91,061	19,250	150	300	18,800	71,811	.....	59,000	12,811
Cincinnati, Ohio[1]	2,363,215	231,368	33,384	630	197,354	2,131,847	1,904,242	113,920	113,685
Decatur, Ala	81,078	18,003	500	.....	17,503	63,075	.....	300	62,775
Evansville, Ind	416,133	57,762	.....	260	57,502	358,371	114,988	73,600	169,783
Florence, Ala	27,040	5,000	.....	.....	5,000	22,040	.....	.....	22,040
Grayville, Ill	10,607	.....	.....	.....	.....	10,607	.....	460	10,147
Knoxville, Tenn.[1]	77,828	4,232	100	.....	4,132	73,596	.....	73,000	596
Livermore, Ky	8,516	5,363	.....	.....	5,363	3,153	960	.....	2,193
Louisville, Ky	1,203,727	86,772	.....	.....	86,772	1,116,955	684,775	235,000	197,180
Madison, Ind	107,053	21,495	510	.....	20,985	85,558	50,000	.....	35,558
Marietta, Ohio	33,480	15,883	.....	.....	15,883	17,597	60	17	17,520
Nashville, Tenn.[1]	99,193	11,920	.....	.....	11,920	87,273	.....	55,000	32,273
Paducah, Ky	239,808	48,977	1,170	3,784	44,023	190,831	93,541	18,328	78,962
Parkersburg, W. Va	56,547	35,649	75	10,938	24,636	20,898	2,500	.....	18,398
Pittsburg, Pa.[1]	6,854,575	493,702	370,672	47,472	75,558	6,360,873	5,832,195	465,077	63,601
Terre Haute, Ind	4,980	200	.....	.....	200	4,780	.....	.....	4,780
Wheeling, W. Va	161,550	42,360	700	18,000	23,660	119,190	840	22,074	96,276
Vincennes, Ind	2,014	64	.....	.....	64	1,950	.....	.....	1,950
All other ports	.....	14,077,334	10,560,588	1,884,888	1,631,858	3,135,917	1,028,195	801,416	1,306,306
Lower Mississippi system	.....	2,546,187	37,283	759,742	1,749,162	3,740,646	1,206,769	804,163	1,729,714
Alexandria, La	6,147	3,718	.....	.....	3,718	2,429	.....	.....	2,429
Baton Rouge, La.[1]	15,508	4,896	.....	2,000	2,896	10,612	9,403	.....	1,209
Cairo, Ill.[1]	247,239	13,130	122	.....	13,008	234,109	62,007	25,000	147,102
Greenville, Miss.[1]	89,519	16,189	11	.....	16,178	73,330	19,101	.....	54,229
Helena, Ark	60,463	2,052	50	.....	2,002	58,411	7,329	.....	51,082
Little Rock, Ark.[1]	5,476	2,560	205	.....	2,355	2,916	.....	.....	2,916
Memphis, Tenn.[1]	662,308	395,494	.....	330,113	65,381	266,814	103,706	.....	163,108
Monroe, La	21,141	15,848	.....	.....	15,848	5,293	.....	.....	5,293
Natchez, Miss	56,966	14,531	.....	.....	14,531	42,435	36,085	.....	6,350
New Orleans, La.[1]	1,036,613	58,483	2,540	435	55,508	978,130	702,906	86,000	189,224
Pine Bluff, Ark	11,393	5,902	205	.....	5,697	5,491	.....	.....	5,491
Shreveport, La	4,026	2,182	.....	.....	2,182	1,844	.....	.....	1,844
St. Louis, Mo.[1]	743,981	77,901	71	35	77,795	666,080	191,914	309,391	164,775
Vicksburg, Miss	375,454	232,061	.....	112	231,949	143,393	43,987	.....	99,406
Yazoo City, Miss	27,130	8,777	50	25	8,702	18,353	.....	10	18,343
All other ports	.....	1,692,463	34,029	427,022	1,231,412	1,231,006	30,331	383,762	816,913

[1] See Table 35 for harbor freight.

In cases where the port freight as reported to the Census is for boats owned by less than 3 operators, the port has been included under "all other ports," in order not to disclose individual operations. For this reason certain important ports can not be shown separately.

The bulk of the freight reported under "stone, sand, etc.," was sand dredged in the neighborhood of the port at which it was delivered, and in certain cases such freight constituted the bulk of the freight handled. This is notably the case in most of the ports of the Upper Mississippi system. Table 34 shows the ports where the "stone, sand, etc.," delivered constitute more than one-half of the total freight handled.

TABLE 34.—*Ports where the stone, sand, etc., received form the bulk of all freight handled: 1906.*

PORT.	Total freight handled (tons).	Stone, sand, etc., received (tons).	All other merchandise handled (tons).
Upper Mississippi system:			
Alton, Ill	33,604	22,331	11,273
Burlington, Iowa	35,777	19,500	16,277
Clinton, Iowa	37,503	28,995	8,508
Davenport, Iowa	95,163	80,100	15,063
Galena, Ill	5,439	5,311	128
Kansas City, Mo	645,954	645,064	890
Moline, Ill	56,336	54,111	2,225
Muscatine, Iowa	21,934	12,000	9,934
Quincy, Ill	39,222	20,000	19,222
Rock Island, Ill	84,594	60,600	23,994
Ohio system:			
Catlettsburg, Ky	9,694	5,000	4,694
Chattanooga, Tenn	91,061	59,000	32,061
Knoxville, Tenn	77,828	73,000	4,828
Nashville, Tenn	99,193	55,000	44,193

The sand included as freight does not include the sand that was dredged and delivered within the confines of a port; this sand shipment has been classified as harbor work.

Ranked by the quantity of freight handled Pittsburg is easily first, followed by Cincinnati, Louisville, New Orleans, St. Louis, and Memphis in the order named. Kansas City is seventh, according to total tonnage, but practically all of the freight is sand, the quantity of other freight being small. Hence, as a general freight port, the rank of Kansas City is low. Evansville, Vicksburg, Cairo, Paducah, Wheeling, and Madison follow in the order named, these comprising all of the specified ports showing more than 100,000 tons of freight movement.

Freight classified as harbor work, or lighterage, amounted to 5,190,291 tons, exclusive of car freight handled by the car ferries, for which see Table 48. Table 35 shows the distribution of harbor work.

