FOREIGN COMMERCE AND DECADENCE OF AMERICAN SHIPPING.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

Report of Chief of the Division of Tonnage in the Treasury Department in relation to the foreign commerce of the United States and the decadence of American shipping.

FEBRUARY 3, 1870.—Referred to the Select Committee on the Decline of American Commerce and ordered to be printed.

TREASURY DEPARTMENT,
January 31, 1870.

SIR: I have the honor to transmit to the House of Representatives a report made to the Secretary of the Treasury by Mr. Joseph Nimmo, jr., Chief of the Division of Tonnage in the Treasury Department, in relation to the Foreign Commerce of the United States and the Decadence of American Shipping.

Very respectfully,

GEO. S. BOUTWELL,
Secretary.

Hon. JAMES G. BLAINE,
Speaker House of Representatives.

Report to the Secretary of the Treasury in relation to the foreign commerce of the United States and the decadence of American shipping, by Joseph Nimmo, jr., Chief of Tonnage Division, Treasury Department.

TREASURY DEPARTMENT,
Washington, January 25, 1870.

SIR: I have the honor to report as follows concerning the commercial marine of the United States, in compliance with your order dated June 25, 1869:

In the performance of this duty during the months of August and September last, I visited Wilmington, Delaware; Chester, Pennsylvania;

Philadelphia; New York; Boston; Portland, Bath, and Eastport, Maine; and St. John, New Brunswick, for the purpose of conferring with persons who have been, or are now, largely engaged in shipping and ship-building, with most of whom I have since held correspondence. I have to acknowledge the very cordial and valuable co-operation of all with whom I have conferred.

Commercial exchange is the first necessity of social well-being, and the fundamental condition of national prosperity. Transportation hence arises, not as a source, but as a means of securing individual and national wealth. In a true sense transportation is the natural obstacle of commerce. That policy is, therefore, wisest which seeks to remove from it all burdens, and to afford it all the aids which the present or prospective demands of commerce may require. Transportation adds nothing to, but subtracts from, the value of every article of commerce, and this reduction in value is equal to its cost in time and human effort. One of the most important services, therefore, which an individual can render to society is to devise means of reducing the cost of transportation, and at the same time of promoting commercial exchanges. This can be accomplished in various ways: by the discovery of new and economical motive powers; by the invention of improvements in locomotive machinery, or in the form and capacity of the vehicles of commerce; by the carriage of commodities in bulk; by the opening of shorter or easier routes of commerce, or by such a distribution of the various industries of a nation as shall tend to bring producer and consumer nearer together. The extension of the telegraph to the large commercial ports of the world has also greatly reduced the cost of transportation by avoiding the risk of unprofitable voyages, thus reducing the amount of shipping required. The latest, and one of the most wonderful achievements of civil engineering in modern times, the Suez canal, may at first, by reducing the cost of transportation between Europe and the East Indies, throw thousands of tons of shipping out of employment, and individual fortunes may be lost, but that great work will ever be regarded as one of the most valuable improvements of the present age.

It is a matter of the highest national importance that the tribute necessarily paid in this country to transportation shall be paid to our own citizens. Besides pecuniary considerations, there are other very weighty reasons why our entire coasting trade and at least one-half of our trade with foreign nations should be carried on in American vessels.

At the beginning of this century "commerce among the States" embraced only the transportation of freight and passengers along the sea-coast from Maine to Georgia in sailing-vessels, together with such exchanges as were made by teams over the public highways.

After the purchase of Louisiana in 1803, for the more convenient regulation of the "coasting trade," it was provided that the coast and navigable waters of the United States, from Maine to Georgia, should constitute one "great district," and that the coast and navigable waters on the Gulf of Mexico should constitute another "great district." After the purchase of Florida in 1821 the shores and waters of that Territory were created a third "great district."

But commerce in its mighty march has paid little heed to either State or "great district" lines. By its extension on inland waters, a vast interior territory has been developed, and to-day our merchant marine embraces three grand divisions, differing not only in the form and construction of the vessels employed, but separated by well-defined topographical and geographical limits. These divisions are the ocean, the

western rivers with their ten thousand miles of navigable waters, and the great lakes stretching from the State of New York to the center of the continent.

The power of steam has also struck out new commercial lines, crossing mountains and valleys, spanning navigable rivers, and traversing the continent itself. Besides the railroads of the country, that most important public improvement, the Erie Canal, whose magnitude and value have never yet been fully appreciated, has formed a connecting link of navigation between the great lakes and the Atlantic. One of the principal desiderata of internal transportation at the present time is the improvement of that great work, so as to admit of the passage of steam-vessels of six hundred tons burden between Buffalo and New York, the terminal depots of lake and ocean commerce. The small practical value of the other avenue of water communication between the West and the ocean, the St. Lawrence River, is shown by the following statement of direct shipments from American lake ports to ports in Europe:

Statement showing the number and tonnage of vessels cleared from ports on the northern lakes for ports in Europe, and the value of exports therein, from June 30, 1857, to June 30, 1869.

Fiscal year.	No.	Tonnage.	Value of exports.	Fiscal year.	No.	Tonnage.	Value of exports.
1857	2	505	$25,372	1864	2	808	$147,647
1858	12	4,147	41,795	1865	2	642	49,654
1859	15	5,212	34,229	1866	2	458	4,510
1860	3	942	9,185	1867	1	316	36,330
1861	5	1,898	69,682	1868	3	911	50,222
1862	1	237	10,661	1869	1	320	24,760
1863	7	2,306	100,000				

The extension of interior lines has developed a commerce far exceeding in value our commerce with foreign nations. The statistics of internal commerce, excepting those of the New York Canals, are very crude in comparison with the systematic and accurate statistics of our foreign trade. The value and amount of the commerce of the Mississippi River and its tributaries are a mere matter of conjecture.

The statistics of the railroads of the country are made up from reports made by railroad officials to State governments. The relative value of our commerce with foreign nations, and our internal commerce, may be inferred from the following comparisons:

VALUE OF MERCHANDISE TRANSPORTED.

Value of merchandise transported in foreign trade by American and foreign vessels, A. D. 1868	$827,598,038
Value of merchandise transported on Erie Canal, A. D. 1868	239,561,569
Value of merchandise transported on railroads of New York, A. D. 1868	1,444,373,495
Value of merchandise transported on railroads of the United States, A. D. 1868, (estimated)	10,472,250,000

GROSS EARNINGS.

Estimated gross earnings: American and foreign vessels employed in foreign trade, A. D. 1869	$97,857,752
Estimated gross earnings: Railroads of New York, A. D. 1867	49,661,572

Estimated gross earnings: Canals of New York for A. D. 1868, (embracing freight and tolls)	$9,012,659
Estimated gross earnings: Railroads of Massachusetts	18,279,100
Estimated gross earnings: Railroads of United States	400,000,000

COST.

Estimated cost: American and foreign vessels in foreign trade	$243,966,000
Estimated cost: American vessels in coasting trade	157,271,000
Estimated cost: Erie Canal	39,152,640
Estimated cost: Railroads of the United States	1,869,529,313

A question of profound interest to the country arises at this time in regard to the value of the Pacific railroad as an avenue of commerce. He has studied the subject of transportation to little purpose who supposes that it will, to any great extent, supersede transportation by water. It is believed that a part of the teas, and the most valuable fabrics, may bear railroad transportation, especially to the interior of the country; but the general commerce between Asia and the eastern markets of the United States must still seek the cheaper route by water.

The effect which the Suez Canal will have upon the merchant marine and the foreign commerce of the United States is also at this time a subject of deep interest. France has undoubtedly gained an advanced position in ocean commerce, and Marseilles may ere long, as a commercial center, rival London and Liverpool.

The relative cost of the various modes of transportation by land and by water is a point of very great national importance, and one, indeed, worthy of thorough and careful investigation. Perhaps there are no available data on the subject more valuable than the results obtained by Hon. William J. McAlpine, in his report for 1855, as engineer of the State of New York. That statement is as follows:

Cost of transportation per ton per mile in 1852.

	Mills.
Ocean, long voyage	1
Ocean, short voyage	2 to 4
Lakes, long voyage	2
Lakes, short voyage	3 to 4
River, (Hudson)	2½
River, (St. Lawrence and Mississippi)	3
Canals, Erie enlargement	4
Railroads, transporting coal	6 to 10
Railroads, not for coal, favorable grades	12½
Railroads, not for coal, steep grades	15 to 25

The improvements made in the means of transportation have undoubtedly produced changes in these rates.

Time, as an element of transportation, has a speculative and therefore an unknown value. It is generally over estimated, the tendencies of the age being to reduce time even at the sacrifice of increased freight charges. Owing to improvements in permanent roadway and equipments, railroads are every year carrying more of the products before transported only on water lines, while on the ocean the trade between our large ports is rapidly passing to the prosperous steam lines which within a few years have sprung up all along the Atlantic and Gulf coast.

When steam lines were first started between the United States and Europe it was supposed that they could carry only first-class passengers and the most costly freights; but the improvements in ocean steam navigation have been so great that now the enterprising English and German lines are carrying emigrant passengers and goods, which but a few years ago could be carried only in sailing vessels. The whole carrying trade with Europe has thus been changed within the last ten years. It would, however, be as absurd to predict the entire supersedure of sailing vessels by steamships, as it was a few years ago to suppose that the locomotive engine would in time render useless the labor of the horse and ox. There is work for all, and we may expect to see an increase rather than a diminution of both sailing and canal boat tonnage.

Undoubtedly the rapid introduction of steamers has at first had a tendency to reduce the tonnage of sailing vessels, and especially to reduce the amount of ship-building for ocean commerce. It is estimated that in the general trade between the United States and Europe eighteen tons of steam tonnage are equal to about thirty-two tons of sailing tonnage. The entire substitution of steam for sailing vessels would, therefore, require a little more than one-half the tonnage actually employed in order to perform the same amount of work.

The steam tonnage (American and foreign) employed between the United States and foreign countries being 31½ per cent. of the total tonnage so employed, it may be stated in general terms that if our entire commerce was now carried on in sailing vessels, the amount of tonnage employed would be increased 25 per cent.

The steam tonnage entered at the port of New York, from foreign countries, during the year ending June 30, 1869, was but 45 per cent. of the total tonnage entered at that port, whereas the value of imports in steam-vessels was $80\frac{393}{1000}$ per cent. of the value of the total imports. Hence it is estimated that 56 per cent. of the value of the total imports into the United States was received in steam-vessels.

THE DECADENCE OF AMERICAN SHIPPING IN FOREIGN TRADE.

Our ocean commerce is divided into two branches, the coasting trade and the foreign trade. American vessels in the coasting trade compete only with land lines of transportation—foreign vessels being debarred from all participation in this branch of our commerce. We, therefore, see no diminution of American tonnage so employed. American ships in the foreign trade, on the other hand, enter into free and equal competition with the ships of all nations holding relations of maritime reciprocity with the United States. The tonnage of American vessels thus employed has fallen off 43 per cent. since 1861. American vessels are not necessarily confined to either the home or foreign trade. They pass from one occupation to the other by simply exchanging their marine documents at the custom-house, the expense in neither case amounting to more than $2 25.

Owing to the wars which prevailed in Europe from 1793 to 1815, English and French vessels were in constant danger of capture, and therefore foreign shippers sought the protection of the American flag. Thus our merchant marine had a rapid development in its very infancy. Not only did we gain almost the entire control of our own trade with foreign nations, but we became to a great extent common-carriers for the nations of Europe. Besides a considerable amount of the foreign trade of Europe was deflected to an indirect trade through ports of the United States. Owing also to the abundance and cheapness of ship-building

material in this country, the skill of our naval architects, and the enterprise of our ship-builders and merchants, American shipping enjoyed a long season of prosperity, culminating in the proud position which we held as a commercial nation in 1855, the tonnage of the United States being then nearly equal to that of England.

It was estimated that at that time the marine tonnage of the world was divided about as follows: the United States one-third, England one-third, and all other nations combined one-third.

A remarkable train of events led to the unprecedented prosperity of our merchant marine from 1846 to 1857, viz: the Mexican war in 1846, 1847, and 1848, the discovery of gold in California in 1848, and finally the Crimean war in 1854, 1855, and 1856, which, by engaging many of the merchant of England in the transportation of material of war, left an open field for our enterprising ship-owners. About the year 1850 our fast and elegant clipper-ships attained a world-wide fame. It was said that in 1853 they took the preference for freights over British ships even in the port of London. England looked with alarm at the wonderful maritime growth of her young rival of the West, for she saw in it the threatened loss of her commercial power. As the natural result of a supply greatly exceeding the demand, the ship-building interests of the country were utterly prostrated in 1858 and 1859, (see Chart 22,) while the shipping interest, as indicated by tonnage entered and cleared, (see Chart No. 19,) held up very nearly to the highest point ever attained until the year 1861, when the fortunes of war proved as disastrous to our maritime interests as they had been propitious in the early history of the country. Armed privateers, built in British ship-yards, and enjoying the protection of British ports, went forth on their errand of destruction, and in the course of three years well-nigh drove the American flag from the commerce of the seas. Whether the course pursued by England, at that important crisis of our history, may or may not be attributed to a desire of once more grasping the international commerce of the world, it is certain that she has gained the alluring prize. The statistical charts at the end of this report tell in graphic lines the story of our commercial downfall, and of her commercial triumph. During the dark period of civil war, (the year ending June 30, 1864,) for the first time in the history of the nation, the tonnage of American vessels entered at seaports of the United States from foreign countries fell below the tonnage of foreign vessels entered. This fact is illustrated by Chart No. 19. It is seen that the tonnage of British vessels entered at our seaports since 1861 has constituted 76 per cent. of the entire foreign tonnage entered.

Similar facts are exhibited by Chart No. 20, which is compiled from the statistics of our imports. It is also seen that during the year ending June 30, 1862, the value of imports in American vessels fell below that in foreign vessels, and that the percentage of imports in foreign bottoms since that date is greater even than the percentage of tonnage entered of American vessels. This is accounted for by the fact that a very large proportion of our most valuable foreign goods are imported in British steamers at New York. These two charts (Nos. 19 and 20) indicate, the one by the line of total tonnage entered, and the other by the line of total imports, that our foreign commerce has been subject to frequent and violent fluctuations, and that during the last four years it has been larger than ever before in the history of the country. Our misfortune is simply this: *British ships have superseded American ships not only in the international commerce of the world, but also to a very great degree in our own trade with foreign nations.*

The extent of the reverse which our merchant marine has suffered

may perhaps be better appreciated from the following statement: (See Chart 19.) During the six years ending June 30, 1861, the tonnage entered in American vessels amounted to 18,136,439 tons, and the tonnage entered in foreign vessels amounted to 8,622,226 tons, while during the six years ending June 30, 1869, the tonnage entered in American vessels amounted to 10,242,425 tons, and in foreign vessels to 17,561,352 tons; showing that American tonnage in our foreign trade had fallen from 210 to 58 per cent. of foreign tonnage in the same trade. Stated in other terms, during the six years ending June 30, 1861, 67 per cent. of the total tonnage entered from foreign countries was in American vessels, and during the six years ending June 30, 1869, only 37 per cent. was in American vessels, a relative falling off of nearly one-half. Similar facts are indicated by Chart No. 20, which is correlative with Chart No. 19. Comparing the two periods, we find that during the six years ending June 30, 1861, the value of imports in American vessels was $1,358,619,000, and in foreign vessels $636,104,000, and that during the six years ending June 30, 1869, the value of imports in American vessels was $635,021,000, and in foreign vessels $1,593,377,000, showing that the value of imports in American vessels had fallen from 213 per cent. to 40 per cent. of the imports in foreign vessels; or, stated in other terms, during the six years ending June 30, 1861, 68 per cent. of the total imports into the United States were received in American vessels, and during the six years ending June 30, 1869, only 28 per cent. were in American vessels. The charts from 1 to 20, inclusive, exhibit the incontrovertible fact that the loss of the United States has been the gain of England.

The supersedure of American by British ships is also exhibited by Charts 1 to 14 inclusive. Brief summaries of the facts indicated by the charts are presented as follows:

Comparative statement showing the decadence of American shipping at the ports of Boston, New York, Philadelphia, Baltimore, New Orleans, and San Francisco.

[Charts 1 to 6 inclusive.]

Ports.	Per cent. of total tonnage entered in American and foreign vessels.			
	1856 to 1861, inclusive.		1862 to 1869, inclusive.	
	Per cent. in American vessels.	Per cent. in foreign vessels.	Per cent. in American vessels.	Per cent. in foreign vessels.
Boston	50	50	30	70
New York	74	26	36	64
Philadelphia	83	17	57	43
Baltimore	79	21	49	51
New Orleans	74	26	43	57
San Francisco	75	25	72	28

Comparative statement showing the decadence of American shipping in the various branches of foreign trade.

[Charts 7 to 14 inclusive.]

	Per cent. of total tonnage entered in American and foreign vessels.			
	1856 to 1861, inclusive.		1862 to 1869, inclusive.	
	Per cent. in American vessels.	Per cent. in foreign vessels.	Per cent. in American vessels.	Per cent. in foreign vessels.
France	87	13	50	50
Great Britain	65	35	31	69
German States	28	72	10	90
The Mediterranean	68	32	40	60
West Indies	85	15	66	34
South American	90	10	72	28
East Indies, (exclusive of China)	92	8	60	40
China	89	11	47	53

In 1862 the ship-building of the coast was less than it had been during any year since A. D. 1844, and there has been but little improvement since. The depression of our ocean ship-building is due almost exclusively to the great falling off in the building of large vessels designed for the foreign trade. This fact is shown by the following statement; ships and barks representing ocean or "foreign trade," and schooners the "home" or "coasting trade:"

Statement showing the number of schooners and the number of ships and barks built in the United States each year from A. D. 1855 to A. D. 1869.

[The Atlantic, Gulf, and Pacific coasts.]

Year.	No. of ships and barks.	No. of schooners.	Year.	No. of ships and barks.	No. of schooners.
1855	373	528	1863	83	153
1856	302	438	1864	106	282
1857	248	398	1865	105	350
1858	118	367	1866	84	419
1859	88	276	1867	81	476
1860	109	347	1868	69	458
1861	105	327	1869	91	506
1862	43	167			

Thus it is seen that while the building of ships and barks, which are employed chiefly in the "foreign trade," fell from 373 in the year 1855 to 91 in the year 1869, the building of schooners, which are generally employed in the "coasting trade," is quite as prosperous as it was from 1855 to 1860.

The falling off in the building of large vessels is further illustrated as follows: During the five years from 1853 to 1858, 65 per cent. of our total sea-going tonnage built on the coast consisted of ships and barks, while during the five years from 1863 to 1868 only 28 per cent. consisted of ships and barks. During the year 1855, the most prosperous year in the history of American ship-building, there were 305 ships and barks and 173 schooners built in the New England States, the aggregate tonnage built having been 326,429 tons; while during the year ending June 30, 1869, there were 72 ships and barks and 185 schooners built, the aggregate tonnage having been 92,750 tons. It is ascertained, more-

over, that the average tonnage of ships and barks built since the war has fallen off 10 per cent. The difference between the numerical expressions of tonnage under the "old" and "new" methods of admeasurement does not materially affect these resuls. Brigs, schooners, and sloops measure numerically less under the "new" than under the "old" admeasurement, while ships, barks, steamboats, and vessels, having closed-in spaces above their hulls, have their tonnage largely increased. The aggregate tonnage of the country under the "new" admeasurement is about five per cent. less than under the "old."

The following statement exhibits the number and tonnage of vessels captured and destroyed:

Year.	No. of vessels.	Tons.
1861	37	11,789
1862	35	12,790
1863	97	51,710
1864	36	14,122
1865	34	14,194
Totals	239	104,605

Besides American ship-owners, on account of the advanced rates of insurance of American vessels, and for the purpose of avoiding the risk of capture, transferred their vessels to the citizens of other countries either by actual or fictitious sales.

The following statement exhibits the vessels sold to foreigners from 1821 to 1869:

Statement of vessels under American registry sold to foreigners from 1821 *to* 1869.

Year.	Registered.	Enrolled.	Total.	Year.	Registered.	Enrolled.	Total.
1821	8,350	.....	8,350	1846	10,932	.....	10,932
1822	5,710	.....	5,710	1847	13,908	3,061	16,969
1823	9,269	.....	9,269	1848	11,079	1,377	12,456
1824	12,818	.....	12,818	1849	12,506	115	12,621
1825	9,949	.....	9,949	1850	13,468	.....	13,468
1826	13,994	.....	13,994	1851	15,247	.....	15,247
1827	19,043	.....	19,043	1852	17,612	309	17,921
1828	14,678	.....	14,678	1853	10,035	.....	10,035
1829	14,093	.....	14,093	1854	59,244	789	60,033
1830	10,059	.....	10,059	1855	65,887	.....	65,887
1831	9,750	.....	9,750	1856	41,854	314	42,168
1832	6,083	.....	6,083	1857	51,791	858	52,649
1833	2,932	.....	2,932	1858	25,926	379	26,305
1834	4,725	.....	4,725	1859	30,765	85	30,850
1835	7,617	.....	7,617	1860	17,073	345	17,418
1836	10,509	.....	10,509	1861	26,503	146	26,649
1837	9,916	.....	9,916	1862	114,939	2,817	117,756
1838	5,386	.....	5,386	1863	217,126	5,073	222,199
1839	5,769	.....	5,769	1864	291,383	9,482	300,865
1840	13,837	.....	13,837	1865	128,197	5,635	133,832
1841	12,713	.....	12,713	1866	21,678	439	22,117
1842	7,770	.....	7,770	1867	9,016	72	9,088
1843	8,818	.....	8,818	1868	10,664	3,093	13,757
1844	7,227	.....	7,227	1869	18,652	411	19,063
1845	8,023	346	8,369				

It appears that during the four years of the war 774,652 tons were sold to foreigners, while during the preceding forty years, embracing the period of our highest prosperity in ship-building, only 671,377 tons were sold to foreigners.

But nearly five years have elapsed since the last hostile flag was hauled down, and our merchant marine engaged in foreign trade still

remains in the low condition to which it fell in 1864. In a nation like ours, possessed of unsurpassed resources, abounding in ship-building material, and exhibiting in almost every other pursuit an unprecedented degree of prosperity, we must seek other causes for the continued depression of our maritime interests than those which terminated with the war. A careful investigation of the changes which have taken place in "ocean commerce" may perhaps lead to a solution of the difficulty.

STEAM NAVIGATION.

Steam navigation between the United States and Europe* dates from the year 1838, when the Sirius and the Great Western, the pioneer ships, arrived at New York. Since that time, there has been uninterrupted transatlantic steam communication.

In A. D. 1840 the Cunard line was established with five steamers, receiving from the British government a postal subsidy of £85,000 ($413,666) per annum.

The English government inaugurated the system of subsidies rather from political than from commercial considerations. The first grant to the Cunard line was for carrying the British mails from England to Halifax; the owners, however, extended their voyages to Boston and New York without extra compensation. Nearly all the other subsidized lines of England were those connecting her colonies with each other and with the mother country.

During the year 1841 the Cunard subsidy was increased to £110,000. Even with this additional grant the proprietors failed. The government, however, came to the rescue, increasing the subsidy to £145,000 ($705,666) in 1846, so that the line was continued. In 1862 the line had increased to eleven steamers, making weekly trips, with a subsidy of £176,340, ($858,176,) or $16,503 per trip. At the present time this line is running twenty-one steamers, making one hundred and four trips per annum, and receiving from the British government a subsidy of only £70,000 ($340,662) per annum, or $3,275 per trip.

The history of American ocean steam lines is brief and by no means creditable to us as a great commercial nation.

1st. In 1850 the Collins line was started, the Atlantic, the Pacific, the Baltic, and the Arctic having been completed during that year. The Adriatic was added in 1856. In 1852 this line received a subsidy of $858,000 for twenty-six trips a year, being at the rate of $33,000 per trip, or $4 70 per mile run. In 1857 the subsidy was reduced to $385,000 for twenty-nine trips per annum, being at the rate of $13,276 per trip, or $3 10½ per mile run, the gross postage being $415,867.

At the same time the Cunard line received a subsidy of £173,340 ($843,576) for fifty-two trips per annum, being at the rate of $16,222 per trip, or $2 38½ per mile run, the gross postage being £143,667, ($699,169.)

The American steamers surpassed their rivals of the Cunard line in elegance and speed and also in popular favor. The career of the Collins line, though brilliant, was short, terminating in 1858 in the bankruptcy of the company and the withdrawal of the ships. The Arctic went down in 1854, the Pacific left Liverpool in 1858, and was heard from no more. Extravagance and bad management, added to these fearful disasters, completed the ruin of the company.

2d. The Havre line was established in the year 1847.

* The statistics of steam lines between the United States and Europe prior to 1863 are taken from a memorial of the Chamber of Commerce of New York to Congress in February, 1864.

This line also met with very serious misfortunes in the loss of the Franklin and Humboldt. It continued until the outbreak of the rebellion in 1861, when the remaining steamers, the Arago and Fulton, were withdrawn and chartered to the United States government. This company was a successful one. By strict economy and good management the proprietors were enabled to retrieve their misfortunes. The compensation received from the government for carrying mails amounted to about $3 25 per mile run. One of the owners and managers of this line has informed me that he always was, and still is, opposed to government subsidies upon principle, believing them to be detrimental to the general interests of commerce.

The Bremen line, the pioneer of the American lines, was established in 1846, but withdrew in 1858, for the reason that it did not pay. Thus it appears that American steam navigation to Europe failed before the outbreak of the war. During the fiscal years ending June 30, 1862, 1863, 1864, and 1865, there was no American steamer running between the United States and Europe.

Since the war three attempts have been made to establish American lines. A company in Boston built two wooden-screw steamers, the Erie and Ontario, of about three thousand tons each. The Ontario was finished in August, 1867, and made three trips to Liverpool. The Erie was finished in February, 1868, but never went to sea. These vessels, which cost about $750,000 each, have been sold within a few weeks for less than half their original cost.

An American line was started in New York, in the year 1866, by Messrs. Ruger Brothers. The vessels of this line made twelve voyages in 1866, fourteen in 1867, eight in 1868, and seven in 1869. During the early part of the year 1869 the proprietors extended the voyages of their line to Copenhagen, Denmark, and to Stettin, Prussia. This line has also failed for the following reasons, as stated by the owners: "A combination was formed by the English and German steamship lines to put on a steamer for New York at the same port, and on the same day that the vessels of this line were advertised to sail, and to take freight and passengers to New York at reduced rates. The result of this combination was death to their line." It is proper to state that the steamships of this line were old side-wheel wooden ships, and not at all adapted for competition with the improved iron screw-steamers of the foreign lines.

An American line was established between Baltimore and Liverpool in 1866, but has been withdrawn during the present year, for the reason that it did not pay. The steamers of this line were also wooden vessels, purchased from the government.

Two other ocean steamship companies have been organized in this country during the last two years, but I believe that neither of them has yet laid a keel.

Were it not that the trade between San Francisco and New York, via the Isthmus, is declared to be a part of our "coasting trade," there is reason to believe that British iron screw-steamers would long since have monopolized the route now occupied by the magnificent American steamers of the Pacific Mail Steamship Company.

To-day there is not a single steamer running between the United States and Europe which wears the American flag, whereas there are twelve foreign lines, comprising 117 steamers, whose aggregate tonnage is 268,437 tons.

From the proportion of the value of imports in steam-vessels at the

port of New York, (80$\frac{2}{5}$ per cent.,) it is estimated that during the year ending June 30, 1869, 49$\frac{2}{10}$ per cent. of the imports (value) into the United States have been received in foreign steamers.

The value of the ships so engaged is estimated at $36,991,918, and the gross receipts for freight at $28,470,000.

While Americans are unable to maintain lines of ocean steamers between our own and foreign ports, English steam lines have been established in all parts of the world. In opposition to the wealthy, subsidized Cunard line, other British lines have also been established between ports of the United States and Great Britain which do not now and never have received any subsidy from the British government, but depend entirely upon their receipts from passengers and freights.

These lines have enjoyed a high degree of prosperity, due to improvements in the construction of their vessels and to the enterprise and economy with which their business has been conducted.

The names of these lines, together with the date when started, number and tonnage of steamers, &c., are shown in the following tabular statement:

Statement of foreign steam lines between ports of the United States and Europe.

Name of lines.	To what foreign port.	Nationality.	When established.	Number of steamers.	Number of trips.	Subsidy per trip.	Tonnage.
PORTLAND.							
Montreal Ocean Steamship Company.	3 Glasgow .. 7 Liverpool .	British.....	1856	10	52	None.	23, 050. 91
NEW YORK.							
Cunard line.....	Liverpool.....	British.....	1840	21	104	$3, 275	47, 747. 63
Inman line	Liverpool.....	British.....	1850	14	72	2, 365	32, 259
Hamburg and American line	Hamburg.....	North German..	1856	10	52	None.	26, 681
North German line	Bremen.....	North German..	1858	11	52	None.	31, 053
London and New York Steamship Company.	London	British.....	1863	4	26	None.	7, 422
Anchor line.....	Glasgow	British.....	1863	11	70	None.	16, 457
National line	Liverpool.....	British.....	1864	9	60	None.	28, 540
General Transatlantic line..	Havre	French	1864	7	26	22, 320	15, 142
Liverpool and Great Western line.	Liverpool.....	British.....	1866	6	52	None.	18, 594
New York and Bremen line..	Bremen.....	North German..	1868	1	.....	None.	1, 797
Total to New York...	.....	.....	.....	94	.....	.....	225, 692. 63
BALTIMORE.							
North German line	Bremen.....	North German..	1868	4	26	None.	9, 275. 96
NEW ORLEANS.							
Liverpool and Southern Steamship Company.	Liverpool.....	British.....	1867	9	26	None.	10, 417. 54
Thirteen lines.....	.....	.....	.....	117	618	.....	268, 437. 04

Average tonnage, 2,208. 86.

The following is a statement of American steam lines making regular trips between ports of the United States and foreign ports:

Statement of American steam lines making regular trips between ports of the United States and foreign ports.

Name of line.	To what foreign port.	When established.	No. of steamers.	No. of trips.	Tonnage.
PORTLAND.					
Portland and Halifax line	1 Halifax 1 St. John	1867	2	52	1,096.71
BOSTON.					
T. Nickerson & Co	Charlotte Town.	1868	3	About 38	1,840.36
J. G. Hall & Co	St. John	1866	1	About 40	449.27
International Steamship Co	St. John	.....	3	.....	3,067.34
Total Boston	.....	.....	7	.....	5,356.97
NEW YORK.					
New York and Mexican Mail Steamship Co	Vera Cruz	1868	2	18	2,141.23
New York and Bermuda steamship line	Bermuda	1868	1	20	601.00
Atlantic Mail Steamship Co	Havana	.....	4	.....	5,544.16
Pacific Mail Steamship Co	Aspinwall	1849	6	26	17,067.99
United States and Brazil Mail Steamship Co	Rio de Janeiro	1865	3	12	6,435.17
New York and Port au Prince line	Port au Prince	1864	1	12	490.00
Total New York	.....	.....	17	.....	32,279.55
NEW ORLEANS.					
Alliance line	Havana	1866	4	52	1,678.09
SAN FRANCISCO.					
Pacific Mail Steamship Co	Panama	1849	6	24	18,023.59
Do do	Hong-Kong	1867	4	12	16,369.67
North Pacific Transportation Co	Victoria	.....	4	.....	3,620.25
Do do	Mazatlan	.....	2	.....	2,883.50
Do do	Honolulu	.....	1	.....	1,077.13
Total San Francisco	.....	.....	17	.....	41,974.14

Total number of steamers, 47; total tonnage of steamers, 82,385.46; average tonnage, 1,753.

Statement showing the number, tonnage, and nationality of steamers plying regularly between the Atlantic and Gulf ports of the United States and foreign ports.

Nationality.	To ports in Europe.		To foreign ports other than ports in Europe.		To all foreign ports.	
	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
United States	.....	.....	47	82,385.46	47	82,385.46
England	84	184,488.08	.....	.....	84	184,488.08
France	7	15,142.00	.....	.....	7	15,142.00
North Germany	26	68,806.96	.....	.....	26	68,806.96
Total	117	268,437.04	47	82,385.46	164	350,822.50

The forty-seven American steamers running to ports other than ports in Europe during the year 1869 were as follows:

	No.		No.
Havana	10	Prince Edward Island	3
St. John, N. B	5	Aspinwall	6
Panama	6	Rio de Janeiro	3
Halifax	1	Port au Prince	1
Bermuda	1	Hong-Kong	4
Victoria	4	Honolulu	1
Mazatlan	2		

Condensed statement of American and foreign steamers plying regularly between ports of the United States and foreign ports.

Name of port.	American steamers.		Foreign steamers.		Total.	
	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
Portland	2	1,096.71	10	23,050.91	12	24,147.62
Boston	7	5,356.97	.....	.....	7	5,356.97
New York	17	32,279.55	94	225,692.63	111	257,972.18
Baltimore	.....	.....	4	9,275.96	4	9,275.96
New Orleans	4	1,678.09	9	10,417.54	13	12,095.63
San Francisco	17	41,974.14	.....	.....	17	41,974.14
Total	47	82,385.46	117	268,437.04	164	350,822.50

NOTE.—This statement includes the steamers of the Pacific Mail Steamship Company running between New York and Aspinwall, and San Francisco and Panama.

The rapid increase of steam navigation is clearly illustrated by Charts Nos. 16, 17, and 18, which exhibit the humiliating fact of the failure of the United States in this important branch of ocean commerce. The statistics of steam tonnage for these three charts were obtained by means of special investigations made at the custom-houses of the country within the last three months, the tonnage of sailing and steam vessels entered never having been kept separately in our statistics. It is a matter of high importance that this distinction should be observed in the future.

These statistics from 1844 to 1869 have been compiled with much care and labor.

The only subsidized lines now running between ports of the United States and Europe are the Royal Mail Steamship Company, (Cunard line,) the Inman line, and the General Transatlantic Company, subsidized by the French government.

The compensation paid these lines is as follows:

The Cunard line (British) receives £70,000, ($340,662,) and makes one hundred and four trips per annum, being at the rate of $3,275 per trip, or 53 cents per mile run.

The Inman line (British) receives £35,000, ($170,331,) and makes seventy-two trips per annum, being at the rate of $2,365 per trip, or 38 cents per mile run.

The General Transatlantic Company (French) makes about twenty-six trips per annum, and receives 120,000 francs per trip, being at the rate of $22,320 per trip, or $3 41 per mile run.

At the present time there are three subsidized lines running between ports of the United States and Europe, and nine lines not subsidized,

the subsidized lines embracing forty-two steamers, and the lines not subsidized seventy-five steamers.

During the past year the following steam lines have carried the United States mail to Europe:

1. Hamburg and American Packet Company (N. G. Union) every Saturday.
2. The Cunard line (British) every Wednesday.
3. The North German Lloyd (N. G. Union) every Thursday.
4. The Inman line (British) every Saturday.
5. The General Transatlantic Company (French) every alternate Saturday, taking a direct mail to France only.

The Inman and Cunard lines have received 20 cents per ounce for letters and 6 cents per pound for printed matter, &c. The North German Lloyd and the Hamburg and American Packet Company have been paid 20 cents per ounce for letters and 6 cents per pound for printed matter, &c., except that portion of the mail designated direct mail to Germany, for which they have received 5 cents for each letter rate and 10 cents per kilogramme on all printed matter, &c.

The General Transatlantic (French) steamers have received all but the United States postage. The mails have been given to the above-named lines for their speed and regularity, the United States having no postal contract with any line of steamers to Europe. The only lines which have brought European mails to the United States are the Inman, Cunard, North German Lloyd, Hamburg American Packet Company, and the General Transatlantic Company.

Statement of amounts paid by the United States government to foreign steamship lines for carrying mails.

Name of line.	Number of trips.	Average pay per trip.	Rate of pay per annum.
Cunard line	52	$1,500	$78,000
Inman line	52	1,600	83,200
Hamburg line	52	1,400	72,800
Bremen line	52	1,200	62,400

It is seen that the Cunard and Inman lines have received at the rate of $6,400 per ton for letters, and $120 per ton for newspapers.

Comparing these rates with the rates paid for express freights, it will be seen that the United States government has really given a subsidy to all these lines.