TABLE 35.—*Harbor work, by river systems, rivers, and ports: 1906.*

RIVER SYSTEM, RIVER, AND PORT.	Total (tons).	Coal (tons).	Sand (tons).	Miscellaneous merchandise (tons).
Aggregate	5,190,291	238,302	4,698,161	253,828
Upper Mississippi system	482,090	3,200	477,962	928
Mississippi river	459,105	.....	458,727	378
Illinois river	2,700	2,400	.....	300
Missouri river	19,485	.....	19,235	250
Kansas City, Mo	5,000	.....	5,000	.....
All other ports	14,485	.....	14,235	250
St. Croix river	800	800	.....	.....
Ohio system	2,354,147	.....	2,354,147	.....
Ohio river	2,249,122	.....	2,249,122	.....
Catlettsburg, Ky	20,000	.....	20,000	.....
Cincinnati, Ohio	72,000	.....	72,000	.....
Pittsburg, Pa	2,102,122	.....	2,102,122	.....
All other ports	55,000	.....	55,000	.....
Cumberland river	28,125	.....	28,125	.....
Nashville, Tenn	28,125	.....	28,125	.....
Kanawha river	72,400	.....	72,400	.....
Charleston, W. Va	72,400	.....	72,400	.....
Tennessee river	4,500	.....	4,500	.....
Knoxville, Tenn	4,500	.....	4,500	.....
Lower Mississippi system	2,354,054	235,102	1,866,052	252,900
Mississippi river	2,322,624	235,102	1,844,622	242,900
Baton Rouge, La	42,400	35,000	3,000	4,400
Cairo, Ill	14,600	14,600	.....	.....
Greenville, Miss	89,000	.....	.....	89,000
Memphis, Tenn	195,000	120,000	75,000	.....
New Orleans, La	107,500	26,500	6,500	74,500
St. Louis, Mo	969,002	39,002	930,000	.....
All other ports	905,122	.....	830,122	75,000
Arkansas river	21,430	.....	21,430	.....
Little Rock, Ark	21,430	.....	21,430	.....
Yazoo river	10,000	.....	.....	10,000

In considering the total merchandise handled at the different ports the tonnage shown in Table 35 should be added to that reported as freight in Table 33. Thus the total quantities handled at the specified ports for which harbor work was reported (exclusive of car freight) were as follows:

TABLE 36.—*Total freight and harbor work for ports reporting harbor work: 1906.*

PORT.	Total (tons).	Freight handled (tons).	Harbor work (tons).
Baton Rouge, La	57,908	15,508	42,400
Cairo, Ill	[1] 261,839	247,239	14,600
Catlettsburg, Ky	29,694	9,694	20,000
Charleston, W. Va	[1] 111,050	38,650	72,400
Cincinnati, Ohio	2,435,215	2,363,215	72,000
Greenville, Miss	178,519	89,519	89,000
Kansas City, Mo	650,954	645,954	5,000
Knoxville, Tenn	82,328	77,828	4,500
Little Rock, Ark	26,906	5,476	21,430
Memphis, Tenn	[1] 857,308	662,308	195,000
Nashville, Tenn	127,318	99,193	28,125
New Orleans, La	[1] 1,144,113	1,036,613	107,500
Pittsburg, Pa	8,956,697	6,854,575	2,102,122
St. Louis, Mo	[1] 1,712,983	743,981	969,002

[1] Does not include freight ferried in railway cars.

The ranking ports, when all merchandise is considered, are the following, the list including all ports showing over 100,000 tons of freight shipped and received and harbor work exclusive of car freight:

Ports showing over 100,000 tons of freight shipped and received: 1906.

PORT.	Tons.	PORT.	Tons.
Pittsburg, Pa	8,956,697	Vicksburg, Miss	375,454
Cincinnati, Ohio	2,435,215	Cairo, Ill	261,839
St. Louis, Mo	1,712,983	Paducah, Ky	239,808
Louisville, Ky	1,203,727	Greenville, Miss	178,519
New Orleans, La	1,144,113	Wheeling, W. Va	161,550
Memphis, Tenn	857,308	Nashville, Tenn	127,318
Kansas City, Mo	650,954	Charleston, W. Va	111,050
Evansville, Ind	416,133	Madison, Ind	107,053

PASSENGERS.

A comparative statement of the passengers carried by ferryboats and all other vessels on the Mississippi river and its tributaries is given in Table 37.

The many bridges now crossing the Upper Mississippi, the Missouri, and the Ohio rivers have resulted in a large decrease since 1889 in the number of ferry passengers on these rivers, while the Lower Mississippi, which is bridged only at St. Louis and Memphis, shows a large increase.

The statistics in detail with respect to passenger traffic for 1906 are given in Table 38.

The passengers carried by a vessel are credited to the river on which the chief port or home port of the vessel is located, and it therefore follows that in the case of boats plying on more than one river, the river on which the home port is located has received credit for all passengers, even though they be local passengers between landings on another river.

TABLE 37.—NUMBER OF PASSENGERS, BY RIVER SYSTEMS, WITH PER CENT OF INCREASE AND PER CENT OF TOTAL: 1906, 1889, AND 1880.

RIVER SYSTEM AND CLASS OF PASSENGERS.	1906	1889	1880	PER CENT OF INCREASE.		PER CENT OF TOTAL.		
				1889 to 1906	1880 to 1889	1906	1889	1880
Total	[1]14,122,241	10,858,894	6,728,067	30.1	61.4	100.0	100.0	100.0
Ferryboats	[1]10,022,612	8,474,646	5,199,984	18.3	63.0	71.0	78.0	77.3
All other vessels	4,099,629	2,384,248	1,528,083	71.9	56.0	29.0	22.0	22.7
Upper Mississippi system	2,333,084	1,821,734	1,380,912	28.1	31.9	100.0	100.0	100.0
Ferryboats	890,836	1,482,984	1,026,182	[2]39.9	44.5	38.2	81.4	74.3
All other vessels	1,442,248	338,750	354,730	325.8	[2]4.5	61.8	18.6	25.7
Ohio system	4,776,088	6,503,143	3,961,798	[2]26.6	64.1	100.0	100.0	100.0
Ferryboats	2,951,908	4,996,549	3,000,862	[2]40.9	66.5	61.8	76.8	75.7
All other vessels	1,824,180	1,506,594	960,936	21.1	56.8	38.2	23.2	24.3
Lower Mississippi system	7,013,069	2,534,017	1,385,357	176.8	82.9	100.0	100.0	100.0
Ferryboats	6,179,868	1,995,113	1,172,940	209.8	70.1	88.1	78.7	84.7
All other vessels	833,201	538,904	212,417	54.6	153.7	11.9	21.3	15.3

[1] Includes 371,514 passengers ferried in railway cars on the Ohio, Tennessee, and Lower Mississippi rivers. [2] Decrease.

TABLE 38.—NUMBER OF PASSENGERS, BY CLASS OF VESSELS AND BY RIVER SYSTEMS AND RIVERS: 1906.