Within a few weeks the former postal arrangements with foreign steam lines have been broken up by the refusal of the above-named companies to carry the mails at the rates offered by the Postmaster General. New arrangements have been effected with other lines.

The relative cost of operating British and American steam lines depends upon the difference in cost of vessels in the two countries, the difference in running expenses, and the difference in the value of annual depreciation and repairs. The cost of building in the two countries is fully referred to on pages 19 to 26, inclusive.

The following estimate in regard to the cost of running American and

British steam lines has been computed from data furnished by persons of large practical experience:

Relative annual cost of operating American and British lines of steamers.

	Percentage on capital invested.	
	British.	American.
Insurance	8	8
Depreciation and repairs not covered by insurance	5 iron	10 wood
Profits required by stockholders	12	16
Percentage of original stock required to be earned annually	25	34

The foregoing is merely a general expression, and is not, of course, supposed to be strictly accurate.

The difference in the profits required on commercial ventures in England and the United States is due to the difference in the ruling rates of interest in the two countries. Beside the taxes imposed upon shipping in the United States by the general government there are State, county, and city taxes.

The following statement upon this point is furnished to me by Mr. Edward Hincken, president of the Ship-owners' Association of New York:

Estimated amount of taxation of an American line of steamers.

State, county, and city taxes at New York on vessels, wharves, machine shops, offices, and floating capital, estimated at $3,000,000, 2½ per cent.	$75,000
Advantage gained by British vessels on imported goods free of duty, estimated. (This amount embraces only the drawback in England on sugar, coffee, tea, spirits, wines, and tobacco.)	25,000
United States tax on gross receipts from passengers, 2½ per cent., (estimated on a fair amount of business)	37,500
United States tax 5 per cent. on profits of company, supposing net dividend of 12 per cent. on a capital of $3,000,000	18,000
Total	155,500

Estimated amount of taxation of English line of steamers.

Income tax of stockholders, 1⅔ per cent. on dividend of 12 per cent. on $3,000,000	$6,000
Tax on rental value of premises, estimated	4,000
Total	10,000

Mr. Hincken adds: "Although the port of New York owes its prosperity to commerce, there is no State in the Union that has done so little to encourage it as New York. It has grown up in the face of the enormous sums paid yearly to the commissioners of emigration, commis-

sioners of quarantine, enormous rates of postage, and unserviceable wharves, for which large sums are fleeced out of vessel owners."

In the efforts which are being made to revive our maritime interests, besides those remedies which may possibly be applied by the general government, an interesting question arises as to the share of the work devolving upon States, counties, and cities which are directly benefited by foreign commerce.

The British government allows goods used on ship-board to be imported free of duty. The amount of this subsidy to the shipping of the kingdom during the year 1867 was $2,328,762 in gold. (See page 51.)

WOODEN AND IRON VESSELS.

From the earliest ages until a period within the memory of living men wood was the material chiefly used for the construction of sea-going vessels, and only within the last twenty years has iron been substituted to any great extent. Iron vessels were built for canal and river navigation in England and Scotland as early as 1787; but iron ship-building may be said to date from about the year 1830. Few sea-going iron vessels were built prior to 1843, when the steamer Great Britain was launched, then the largest steamship in the world. She demonstrated the safety of iron vessels upon the ocean, and their fitness for the severe trials of the stormy Atlantic. The peculiar advantages possessed by iron as a ship-building material are:

1. Iron vessels are more rigid than wooden vessels. All wooden vessels change their form in the course of years, owing to the action of the sea, the strain of cargoes, the unequal expansion and contraction of the inner and outer planking, and the unequal bearing of different parts of the hull. In steam vessels the strain caused by the weight of the engine and boilers, and the rack of machinery, is so great that the application of the screw, the most economical method of propulsion, to wooden ocean steamers of more than two thousand tons, is generally considered impracticable.

2. Iron is much more durable than wood. The average lifetime of wooden sailing vessels is fourteen years; that of wooden ocean steamers is about twelve to fourteen years. The lifetime of iron vessels for ocean navigation cannot be accurately stated, merely from the fact that sufficient time has not elapsed since they were first built in order to determine that point. Iron vessels thirty years old are yet afloat and in good condition. Many iron vessels which were built fifteen to twenty years ago are still so well preserved that it is believed they will, with ordinary care, last twenty years longer. The steamer Great Britain, built in the year 1843, is still in service. In a recent communication I am informed that she is now employed on the line between Liverpool and Australia, and that she is considered the best ship of the line. This vessel ran on the north coast of Iceland in 1849, where she lay for months on a rocky shore exposed to the fury of a winter's storms. The damage done to her bottom being entirely local, she was soon put in a condition as good as new.

3. Iron ships are superior to wooden ships in buoyancy, and hence are able to carry a greater weight of cargo. It is stated by Mr. Moorsom, late surveyor general for tonnage in England, that iron ships constructed according to British Lloyd rules, owing to their superior buoyancy, can carry a greater weight of cargo than wooden ships by thirteen per cent. The ordinary cargo of a wooden ship of one thousand tons, United States admeasurement, being about sixteen hundred tons, of

twenty-two hundred and forty pounds, an iron ship of one thousand tons, loaded to the same depth would carry about eighteen hundred tons.

4. Iron vessels have greater internal capacity than wooden vessels, owing to the fact that their sides are thinner. Mr. Moorsom states that a one thousand ton iron ship has 14 per cent. greater stowage capacity than a wooden ship of the same tonnage and dimensions.

The commercial value of this advantage in favor of iron vessels is very great, owing to the fact that a large proportion of the cargoes of ocean commerce are estimated by the ton of forty cubic feet. As stated in a recent work by John Grantham, London, Vertue & Co., 1868, the engine, boilers, and coals of a steamer constitute about one-half the load. A gain, therefore, of 14 per cent. in internal capacity would add 28 per cent. to the available cargo space.

5. Iron ships are stronger than wooden ships of corresponding Lloyd rates. This results from the greater strength of iron, its capability of being bent into any of the various forms required in naval architecture, and its uniform tenacity in all directions. Iron also admits of a method of construction which is impossible in wooden ships. The plates of the sides and bottom are firmly bolted to the adjoining plates, whereas, in a wooden ship, the plank, on which the strength of a ship mainly depends, are driven apart both at their ends and edges by the oakum which is required in order to make the ship water-tight. From its superior adaptability for fastening, iron also affords great facilities for the insertion of intercostal beams and water-tight bulkheads, which add very much not only to the strength, but to the safety of a ship in case of accident.

Iron offers peculiar advantages for the construction of ocean steamers. In fact, the success of the foreign transatlantic steam lines of to-day is due in great measure to the fact that they are built of iron. All the steamers now plying between the United States and Europe (one hundred and seventeen in all) are built of iron.

The desiderata in ocean steam navigation are speed and the largest amount of space available for passengers and cargo. An important commercial advantage possessed by iron steamers consists in the great length which it is possible to give them with safety. Vessels differ very much in speed owing to the form of their models; but it may be stated in general terms that the resistance offered to the passage of a ship through the water is in direct proportion to the area of the greatest transverse section.

The advantage possessed by iron steamers over wooden steamers in increased length are well known, and generally acknowledged by the English naval architects and builders. The conditions of speed being so variable, depending upon the model and construction of a vessel, it is found impossible to assign any general value to increased length of hull which would be applicable to all vessels. To it is opposed increased lateral friction, the value of which element is not yet well defined. Many steamers have been lengthened amidships, thus adding very much to their carrying capacity without materially affecting their speed under the same applied power.

The actual difference in the proportion of length to breadth has been determined in the case of twenty-six wooden steamers, all American, and nine iron steamers, all foreign. (See page 41.) The average ratio of length to breadth of the wooden steamers is seven, and of the iron steamers eight and three-tenths; the average difference in favor of the iron vessels being one and three-tenths. Without attempting to determine a point upon which there are differences of opinion, for the

sake of illustration, I assume a net gain in increased capacity of hull arising from an additional length equal to one breadth, in the case of a wooden steamer whose length is 360 feet, breadth 47.4, internal midship section 1,341.73 square feet, and tonnage 3,881.83 tons. Multiplying the area of the midship section by the breadth, we have 63,598 cubic feet, or 636 tons of increased carrying capacity arising from the additional length. But 636 tons affords a gain of 16 per cent. of the capacity of the ship as now constructed.

We have then the advantages of iron steamers as follows:

In thinner sides	14 per cent.
In greater length	16 per cent.
Total gain	30 per cent.

Supposing the space occupied by the engines, boilers, and coals to be 40 per cent. of the hull, the total gain of 30 per cent. would afford *a net gain of 50 per cent. in the space available for freight and passengers.* I am informed that iron steamers are proposed for the Suez route, whose length shall be thirteen to fourteen times their breadth.

A great advantage in the construction of iron ships arises from the fact that a very large proportion of the work is done by machinery. All the plates, beams, and frames are cut, shaped, and punched by machinery. The principal manual labor consists in bolting the plates together.

The proportion of skilled labor in the construction of a wooden ship is estimated at about 66 per cent., and the proportion of skilled labor on an iron ship at only about 25 per cent. of the total labor employed.

COST OF BUILDING IRON VESSELS IN THE UNITED STATES AND IN ENGLAND.

The most important commercial consideration in regard to shipping is the cost of construction. The iron ship-building interest of the United States is still in its infancy. There are but seven or eight establishments in the country which have built iron vessels, and the interest has barely had an existence during the last four years. Contracts have been made in this country not upon any well-established Lloyd rules, but according to such specifications and at such prices as parties could agree upon. Builders are unwilling, in the present state of changing values, to state definitely the terms upon which they are prepared to build vessels of established weight of metal. Relying upon the well-known superiority of American ship-plate, they have in most cases used iron of less weight and thickness than that required by the English and French Lloyd rules. It is therefore impossible to state precisely the difference in the cost of iron vessels in the United States and in England. Upon this point of so much importance I think it best to state such facts as I have been able to obtain. The prices stated by builders in this country are generally the lowest possible rates. These I compare with the lowest rates mentioned in England for A 1 ships at the time the facts were ascertained, viz: £15 per ton, ($94 90 currency,) the premium on gold at that time being $1 30.

The following estimates have been given to me by responsible parties who have built iron ships:

1. An estimate was made about six months ago by an American builder for the construction of an iron ship of one thousand and three tons. His price for the finished ship, built exactly in conformity with

English Lloyd's specifications, with one suit of sails, was $121,000, or $120 64 per ton. This, compared with the English rate, £15 or $94 90 per ton, shows the cost of the American ship to be 25 per cent. more than that of the English. Add, perhaps, for English extra suit of sails 5 per cent., making the difference 30 per cent.

2. Mr. Franklin W. Smith, treasurer of the Atlantic Works of Boston, in a recent pamphlet on iron ship-building, estimates the cost of an American iron ship of one thousand tons, built according to the requirements of British Lloyds, at $125 per ton, or 32 per cent. more than the English price, $94 90 per ton.

3. Bids were made about six months ago for the building of a ship of one thousand and thirty-one tons for a Boston merchant. The lowest offer in this country was $138,000, ($133 85 per ton.) A bid was also received for the same ship from a builder in Scotland of $87,000 currency, or $84 38 per ton; the American estimate being 58 per cent. greater than the Scotch. It is believed, however, that the Scotch bid was due to a sudden depression in the iron ship-building interest, and probably also to an inferior quality of iron. Compared with the ruling rate for first-class ships, viz: £15 per ton, the comparison would stand thus:

American $138,000; Scotch $97,842. American 41 per cent. more than Scotch.

4. Messrs. Tupper and Beattie, proprietors of the iron bark Iron Age, inform me that "the price of Messrs Harlan & Hollingsworth, (builders of their vessel,) for a first-class ship, is $85 per ton, register for hull, spars, and top iron works. The outfit would cost $25 per ton more."

This would amount to $110 currency for the finished ship. Messrs. Tupper & Beattie add, however: "We are satisfied that the English put more material in their vessels than we do." I have reason to believe that the cost here stated would be increased to $125 per ton for a ship built in conformity with the rules of British Lloyds. This would be 32 per cent. higher than the prices in England and on the Clyde.

Another iron ship-builder in this country gave me, as the general results of his calculations, the present cost of an A 1 iron sailing ship in the United States about $125 per ton. This, compared with the English rate, $94 90 per ton, shows a difference of $30 10 per ton, or 32 per cent. in favor of the English.

These facts are stated as they were received. They seem to indicate an advantage in building iron vessels on the side of England of about 33 per cent. It is stated, however, that owing to the limited demand for iron ships, and falling prices in England, vessels of inferior quality have been constructed, using the cheapest grades of iron.

Every iron vessel built in the United States, so far as I have been able to ascertain, has been constructed of American iron of superior quality.

At present the British builders enjoy a great advantage over us in what they technically term their "plant," viz: their stock of tools and machinery, buildings, &c. Especially is this true in regard to the building of marine engines.

It is believed that if our shops were as well furnished with tools and machinery as are many of the large establishments in England and Scotland, and a sufficient amount of work were done to secure the advantages of labor skilled in routine, that the cost of building ships and engines would be reduced from 7 to 10 per cent.

It is claimed by builders in this country that the superiority of American iron gives us a decided advantage in iron ship-building.

A valuable series of experiments have recently been made at the

Watertown arsenal by Captain O. E. Michaelis, United States Army, under the orders of Brevet Brigadier General Charles B. Kingsbury, showing the superiority of American ship plate. The average results arrived at from thirteen specimens of English and eight specimens of American iron were as follows:

Average tensile strength of all the English specimens, 41,505 pounds per square inch.

Average tensile strength of all the American specimens, 45,272 pounds per square inch.

Showing that the American ship plate has 9 per cent. greater tensile strength than the English. Captain Michaelis adds: "So far as I could judge, the American iron is more homogeneous than the English." A full statement of these experiments in detail may be found on page 42. At present we cannot avail ourslves of any advantages arising from a superior quality of iron because the British and French Lloyds refuse to recognize the fact in rating vessels.

The precise difference in the cost of American and English iron ships can only be arrived at by means of an extensive examination of the materials and methods of construction adopted in the two countries.

The foregoing estimates are all for sailing vessels.

It is probable that the relative cost of building iron ocean steamers in England and in the United States does not differ far from the above estimate, viz., 33 per cent.

At present first-class three thousand ton ocean steamers cost in England about $145, gold, per ton. The difference in weight, style, and power of engines built in the two countries is so great that it is impossible to calculate the actual difference from a few particular vessels.

The relative cost of operating wooden and iron ships depends upon *first cost*, annual depreciation, annual repairs not covered by insurance, and relative advantages in the carriage of freights.

While it may be stated in general terms that the cost of first-class wooden sailing vessels in the United States, and of iron vessels in England is about the same at the present time, it is difficult to compare the cost of wooden and iron steamers, the actual cost of wooden steamers in this country being generally known only to the proprietors and builders. The cost per ton differs very widely according to finish, style of engine, model, &c.

The annual *depreciation* of both wooden and iron vessels depends upon their average life-time or term of actual service. The average life-time of wooden steamers being about fourteen years, the annual depreciation is about 7 per cent. per annum. From the best available data it is estimated that the average life-time of iron steamers is thirty years, the annual depreciation being about $3\frac{1}{3}$ per cent. per annum.

The relative cost of ordinary repairs is estimated at 7 per cent. for wooden steamers, and 2 per cent. for iron steamers.

The relative advantages of iron vessels in insurance is stated upon reliable authority as follows:

Insurance of wooden sailing ships, voyage to Europe, $2\frac{1}{2}$ to 3 per cent.

Insurance of iron sailing ships, voyage to Europe, 2 to $2\frac{1}{2}$ per cent.

Insurance of wooden sailing ships, beyond Cape Good Hope, $3\frac{1}{2}$ per cent.

Insurance of iron sailing ships, beyond Cape Good Hope, 3 per cent.

Insurance of wooden steamers, transatlantic voyage, 3 per cent.

Insurance of iron steamers, transatlantic voyage, 2 per cent.

It seems to be a fact generally admitted by merchants and Lloyds' surveyors that iron vessels are growing in favor, on account of their seaworthiness, and the manner in which they carry cargoes. Upon this

point, of so much interest to our merchant marine, I submit the following extracts from letters of recent date. Captain Samuel Harding, surveyor of French Lloyds' at New York, in a letter dated December 10, says: "I am informed by merchants who know, that iron ships in East Indies trade (except China) command a preference and higher rates of freight than wooden ships. Wooden ships are preferred for cargoes of tea. A part of the English tea ships are 'composite,' (iron and wood.) For cargoes of wheat and all cereals from California to England, iron ships have the preference. So far as my observation goes, iron ships at New York turn out cargoes in far the best order."

Edward Hincken, esq., president of the Ship-owners' Association of New York, in a letter dated December 10, mentions several merchants largely engaged in East India trade in that city, who give iron ships $1 to $1 50 more per ton for freights than they give to wooden ships. Recent quotations of freights from Calcutta to New York being $11 50 to $12, the difference in favor of iron vessels amounts to 8½ per cent. of the rates paid to wooden vessels; he adds: "The difference at Calcutta is a fair estimate of the East India ports. In the trade between the United States and Europe there is not so much difference, but the preference given to iron vessels compels wooden vessels to lower their rates." Mr. Jas. W. Elwell, merchant of New York, states that iron vessels receive five shillings ($1 21) more per ton for freight than wooden ships at the port of San Francisco.

Captain John C. Cremony, of San Francisco, a gentleman of long experience in shipping, states as follows: "At San Francisco a decided preference is given to iron vessels, both by shippers and by insurance companies. The average freight charge to England is £3 2*s.* 6*d.* and 2*s.* 6*d.* to 3*s.* per ton more is given to iron than to wooden vessels." This shows an advantage of 4 to 5 per cent. in favor of iron ships.

In the ports of England certain classes of freights are advertised "for iron vessels only." Thus it appears that the relative condition of American and British ships in international commerce has been reversed since 1853. *Then American ships were preferred at the port of London; now British ships take the preference at the port of New York.*

The practical substitution of iron for wood by other nations in the building of ocean steamships is shown by the fact that all the foreign steamers now plying between ports of the United States and ports in Europe are built of iron, and all, I think, built in England or on the Clyde.

On page 42 will be found a statement concerning the cost of operating wooden and iron sailing vessels, by Mr. F. W. Smith, of Boston, which is inserted upon the authority of that gentleman. The results there shown are, of course, only approximate.

A statement of the ship-building of England, Ireland, and Scotland, from 1853 to 1868, may be found on page 46.

There are no reliable data in regard to the iron ship-building of the United States prior to 1868, the distinction of "wood" and "iron" not having been observed in the returns to the tonnage office.

The following is a statement of the iron ship-building of the United States during the year ending June 30, 1869:

One bark	680 tons.
One brig	359 tons.
One ocean propeller	1,453 tons.
Seven river steamers	2,092 tons.
Total	4,588 tons.

During the past year the first *iron sailing vessels* designed for ocean commerce have been built in this country.

First. The brig Novelty, of 359 tons, built by the Atlantic Works of Boston, for Messrs. Nash, Spaulding & Co., of that city. Her owners and constructors are entitled to great credit for the successful introduction in this vessel of a method of transporting liquids in bulk in sea-going vessels. She has seven tanks in her hold, of a combined capacity of 90,000 gallons, being designed solely for the molasses trade.

A saving has thus been effected of $6,365 on a single voyage, or 15 per cent. of the value of the entire cargo at Boston, equal to 7½ cents per gallon. Her owners inform me in a recent letter that they expect to have two molasses vessels built in the United States during the present year. They state that in so doing they can save $30,000 in cost of construction. This saving would amount to 45 per cent. of the cost in Scotland.

Second. The bark Iron Age, of 680 tons, built by Messrs. Harlan & Hollingsworth, of Wilmington, Delaware, for Messrs. Tupper and Beattie, of New York. She was built for general commerce. Her owners inform me that she has made one voyage, and has proved a perfect success. They are fully convinced of the superiority of iron ships.

The following is a statement of the iron vessels now belonging to American citizens, and sailing under the American flag:

Number and tonnage of American iron sailing and steam vessels.

Class.	No. of vessels.	Tonnage.	Class.	No. of vessels.	Tonnage.
Ships			River steamers	64	22, 810
Barks	1	680	Ocean steamers	49	41, 881
Brigs	1	359			
Barges	1	244	Total	118	68, 299
Lake steamers	2	2, 325			

These vessels, with the exception of a few captured blockade runners sold by the government, have been built in the United States of American iron.

Thus far no vessel has been built in the United States of imported iron.

Grantham, the distinguished English writer on iron ship-building, estimated in 1857 that iron vessels could be built in England for 10 per cent. less than first-class wooden ships. The same difference in prices is believed to exist at the present time. Just the reverse of this is the case in the United States. England resorted to iron as a necessity in order to maintain her place as a maritime nation upon the seas; but that necessity has been the mother of an invention which I think is destined to revolutionize the ocean shipping of the world. With all the light which I have been able to gain from a careful investigation of this subject, I hesitate not to say that the age of ocean commerce in wooden ships is passing away, and that the future success of the United States as a maritime nation will depend very much upon her ability to compete with other nations in the building of iron vessels. There is a method of building called "composite." Vessels of this kind are built with iron frames and beams, and wooden planking. These vessels are highly spoken of in some quarters, but none having been built in this country I am unable to give any facts in regard to them.

RELATIVE COST OF BUILDING WOODEN VESSELS IN THE UNITED STATES AND IN THE DOMINION OF CANADA.

There are very wide differences in the cost of wooden ships, owing to difference in the material used, the manner of construction, the workmanship, outfitting, rates of wages at different points, rent, &c.

In one locality ships are built for $60 per ton, and in other places as high as $110 per ton. It is necessary that these differences be considered in any statements which may be made upon the subject. The wooden vessels of the United States are built principally of oak. In Canada and new Brunswick, spruce, hackmatack and pine are chiefly used. Such ships are of course much inferior to those built in the United States, and are built at much less cost.

The relative cost of wooden vessels in this country ten years ago and at the present time is indicated by the following statements:

1. Messrs. Houghton Brothers, long-established ship-builders at Bath, Maine, state in a recent letter that the cost of building a one-thousand-ton first-class white-oak ship at Bath ten years ago, furnished with one suit of sails, and ready for sea, was $48 per ton; he also states the cost of the same ship now $65 per ton. Reducing the price in 1869 to gold basis, (premium on gold 130,) and we have cost, in 1859, $48 per ton, and cost in 1869 $50 per ton, an increase in cost of $2 (gold) per ton, or $4\frac{1}{6}$ per cent.

2. The deputy collector at Thomaston, Maine, states that the cost of building a one-thousand-ton oak ship ready for sea, with anchors, chains, and one suit of sails, which would rate 3–3 for seven years in French Lloyds, at that place, in 1856, was from $50 to $55 per ton. The cost of building a like ship in 1869 would be about $80 per ton. Reducing the present price to gold rates (130) we have cost in 1859, $55 per ton; cost in 1869, $62 per ton, an advance of $7, or 13 per cent.

3. The collector at Kennebunk, Maine, states in like manner for such vessels as have been built at that place: cost in 1856, $45 per ton; cost of same ship in 1869, $65 per ton; allowing for the premium on gold, cost in 1856, $45 per ton; cost in 1869, $50 per ton; showing an advance of 11 per cent.

4. The collector at Waldoboro, Maine, states cost of one-thousand-ton white-oak ship in 1856, $58, and cost of same ship in 1869, $80; reducing the latter price to gold rates, cost in 1856, $58 per ton; cost in 1869, $62 per ton; an advance of $4 per ton, or 7 per cent.

The above-mentioned custom officers have all obtained their facts from long-established ship-builders in Maine.

5. Mr. William H. Webb, of New York, states as follows: A first-class ship of one thousand tons, built at this port ten years ago, cost about $65 per ton. The same ship would now cost $90 per ton, allowing for the premium on gold; cost in 1859, $65 per ton; cost in 1869, $70 per ton, an advance of $5 per ton, or 8 per cent.

The exact difference between the cost of building vessels in 1859 and 1869 cannot of course be stated from any special case, for no man can build two ships precisely alike or at precisely the same cost. Any general statement upon the subject must of course be derived from a number of special statements. I believe it is safe to state, therefore, that the cost of building wooden vessels in this country is now about 9 per cent. greater than in 1859. Our most formidable rival in the building of wooden vessels is the Dominion of Canada. The ship-building interest in that province, as in the United States, is greatly depressed.

In a recent communication, the United States consul at St. John,

New Brunswick, says: "The ship-building interests of the province are in a low, almost an expiring state. In 1863 a great impetus was given to ship-building in the province, growing out of the war, shippers preferring other than American ships on account of the war risk, but at the close of the war the business suddenly broke down." The following statistics are given by the same gentleman in regard to the ship-building at St. John:

Vessels built and registered at St. John, New Brunswick.

Year.	Vessels.	Tons.	Year.	Vessels.	Tons.
1863	119	67, 437	1866	86	34, 717
1864	103	66, 157	1867	84	28, 913
1865	113	48, 239	1868	65	22, 880

The vessels of St. John are built principally of spruce and hackmatack, pitch pine being used for keelsons, water-ways, and rails. Many of their large ships have iron hanging knees, which are imported from Scotland. The small quantity of oak and pitch pine used is imported from the United States free of duty, there being no duties laid on imported ship-building materials. The average cost of ships is stated at $42 per ton, gold, the estimate having been made upon a careful investigation of the subject.

The American consul at Quebec states as follows: "This interest has been declining for several years. This is generally attributed to the rapid increase of iron ships, and the general desire of ship-owners to substitute iron for wood." The cost of building is about the same as in 1860. The materials used, and the style of building, are very much the same as at St. John, and much inferior in all respects to vessels built in the State of Maine. The average cost in Canada is stated at $38 50, gold.

Owing to the differences in the methods of construction, and in the materials used, it is difficult to compare the cost of building in the two countries. Several ship-builders of Maine state that they can build such vessels as are built in the provinces about as cheaply as they can be built at St. John or Quebec. Messrs. Houghton Brothers, of Bath, Maine, state that they believe that a spruce ship, similar to those built in New Brunswick, could be built in Maine for $45, currency, per ton.

The advantages of our extensive coasting trade, embracing the trade between the eastern ports and California, give to our own vessels a superior value. New vessels in the New York market, which wear the American flag, are on that account worth about 10 per cent. more than vessels under a foreign flag.

In the building of wooden ships we have not lost our former ascendency. Drive the iron steamships of England from the seas, and abolish the use of iron as a ship-building material, and the merchant marine of the United States would soon rise to its former prosperous condition.

COMMERCIAL STATISTICS.

The statistics of our foreign commerce are probably more comprehensive and accurate than any other statistics published in this country. Their general accuracy is shown by a remarkable verification of the statistics of the movement of tonnage, and of the value of imports in American and foreign vessels during a period of forty-eight years. It is evident that the tonnage entered annually from foreign countries should exhibit

a development corresponding with the increase in the value of the annual imports from foreign countries, the tonnage employed each year corresponding with the amount of shipping. There have, of course, been wide differences in these developments from year to year, but in comparing long periods we should expect to find a substantial agreement. Such an agreement is found to exist. The statistics of navigation show that during the twenty-four years from 1822 to 1845, the total tonnage entered from foreign countries amounted to 31,083,474 tons, and during the twenty-four years from 1846 to 1869, to 93,583,360 tons, an increase of 198 per cent. A similar comparison of commercial statistics, during the same two periods of twenty-four years each, shows that the value of imports from foreign countries into the United States rose from $2,053,026,000 to $6,173,384,000—an increase of 201 per cent. The returns from which these statistics are derived are entirely distinct from each other, and were compiled by different persons.

LLOYDS' ASSOCIATIONS.

The object of Lloyds' associations is to survey and classify vessels, upon such conditions and by means of such arbitrary symbols as they may choose to adopt. They have, or should have, no connection with insurance companies. The rate of the insurance of both vessel and cargo depends upon the class which they assign to a vessel. The Lloyds' rate is a general guide to shippers in all parts of the world; vessels of the highest rate having always an advantage in procuring remunerative freights. Many of the cargoes of commerce seek only vessels of the highest class. The oldest association of the kind is the British Lloyds', whose principal office is at London.

Several years ago an American Lloyds' association was established at New York, in order to meet the wants of American ship-owners, the British Lloyds' adhering to antiquated rules of construction, having refused to give to American vessels as high a rate as they gave to inferior ships of British build, a discrimination which operated very much to the disadvantage of American ship-owners. Unfortunately, the American Lloyds' is now divided into three rival associations, which, in the general estimation of shippers and ship-owners, suffer the ill repute of a house divided against itself. Within a few years, the French Lloyds', or "Bureau Veritas," has come rapidly into popular favor in all parts of the world, under the able administration of its energetic and talented president, M. Charles Bal, of Paris. At the present time the French Lloyds' is the classification most extensively adopted in the United States, and also to a very great extent in New Brunswick and Canada.

THE IMPORTANCE OF THE SHIP-BUILDING AND MARINE ENGINE-BUILDING INTERESTS TO THE UNITED STATES GOVERNMENT IN TIME OF WAR.

The protection of the merchant marine of the United States is a traditional policy of the government, having for its object the promotion of commerce and the maritime defense of the nation in time of war.

In time of peace our permanent navy has always been small, the nation depending upon the merchant marine for vessels, officers, and seamen to meet the exigencies of war.

At a very early day, (act July 29, 1813,) in aid of the merchant marine, the government established bounties for vessels employed in the fisheries, that choicest school of seamanship.

By act June 20, 1864, that provision was changed to the more equitable plan of a drawback on imported salt used in curing fish.

The acts December 31, 1792, and February 18, 1793, for the registration and enrollment of vessels, prohibited all foreign-built vessels from being documented as vessels of the United States.

By act March 1, 1817, the coasting trade was confined to American vessels, and it is also provided by law that all the owners, and the master of every American vessel, shall be American citizens.—*Acts December* 21, 1792, *February* 18, 1793, *June* 24, 1864.

Under the favorable influence of these laws, which still stand upon our statute books, the merchant marine and the ship-building enterprises of the country enjoyed a long season of prosperity.

Within half a century the tonnage of the United States attained to an equal rank with that of England, the nation which, for two hundred years, had enjoyed the naval and commercial supremacy of the seas.

No array of figures or comparison with material resources can express the value of the services rendered by the naval branch of the war power during the late struggle for national life. Nor can we estimate the value of that aid and re-enforcement which the government drew so quickly and so fully from the merchant marine, and from the ship-building and marine engine-building interests of the country. We may, however, compute the amount of this added force in ships and men, and the relative share of the work which they served to accomplish.

From an official statement of the Navy Department I have compiled the following table, showing the relative amount of work done for the government during the late war at the navy yards and at private establishments. The total cost of steamers (hull and engines) is stated in a report by the Navy Department. The relative cost of hull and engines has been computed for me by Mr. Thomas F. Rowland, proprietor of the Continental Works of Greenpoint, New York, from estimates made by himself and other contractors for government ships:

Statement showing the amount and nature of work done for the United States Navy during the war, distinguishing work done at navy yards and at private establishments.

Class of vessels.	Built at navy yards.		Built at private establishments.		Per cent. built at private establishments.
	No.	Value.	No.	Value.	
Screw sloops	29	$7,110,540	2	$780,083	9.8
Gunboats			23	1,166,485	100.0
Paddle-wheel steamers, (double enders)	19	2,035,884	20	1,437,944	44.0
Paddle-wheel steamers, (iron)			8	1,419,064	100.0
Tugs			11	874,806	100.0
Iron-clad, (sea-going casemated)			2	1,299,573	100.0
Iron-clad, (sea-going single turret)			2	2,518,311	100.0
Iron-clad, (sea-going double turret)	4	3,571,686	5	1,851,093	35.0
Iron-clad, (single turret)			44	18,090,265	100.0
Iron-clad, (casemated)			4	585,007	100.0
Torpedo vessel			1	30,024	100.0
Powder tugs	2	38,496			
Iron-clads first completed			2	408,200	100.0
Total	54	12,756,606	124	30,461,755	70.0
Engines	2	121,160	175	20,978,256	99.0
Vessels purchased			439	19,674,508	100.0
Grand total of all naval vessels proper, engines and vessels purchased	56	12,877,766	738	71,114,519	84.5

Thus it appears that during the war the value of vessels built in the navy yards was $12,756,606, and in private establishments $30,461,755, 70 per cent. of the ship-building having been done at private establishments; also that there were but two marine engines built in the navy yards, (both built at the Washington navy yard,) whereas there were 175 built outside.

It also appears that 84½ per cent. of the entire work of building vessels and engines for the Navy Department was done at private establisments. In addition to the vessels supplied to the Navy Department there were 343 vessels built for or purchased by the War Department, (all built at private establishments,) whose total tonnage was 100,583 tons, and aggregate value $9,397,125; besides, 2,503 vessels of an aggregate tonnage of 757,611 tons were chartered as government transports. The tonnage of the navy in 1865, built at the navy yards before or during the war, amounted to 280,517 tons, whereas the total force added from the merchant marine during the war amounted to 1,175,132 tons, or 419 per cent. of the entire marine force built by the government. These facts are clearly shown by the following statement:

Statement of tonnage employed by the United States government during the late war, which was built at the navy yards and at private establishments.

VESSELS BUILT AT NAVY YARDS.

	Tons.
Tonnage of navy in 1861	218,016
Tonnage built at navy yards during the war	62,501
Total tonnage employed during the war which was built by the United States government	280,517

VESSELS BUILT AT PRIVATE ESTABLISHMENTS.

Tonnage of vessels built during the war for the Navy Department at private establishments	100,963
Tonnage of vessels purchased by the government during the war for Navy Department	215,975
Tonnage of vessels purchased or built for War Department during the war	100,583
Tonnage of vessels chartered by the War Department during the war	757,611
Total tonnage employed during the late war which was built at private establishments	1,175,132

The foregoing statement shows that of the 1,455,649 tons of shipping employed by the government during the war 280,517 tons, or 19 per cent., was built at the navy yards, and 1,175,132 tons, or 81 per cent., was built at private establishments.

Statement of the value of work done during the late war in the building of vessels and marine engines for Navy Department, at the navy yards and private establishments.

AT NAVY YARDS.

Value of ships built	$12,756,606
Value of marine engines built	121,160
Total work done at navy yards	12,877,766

PRIVATE ESTABLISHMENTS.

Value of vessels built for Navy Department	$30,461,756
Value of marine engines built for Navy Department	20,978,256
Total work done at private establishments	51,440,012

The above statement shows that during the late war the value of work done for the navy in the building of vessels and marine engines amounted to $64,317,778, of which 20 per cent. was done at navy yards and 80 per cent. at private establishments.

Besides, all the vessels built for the War Department during the war were built at private establishments. The exact value of this work cannot be stated from the published reports of the Quartermaster General.

Several of the most extensive machine shops where this work was performed are now closed. Others, formerly engaged in building marine engines, have gone into the manufacture of architectural and other iron works. There has also been a large falling off in the number of skilled laborers employed in the building of steamship machinery.

But the government is no less dependent upon the merchant marine for seamen than for ships. In 1861 the entire forces of the navy embraced but 7,600 men. To meet the necessities of the war, the number was increased to 51,500 in 1865. Besides, there were employed by the War Department 24,000 seamen upon transports, making the total force 75,500 men, or about ten times the force employed in 1861.

The substitution, within the last ten years, of iron for wood in the construction of ships of war has rendered the development of iron shipbuilding in the United States a matter of peculiar national importance in so far as relates to the maritime defense of the nation.

It seems to be impossible for the government, under an economical administration of the Navy Department, to maintain, in time of peace, the skilled labor, the requisite machinery, or the ships necessary to meet the possible exigencies of war. The education of constant labor is necessary in order to maintain in any country a large force of mechanics skilled in the manufacture of iron ships and marine engines, and this can be accomplished only through the ordinary demands of a prosperous merchant marine. The naval architects and the mechanics employed in our navy yards have acquired their practical education at private establishments. Sometimes our navy yards have exhibited great activity, and again a sweeping discharge has left all stillness, where but yesterday was heard the noise of hundreds of busy mechanics. These sporadic efforts displayed by the government are certainly unfavorable to the development of genius or of a high degree of mechanical skill. It is a question of national policy whether it is not bet-

ter for the government, in order to meet the requirements of its ordinary navy, to contract for the construction of iron war ships and marine engines at private establishments.

I have it upon good authority that all the marine engines and all the iron war ships of England have been built outside the navy yards, and that the naval ships of nearly all the other nations of Europe are built at private contract, the greater part of them in England or on the Clyde.