RIVER SYSTEM AND RIVER.	Aggregate.	FREIGHT AND PASSENGER VESSELS.			FERRYBOATS.			TUGS AND OTHER TOWING VESSELS.			BARGES.		
		Total.	Regular.	Excursion.	Total.	Regular.	Excursion.	Total.	Regular.	Excursion.	Total.	Regular.	Excursion.
Aggregate	[1]14,122,241	[2]3,809,550	1,765,998	[2]2,043,552	10,022,612	[1]9,807,731	214,881	58,688	29,459	29,229	231,391	17,772	213,619
Upper Mississippi system	2,333,084	1,211,910	404,988	[2]806,922	890,836	890,159	677	3,947	317	3,630	226,391	16,772	209,619
Upper Mississippi	1,419,070	692,814	268,731	[2]424,083	673,997	673,370	627	3,868	238	3,630	48,391	6,772	41,619
Illinois	455,935	277,856	44,089	233,767				79	79		178,000	10,000	168,000
Missouri	382,040	165,201	87,199	78,002	216,839	216,789	50						
All other rivers[3]	76,039	76,039	4,969	71,070									
Ohio system	4,776,088	1,788,531	1,027,023	761,508	2,951,908	2,768,304	183,604	30,649	6,280	24,369	5,000	1,000	4,000
Ohio	4,059,617	1,247,184	725,436	521,748	2,783,387	2,599,783	183,604	28,046	5,180	22,866	1,000	1,000	
Big Sandy	4,555	4,555	4,555										
Cumberland	43,865	14,862	12,062	2,800	24,600	24,600		403		403	4,000		4,000
Green	45,326	44,826	42,876	1,950				500	300	200			
Kanawha	77,952	77,152	55,212	21,940				800	800				
Kentucky	7,752	7,752	7,212	540									
Little Kanawha	13,263	13,263	13,263										
Monongahela	246,486	246,486	78,486	168,000									
Muskingum	76,480	76,480	53,665	22,815									
Tennessee	122,401	42,799	33,956	8,843	78,702	78,702		900		900			
Wabash	78,391	13,172	300	12,872	65,219	65,219							
Lower Mississippi system	7,013,069	809,109	333,987	475,122	6,179,868	6,149,268	30,600	24,092	22,862	1,230			
Lower Mississippi	6,926,616	780,476	316,062	464,414	6,122,173	6,091,573	30,600	23,967	22,837	1,130			
Arkansas	75,370	21,040	11,172	9,868	54,330	54,330							
Ouachita and Black of Louisiana	4,900	1,775	1,775		3,000	3,000		125	25	100			
Red	1,790	1,790	950	840									
St. Francis	1,340	1,340	1,340										
White	104	104	104										
Yazoo	2,284	2,284	2,284										
All other rivers[4]	665	300	300		365	365							

[1] Includes 371,514 passengers ferried in railway cars on the Ohio, Tennessee, and Lower Mississippi rivers.
[2] Includes 700 excursion passengers on yachts.
[3] Includes Minnesota, St. Croix, Salt of Iowa, and Wisconsin.
[4] Includes Forked Deer river and Black bayou.

FERRYBOATS.

Statistics of the ferries for the years 1889 and 1906 are presented in Table 39.

TABLE 39.—*Ferryboats, with per cent of increase: 1906 and 1889.*

	1906	1889	Per cent of increase.
Number of vessels	[1] 166	163	1.8
Gross tonnage	22,180	18,593	19.3
Value of vessels	$1,776,360	$1,056,250	68.2
Gross income	$1,553,121	$1,196,817	29.8
From passengers	$498,747	.....	.....
From all other sources	$1,054,374	.....	.....
Number of employees	699	893	[2] 21.7
Wages	$413,553	$456,676	[2] 9.4
Number of passengers carried	[1] 10,022,612	8,474,646	18.3

[1] Includes 14 railway ferry steamers, with 350,282 passengers. [2] Decrease.

The ferry passengers formed 71 per cent of all passengers for all vessels reported for 1906, as compared with 78 per cent in 1889. The ferrying of wagons, teams, and live stock forms a large part of the ferryboat traffic, and since the income therefrom is reported as income from "all other sources," this item is largely in excess of passenger income.

The distribution of the ferries by river systems is indicated in Table 40.

TABLE 40.—*Ferryboats, by river systems: 1906.*

RIVER SYSTEM.	Number of vessels.	Gross tonnage.	Number of passengers carried.
Total	166	22,180	10,022,612
Upper Mississippi	51	2,408	890,836
Ohio	63	5,276	2,951,908
Lower Mississippi	52	14,496	6,179,868
	PER CENT OF TOTAL.		
Total	100.0	100.0	100.0
Upper Mississippi	30.7	10.9	8.9
Ohio	38.0	23.8	29.5
Lower Mississippi	31.3	65.4	61.7

The ferry passengers of the Upper Mississippi system numbered 673,997 for the Mississippi river and 216,839 for the Missouri. The 2,951,908 ferry passengers of the Ohio system were distributed as follows: Ohio river, 2,783,387; Cumberland river, 24,600; Tennessee river, 78,702; and Wabash river, 65,219. The ferry passengers of the Lower Mississippi system numbered 6,122,173 for the Mississippi river itself; 54,330 for the Arkansas; and 3,365 for the minor tributaries.

The principal ferry points and the only centers, or districts, for which detailed statistics can be given without disclosing individual operations are New Orleans and St. Louis, the statistics for which districts are presented in Table 41.

TABLE 41.—FERRYBOATS, BY DISTRICTS, WITH PER CENT IN EACH DISTRICT: 1906.

DISTRICT.	Number of vessels.	Gross tonnage.	Value of vessels.	GROSS INCOME. Total.	Passengers.	All other sources.	Number of employees.	Wages.	Number of passengers carried.
Total	166	22,180	$1,776,360	$1,553,121	$498,747	$1,054,374	699	$413,553	10,022,612
New Orleans	11	1,598	214,000	154,415	49,730	104,685	65	25,467	3,524,470
St. Louis	10	4,061	241,047	631,434	79,504	551,930	72	65,675	1,633,113
All other	145	16,521	1,321,313	767,272	369,513	397,759	562	322,411	4,865,029
	PER CENT OF TOTAL.								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New Orleans	6.6	7.2	12.0	9.9	10.0	9.9	9.3	6.2	35.2
St. Louis	6.0	18.3	13.6	40.7	15.9	52.3	10.3	15.9	16.3
All other	87.3	74.5	74.4	49.4	74.1	37.7	80.4	78.0	48.5

No income was reported for 212,710 out of the 350,282 railway ferry passengers included in the above tables, all the revenue being reported as for railway service.

Only one ferry, that at Wabasha, Minn., was reported as operated under municipal ownership.

In addition to the foregoing there are a few team boats, or boats using horse treadmills for motive power, which, not being within the scope of the steam vessel class, have been included in the class of unrigged vessels. There are 6 boats of this character in use on the Upper Mississippi and Ohio systems, all side wheelers, the detailed statistics of which are given in Table 42.

TABLE 42.—*Team boats: 1906.*

Number of boats	6
Gross tonnage	106
Value of property	$7,600
Boats	$5,700
All other property	$1,300
Leases	$600
Gross income	$4,970
From freight	$500
From passengers	$645
From all other sources (ferrying teams, etc.)	$3,825
Employees on boats:	
Number	6
Wages	$1,992
Number of passengers carried	4,200
Freight carried (net tons)	1,000

The bridging of the Mississippi and its tributaries has of course been a factor in reducing the ferry traffic, which would have otherwise reached much larger proportions. The points at which the Mississippi, Mis-

souri, and Ohio rivers are spanned by bridges, either railway or highway, are as follows:

The upper Mississippi river at and below St. Paul:

Minnesota.—St. Paul, 7; Hastings, 2; Winona, 3; Red Wing, Reads Landing.

Wisconsin.—La Crosse, 2; Prairie du Chien.

Iowa.—Eagle Point, Dubuque, 2; Sabula, Lyons, Clinton, 2; Muscatine, Burlington, Fort Madison, Keokuk.

Illinois.—Rock Island, 2; Keithsburg, Quincy, Alton.

Missouri.—Hannibal, Louisiana.

The Missouri river, below Bismarck, North Dakota.

South Dakota.—Pontis, Pierre, Chamberlain.

Iowa.—Sioux City, 2.

Nebraska.—Blair, Omaha, 3; Plattsmouth, Nebraska City, Rulo.

Kansas.—Atchison, Leavenworth, Fort Leavenworth.

Missouri.—St. Joseph, Kansas City, 2; Randolph, Sibley, Glasgow, Boonville, Jefferson City, St. Charles, Fort Bellefontaine.