Upon this important subject I add the valuable testimony of the Secretary of the Navy in his recent annual report.

There is another element of defense against the time of danger, perhaps as effective as any other, available to wise and liberal statesmanship. Nations, like men, hesitate to attack those who are prepared to do them serious injury, and in the means of destructive aggression is often found the surest defense against all who have anything to lose. Such means would be at hand if we had lines of ocean-going steamers established, running out of our ports in the peaceful pursuit of commercial enterprise, but carrying our own flag, and available to our government in time of need.

The attention of thoughtful men has been much directed to this subject, and all are looking to the national government for encouragement. To provide and protect the great means of commercial intercourse, both domestic and international, is one of the direct purposes of government for which it is established, and to which its resources may properly be directed. Enterprises of such magnitude are undertaken at great expense and risk of capital. Important elements of the public wealth and prosperity, they are in their nature subject to the vicissitudes of public policy. They thus assume a national character, and are, I think, the proper subjects for government aid and direction.

It will not become me to discuss in this report the many arguments of national prosperity and pride which press the subject upon us, but I may be permitted to urge it as an important element of national safety. In support of this view, I call attention to the fact that there are now running from the ports of New York, Boston, and Baltimore, for those of Europe, over sixty (60) powerful screw steamers, averaging nearly three thousand (3,000) tons each. These steamers, carrying the English, and French, and German flags, are most of them the results of wise liberality on the part of their respective governments; and they now absorb a very large proportion of the carrying trade across the Atlantic. Their average time in crossing, to and fro, in all weathers, is not more than eleven days. Any one of them could be quickly converted into an efficient and powerful ship of war, capable of carrying full sail power, and keeping the sea for any length of time. Here, then, is a heavy tonnage of possible war vessels, larger than that of our whole navy on the 1st of January, 1868.

Had our mercantile marine possessed such lines at the breaking out of the late war, we might, instead of permitting the rebels to introduce a vast amount of war material before we could collect the means to prevent it, have quickly closed every southern port.

A comparatively small force of this kind, appropriately armed and let loose on the ocean, under the command of bold and intelligent officers, would be a dangerous foe to the commerce of any country. Our own was substantially driven from the seas by two or three roughly equipped vessels, much inferior in power to those of which I have spoken. Thus it will be seen that, in giving up this field to the occupation of other nations, and yielding to them the commercial advantages which naturally belong to our own position and resources, we at the same time relinquish our own weapons, and arm our possible enemies.

Upon recent and very careful inquiry, it appears that instead of sixty steamers as stated by the Secretary, there are ten foreign steamers running from Portland, ninety-four from New York, four from Baltimore, and nine from New Orleans, to ports in Europe. There are in all one hundred and seventeen foreign steamers plying between ports of the United States and ports in Europe, whose average tonnage is 2,208.86, and aggregate tonnage 268,437.04, and not a single one wearing the American flag. Besides, England has steam lines in successful operation in all parts of the world.

It appears by the Annual Report of Trade and Navigation for 1868, that there are now registered in the United Kingdom 594 ocean steamers, whose tonnage exceeds 500 tons, all, or very nearly all, constructed of iron.

CONCLUSION.

I should depart from the purpose and limits of this report if I were to enter upon any extended discussion of the means to be adopted for the upbuilding of our merchant marine. A few statistical facts upon this point may, however, be admissible. Three methods have been proposed for restoring the shipping interests of the United States:

1. *The admission of foreign vessels to American registry.*—This subject has already been alluded to. The importation of ships, while it might afford temporary relief to ship-owners, would consign our ship-building interests to destruction, in the interest of the nation to whose complicity in the late rebellion, more than to any other cause, we owe the decadence of our ship-building and shipping interests. It is apprehended that the American people may be deterred by motives of self-respect, as well as of self-interest, from patronizing those very establishments which sent forth blockade runners to aid in the attempted work of disrupting the republic and those armed corsairs of the ocean which committed many of our best ships to the flames, and drove hundreds of others to the protection of foreign flags.

2. *The importation of ship-building materials free of duty;* and

3. *The payment of a bounty on vessels built of American materials, equal to the amount of duty which would be paid on such materials if imported.* These two methods may be referred to in the same connection.

The principal imported materials used in the building of wooden vessels are chains, cables, anchors, copper, zinc, tin, lead, paints, glass, felt, canvas, cordage, and in some cases 20 per cent. of the timber, almost exclusively hackmatack. Mr. William H. Webb, of New York, upon a careful examination of this subject, states that the amount of duty which would be paid on a first-class oak ship of one thousand tons, provided such materials were used to as great an extent as they have ever been used at any time within the last ten years, would be about $8,000 in gold, or $8 per ton. His estimate of the present cost of such a ship being $90 currency per ton, the amount of duty would be $11\frac{9}{10}$ per cent. of the entire cost, (gold and exchange 132.)

One of the principal builders in Maine estimates the amount of duties on imported materials at $3,000 gold, or $3,900 currency, on a ship costing $65,000 currency, or 6 per cent. of the entire cost of the ship.

The following statement was made to the legislature of the State of Maine, about two years ago: "By a careful investigation of the duties upon materials entering into the construction of a ship, we find they would amount in round numbers to $7 per ton, in gold." This on a one-thousand-ton ship would amount to $7,000, or $11\frac{1}{2}$ per cent. of the entire cost of the ship at $80, currency, per ton.

In a recent publication, Mr. Donald McKay, a well-known ship-builder of Boston, estimates the amount of duty on imported materials used in a wooden ship of one thousand tons, at $8,665 33 in gold, which is $13\frac{1}{2}$ per cent. on $64, gold, about the present cost of wooden vessels at Boston.

It appears from the above estimates that the amount of duty which would be paid on materials entering into the construction of a wooden ship, provided that foreign materials were used to as great an extent as they have been used at any time during the last ten years, would be about 10 per cent. of the entire cost of the ship.

Owing to the superior advantages enjoyed by the builders of the United States in materials and skilled labor, wooden vessels can be built in this country as cheaply, or cheaper, than in the British Provinces.

But the privilege which all our large vessels, built for general commerce, enjoy, of engaging in our coasting trade whenever it may be to their interest so to do, is believed to give them a value in our own markets 10 per cent. greater than that of foreign vessels. At the present time our wooden ships suffer no disadvantage in competition with the wooden ships of any other nation on the globe.

The declension of our sailing tonnage entered, would not appear so unfavorable if allowance were made for American-built vessels, actually owned by American citizens, but now sailing under foreign flags.

In regard to the amount of duties which would be paid on an iron ship of one thousand tons, provided all the materials were imported, Mr. Thomas F. Rowland, proprietor of the Continental Works, Green Point, New York, has furnished the following statement:

Duties on materials for a 1,000-ton iron ship.

53 per cent. plates	530,000 lbs., duty, 1½ cent.	$7,950 00	
18 per cent. refined iron and rivets	180,000 lbs., duty, 1 cent.	1,800 00	
26 per cent. T and angle or beam	260,000 lbs., duty, 1¼ cent.	3,250 00	
3 per cent. forgings	30,000 lbs., duty, 2 cents.	600 00	
100	1,000,000	13,600 00	
Add 33⅓ per cent. exchange and premium on gold		4,533 33	
			$18,133 33
Rigging:			
35,000 pounds chain cable, duty, 2½ cents, gold 8,000 pounds small rigging-chain, duty, 2½ cents, gold		1,075 00	
8,000 pounds anchors, 2¼ cents, gold		180 00	
8½ tons Russian hemp, $40 ton, gold duty; or if cordage be imported, 10 tons, 2,000 pounds each, 20,000 pounds, at 3 cents		600 00	
5 tons Manila hemp, or if (2,240 pounds, 25 cents gold) cordage be imported, 1,200 pounds, at 2½ cents gold		300 00	
		2,155 00	
Add 33⅓ per cent., exchange and premium on gold		718 33	
			2,873 33
			21,006 66

Were the government to allow drawback of duties, or a bounty equal to this amount, ($21,006 66, or $21 per ton,) the cost of American vessels would be reduced to $104 per ton, or only 9½ per cent. more than the assumed current English price of £15 per ton. This difference, however, would be met by the advantage enjoyed by sailing vessels employed in general commerce of engaging in our coasting trade, which advantage, as before stated, is estimated at 10 per cent. of the value of British vessels in our own markets.

A drawback of duties or bounty on American ships equal to the full amount of the present duties on imported materials, would, therefore, enable us to enter into competition with the English and Scotch builders. But the full development of the iron ship-building interest in this country would enable our builders to construct ships from 5 to 8 per cent. cheaper than they can afford to build them now.

But that most important branch of shipping, ocean steam navigation, cannot enjoy any of the advantages of participating in the coasting trade. Owing to the immense cost of building and operating ocean steamers, they can be profitably employed only on regular lines between large cities. Supposing the same difference to exist between the English and American steamships as exists in regard to sailing vessels, viz, 33 per cent., if a drawback of duty on imported materials, or bounty in lieu

thereof, were allowed, provided that American materials were used, there would still remain a difference in cost of 10 to 12 per cent. against us.

Any drawback or bounty which might be established in favor of both wooden and iron vessels would apply not only to vessels in the "foreign trade," but also to vessels in the home or "coasting trade," there being no line of distinction between the ships employed in the two branches of commerce. This is readily apprehended.

Sailing vessels on the coast of less than two hundred tons are, for the most part, engaged in the coasting trade; vessels above seven hundred tons are, to a very great extent, employed in foreign trade; while vessels between two hundred and seven hundred tons, as well as vessels above seven hundred tons, frequently change their occupation. Every American vessel above thirty tons may engage in the foreign trade if her owner so desires. The privilege of passing from the coasting trade to the foreign trade, and *vice versa*, being estimated as worth at least 10 per cent. of the value of all large ships, to adopt any policy which would confine American vessels to either the one or the other of these employments, would tend greatly to depress our merchant marine in both its branches. This is easily understood. A vessel arriving at a port of the United States from a foreign port, finds a paying cargo to another port of the United States. She avails herself of the opportunity by simply surrendering her register and taking out an enrollment. A foreign ship upon her arrival at an American port is dependent entirely upon cargoes to foreign ports. It is owing to this protective measure alone that we have been able to maintain any of our vessels in foreign commerce. Mr. William H. Webb having consulted with several of the oldest ship-owners of New York upon this point, states in a recent letter: "These men, whose ships carried our flag all through the war, are unanimously of the opinion that to remove this restriction which excludes foreign ships would be to annihilate our commerce, the coasting trade being the only thing that has kept our shipping alive."

Mr. Webb estimates the advantages of American ownership at 20 per cent. Other ship-owners of New York estimate it as low as 5 per cent.

The advantages of the coasting trade are especially enjoyed by vessels of from two hundred and fifty to five hundred tons, which at times trade with the West Indies, Mexico, Central America, and South America, and also engage in domestic commerce. Our larger sailing ships, which are adapted only for long voyages in foreign trade, seldom engage in the coasting trade, and hence this privilege affords but little aid to the building and navigating of such ships.

If the aid afforded by the government were to be extended to the vessels of the northern lakes and western rivers, which are embraced in the home trade, the relief granted to the different branches of the merchant marine would be in proportion to the tonnnge employed, as follows:

Vessels in foreign trade, (coast,) 34 per cent. Vessels in home trade, (coast,) 40 per cent...	74
Vessels of the northern lakes	16
Vessels of the western rivers	10
Total	100

No fears need be indulged of excessive prices arising from protection against foreign competition, for we have in this country at the present time all the competitive elements of home industry, which would surely keep the prices of ship-building within the range of fair commercial

profits. On pages 51 and 58 will be found statements prepared by men of large practical experience in regard to the relative cost of operating American and foreign sailing vessels and steamers.

The following estimates are intended to show the value of our shipbuilding on the coast and the value of the American and foreign shipping employed in our trade with foreign countries.

Estimated value of American vessels employed in our foreign trade.

Value of American sailing vessels employed in foreign trade, estimated at $45 per ton	$60,892,605
Value of foreign sailing vessels employed in our foreign trade, estimated at $45 per ton	67,089,015
Value of American steamers employed on lines making regular trips between ports of the United States and foreign ports, estimated at $100 per ton, currency	8,238,500
Value of foreign steamers employed on lines making regular trips between ports of the United States and foreign ports, estimated at $137 per ton, currency	36,991,918
Total value of American vessels (sail and steam) employed in our foreign trade	69,131,105
Total value of foreign vessels (sail and steam) employed in our foreign trade	104,080,933

Estimated gross earnings of American and foreign vessels in our foreign trade.

American sailing vessels, currency	$31,825,470
American steam vessels, currency	2,500,000
Total American	34,325,470
Foreign sailing vessels, currency	$35,062,282
Foreign steam vessels, currency	28,470,000
Total foreign	63,532,282
Total gross earnings of American and foreign	97,857,752

Percentage of earnings of American and foreign vessels in our foreign trade.

Per cent. of gross earnings of sailing tonnage in American vessels	48
Per cent. of gross earnings of sailing tonnage in foreign vesssels	52
Per cent. of gross earnings of steam tonnage in American vessels	8
Per cent. of gross earnings of steam tonnage in foreign vessels	92
Per cent. which the total earnings of American sailing and steam vessels are of the total gross earnings of American and foreign vessels	36
Per cent. which the total earnings of foreign sailing and steam vessels are of the total gross earnings of American and foreign vessels	64

Estimated number of men employed in our foreign trade.

Number of men employed on American sailing vessels	33,829
Number of men employed on foreign sailing vessels	37,272
Number of men employed on American steam vessels making regular trips	2,471
Number of men employed on foreign steam vessels making regular trips	8,100
Total number of men employed on American vessels in our foreign trade	36,300
Total number of men employed on foreign vessels in our foreign trade	45,372

Our merchant marine employed in foreign trade occupies a peculiar, and, in some respects, an anomalous position.

Among the various industries which constitute the sources of individual and national wealth, some there are, such as the construction of railroads, canals, and permanent structures, in which competition upon foreign soil is impossible. There are others in which foreign competition is possible, but not profitable, owing to the weight and bulk of the finished product, and the consequent cost of transportation, or the fact that the raw materials used are produced in this country cheaper than if imported. But there is a third class of industries, also fruitful sources of wealth and of profitable employment to American laborers, in which foreign competition is not only possible, but which can be developed in this country only under the protection of tariff duties or of other legal enactments. Striking illustrations of the third class of industries are found in the building of vessels for the foreign trade and of employing them in that occupation.

When an American vessel leaves our shores, bound for a foreign port, she enjoys no special protection from the government, but enters at once into free and equal competition with the ships of all the world. Precisely the reverse of this exists in regard to vessels employed in our coasting trade, foreign competition being entirely prohibited. The value of American vessels in the coasting trade is therefore determined solely by the demands of home commerce, while the value of our ships in foreign trade is determined by their cost in the country which can build them cheapest. Twenty years ago the advantage in cost was on the side of the United States, but England, by substituting iron for wood, and by building extensive ship yards, and machine shops, supplied with tools at a vast expense, and by educating a large class of skilled laborers, has again thrown the advantages on her side. Besides, our national debt, the advantages of popular education, and the superior modes of living enjoyed by the laboring classes of this country, of necessity add to the cost of every product of labor. But the natural advantages of the United States, both in the production of iron and coal, and in the building of iron ships, are unsurpassed by England, or by any other nation. It is susceptible of proof that a given amount of labor in this country can produce a greater quantity of iron than is produced by the same amount of labor in England, the American product being superior to the English.

The difference in the cost of the same product of labor in different countries is due mainly to differences of social and political institutions, giving rise to differences in the remuneration of labor.

That the ship-building and shipping enterprises of the United States are of vast importance in the development of national wealth; that they are powerful agencies in maintaining the national influence abroad

and that they are invaluable sources of defense in time of war, are facts which no one can question or deny. That the prosperity of this important interest should be maintained, at all events, is a proposition that admits of no argument. It is evident that unless each nation in some way protects its own maritime interests, the nation which can build vessels cheapest will eventually drive the ships of all other nations from the seas. This fact is deeply graven upon our commercial statistics of the last eight years. The present necessity of protecting these important interests of our country by the strong arm of the government is, therefore, a truth so obvious that to state it is to prove it.

All nations, in some way, secure to themselves their own coastwise trade, and if each nation does not also secure to itself at least one-half of its shipping in foreign trade, the maritime and commercial supremacy of England upon the ocean will again become more absolute than ever before.

Were we to abolish the protection afforded to our extensive coastwise trade, England would in a few years become, not only the ruler, but the monopolist of the seas. Our prosperity as a commercial people, and our safety as an ocean-bound country, forbid that we should suffer such a disaster. If our commerce is to be carried on in British ships, Liverpool and London must become, to a great extent, points of distribution for a commerce which we now hold direct with other nations, and British merchants will do the business.

Our shipping interests, though depressed, are not irretrievably fallen. We have all the national resources, the mechanical skill, and the commercial enterprise, which are requisite to place our merchant navy in the front rank of international commerce. We have along our extended coast a large population who naturally look to the sea for occupation and gain. Our brave whalers, and daring fishermen, have preserved their occupations as peculiarly American enterprises. If we can compete with other nations in building ships, we can maintain them upon the seas.

At this day, when ocean steam navigation is highly advanced, and is rapidly superseding the use of sailing-vessels between all the large commercial ports of the globe, let us see to it that we no longer suffer the loss of the profits of our own commerce, and the burning disgrace of being obliged to subsidize foreign steam lines for the carriage of our own mails. *No measures for restoring our commercial marine can be effective which do not clearly recognize the fact, that at this day a prosperous steam marine is the first necessity of the maritime interests of any nation.*

This is an important epoch in the history of commerce. By means of the Suez Canal, our trade with the East Indies will probably be greatly increased. We are also at this time especially interested in that great international project, the Darien Ship Canal, which, when completed, like the Suez Canal, will tend greatly to the development of steam navigation. To hesitate now, is to surrender entirely.

Let us rebuild our merchant navy. Let the flag of the United States again be seen in all the large ports of the world, at the masthead of our merchant ships, those messengers of peace, and we shall need but little display of the war power abroad in order to maintain the national honor, or to protect the rights of American citizens.

At this time of our commercial decline let us emulate the brave example of our old maritime rival, when twenty years ago she saw the international shipping of the world rapidly passing into our hands. Her course at that important crisis of her history is thus described by Hon. Freeman H. Morse, United States consul at London, in a dispatch to the

State Department, Ex. Doc. No. 283, fortieth Congress: "Comprehending her position she clearly foresaw the absolute necessity of great, prompt, and persevering efforts to recover and maintain her maritime prestige, or she might almost calculate the time when her lead on the ocean would pass permanently to other hands. She, therefore, went into a more close and thorough investigation, practical and theoretical, of the whole question of her commercial future, and without delay set about the application of such remedies as the nature of the case seemed to require. She made no serious attempt to revive restrictions on foreign commerce, but sought to obtain advantages for her own by great improvements in the models and construction of her ships, by removing, as far as practicable, all restrictions against it, and by giving it all the encouragement which favorable legislation can afford. The whole nation watched its commercial marine with care and anxiety, for it contained the ark of their safety, and the government performed its duty of guardian and protector with more vigilance, perhaps, than ever before. The government board of trade, the local boards, parliamentary committees, intelligent merchants, ship-builders, engineers, and men of commercial knowledge, all contributed their quotas of investigation, and thought to unfold its deficiencies and remedies; while the representatives of the government in foreign countries explained the resources of the countries to which they were accredited, and how English trade could be expanded therein."

Let the interest, then, manifested in England be felt by the people of the United States, and we shall, within a few years, retrieve our fallen fortunes upon the ocean. It must not be that the ships of the nation to whom we mainly attribute our maritime disasters shall continue to supersede the American flag in our own ports, and bear off from us the prizes of our own commerce with other nations. Rather let us follow that line of policy which the President indicated in his inaugural address: "A prostrate commerce is to be rebuilt."

Very respectfully, your obedient servant,

JOSEPH NIMMO, JR.,
Chief of the Division of Tonnage.

HON. GEO. S. BOUTWELL,
Secretary of the Treasury.

CONDENSED STATEMENT OF STATISTICS

EMBODIED IN THIS REPORT NOT PRESENTED IN TABULAR FORM.

COMMERCIAL STATEMENTS.

STATEMENTS IN RELATION TO COMMERCE AND NAVIGATION.

1. Wooden vessels—ratio of length to breadth.
2. Iron vessels—ratio of length to breadth.
3. Statement in regard to the cost of building and operating wooden and iron vessels, prepared by Franklin W. Smith, esq., treasurer of Atlantic Works, Boston, Massachusetts.
4. Statement of a series of experiments made at the Watertown Arsenal, Massachusetts, in December, 1869, for the purpose of determining the relative tensile strength of American and British ship-plate iron, by Captain O. E. Michaelis, United States Army.
5. American, foreign and British tonnage entered at sea-ports of the United States from foreign countries 1821 to 1869.
6. Comparative statement of tonnage of American and foreign vessels, entered at ports of the United States from foreign ports, 1840 to 1869.
7. Statement of the tonnage entered at various countries from foreign ports, distinguishing home and foreign vessels, A. D. 1865.
8. Statement in regard to the dimensions, tonnage, carrying capacity, &c., of nine iron screw steamers belonging to lines running between New York and foreign ports, prepared by Major Henry Gaines, measurer of vessels at New York.
9. Statement of the ocean steamers of the United States.
10. Value of the ship-building of the Atlantic Gulf and Pacific Coasts of the United States, from 1850 to 1869, estimating the cost at $55 per ton prior to 1862, and at $61 per ton since 1862.
11. Statement of iron and wooden vessels built in the United Kingdom from 1853 to 1868.
12. Vessels built in the United Kingdom for foreigners.
13. Vessels built in Great Britain and Ireland for foreigners, distinguishing war and merchant vessels.
14. Statements of vessels built in the United States, Great Britain, and the British North American Provinces, respectively, 1853 to 1868.
15. Statement of iron sailing and steam vessels built in England and Scotland each year from 1853 to 1868.
16. Value of imports from various countries and geographical districts, from 1850 to 1869.
17. Statement of the imports from Canada and other British North American possessions into the United States, from 1850 to 1869.
18. Statement of total exports, and exports of foreign and colonial products from Great Britain to the United States, and the percentage which the exports of foreign and colonial exports are of the total exports.
19. Statement of gross imports and exports of ten commercial nations.
20. Statement of the quantities of, and amount of drawback allowed on goods delivered out of bonded warehouses in Great Britain for the use of merchant vessels, 1867.
21. Comparative cost of manning an English and an American sailing vessel of one thousand tons, prepared by Captain Samuel Harding, surveyor of Bureau Veritas, New York.

22. Comparative cost of operating an American and an English sailing ship of one thousand tons, supposing each to have cost $90,000 currency, prepared by Captain Samuel Harding, surveyor of Bureau Veritas, New York.

23. Statement of steamers making regular trips between the ports of the United States and foreign ports.

24. Comparative statement of the cost of manning an American and a British steamer of three thousand tons.

No. 1.—*Wooden vessels.—Ratio of length to breadth.*

Name of vessel.	Screw or side-wheel.	Home port.	Tonnage.	DIMENSIONS.			Ratio of length to breadth.
				Length.	Breadth.	Depth.	
Chase	Screw	Portland	547.04	146	27	17	5.4
Victor	do	Mystic	1,326.76	205.5	36	19	5.7
Henry Chauncy	Side-wheel	New York	2,656.67	319.45	43	20.8	7.2
Arizona	do	do	2,793.44	323.8	44.8	41	7.2
Ocean Queen	do	do	2,715.34	324	42.8	23.3	7.5
Alaska	do	do	4,011.64	346	47.6	23.5	7.2
Northern Light	do	do	2,056.53	254	38.8	22.6	6.5
Rising Star	do	do	2,726.66	303.45	43.66	23	6.9
Mary M. Roberts	do	do	1,170.77	235	33.5	12	7
South America	do	do	2,150.53	256	38.5	24.1	6.6
North America	do	do	2,085.09	262	37.5	27.8	7
Golden City	do	do	3,589.69	340	45.6	21.6	7.4
China	do	do	3,836.12	360	47.4	22.8	7.6
Colorado	do	do	3,727.80	340	45.6	22.6	7.4
Constitution	do	do	3,575.36	340.5	45.2	22.4	7.5
Montana	do	do	2,676.82	318	42.5	20.6	7.4
St. Louis	do	do	1,771.91	266.4	35.6	15.9	7.5
Great Republic	do	do	3,881.83	360.3	47.4	22.8	7.6
Sacramento	do	do	2,682.92	299	42.5	18.7	7
Japan	do	do	4,351.72	362	49	23	7.4
Baltic	do	do	2,644.44	280.6	46	25	6.1
Moses Taylor	do	San Francisco	1,354.00	240	34	19.6	7
Oriflamme	do	do	1,082.31	228	32	18.7	7.1
Nevada	do	do	2,143.82	281	40	16.3	7
California	do	do	673.51	168	28.5	15.5	5.8
Idaho	do	do	1,077.13	198	31.2	16.9	6.9

Average ratio of length to breadth of the above twenty-six wooden steamers, 7.

No. 2.—*Iron vessels.—Ratio of length to breadth.*

Name of vessel.	Nationality.	Screw or side-wheel.	Tonnage.	DIMENSIONS.			Ratio of length to breadth.
				Length.	Breadth.	Depth.	
City of Brooklyn	British	Screw	2,973.90	350	42.5	26.8	8.2
Columbia	do	do	1,716.01	278	34	22.5	8.2
Minnesota	do	do	2,965.30	320	41.8	28	7.6
France	do	do	3,586.11	375	42	29	9
Atlanta	do	do	2,109.75	334.2	34.2	24	9.7
Java	do	do	2,780.86	332	42	28	8
Samana	do	do	2,605.31	320.6	39.5	26.6	8.1
Rhein	North German	do	3,017.51	332	40.8	26.6	8.1
Holsatia	do	do	3,025.90	335	40.6	26.9	8.2

Average ratio of length to breadth of the above nine iron steamers, 8.3.

No. 3.—*Statement in regard to the cost of building and operating wooden and iron vessels.*

[Prepared by Franklin W. Smith, esq., treasurer of Atlantic Works, Boston, Massachusetts.]

Cost of building and annual expenses.	Iron.	Wood.
BUILDING.		
Cost of building a 1,000-ton ship	$125,000	$86,000
Seventeen per cent. greater carrying capacity of iron vessel	.....	21,250
Balance against iron	.....	17,750
ANNUAL EXPENSES.		
Interest on increased cost in iron	$2,662 50	.....
Recoppering, &c., wooden vessel	.....	$2,000 00
Scraping and painting iron vessel, and dockage	600 00	.....
Depreciation of wooden vessel 7 per cent. of cost	.....	6,020 00
Depreciation of iron vessel 3 per cent. of cost	3,750 00	.....
Repairs of wooden vessel, 7 per cent. of cost	.....	6,020 00
Repairs of iron vessel, 2 per cent. of cost	2,500 00	.....
Balance in favor of iron vessel	4,527 50	.....

The annual saving here stated ($4,527 50) is 3.6 per cent. of the cost of the iron ship, ($125,000,) or 5.3 per cent. of the cost of the wooden ship, ($86,000.)

The annual saving in the expense of operating the iron ship would equal the extra cost of the iron ship in 3.1 years.

No. 4.—*Statement of a series of experiments made at the Watertown arsenal, Massachusetts, in December,* 1869, *for the purpose of determining the relative tensile strength of American and British ship plate-iron, by Captain O. E. Michaelis, United States Army.*

No. of specimen.	Kind of iron.	How cut from plate.	Stretching strain per square inch.	Breaking strain or tensile strength, per square inch.	Dimensions of section before applying strain.		Dimensions of section after rupture.	
					Width.	Depth.	Width.	Depth.
			Lbs.	*Lbs.*	*In.*	*In.*	*In.*	*In.*
1	English	Crosswise	21,761	41,781	1.332	0.345	1.328	0.340
2	English	Crosswise	21,540	40,730	1.502	0.340	1.498	0.335
3	English	Crosswise	21,256	39,034	1.500	0.345	1.470	0.338
5	English	Lengthwise*	19,608	40,784	1.500	0.340	1.495	0.334
7	English	Lengthwise*	19,454	42,021	1.503	0.342	1.492	0.340
8	English	Lengthwise†	30,000	44,250	1.386	0.481	1.377	0.459
9	English	Lengthwise*	30,973	35,738	1.738	0.483	1.730	0.482
10	English	Lengthwise	31,736	45,729	1.392	0.498	1.370	0.477
11	English	Crosswise*	36,421	39,946	1.730	0.492	1.725	0.488
12	English	Crosswise	29,667	44,056	1.390	0.485	1.375	0.475
13	English	Crosswise	31,974	42,584	1.390	0.495	1.380	0.475
14	American	Crosswise	25,098	43,742	1.383	0.605	1.377	0.590
15	American	Lengthwise	25,699	49,685	1.385	0.590	1.360	0.581
16	American	Lengthwise	25,830	47,479	1.385	0.587	1.377	0.585
17	American	Lengthwise	32,801	39,736	1.755	0.608	1.750	0.593
19	American	Lengthwise	31,438	48,728	1.383	0.552	1.345	0.510
22	American	Crosswise	30,856	44,226	1.755	0.554	1.740	0.545
23	American	Crosswise	27,236	46,323	1.385	0.558	1.365	0.540
28	American	Crosswise	31,123	44,645	1.991	0.234	1.950	0.225

* Broke at eye. † Broke at eye; commenced breaking at center.

O. E. MICHAELIS,
Brevet Captain United States Army.

No. 5.—*American, foreign, and British tonnage entered at seaports of the United States from foreign countries,* 1821 *to* 1869.

Year.	American.	Foreign.	British.	Year.	American.	Foreign.	British.
	Per cent.	*Per cent.*	*Per cent.*		*Per cent.*	*Per cent.*	*Per cent.*
1821	90	10	6⅓	1846	69	31	23
1822	88	12	8⅓	1847	62	38	28
1823	86	14	10	1848	64	36	25⅓
1824	89	11	7	1849	59	41	32
1825	90	10	6⅓	1850	55	45	33⅓
1826	90	10	6⅓	1851	54	46	31
1827	87	13	9	1852	60	40	28 4-5
1828	85	15	10	1853	60	40	26⅔
1829	88	12	8⅓	1854	65	35	25⅓
1830	87	13	7⅓	1855	69	31	21⅓
1831	80	20	14	1856	70	30	21⅓
1832	74	26	17	1857	71	29	20⅓
1833	73	27	17	1858	69	31	21 4-5
1834	74	26	17	1859	66	34	23
1835	76	24	15	1860	64	36	26
1836	80	20	17⅓	1861	65	35	26
1837	73	27	13⅓	1862	61	39	28 3-5
1838	79	21	12⅓	1863	52	48	34
1839	76	24	14⅓	1864	35	65	49
1840	76	24	16⅔	1865	37	63	50
1841	74	26	17 4-5	1866	34	66	51
1842	71	29	20 2-5	1867	36	64	48⅓
1843	71	29	22 3-5	1868	40	60	45
1844	69	31	22 1-5	1869	36	64	48
1845	70	30	21 4-5				

No. 6.—*Comparative statement of tonnage of American and foreign vessels entered at ports of the United States from foreign ports—1840 to 1869.*

Year.	UNITED STATES.		BRITISH.		SWEDISH.		GERMAN.		ITALIAN.		PRUSSIAN.		SPANISH.		DANISH.		DUTCH.		FRENCH.		OTHER COUNTRIES.		Total.
	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	Tonnage.	Per cent. of total.	
1840	1, 263, 771	75. 5	276, 461	16. 5	15, 376	. 95	45, 481	3	5, 667	. 35	1, 394	. 1	15, 927	1	4, 289	. 3	3, 629	. 25	30, 701	1. 8	3, 532	. 25	1, 673, 103
1841	1, 294, 294	75. 2	305, 891	17. 8	19, 090	1. 1	46, 268	2. 7	5, 077	. 3	2, 879	. 2	12, 376	. 7	4, 925	. 3	2, 752	. 1	17, 030	1	10, 552	. 6	1, 721, 134
1842	1, 223, 432	71. 8	347, 329	20. 4	19, 383	1. 1	49, 389	2. 9	6, 236	. 4	1, 359	. 1	11, 677	. 7	6, 080	. 3	3, 471	. 2	15, 876	. 9	19, 802	1. 2	1, 704, 034
1843	1, 261, 735	71. 2	403, 397	22. 7	9, 444	. 5	40, 252	2. 3	1, 618	. 1	1, 916	. 1	7, 249	. 4	2, 190	. 1	511	. 03	13, 582	. 77	31, 556	1. 8	1, 773, 450
1844	1, 280, 898	69. 7	407, 725	22. 2	34, 706	2	55, 729	3	5, 612	. 3	5, 526	. 3	6, 974	. 4	5, 896	. 3	2, 501	. 1	17, 257	. 9	16, 044	. 8	1, 838, 868
1845	1, 376, 190	70. 5	424, 582	21. 8	38, 670	2	55, 822	3	8, 383	. 4	3, 279	. 1	13, 418	. 7	4, 363	. 2	2, 576	. 1	11, 536	. 6	12, 421	. 6	1, 951, 240
1846	1, 350, 038	69. 3	453, 579	23. 3	22, 407	1. 3	66, 225	3. 4	5, 562	. 25	5, 409	. 25	7, 804	. 3	5, 265	. 2	4, 299	. 2	13, 666	. 7	15, 185	. 8	1, 949, 439
1847	1, 472, 456	62. 4	659, 203	28	34, 272	1. 5	91, 440	3. 9	7, 446	. 3	5, 117	. 2	18, 852	. 7	9, 535	. 4	13, 621	. 6	30, 704	1. 3	15, 799	. 7	2, 358, 445
1848	1, 586, 344	64. 9	629, 840	25. 8	30, 797	1. 3	39, 312	3. 7	6, 767	. 2	5, 116	. 2	29, 342	1. 2	11, 100	. 5	12, 758	. 5	24, 970	1	17, 576	. 7	5, 443, 922
1849	1, 669, 523	59. 7	901, 595	32. 2	31, 172	1. 1	82, 714	3	9, 512	. 35	4, 536	. 15	29, 814	1. 1	9, 278	. 3	7, 594	. 25	31, 466	1. 1	21, 135	. 75	2, 798, 339
1850	1, 569, 828	55. 2	954, 071	35. 5	58. 098	2	86, 349	3	7, 493	. 3	15, 901	. 6	37, 296	1. 3	11, 046	. 4	8, 867	. 3	30, 762	1. 1	65, 512	2. 3	2, 845, 223
1851	1, 851, 524	57. 4	1, 006, 218	31. 2	62, 686	1. 9	125, 051	3. 9	20, 933	. 7	15, 622	. 5	44, 592	1. 4	8, 662	. 3	21, 708	. 7	25, 252	. 7	44, 529	1. 3	3, 226, 777
1852	2, 227, 749	60. 9	1, 053, 126	28. 8	42, 401	1. 2	151, 444	4. 2	23, 416	. 6	17, 319	. 5	38, 151	1	10, 069	. 4	18, 868	. 5	25, 992	. 7	44, 353	1. 2	3, 652, 888
1853	2, 354, 450	61. 4	1, 090, 021	26. 4	41, 539	1. 2	170, 721	4. 7	23, 319	. 8	19, 356	. 7	41, 336	1. 3	14, 595	. 6	17, 511	. 5	28, 813	. 9	44, 430	1. 5	3, 846, 091
1854	2, 646, 462	65. 2	1, 035, 828	25. 5	29, 901	. 7	196, 128	4. 8	17, 959	. 4	12, 396	. 3	41, 178	1	7, 467	. 2	15, 554	. 4	21, 837	. 5	39, 474	1	4, 064, 184
1855	2, 747, 014	69. 6	847, 214	21. 5	22, 637	. 6	179, 719	4. 6	21, 871	. 6	8, 750	. 2	35, 708	. 9	5, 208	. 1	20, 275	. 5	18, 236	. 45	38, 835	. 95	3, 945, 467
1856	2, 968, 472	70. 4	909, 881	21. 6	20, 622	. 5	153, 644	3. 7	15, 677	. 4	14, 670	. 3	62, 813	1. 5	5, 838	. 1	16, 892	. 4	23, 935	. 5	26, 092	. 6	4, 218, 536
1857	3, 284, 383	71	944, 608	20. 4	19, 284	. 4	196, 547	4. 3	14, 646	. 3	4, 931	. 1	66, 828	1. 5	9, 887	. 2	10, 875	. 2	29, 397	. 7	40, 644	. 9	4, 622, 030
1858	2, 879, 703	69. 4	906, 041	21. 8	22, 208	. 5	192, 945	4. 7	15, 736	. 4	9, 949	. 2	67, 759	1. 6	6, 036	. 15	6, 353	. 15	16, 416	. 4	26, 986	. 7	4, 150, 132
1859	3, 135, 236	66. 6	1, 086, 043	23. 1	34, 979	. 7	241, 698	5. 1	33, 853	. 7	20, 262	. 4	67, 727	1. 5	9, 717	. 2	17, 330	. 4	22, 487	. 5	37, 621	. 8	4, 706, 953
1860	3, 045, 885	64. 5	1, 244, 726	26. 3	32, 078	. 7	218, 352	4. 6	31, 501	. 7	17, 940	. 4	62, 603	1. 3	10, 594	. 2	9, 504	. 2	23, 557	. 5	29, 282	. 6	4, 726, 022
1861	2, 822, 760	65. 1	1, 127, 403	26	29, 491	. 7	218, 459	5	16, 885	. 4	27, 862	. 7	24, 877	. 6	9, 806	. 2	10, 528	. 2	15, 291	. 35	31, 630	. 75	4, 334, 992
1862	2, 400, 507	61. 1	1, 123, 185	28. 6	37, 249	. 9	261, 946	6. 7	14, 365	. 4	23, 287	. 6	9, 623	. 25	9, 602	. 25	12, 350	. 3	17, 008	. 4	20, 953	. 5	3, 930, 075
1863	2, 077, 547	52. 4	2, 341, 438	33. 9	58, 663	1. 5	305, 907	7. 7	27, 180	. 7	61, 047	1. 6	6, 668	. 15	13, 954	. 35	13, 276	. 3	22, 312	. 6	32, 076	. 8	3, 960, 068
1864	1, 377, 736	35. 6	1, 899, 816	49	56, 366	1. 5	297, 453	7. 7	42, 567	1. 1	38, 710	1.	3, 774	. 1	35, 714	. 9	24, 930	. 6	40, 838	1. 1	55, 179	1. 4	3, 873, 083
1865	1, 339, 405	37. 9	1, 779, 996	50. 3	23, 343	. 7	223, 170	6. 3	20, 815	. 6	13, 369	. 37	4, 754	. 13	14, 262	. 4	13, 256	. 3	35, 715	1.	69, 685	2	3, 537, 770
1866	1, 613, 627	34. 2	2, 401, 812	50. 9	63, 015	1. 3	393, 136	8. 3	46, 759	. 9	34, 961	. 75	19, 728	. 4	14, 885	. 3	17, 251	. 4	61, 815	1. 03	53, 639	1. 2	4, 720, 628
1867	1, 818, 230	36. 9	2, 397, 741	48. 7	58, 132	1. 2	397, 598	8	39, 244	. 8	52, 524	1. 1	22, 789	. 45	10, 784	. 2	12, 481	. 25	76, 577	1. 5	42, 049	. 9	4, 928, 149
1868	2, 072, 991	40. 2	2, 335, 414	45. 3	69, 640	1. 3	486, 360	9. 4	30, 240	. 6	(*)	....	33, 608	. 65	10, 713	. 2	13, 256	. 25	71, 282	1. 4	37, 210	. 7	5, 160, 714
1869	2, 035, 361	36. 4	2, 652, 950	47. 8	92, 092	1. 6	597, 403	10. 6	49, 580	. 8	(*)	....	22, 522	. 4	11, 266	. 2	12, 960	. 2	72, 346	1. 4	36, 753	. 7	5, 583, 233