The Ohio river:

Pennsylvania.—Pittsburg-Allegheny, 2; Neville Island, 3; Rochester, Beaverboro.

Ohio.—East Liverpool, 2; Steubenville, 2; Mingo, Bellaire, Marietta, Cincinnati, 5.

West Virginia.—Wheeling, 3; Parkersburg, Point Pleasant, Kenova.

Kentucky.—Ashland, Louisville, 2; Henderson.

Indiana.—New Albany.

Illinois.—Cairo.

The lower Mississippi river:

Missouri.—St. Louis, 2; Memphis.

YACHTS.

The yachts of the Mississippi river and its tributaries are all power boats. Tables 43 and 44 give the number, tonnage, and value of the yachts in service during the year, the former table showing the distribution according to character of power, and the latter the distribution according to means of propulsion.

TABLE 43.—YACHTS—NUMBER, GROSS TONNAGE, AND VALUE, BY CHARACTER OF POWER: 1906.

RIVER SYSTEM.	TOTAL.			STEAM.			GASOLINE.		
	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.
Total	222	3,255	$563,400	34	1,425	$278,275	188	1,830	$285,125
Upper Mississippi	130	1,946	296,100	18	1,050	156,575	112	896	139,525
Ohio	56	644	136,700	9	152	69,050	47	492	67,650
Lower Mississippi	36	665	130,600	7	223	52,650	29	442	77,950
	PER CENT OF TOTAL.								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Upper Mississippi	58.6	59.8	52.6	52.9	73.7	56.3	59.6	49.0	48.9
Ohio	25.2	19.8	24.3	26.5	10.7	24.8	25.0	26.9	23.7
Lower Mississippi	16.2	20.4	23.2	20.6	15.6	18.9	15.4	24.2	27.3

TABLE 44.—YACHTS—NUMBER, GROSS TONNAGE, AND VALUE, BY CHARACTER OF PROPULSION AND RIVER SYSTEMS: 1906.

RIVER SYSTEM.	TOTAL.			STERN WHEEL.			SIDE WHEEL.			SCREW.		
	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.
Total	222	3,255	$563,400	70	1,774	$240,400	6	96	$10,550	146	1,385	$312,450
Upper Mississippi	130	1,946	296,100	32	1,091	149,400	3	65	8,800	95	790	137,900
Ohio	56	644	136,700	24	254	26,650	1	12	1,000	31	378	109,050
Lower Mississippi	36	665	130,600	14	429	64,350	2	19	750	20	217	65,500

The gasoline boats constituted 84.7 per cent of the total number, 56.2 per cent of the tonnage, and a little more than one-half of the value of the pleasure craft.

WORK BOATS.

A large number of work boats other than freight carriers are included among the unrigged craft. They comprise dredges, sand pump boats, derrick barges, pile drivers, and other work craft not equipped with propelling power. The statistics pertaining to boats of this character, so far as they can be segregated, are presented in Tables 45 and 46. In some cases dredges, derrick barges, and like boats have been reported in connection with freight carrying barges, and in such cases, when possible, the details for the work boats have been segregated by apportionment. Table 45 shows the statistics for derrick, elevator, diving, and pile driving barges, and Table 46 shows the statistics for dredges and sand pump boats.

TABLE 45.—*Statistics of derrick, elevator, diving, and pile driving barges, by river systems: 1906.*

RIVER SYSTEM.	Number.	Gross tonnage.	Value.	Gross income.	Number of employees.	Wages.
Total	43	3,915	$164,650	$172,212	169	$75,436
Upper Mississippi	11	462	22,050	37,805	30	12,553
Ohio	15	1,140	50,400	40,820	47	23,251
Lower Mississippi	17	2,313	92,200	93,587	92	39,632

TABLE 46.—*Statistics of dredges and sand pump boats, by river systems: 1906.*

RIVER SYSTEM.	Number.	Gross tonnage.	Value.	Gross income.	Number of employees.	Wages.
Total	87	9,239	$752,918	$742,218	484	$295,511
Upper Mississippi	32	2,688	226,850	281,920	222	122,171
Ohio	40	4,527	382,768	322,413	168	123,890
Lower Mississippi	15	2,024	143,300	137,885	94	49,450

RAILWAY SHIPPING.

Freight and passenger cars are ferried at fourteen points on the Mississippi river and its tributaries. The transfer points are as follows:

On the Ohio river: Between Brookport, Ill., and Paducah, Kentucky.

On the Tennessee river: Between Gunters Landing and Hobbs Island, Alabama.

On the Kanawha river: Between Charleston and South Buffner, West Virginia.

On the Mississippi river: Between St. Louis, Mo., and East St. Louis, Ill.; Ivory, Mo., and East Ivory, Ill.; Moro, Ill., and Little Rock Landing, Mo.; Cairo, Ill., and Bird Point, Mo.; Columbus, Ky., and Belmont, Mo.; Memphis, Tenn., and Hopefield, Ark.; Helena, Ark., and Trotters Point, Miss.; Vicksburg, Miss., and Delta Point, La.; Natchez, Miss., and Vidalia, La.; New Orleans and Gouldsboro, La.; and New Orleans and Algiers, Louisiana.

The general statistics are presented in Table 47.

TABLE 47.—*Craft operated in connection with steam railroads, by class: 1906.*

	Total.	Steam.	Unrigged.
Number of vessels	38	24	14
Gross tonnage	21,206	10,480	10,726
Value of vessels	$1,231,895	$1,009,154	$222,741
Number of employees	261	255	6
Wages	$192,201	$188,601	$3,600
Number of passengers carried	[1] 371,514	371,514	.....

[1] Includes 21,232 passengers carried on towboats.

Passengers were reported as carried at the following car transfer points: At New Orleans, La.; between Natchez, Miss., and Vidalia, La.; Vicksburg, Miss., and Delta Point, La.; Helena, Ark., and Trotters Point, Miss.; Columbus, Ky., and Belmont, Mo.; Cairo, Ill., and Bird Point, Mo.; Brookport, Ill., and Paducah, Ky.; and Gunters Landing and Hobbs Island, Alabama.

Table 48 presents the details of the vessel equipment for this service, and the freight handled.

In a number of cases the reports showed the number of loaded cars ferried, and in two cases the 99,825 cars ferried included loaded and empty cars. For the latter cases it has been estimated that the loaded cars formed 80 per cent of the cars transferred, and the freight handled has been estimated at 20 tons per car. On this basis there were 3,770,340 tons of freight transferred in 188,517 loaded cars, in addition to the 3,135,257 tons of freight directly reported. On the basis of 20 tons per car for the freight directly reported there is obtained an estimated total of 345,280 loaded cars for all car freight.

TABLE 48.—*Craft operated in connection with steam railroads, by river systems: 1906.*

	Total.	Ohio system.	Lower Mississippi system.
Number of vessels	38	9	29
Gross tonnage	21,206	2,887	18,319
Steam vessels:			
Number	24	5	19
Gross tonnage	10,480	1,427	9,053
Ferryboats—			
Number	13	2	11
Gross tonnage	8,653	974	7,679
Towboats—			
Number	11	3	8
Gross tonnage	1,827	453	1,374
Unrigged vessels:			
Number	14	4	10
Gross tonnage	10,726	1,460	9,266
Freight in cars (tons)	6,905,597	287,777	6,617,820
Reported	3,135,257	172,497	2,962,760
Estimated	3,770,340	115,280	3,655,060

GOVERNMENT VESSELS.