*Included in German.

No. 7.—*Statement of the tonnage entered at various countries from foreign ports, distinguishing home and foreign vessels, A. D. 1865.*

Countries.	TONNAGE ENTERED.		PER CENT.	
	Home vessels.	Foreign vessels.	Home.	For'n.
United States	1, 339, 405	2, 203, 891	37	63
Great Britain	7, 865, 417	1, 137, 425	87	13
France	2, 048, 313	3, 179, 883	38	62
Spain, (1864)	633, 900	1, 047, 412	37	63
Russia	410, 030	1, 986, 342	17	83
Italy	1, 171, 722	2, 084, 388	36	64
Hamburg and Bremen	678, 742	1, 536, 050	30	70

No. 8.—*Statement in regard to the dimensions, tonnage, carrying capacity, &c., of nine iron screw steamers belonging to lines running between New York and foreign ports.*

[Prepared by Major Henry Gains, measurer of vessels at New York.]

Name of vessel.	Nationality.	Name of line.	Length.	Breadth.	Depth.	TONNAGE.				Carrying capacity in tons weight.	Tons of coal for voyage.	Tonnage of engine space.	Nominal horse-power.	Average passage (in days) for year 1869.	Distance in nautical miles.	Foreign termini.
						Under deck.	Between decks.	Inclosed above upper deck.	Total.							
City of Brooklyn	British	Inman	350. 0	42. 5	26. 8	1, 802. 15	804. 92	366. 83	2, 973. 90	1, 100	1, 000	993	450	11	2, 800	Queenstown.
Columbia	do	Anchor	278. 0	34. 0	22. 5	1, 476. 09	804. 92	239. 92	1, 760. 01	1, 300	525	349	150	14½	2, 915	Glasgow.
Minnesota	do	Liverpool and Great Western	320. 0	41. 8	28. 0	1, 910. 40	738. 89	315. 91	2, 965. 30	2, 000	700	1, 015	350	13	2, 800	Queenstown.
France	do	National	375. 0	42. 0	29. 0	2, 331. 54	1, 025. 79	228. 78	3, 586. 11	2, 800	900	1, 158	450	13	2, 800	Do.
Atlanta	do	London and New York	334. 2	34. 2	24. 0	1, 892. 06	1, 025. 79	217. 69	2, 109. 75	1, 850	600	375	300	17	3, 068	Havre.
Java	do	Cunard	332. 0	42. 0	28. 0	1, 757. 15	843. 32	180. 04	2, 780. 86	1, 080	1, 050	1, 020	550	11	2, 800	Queenstown.
Samaria	do	do	320. 6	39. 5	26. 6	2, 354. 69	843. 32	250. 32	2, 605. 31	1, 800	700	910	390	13	2, 800	Do.
Rhein	North German	North German Lloyd	332. 0	40. 8	26. 6	1, 773. 34	809. 51	434. 66	3, 017. 51	900	1, 100	1, 150	600	10	3, 103	Southampton.
Holsatia	do	Hamburg	335. 0	40. 6	26. 9	1, 764. 94	832. 13	428. 83	3, 025. 90	900	1, 100	1, 150	600	10	3, 068	Havre.

No. 9.—*Statement of the ocean steamers of the United States.*

	No.	Tons.		No.	Tons.
Portland	4	2, 659. 13	Baltimore	19	14, 958. 09
Saco	1	204. 14	Mobile	2	782. 81
Boston	20	22, 628. 65	New Orleans	36	23, 226. 03
Fall River	2	904. 88	Galveston	4	3, 292. 31
Stonington	3	2, 712. 14	San Francisco	16	15, 285. 95
New London	3	1, 366. 08	Astoria	2	628. 00
Middletown	1	354. 07	Alaska	3	825. 96
New York	144	185, 899. 14			
Sag Harbor	1	630. 96	Total	272	286, 440. 99
Philadelphia	11	10, 082. 65			

N. B.—This statement embraces only steamers which have ship-like hulls, have no overhanging guards, and are capable of making transatlantic voyages.

No. 10.—*Value of the ship-building of the Atlantic, Gulf, and Pacific Coasts of the United States, from* 1850 *to* 1869, *estimating the cost at* $55 *per ton prior to* 1862, *and at* $61 *per ton since* 1862.

Year.	Dollars.	Year.	Dollars.	Year.	Dollars.
1850	13, 631, 585	1857	15, 699, 915	1864	18, 935, 681
1851	14, 540, 845	1858	9, 754, 415	1865	16, 795, 496
1852	16, 537, 235	1859	7, 331, 170	1866	14, 175, 668
1853	19, 620, 315	1860	9, 340, 980	1867	14, 079, 410
1854	25, 032, 480	1861	9, 887, 185	1868	10, 523, 232
1855	27, 777, 860	1862	6, 861, 707	1869	11, 662, 834
1856	20, 277, 455	1863	13, 145, 805		

No. 11.—*Statement of iron and wooden vessels built in the United Kingdom from* 1853 *to* 1868.

Year.	Total.		Wood.		Iron.		Pr. cent iron.
	No.	Tons.	No.	Tons.	No.	Tons.	
1853	798	203, 171	671	149, 685	127	53 486	26
1854	802	196, 942	614	117, 897	188	79, 045	40
1855	1098	323, 200	856	214, 990	242	108, 210	33
1856	1150	244, 578	942	178, 112	208	66, 466	27
1857	1278	250, 472	1085	187, 181	193	63, 291	25
1858	1000	208, 080	863	144, 058	137	64, 022	30
1859	939	185, 970	799	130, 116	140	55, 854	30
1860	1016	211, 968	835	147, 269	181	64, 699	30
1861	975	200, 839	773	109, 744	202	91, 095	45
1862	1048	241, 399	798	121, 049	250	120, 350	50
1863	1160	360, 987	778	148, 076	382	212, 911	59
1864	1241	431, 873	745	149, 176	496	282, 697	65
1865	1304	415, 204	844	152, 767	460	262, 437	63
1866	1323	341, 189	865	115, 067	458	226, 122	66
1867	1158	269, 080	795	100, 435	363	168, 645	63
1868	1019	316, 197	635	88, 285	384	227, 912	72

The above statement includes only vessels built and registered in the United Kingdom of Great Britain and Ireland, omitting vessels built for foreigners. The statistics for the years 1866, 1867, and 1868 include composite vessels under the head of iron.

No. 12.—*Vessels built in the United Kingdom for foreigners.*

Year.	No.	Tons.	Year.	No.	Tons.	Year.	No.	Total.
1855	48	26, 359	1860	36	13, 903	1865	75	32, 965
1856	75	34, 061	1861	29	7, 487	1866	81	38, 350
1857	101	36, 302	1862	44	20, 533	1867	62	36, 899
1858	73	28, 474	1863	33	17, 320	1868	102	46, 131
1859	81	26, 774	1864	47	28, 960			

No. 13.—*Vessels built in Great Britain and Ireland for foreigners, distinguishing war and merchant vessels.*

Year.	War.		Mercantile.	
	No.	Tons.	No.	Tons.
1864	5	6,497	42	22,463
1865	5	3,700	70	29,265
1866	6	10,301	75	28,049
1867	3	3,604	59	33,295
1868	11	10,254	91	35,877

No. 14.—*Statement of vessels built in the United States, Great Britain, and the British North American Provinces, respectively,* 1853 *to* 1868.

Year.	United States.		Great Britain.		British N. American Provinces.	
	No.	Tons.	No.	Tons.	No.	Tons.
1853	1,710	425,571	798	203,171	.....	.....
1854	1,774	535,636	802	196,942	.....	.....
1855	2,047	583,450	1,146	349,559	.....	.....
1856	1,703	469,394	1,225	278,639	.....	.....
1857	1,434	378,805	1,379	286,774	.....	.....
1858	1,225	242,287	1,073	236,554	.....	.....
1859	870	156,602	1,020	212,744	.....	.....
1860	1,071	212,892	1,052	225,871	.....	.....
1861	1,143	233,194	1,004	208,326	451	108,338
1862	864	175,076	1,092	261,932	399	109,802
1863	1,823	310,884	1,193	378,307	612	222,293
1864	2,366	415,741	1,288	460,833	731	218,459
1865	1,788	378,246	1,379	448,169	759	196,591
1866	1,888	336,147	1,404	379,539	774	163,855
1867	1,519	303,529	1,220	305,979	618	132,044
1868	1,802	285,305	1,019	316,197	513	130,489

No. 15.—*Statement of iron sailing and steam vessels built in England and Scotland, each year, from* 1853 *to* 1868.

Year.	Sailing vessels.		Steam vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
1853	10	8,576	117	44,910	127	53,486
1854	36	16,880	152	62,165	188	79,045
1855	47	30,299	195	77,911	242	108,210
1856	33	11,646	175	54,820	208	66,466
1857	38	13,351	155	49,940	193	63,291
1858	25	14,516	112	49,506	137	64,022
1859	34	19,694	106	36,160	140	55,854
1860	32	13,584	149	51,115	181	64,699
1861	43	22,727	159	68,368	202	91,095
1862	69	44,047	181	76,303	250	120,350
1863	142	107,074	240	105,837	382	212,911
1864	154	125,716	342	156,981	496	282,697
1865	116	85,055	344	177,382	460	262,437
1866	112	69,539	299	129,653	411	199,192
1867	99	59,033	224	90,823	323	149,856
1868	162	131,731	188	75,109	350	206,840

NOTE.—Composite, *i. e.*, wood and iron, not included in the above.

No. 16.—*Values of imports from various countries and geographical districts from* 1850 *to* 1869.

Year.	United Kingdom of England, Scotla'd, and Ireland.	France.	Spain.	Portugal.	Germany, Denmark, Holland, and Belgium.	The Mediterranean, including France and Spain on the Mediterranean.	The East Indies, exclusive of China.	China.	South America.
1850	$75, 159, 424	$27, 538, 025	$2, 082, 395	$339, 763	$13, 374, 852	$7, 232, 793	$5, 048, 885	$6, 593, 462	$16, 549, 452
1851	93, 847, 886	31, 715, 553	2, 162, 573	367, 548	15, 228, 917	8, 249, 623	5, 000, 571	7, 065, 144	20, 831, 701
1852	90, 628, 339	25, 890, 266	1, 786, 071	266, 864	12, 207, 638	7, 173, 920	5, 879, 270	10, 593, 950	20, 481, 977
1853	130, 265, 340	33, 455, 942	2, 194, 525	411, 155	18, 777, 453	8, 291, 597	6, 464, 113	10, 573, 710	22, 894, 573
1854	146, 438, 537	35, 791, 393	2, 117, 578	243, 592	22, 738, 650	9, 326, 268	9, 445, 942	10, 506, 329	25, 894, 506
1855	106, 543, 090	31, 469, 154	2, 398, 511	186, 067	16, 931, 255	9, 705, 095	9, 363, 616	11, 048, 726	27, 552, 339
1856	122, 266, 082	49, 016, 062	2, 232, 466	287, 166	20, 630, 342	9, 963, 416	11, 348, 891	10, 454, 436	31, 243, 947
1857	130, 803, 093	47, 792, 827	2, 743, 016	422, 836	23, 367, 755	10, 193, 522	15, 713, 036	8, 356, 932	34, 909, 179
1858	95, 720, 658	35, 292, 521	3, 022, 577	142, 056	20, 675, 897	18, 782, 497	16, 114, 214	10, 570, 536	27, 595, 801
1859	125, 754, 421	41, 301, 147	2, 735, 517	152, 339	26, 750, 933	12, 030, 705	13, 495, 773	10, 791, 381	34, 486, 143
1860	138, 596, 484	43. 219, 549	3, 047, 051	146, 813	24, 713, 057	12, 177, 233	14, 566, 041	13, 566, 587	35, 252, 797
1861	120, 255, 245	32, 524, 822	3, 221, 963	159, 634	19, 138, 985	9, 909, 045	11, 355, 523	9, 511, 534	27, 434, 810
1862	107, 968, 520	7, 835, 466	1, 202, 348	160, 889	18, 179, 770	*5, 702, 636	*4, 799, 698	7, 519, 283	28, 863, 308
1863	113, 136, 700	10, 591, 624	2, 013, 030	245, 540	18, 094, 931	*6, 073, 346	*7, 860, 446	11, 007, 407	22, 734, 756
1864	143, 195, 714	11, 479, 627	2, 210, 766	444, 599	18, 170, 129	*7, 391, 026	*7, 682, 992	10, 408, 453	31, 687, 607
1865	85, 332, 482	6, 688, 662	1, 032, 983	110, 985	11, 139, 146	5, 394, 053	8, 236, 066	5, 130, 643	22, 082, 833
1866	202, 440, 242	22, 930, 289	2, 675, 069	247, 015	31, 761, 237	11, 313, 921	12, 441, 281	10, 132, 683	30, 843, 678
1867	178, 915, 255	31, 208, 734	3, 050, 812	244, 039	31, 906, 224	11, 554, 836	17, 668, 529	12, 112, 440	31, 493, 983
1868	133, 168, 139	26, 921, 951	2, 879, 367	226, 964	24, 288, 131	11, 829, 957	15, 772, 535	11, 385, 024	34, 923, 253
1869									

* Estimates.

No. 17.—*Statement of the imports from Canada and other British North American possessions into the United States from* 1850 *to* 1869.