State and city.—The general statistics for the vessels owned and operated by state and city governments are given in Table 49.

TABLE 49.—*Vessels owned and operated by state and city governments: 1906.*

	Total.	Steam.	Unrigged.
Number of vessels	8	4	4
Gross tonnage	873	375	498
Value of vessels	$80,200	$59,700	$20,500
Gross income	$7,000	$1,000	$6,000
Number of employees	15	15	.....
Wages	$11,300	$11,300	.....
Number of passengers carried	5,000	5,000	.....

These vessels were employed as follows: One steamer in ferry service in Minnesota, 1 steamer for the protection of game by the state of Illinois, 1 steamer in quarantine duty and 3 barges for the disposal of garbage at New Orleans, and 1 steamer and 1 barge in harbor work at St. Louis.

Federal.—The United States Government has a large number of vessels in service on the Mississippi river and its tributaries, chiefly in connection with the various improvements to the channels and harbors under the direction of the Engineer Department of the United States Army. These vessels are not included elsewhere in this report.

In 1906 there were in the service of the Engineer Department 361 vessels of 5 tons register or over, comprising steamboats, tenders, launches, towboats, snag boats, dredges of different types—hydraulic, pump and suction, dipper, ladder, etc.—derrick boats, pile drivers, quarter boats, repair boats, barges, scows, and flats.

This is inclusive of the boats of the New Orleans station employed in the improvements at the Mississippi river passes.

The manner of reporting the tonnage is not uniform for all vessels, gross tonnage being reported in some cases and net tonnage or displacement tonnage in others, and in a few cases no data as to the tonnage. The tonnage reported for 341 vessels aggregates 72,411 tons. Vessels of the steamer class, including all vessels equipped with propelling power, numbered 126; the tonnage of 6 of these was not reported, but 120 reported a tonnage of 23,693.

Horsepower was reported in the case of 83 vessels, with a tonnage of 19,321. Of these vessels, 78 were steam vessels of 25,034 horsepower and 5 were gasoline boats of 74 horsepower.

The value of all Federal craft on the Mississippi river and its tributaries, with the exception of 2 unrigged craft for which the value was not reported, was $5,438,226, which amount forms 23.8 per cent of the value of all commercial craft.

The Federal fleet in 1906 included 32 dredges of all kinds, valued at $2,548,070, and 12 snag boats, valued at $529,618. Five of the vessels of 841 tons are of iron construction, 60 vessels of 20,045 tons are of steel construction, 6 of 1,368 tons are composite, 3 of 699 tons are iron and steel, and 287 are wooden vessels. For 95 of the self-propelling vessels the classification by means of propulsion is as follows: Stern wheels, 78; side wheels, 7; and screw propellers, 10.

The Bureau of Fisheries, Department of Commerce and Labor, had 1 wooden steam vessel of a gross tonnage of 50 and a value of $7,434 on the Mississippi river, and the Light-House Service, 3 steam tenders of a gross tonnage of 1,312 and a value of $111,400. Of the latter boats, 2 are of steel construction and 1 of wood; and 2 are stern wheel boats and 1 is side wheel.

FISHING CRAFT.

The number, tonnage, and value of vessels engaged in the commercial fisheries, as reported by the Bureau of Fisheries, and the number of persons employed on such vessels, are given in the following statement, the figures being for 1903, the last year for which statistics are available:

Vessels engaged in commercial fisheries: 1903.

Number of transporting vessels	5
Net tonnage	138
Value of vessels	$11,400
Number of persons employed	19

IDLE VESSELS.

Table 50 gives the statistics in regard to idle vessels which are not included in the foregoing tables.

TABLE 50.—*Idle vessels: 1906.*

	Total.	Steam.	Unrigged.
Number of vessels	171	100	71
Gross tonnage	15,038	4,482	10,556
Net tonnage	14,564	4,009	10,555
Value of vessels	$310,685	$256,220	$54,465
Construction:			
Iron	2	2	.....
Steel	2	2	.....
Wood	166	95	71
Composite	1	1	.....
Character of propulsion:			
Stern wheel	58	58	.....
Side wheel	5	5	.....
Screw	36	36	.....
All other	1	1	.....
Horsepower of engines	7,325	7,325	.....
Steam	6,407	6,407	.....
Gasoline	918	918	.....

The idle steam vessels constituted 6.5 per cent of the number of all steam vessels, active and idle, 3 per cent of the tonnage, and 1.9 per cent of the value; while of the unrigged craft, the idle boats formed nine-tenths of 1 per cent of the number of all unrigged craft, two-tenths of 1 per cent of the tonnage, and six-tenths of 1 per cent of the value.

In 1889 the idle steam vessels, or steam vessels for which no traffic report was received, were 138 in number; they had a tonnage of 17,364 and were valued at $902,643. The proportion these vessels formed of all steam vessels amounted to 12.4 per cent for number, 8.3 per cent for tonnage, and 8.6 per cent for value.

CONGRESSIONAL APPROPRIATIONS.

There are between fifteen and sixteen thousand miles of navigable waterways in the Mississippi valley, and for the survey and improvement of the Mississippi river and its tributaries $208,063,097, or over twice as much as was shown at the Eleventh Census, has been appropriated by Congress up to and including the act of March 2, 1907.[1] Whatever differences exist between the figures shown in 1890 and those for the same periods as shown in this report are due to a reclassification of the streams or localities improved, to a readjustment of some of the appropriations, or to apparent errors made in 1890. The earliest appropriation was made in 1809, when Congress authorized the expenditure of $25,000 for the purpose of extending the Carondelet canal to the Mississippi river.

Table 51 shows the amounts appropriated by Congress for the survey, improvement, and maintenance of the waterways of the Mississippi valley, by systems and by periods.

Of the total amount appropriated, 33.1 per cent was for the specific improvement of the waterways of the Upper Mississippi system, 31.4 per cent for the

[1] Not including $421,623 appropriated for the Red River (of the North) and for Warroad harbor and river.

Ohio system, 33.2 per cent for the Lower Mississippi system, and 2.3 per cent for general improvements. Of the total, 59.6 per cent has been appropriated since 1890.

TABLE 51.—*Congressional appropriations for the survey, improvement, and maintenance of the tributary streams and harbors of the Mississippi river, by periods and river systems.*[1]

RIVER SYSTEM.	APPROPRIATIONS.			
	Total.	Up to and including 1890.	1891 to 1906, inclusive.	March 2, 1907.
Total	$208,063,097	$83,993,783	$115,268,431	$8,800,883
Upper Mississippi	68,802,507	31,283,508	35,994,999	1,524,000
Ohio	65,433,649	24,641,220	37,351,826	3,440,603
Lower Mississippi	69,118,561	23,360,675	41,921,606	3,836,280
General	4,708,380	4,708,380	.....	.....

[1] Does not include appropriations for the improvements at mouth of the Mississippi river, for which see section on Atlantic coast and Gulf of Mexico.

From Table 52, which shows the Congressional appropriations for each stream or locality, it will be seen, as is to be expected, that the largest appropriations have been made for the survey, improvement, and maintenance of the Mississippi river.

The total appropriations for the Mississippi river aggregate $97,685,920, or a little less than one-half of the total amount appropriated for the waterways of the valley. Of the amount shown for the Mississippi river, 59.4 per cent was for the improvement of the lower part of the river, which is the portion between the mouth of the Ohio river and Head of Passes below New Orleans. This amount includes not only the appropriations for such work as snagging, dredging, and the removal of wrecks, but also those for levee work and other improvements at various specified localities. The appropriations for the betterments at the mouth of the Mississippi river are included in the section relating to the Atlantic coast and Gulf of Mexico. In the case of the Upper Mississippi, which extends from the headwaters of the river to the mouth of the Ohio, the total appropriations cover not only those for the improvement and maintenance of the channel, but also those for the construction of reservoirs at the headwaters of this river, as well as those for the improvements at the Des Moines rapids and other specific localities.

The next largest appropriations have been made for the Ohio river, for the improvement of which Congress has authorized the expenditure of over $25,000,000. The expenditures have been not only for general open channel improvement and snag boat work, but also for the construction of locks and dams. It is the intention to ultimately canalize this river from Pittsburg to its mouth by the construction of sufficient locks and dams to afford either a 6-foot or a 9-foot depth the entire length of the river. The cost of the canal around the Falls of the Ohio at Louisville, Ky., which amounts to nearly $6,000,000, is included in the total for the Ohio river.

TABLE 52.—CONGRESSIONAL APPROPRIATIONS FOR THE SURVEY, IMPROVEMENT, AND MAINTENANCE OF THE TRIBUTARY STREAMS AND HARBORS OF THE MISSISSIPPI RIVER, BY PERIODS AND LOCALITIES.

RIVER SYSTEM AND LOCALITY.	Date of earliest appropriation.	APPROPRIATIONS.			
		Total.	Up to and including 1890.	1891 to 1906, inclusive.	March 2, 1907.
Aggregate	1809	$208,063,097	$83,993,783	$115,268,431	$8,800,883
Upper Mississippi system	1836	68,802,507	31,283,508	35,994,999	1,524,000
Mississippi river headwaters to mouth of Ohio river[1]	1836	39,677,513	18,289,908	20,492,605	895,000
Mississippi river to Lake Superior (survey)	1894	10,000	.....	10,000	.....
Big Stone Lake and Lake Traverse, Minn. and S. Dak	1899	5,000	.....	5,000	.....
Chippewa river, Wis	1876	201,750	166,750	35,000	.....
Cuivre river, Mo	1880	12,000	12,000	.....	.....
Des Moines and Iowa rivers, Iowa	1839	1,000	1,000	.....	.....
Fox and Wisconsin rivers, Wis	1839	[2] 5,050,711	[3] 3,740,936	1,274,775	35,000
Galena river, Ill	1878	236,102	166,000	70,102	.....
Gasconade river, Mo	1880	111,500	46,500	55,000	10,000
Illinois river, Ill	1852	2,377,779	1,773,827	503,952	100,000
Illinois and Des Plaines rivers, Ill	1899	230,000	.....	230,000	.....
Illinois and Mississippi canal, Ill.[4]	1882	7,578,179	545,000	7,033,179	.....
Kaskaskia river, Ill.[5]	1890	10,500	6,000	4,500	.....
Lake Minnetonka, Minn	1905	7,000	.....	7,000	.....
Milwaukee and Rock River canal, Wis. and Ill	1864	225,277	225,277	.....	.....
Minnesota river, Minn	1867	137,500	127,500	8,000	2,000
Missouri river	1836	11,851,000	5,701,000	[6] 5,750,000	400,000
Osage river, Mo	1871	801,021	260,000	463,021	78,000
Red Cedar river, Iowa	1839	1,500	1,500	.....	.....
Rock river, Wis. and Ill	1838	1,000	1,000	.....	.....
St. Croix river, Minn. and Wis	1878	147,365	100,500	42,865	4,000
Yellowstone river, Mont. and N. Dak	1879	128,750	118,750	10,000	.....

[1] Includes operations of snag and dredge boats.
[2] Includes $143,000 shown under Great Lakes in 1890, also payments connected with flowage damages.
[3] Includes payments connected with flowage damages.
[4] Called Hennepin canal in 1890.
[5] Included under Lower Mississippi system in 1890.
[6] Includes $50,000 contributed by citizens of St. Joseph, Mo.

TABLE 52.—CONGRESSIONAL APPROPRIATIONS FOR THE SURVEY, IMPROVEMENT, AND MAINTENANCE OF THE TRIBUTARY STREAMS AND HARBORS OF THE MISSISSIPPI RIVER, BY PERIODS AND LOCALITIES—Continued.

RIVER SYSTEM AND LOCALITY.	Date of earliest appropriation.	APPROPRIATIONS.			
		Total.	Up to and including 1890.	1891 to 1906, inclusive.	March 2, 1907.
Ohio system	1826	65,433,649	24,641,220	37,351,826	3,440,603
Ohio river	1826	25,340,547	10,746,087	12,815,494	1,778,966
Ohio river to Lake Erie canal (survey)	1894	20,000		20,000	
Allegheny river	1879	2,011,484	287,500	1,488,984	235,000
Big Sandy river, W. Va. and Ky	1878	1,458,535	301,500	1,050,035	107,000
Buckhannon river, W. Va	1884	5,500	5,500		
Caney Fork river, Tenn	1880	28,000	25,000		3,000
Cheat river, W. Va	1890	13,000	13,000		
Clinch river, Tenn	1880	54,500	35,000	19,500	(1)
Cumberland river, Tenn. and Ky	1832	3,561,000	1,343,000	2,068,000	150,000
Duck river, Tenn	1880	13,000	13,000		
Elk river, Tenn. and Ala	1899	4,000		4,000	
Elk river, W. Va	1878	30,500	24,000	6,500	
French Broad and Little Pigeon rivers, Tenn	1876	142,000	91,000	49,000	2,000
Gauley river, W. Va	1888	15,000	6,000	9,000	
Green and Barren rivers, Ky	1888	1,882,923	495,005	1,387,918	
Guyandotte river, W. Va	1878	22,500	16,500	6,000	
Hiwassee river, Tenn	1876	107,625	36,500	14,500	[2] 56,625
Holston river, Tenn	1902	5,000		5,000	(1)
Kanawha river, W. Va	1873	5,000,642	2,806,397	2,194,245	
Kentucky river, Ky	1879	4,588,627	1,687,704	2,800,923	100,000
Licking river, Ky	1888	16,000	6,000	10,000	
Little Kanawha river, W. Va	1876	504,476	211,175	212,301	81,000
Little Tennessee river, Tenn	1882	6,000	5,000	1,000	
Monongahela river, W. Va. and Pa	1872	9,321,546	650,351	8,415,153	256,042
Muskingum river, Ohio	1886	1,980,777	917,368	1,015,409	48,000
Obey river, Tenn	1880	11,500	11,500		
Pittsburg harbor, Pa	1899	145,663		135,663	10,000
Red river, Tenn	1881	5,000	5,000		
Rough river, Ky	1890	113,641	25,000	88,641	
Tennessee river, Tenn. and Ky	1827	8,018,626	4,043,795	3,361,861	612,970
Tradewater river, Ky	1881	16,500	16,500		
Wabash river, Ind. and Ill	1828	841,199	681,000	160,199	
Wabash and Erie canal, Ind. and Ill	1834	28,338	28,338		
White river, Ind	1879	120,000	107,500	12,500	
Lower Mississippi system	1809	69,118,561	23,360,675	41,921,606	3,836,280
Mississippi river, from mouth of the Ohio river to Head of Passes	1868	[3] 58,008,407	18,620,014	36,388,393	3,000,000
Arkansas river	1832	2,481,285	1,460,784	985,501	35,000
Bartholomew bayou, La. and Ark	1881	79,000	33,000	29,000	[4] 17,000
Big Black river, Miss	1884	15,000	10,000	5,000	
Big Hatchie river, Tenn	1880	35,500	32,000	3,500	
Big Sunflower river, Miss	1879	203,000	57,000	46,000	100,000
Black river, Ark. and Mo	1880	153,730	80,000	73,730	
Black bayou, La	1881	25,000	25,000		
Boeuf river, La	1881	65,800	31,000	34,800	(5)
Caché river, Ark	1888	20,000	7,000	11,000	2,000
Cane river, La	1884	2,500	2,500		
Carondelet canal, La	1809	25,000	25,000		
Coldwater river, Miss	1879	11,000	11,000		(6)
Current river, Ark. and Mo	1872	54,835	7,000	29,835	18,000
Cypress bayou, La. and Tex	1872	155,701	127,000	18,701	10,000
D'Arbonne and Corney bayous, La	1884	21,500	11,000	10,500	(5)
Forked Deer river, Tenn	1882	36,300	22,000	14,300	
Fourche la Fave river, Ark	1879	33,500	33,500		
L'Anguille river, Ark	1878	17,000	17,000		
Little Missouri river, Ark	1871	20,000	20,000		
Little Red river, Ark	1886	8,400	8,400		
Little river, La	1888	2,500	2,500		
Little river, Mo. and Ark	1888	8,000	8,000		
Loggy bayou, La	1884	10,000	10,000		
Obion river, Tenn	1902	30,700		27,700	3,000
Ouachita and Black rivers, Ark. and La	1871	1,367,734	351,500	815,454	200,780
Petit Jean river, Ark	1886	9,500	6,000	3,500	
Pierre bayou, La. and Miss	1884	13,600	13,600		
Red river, La., Ark., Okla., and Tex	1828	2,710,877	1,570,877	890,000	250,000
Roundaway and Vidal bayous, La	1888	2,000	2,000		
St. Francis river, Ark. and Mo	1871	136,737	58,500	66,237	12,000
Saline river, Ark	1880	21,500	21,500		
Steele and Washington bayous, Miss	1884	12,500	10,000	2,500	
Sulphur river, Ark. and Tex	1907	36,000			36,000
Tallahatchie river, Miss	1879	70,500	37,500	33,000	(6)
Tchula Lake, Miss	1881	29,000	15,000	14,000	(6)
Tensas river and Macon bayou, La	1881	52,700	21,000	31,700	(5)
Vicksburg harbor, Miss	1892	1,200,000		1,200,000	
White river, Ark	1874	1,466,255	366,500	996,255	103,500
Yalobusha river, Miss	1881	11,000	11,000		
Yazoo river, Miss	1873	455,000	215,000	191,000	[7] 49,000
General	1819	4,708,380	4,708,380		
General improvement	1820	3,867,041	3,867,041		
Dredges and snag boats	1836	550,000	550,000		
Removal of snags and wrecks	1884	280,339	280,339		
Surveys	1819	11,000	11,000		

[1] Included with appropriation for Hiwassee river.
[2] Includes appropriations for Clinch and Holston rivers.
[3] Includes removal of snags and wrecks from lower river and gauging for entire river. For appropriations relating to improvements at mouth of the Mississippi river, see section on Atlantic coast and Gulf of Mexico.
[4] Includes appropriations for Boeuf and Tensas rivers, and D'Arbonne, Corney, and Macon bayous.
[5] Included with appropriation for Bartholomew bayou.
[6] Included with appropriation for Yazoo river.
[7] Includes appropriations for Tallahatchie and Coldwater rivers, and Tchula Lake.

The Missouri river has been navigated by steamboats since 1819, but the first appropriation by Congress for its improvement was not made until 1836, since which year, however, almost $12,000,000 have been appropriated.

In 1872 the first appropriation for the improvement of the Monongahela river was made by Congress. Up to and including the act of March 2, 1907, over $9,000,000 have been appropriated for this river, and it is now canalized from Pittsburg to Fairmont, W. Va., a distance of 130 miles. Up to 1890 only about $650,000 had been appropriated.

For the improvement of the Tennessee river over $8,000,000 have been appropriated. This river and its principal tributaries form a system of internal waterways suitable for steamboat navigation for more than 1,300 miles. Included in the total appropriations for this river are those for the Muscle Shoals canal, which cost over $3,000,000.

Although the appropriation for the survey of the Illinois and Mississippi (Hennepin) canal was made in 1882, the actual work of construction was not begun until ten years later. This canal was completed late in 1907 and affords a 7-foot waterway from Lake Michigan to the Mississippi. The total appropriations for it exceed $7,000,000.

Beginning with 1873 Congressional appropriations have been made for the Kanawha river, and the river now has a navigable depth of 6 feet for all the year round. The total appropriations exceed $5,000,000.

In 1879 Congress made its first appropriation for the improvement of the Kentucky river, taking over from the state of Kentucky the locks and dams previously constructed on this stream. The appropriations to date exceed $4,500,000, and when the approved project is completed the river will be navigable for 261 miles for boats drawing 6 feet.

As early as 1832 Congress appropriated money for the improvement of the Cumberland river, which has a navigable length of 518 miles, and up to and including the act of March 2, 1907, has authorized the expenditure of over $3,500,000, the greater portion of which has been expended in canalizing this river.

Congress has appropriated over $2,000,000 each for the improvement of the Red river, the Arkansas river, the Illinois river, and the Allegheny river; and over $1,000,000 each for the Muskingum river, the Green and Barren rivers, the White river of Arkansas, the Big Sandy river, the Ouachita and Black rivers, and Vicksburg harbor.

Many of the accepted projects for the improvement of the waterways of the Mississippi valley are but partially completed, and large appropriations will be required to finish the work.

Among the many projects now before Congress relative to the improvement of the inland waterways, particular attention is being given to that which contemplates a 16-foot channel in the Mississippi river from St. Louis to its mouth. A survey has already been made and plans and estimates of cost have been submitted for a navigable waterway 14 feet deep from Lockport, Ill., by way of the Des Plaines and Illinois rivers, to the mouth of the Illinois, and thence by way of the Mississippi river to St. Louis.

Table 53 gives the detailed statistics for the transportation on the Mississippi river and its tributaries for 1906.

TABLE 53.—ALL VESSELS, BY CLASS,

	CLASS, OCCUPATION, AND OWNERSHIP.	Number of vessels.	TONNAGE.		RIGGED.				HORSEPOWER OF ENGINES.		
			Gross.	Net.	Screw.	Side wheel.	Stern wheel.	All other.	Steam.	Gasoline.	All other.
1	Aggregate	9,622	4,411,967	4,379,064	356	85	990	4	227,802	9,167	.....
2	Steam	1,435	146,227	129,227	356	85	990	4	227,802	9,167	.....
3	Freight and passenger	390	55,779	49,997	67	36	287	.....	78,451	2,241	.....
4	Tugs and other towing vessels	619	62,836	53,821	106	7	506	.....	114,696	2,851	.....
5	Ferryboats	166	22,180	20,791	22	35	105	4	27,372	848	.....
6	Yachts	222	3,255	2,923	146	6	70	.....	3,571	2,971	.....
7	All other	38	2,177	1,695	15	1	22	.....	3,712	256	.....
8	Individual	687	27,524	24,268	238	24	424	1	36,174	6,403	.....
9	Freight and passenger	179	11,472	10,379	49	10	120	.....	14,718	1,408	.....
10	Tugs and other towing vessels	232	10,441	8,834	40	3	189	.....	15,475	1,859	.....
11	Ferryboats	73	2,349	2,174	17	6	49	1	2,068	481	.....
12	Yachts	185	2,815	2,506	122	5	58	.....	2,873	2,444	.....
13	All other	18	447	375	10	.....	8	.....	1,040	211	.....
14	Firm	211	11,360	10,376	49	10	152	.....	17,412	1,395	.....
15	Freight and passenger	71	5,822	5,412	11	4	56	.....	8,005	462	.....
16	Tugs and other towing vessels	85	3,944	3,600	16	1	68	.....	7,823	444	.....
17	Ferryboats	27	1,384	1,171	1	5	21	.....	1,171	193	.....
18	Yachts	26	183	167	20	.....	6	.....	398	286	.....
19	All other	2	27	26	1	.....	1	.....	15	10	.....
20	Incorporated company	524	106,575	93,892	66	48	407	3	173,051	1,194	.....
21	Freight and passenger	139	38,243	33,964	7	22	110	.....	55,595	371	.....
22	Tugs and other towing vessels	298	48,351	41,309	50	3	245	.....	91,328	490	.....
23	Ferryboats	65	18,403	17,402	4	23	35	3	24,117	174	.....
24	Yachts	7	206	204	3	.....	4	.....	300	139	.....
25	All other	15	1,372	1,013	2	.....	13	.....	1,711	20	.....
26	Miscellaneous	13	768	691	3	3	7	.....	1,165	175	.....
27	Freight and passenger	1	242	242	.....	.....	1	.....	133	.....	.....
28	Tugs and other towing vessels	4	100	78	.....	.....	4	.....	70	58	.....
29	Ferryboats	1	44	44	.....	1	.....	.....	16	.....	.....
30	Yachts	4	51	46	1	1	2	.....	.....	102	.....
31	All other	3	331	281	2	1	.....	.....	946	15	.....
32	Unrigged	8,187	4,265,740	4,249,837	.....	.....	.....	.....	.....	.....	.....
33	Individual	631	107,131	107,000	.....	.....	.....	.....	.....	.....	.....
34	Firm	322	37,986	37,986	.....	.....	.....	.....	.....	.....	.....
35	Incorporated company	7,228	4,120,025	4,104,253	.....	.....	.....	.....	.....	.....	.....
36	Miscellaneous	6	598	598	.....	.....	.....	.....	.....	.....	.....

OCCUPATION, AND OWNERSHIP: 1906.

CONSTRUCTION.				Value of vessels.	INCOME.			Number of employees.	Wages.	Number of passengers carried.	Freight carried (net tons).	
Iron	Steel	Wood.	Composite.		Freight.	Passengers.	All other.					
26	81	9,513	2	$22,852,142	$7,450,869	$2,281,243	$7,609,926	15,016	$5,692,117	14,122,241	19,531,093	1
25	50	1,358	2	13,196,770	6,480,655	2,279,998	6,649,483	13,973	5,148,581	13,890,850	2,355,386	2
1	9	379	1	3,737,450	4,038,002	1,766,581	130,046	6,746	2,019,202	3,808,850	2,305,867	3
18	22	578	1	6,822,210	2,442,053	14,535	4,953,055	6,109	2,512,108	58,688	49,519	4
3	10	153	.....	1,776,360	.....	498,747	1,054,374	699	413,553	10,022,612	.....	5
2	9	211	.....	563,400	.....	135	1,988	165	59,168	700	.....	6
1	.....	37	.....	297,350	.....	.....	510,020	254	144,550	.....	.....	7
5	13	669	.....	2,394,680	1,202,363	530,028	1,119,643	2,942	962,389	2,580,811	426,640	8
1	5	173	.....	778,125	858,539	410,741	51,807	1,541	409,785	1,233,601	419,209	9
2	2	228	.....	847,405	343,824	7,573	870,040	1,046	390,835	32,353	7,431	10
.....	1	72	.....	206,100	.....	111,579	97,217	155	75,241	1,314,757	.....	11
2	5	178	.....	502,450	.....	135	1,882	140	50,545	700	.....	12
.....	.....	18	.....	60,600	.....	.....	98,697	60	35,983	.....	.....	13
.....	7	204	.....	935,875	660,642	251,202	305,763	1,210	465,025	953,673	246,262	14
.....	1	70	.....	402,400	451,902	209,183	13,570	703	252,375	443,973	232,407	15
.....	1	84	.....	407,825	208,740	4,722	244,485	443	181,870	4,706	13,855	16
.....	1	26	.....	90,950	.....	37,297	46,577	57	28,805	505,000	.....	17
.....	4	22	.....	33,200	.....	.....	106	7	1,975	.....	.....	18
.....	.....	2	.....	1,500	.....	.....	1,025	.....	.....	.....	.....	19
19	30	473	2	9,783,915	4,578,648	1,498,179	5,220,019	9,743	3,691,619	10,351,318	1,666,759	20
.....	3	135	1	2,550,925	2,692,204	1,146,568	64,169	4,455	1,342,364	2,131,828	1,638,526	21
16	19	262	1	5,559,980	1,886,444	2,240	3,835,472	4,606	1,936,183	21,635	28,233	22
3	8	54	.....	1,477,310	.....	349,371	910,080	486	309,307	8,197,855	.....	23
.....	.....	7	.....	18,150	.....	.....	.....	16	6,298	.....	.....	24
.....	.....	15	.....	177,550	.....	.....	410,298	180	97,467	.....	.....	25
1	.....	12	.....	82,300	39,002	589	4,058	78	29,548	5,048	15,725	26
.....	.....	1	.....	6,000	35,357	89	500	47	14,678	48	15,725	27
.....	.....	4	.....	7,000	3,645	.....	3,058	14	3,220	.....	.....	28
.....	.....	1	.....	2,000	.....	500	500	1	200	5,000	.....	29
.....	.....	4	.....	9,600	.....	.....	.....	2	350	.....	.....	30
1	.....	2	.....	57,700	.....	.....	.....	14	11,100	.....	.....	31
1	31	8,155	.....	9,655,372	970,214	1,245	960,443	1,043	543,536	231,391	17,175,707	32
.....	.....	631	.....	720,075	234,498	1,095	78,851	190	76,174	13,000	1,874,323	33
.....	1	321	.....	406,026	84,396	150	225,094	193	99,335	20,381	560,973	34
1	30	7,197	.....	8,508,271	651,320	.....	650,498	660	368,027	198,010	14,736,361	35
.....	.....	6	.....	21,000	.....	.....	6,000	.....	.....	.....	4,050	36