Year.	Imports from British North American Provinces.	Total imports.	Per cent. which imports from British North American Provinces are of total imports.
1850	$5, 644, 462	$178, 138, 318	3
1851	6, 693, 122	216, 224, 932	3
1852	6, 110, 299	208, 296, 855	3
1853	7, 550, 718	267, 978, 647	2 8-10
1854	8, 927, 560	301, 494, 094	2 9-10
1855	15, 136, 734	261, 468, 520	5 7-10
1856	21, 310, 421	314, 639, 942	6 7-10
1857	22, 124, 296	360, 890, 141	6
1858	15, 806, 519	282, 613, 150	5½
1859	19, 727, 551	338, 768, 130	5 4-5
1860	23, 851, 381	362, 166, 254	6½
1861	23, 062, 933	335, 650, 153	6 4-5
1862	19, 299, 995	205, 771, 729	9 3-10
1863	24, 021, 264	252, 919, 920	9½
1864	38, 922, 015	329, 562, 895	11 4-5
1865	37, 308, 468	234, 434, 167	16
1866	54, 704, 959	437, 640, 354	12½
1867	33, 604, 178	417, 831, 571	8
1868	30, 361, 221	371, 624, 808	8 1-10
1869	32, 090, 314	437, 309, 868	7 3-10

No. 18.—*Statement of total exports and exports of foreign and colonial products from Great Britain to the United States, and the percentage which the exports of foreign and colonial exports are of the total exports.*

Year.	Total.	Foreign and colonial prod'cts exported.	Per cent.
1858	$95, 720, 658	$6, 302, 905	6½
1859	118, 182, 597	9, 024, 117	7½
1860	138, 596, 484	6, 004, 581	4½
1861	120, 255, 245	9, 492, 106	7⅞
1862	86, 481, 430	23, 454, 819	27
1863	113, 136, 700	21, 065, 098	19
1864	143, 195, 714	16, 762, 445	11½
1865	76, 990, 285	19, 083, 302	25
1866	202, 440, 242	16, 186, 518	8
1867	178, 915, 255	11, 113, 163	6

No. 19.—*Statement of gross imports and exports of ten commercial nations.*

Nation.	1862.		1863.		1864.		1865.		1866.	
	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
Russia	$117,149,359	$138,269,391	$118,550,229	$118,379,382	$134,347,583	$143,108,975	$125,912,406	$160,353,546	$157,319,031	$170,822,040
Holland	.....	.....	178,450,360	151,141,478	191,316,231	147,811,343	201,879,778	177,059,755	.....	.....
Belgium	.....	.....	206,847,994	103,316,048	243,817,647	115,558,456	264,253,037	116,679,740	.....	.....
France	561,246,400	589,286,400	626,489,600	682,233,600	659,672,640	759,242,120	682,904,640	792,146,400	.....	.....
Spain	81,278,735	53,749,758	91,887,928	59,041,756	96,309,568	68,382,013	.....	.....	.....	.....
United States	258,931,999	182,208,909	243,335,815	184,413,950	316,447,283	141,645,677	227,208,790	131,617,331	427,311,198	334,498,710
Great Britain	.....	.....	1,301,568,057	953,007,660	1,330,768,512	1,028,927,077	1,311,989,859	1,059,144,828	1,429,204,928	1,156,303,501
Austria	120,958,207	149,697,546	129,954,259	147,929,615	127,248,513	161,536,476	128,222,127	167,911,637	.....	.....
Brazil	60,184,224	65,732,006	53,999,536	66,692,775	68,396,629	71,395,048	71,656,452	76,811,783	75,193,248	85,495,473
Chili	17,884,110	25,331,737	24,497,220	23,011,920	23,594,371	30,800,032	25,293,380	29,877,335	20,189,058	28,159,014
Total	1,217,641,034	1,204,274,747	2,975,580,948	2,489,568,184	3,191,918,977	2,695,407,217	3,039,320,469	2,711,602,355	2,109,217,461	1,775,278,738

Nations whose exports exceed their imports: Russia, France, Austria, Brazil, and Chili. Nations whose imports exceed their exports: Holland, Belgium, Spain, Great Britain, and the United States.

No. 20.—*Statement of the quantities of and amount of drawback allowed on goods delivered out of bonded warehouses in Great Britain for the use of merchant vessels.*

Articles.	Quantities.	Drawback.
Cocoa ..... pounds	2, 279	$45 96
Coffee ..... pounds	1, 658, 601	100, 345 36
Currants ..... cwts.	3, 215	54, 462 10
Raisins ..... cwts.	5, 449	92, 306 06
Rum ..... galls.	161, 210	396, 576 60
Brandy ..... galls.	76, 554	192, 916 08
Geneva ..... galls.	21, 810	54, 961 20
Sugar, raw ..... cwts.	34, 723	104, 643 37
refined ..... cwts.	5, 334	15, 383 26
British ..... cwts.	20, 569	49, 321 00
Molasses ..... cwts.	5, 422	4, 603 28
Tea ..... lbs.	728, 943	88, 202 10
Tobacco, manufactured ..... lbs.	101	76 76
unmanufactured ..... lbs.	907, 219	1, 097, 734 99
Wines ..... galls.	127, 577	77, 184 08
Total value of drawback		2, 328, 762 20

No. 21.—*Comparative cost of manning an English and an American sailing ship of* 1,000 *tons.*

[Prepared by Captain Samuel Harding, surveyor of Bureau Veritas, New York.]

Captain, officers, men, and boys.	AMERICAN SHIP.		ENGLISH SHIP.	
	Per month.	Total.	Per month.	Total.
Captain	$150 00	$150 00	$120 00	$120 00
First mate	60 00	60 00	54 00	54 00
Second mate	40 00	40 00	36 00	36 00
Third mate	35 00	35 00	30 00	30 00
Carpenter	40 00	40 00	30 00	30 00
Steward	35 00	35 00	30 00	30 00
Cook	35 00	35 00	30 00	30 00
Fifteen seamen ..... each	25 00	375 00	15 00	225 00
Five boys ..... do	15 00	75 00	9 00	45 00
Total for one month		845 00		600 00

Total annual cost of manning the American ship	$10, 140 00
Total annual cost of manning the British ship	7, 200 00
Difference in favor of English ship	2, 940 00

No. 22.—*Comparative cost of operating an American and an English sailing ship of* 1,000 *tons, supposing each to have cost* $90,000, *currency.*

[Prepared by Captain Samuel Harding, surveyor of Bureau Veritas, New York.]

	English iron ship.	American wooden ship.
Insurance on American ship, per annum, 10 per cent		$9, 000 00
Insurance on English ship, per annum, 7 per cent	$6, 300 00	
Depreciation of wooden ship, per annum, 7 per cent		6, 300 00
Depreciation of iron ship, per annum, 2 per cent	1, 800 00	
Cost of victualing American ship		5, 832 00
Cost of victualing English ship	4, 374 00	
Wages for captain, officers, &c., American ship		10, 140 00
Wages for captain, officers, &c., English ship	7, 200 00	
Internal revenue tax, American ship		540 00
Total	19, 674 00	31, 812 00

One year's difference in favor of English ship, $12,138.

No. 23.—*Statement of steamers making regular trips between ports of the United States and foreign ports.*

Name of line.	To what nation belonging.	In what year started.	Termini of route.		Name of each steamer.	Wood or iron.	Screw or side-wheel.	Tonnage of each steamer.		Total tonnage of each line.	
			In the United States.	In foreign countries.				Tons.	100ths.	Tons.	100ths.
PORTLAND.											
Portland and Halifax	United States.	1867.	Portland	Halifax	Carlotta	Iron	Screw	549	25		
				St. John's	Chase	Wood	do	547	46		
										1,096	71
*Montreal Ocean Steamship Company	British	1856.	Portland	Liverpool	North American	Iron	Screw	1,816	26		
					Peruvian	do	do	2,566	84		
					Moravian	do	do	2,727	98		
					Damascus	do	do	1,358	75		
					Nestorian	do	do	2,665	52		
					Hibernian	do	do	2,444			
					Austrian	do	do	2,649	76		
				Glasgow	St. Andrews	do	do	1,344	60		
					Prussian	do	do	3,055	74		
					Nova Scotian	do	do	2,421	46		
										23,050	91
Total to Portland										24,147	62
BOSTON.											
T. Nickerson & Co.'s line	United States.	1868.	Boston	Charlottet'n, P. E. I.	Oriental	Iron	Screw	740	82		
					Alhambra	do	do	764	54		
					Commerce	do	do	335			
										1,840	36
J. G. Hall & Co.'s line	United States.	1866.	Boston	St. John, N.B.	Linda	Wood	Screw	449	27		
										449	27
International Steamship Company	United States.	1866.	Boston	St. John, N.B.	New England	Wood	Screw	1,021	67		
					New York	do	do	1,110	39		
					New Brunswick	do	do	935	28		
										3,067	34
Total to Boston										5,356	97
NEW YORK.											
†New York and Mexican Mail S. S. line	United States.	1868.	New York	Vera Cruz	City of Mexico	Wood	Screw	1,096	23		
					Cleopatra	do	do	1,045			
										2,141	23

‡New York and Bermuda steamship line	United States.	1868.	New York	Bermuda	Fah Kee	do	do	601		601		
Atlantic Mail Steamship Company	United States.	1868.	New York	Havana	Moro Castle	Wood	Screw	1,680	96			
					Eagle	do	do	1,411	82			
					Columbia	do	do	1,271	38			
					Missouri	do	do	1,180		5,544	16	
Pacific Mail Steamship Company	United States.	1849.	New York	Aspinwall	Henry Chauncey	Wood	Side-wheel.	2,656	69			
					Arizona	do	do	2,793	44			
					Ocean Queen	do	do	2,715				
					Alaska	do	do	4,011	64			
					Northern Light	do	do	2,056				
					Rising Star	do	do	2,835	22	17,067	99	
§ United States and Brazil Mail S.S. Co.	United States.	1865.	New York	Rio de Janeiro.	Merrimack	Iron and wood.	Screw	2,199	45			
					South America	Wood	Side-wheel.	2,150	53			
					North America	do	do	2,085	19	6,435	17	
§ New York and Port au Prince line	United States.	1864.	New York	Po't au Prince	City of Port au Prince.	Iron	Screw	490		490		
London and New York steamship line	British	1863.	New York	London	Atlanta	Iron	Screw	2,110				
					Cella	do	do	1,993				
					Bellona	do	do	1,845				
					Paragua	do	do	1,474		7,422		
¶ Anchor line	British	1863.	New York	Glasgow	Acadia	Iron	Screw	755				
					Columbia	do	do	1,716				
					Caledonia	do	do	1,418				
					Britannia	do	do	1,418				
					Iowa	do	do	2,030				
					Europa	do	do	1,747				
					Cambria	do	do	2,141				
					India	do	do	2,116				
					Dowan	do	do	1,039				
					Dacian	do	do	1,039				
					Tyrian	do	do	1,038		16,457		
**Inman line	British	1850.	New York	Liverpool	City of Paris	Iron	Screw	2,646				
					City of Antwerp	do	do	2,400				
					City of London	do	do	2,807				
					City of Boston	do	do	2,250				
					City of Dublin	do	do	1,997				
					City of Baltimore	do	do	2,352				
					City of Washington	do	do	2,386				
					City of Manchester	do	do	1,895				
					††City of Limerick	do	do	1,604				
					City of Brooklyn	do	do	2,974				

*All the steamers of this line touch at Halifax, and run to Portland six months in the year, when navigation is closed in the St. Lawrence. †Calls at Sisal and Havana; 18 trips per annum. ‡20 trips per annum. § Monthly. ¶70 trips. **Steamer leaves New York every Saturday. For carrying mails have received 20 cents per ounce for letters, and 6 cents per pound for printed matter. Received subsidy of $2,353 per trip from the British government. ††72 trips.

No. 23.—*Statement of steamers making regular trips between ports of the United States and foreign ports*—Continued.

Name of line.	To what nation belonging.	In what year started.	Termini of route.		Name of each steamer.	Wood or iron.	Screw or side-wheel.	Tonnage of each steamer.		Total tonnage of each line.	
			In the United States.	In foreign countries.				Tons.	100ths.	Tons.	100ths.
NEW YORK—Continued.											
Inman Line	British	1850	New York	Liverpool	City of New York	Iron	Screw	2,094			
					City of Cork	do	do	1,540			
					City of Brussels	do	do	3,106			
					Etna	do	do	2,208			
* Cunard line	British	1840	New York	Liverpool	Russia	do	do	3,013		32,259	
					Scotia	do	Side-wheel	3,865			
					China	do	Screw	2,661			
					Cuba	do	do	2,781			
					Java	do	do	2,781			
					Tarifa	do	do	2,118			
					Siberia	do	do	2,538			
					Aleppo	do	do	2,103			
					Samaria	do	do	2,605			
					Tripoli	do	do	2,059			
					Palmyra	do	do	2,081			
					Kedar	do	do	1,825			
					Hecla	do	do	1,784	62		
					Malta	do	do	2,206			
					Atlas	do	do	1,793	66		
					Marathon	do	do	1,819			
					Calabria	do	do	2,760	68		
					Olympus	do	do	1,850			
					Palestine	do	do	1,468	98		
					Morocco	do	do	1,784	62		
					Sidon	do	do	1,850	07		
† Liverpool and Great Western steamship line.	British	1866	New York	Liverpool	Manhattan	do	do	2,965		47,747	63
					Minnesota	do	do	2,965			
					Nebraska	do	do	3,392			
					Colorado	do	do	3,015			
					Nevada	do	do	3,125			
					Idaho	do	do	3,132			
‡ National steamship line	British	1864	New York	Liverpool	England	do	do	3,441		18,594	
					The Queen	do	do	3,560			
					Helvetia	do	do	3,327			
					Denmark	do	do	3,178			

					Erin	do	do	3,336			
					Pennsylvania	do	do	2,873			
					Louisiana	do	do	2,302			
					France	do	do	3,586			
					Virginia	do	do	2,937			
§ General transatlantic line	French	1864.	New York	Havre						28,540	
					Napoleon III	do	Side-wheel	2,374			
					Europe	do	do	1,929			
					Periere	do	Screw	1,809			
					St. Laurent	do		2,048			
					Ville de Paris	do		1,809			
					Lafayette	do		1,923			
					Washington	do		3,250			
‖ North German Lloyd line	North German	1858.	New York	Bremen						15,142	
					America	do	Screw	2,614			
					Hermann	do	do	2,774			
					Union	do	do	2,870			
					Hansa	do	do	2,909			
					Deutchland	do	do	2,881			
					Weser	do	do	2,871			
					Rhine	do	do	3,019			
					Main	do	do	3,018			
					Donau	do	do	3,018			
					New York	do	do	2,528			
					Bremen	do	do	2,551			
¶ Hamburg and American packet line	North German	1856.	New York	Hamburg						31,053	
					Borussia	do	do	2,133			
					Saxonia	do	do	2,591			
					Hammonia	do	do	2,964			
					Allemania	do	do	2,620			
					Bavaria	do	do	2,235			
					Teutonia	do	do	2,027			
					Cimbria	do	do	2,964			
					Holsatia	do	do	3,026			
					Westphalia	do	do	3,054			
					Silesia	do	do	3,067			
New York and Bremen Steamship Company.	North German	1868.	New York	Bremen	Smidt	Wood	do	1,797		26,681	
										1,797	
Total to New York										257,972	18

* Steamer leaves New York every Wednesday. For carrying mail have received twenty cents per ounce for letters, and six cents per pound for printed matter. Receives subsidy of $3,257 per trip from the British government. 104 trips.

† 52 trips. ‡ 60 trips.

§ Steamer leaves every alternate Saturday. Takes a direct mail to France only. Receives subsidy of $22,320 per trip from the French government. 24 trips.

‖ N. G. Lloyd Co. run two steamers, the Frankfort and Hanover, from New Orleans to Bremen during the season between March and September, making trips every two weeks. Steamer leaves New York every Thursday. For carrying mails have received twenty cents per ounce for letters, and six cents per ounce for printed matter, except that portion of the mail designated direct mail to Germany, for which they are paid five cents for each letter rate and six cents per kilogram on all printed matter, &c. 24 trips.

¶ Steamer leaves New York every Thursday. For carrying mails receive twenty cents per ounce for letters, and six cents per pound for printed matter, &c., except that portion of the mail designated direct mail to Germany, for which they are paid five cents for each letter rate, and ten cents per kilogram on all printed matter. 52 trips.

No. 23.—*Statement of steamers making regular trips between ports of the United States and foreign ports*—Continued.

Name of line.	To what nation belonging.	In what year started.	Termini of route.		Name of each steamer.	Wood or iron.	Screw or side-wheel.	Tonnage of each steamer.		Total tonnage of each line.	
			In the United States.	In foreign countries.				Tons.	100ths.	Tons.	100ths.
BALTIMORE.											
North German Lloyd Company	North German	1868	Baltimore	Bremen	Baltimore	Iron	Screw	2,301	63		
					Berlin	do	do	2,250	81		
					Ohio	do	do	2,388	42		
					Leipsic*	do	do	2,335	10		
										9,275	96
Total to Baltimore										9,275	96
NEW ORLEANS.											
Liverpool and Southern Steamship Co	British	1867	New Orleans	Liverpool	Crysolite	Iron	Screw	765	34		
					Fire Queen	do	do	1,129	78		
					Alice	do	do	1,181	60		
					Alhambra	do	do	1,033	95		
					Gladiator	do	do	604	13		
					Statesman*	do	do	1,400			
					Olinda	do	do	648	74		
					Historian	do	do	1,400			
					Castilla	do	do	2,254			
										10,417	54
Alliance Line	United States	1867	do	Havana	Alliance	Iron	do	418	72		
					Beaufort	Wood	do	374	08		
					Lavacal	Iron	do	499	43		
					Florida	Wood	do	385	86		
										1,678	09
Total to New Orleans										12,095	63
SAN FRANCISCO.											
Pacific Mail Steamship Company	United States	1849	San Francisco	Panama	Golden City	Wood	Side wheel.	3,589	69		
					Sacramento*	do	do	2,682	92		
					Colorado	do	do	3,727	80		
					Montana	do	do	2,676	82		
					St. Louis	do	do	1,771			
					Constitution	do	do	3,575	36		
										18,023	59

	....do	1867.	....do	Hong Kong .	Great Republic	..do.....	...do.....	3, 881	83		
					China.....	..do.....	...do.....	3, 836	12		
					Japan†.....	..do.....	...do.....	4, 351	72		
					America	..do.....	...do.....	4, 300	00		
										16, 369	67
North Pacific Transportation Company..	....do	.....	....do	Victoria.....	Moses Taylor.....	..do.....	...do.....	1, 354	00		
					Oriflamme	..do.....	...do.....	1, 082	31		
					Active	..do.....	...do.....	510	43		
					California*.....	..do.....	...do.	673	51		
										3, 620	25
	....do	.....	....do	Mazatlan ...	Continental.....	..do.....	...do.....	1, 626	23		
					Sierra Nevada	..do.....	...do.....	1, 257	27		
										2, 883	50
	....do	.....	....do	Honolulu ...	Idaho	..do.....	...do.....	1, 077	13		
										1, 077	13
Total to San Francisco	.....	.....	.....	.....	.....	.....	.....	.....	.....	41, 974	14
Total number of steamers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		164
Total amount of tonnage.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	350, 822	50-100

*24 trips. †12 trips.

No. 24.—*Comparative statement of the cost of manning an American and a British steamer of 3,000 tons.*

No. of men.	Occupation.	MONTHLY PAY.	
		British.	American.
		£ s. d.	
1	Master	33 6 8	$300
1	Chief officer	15	115
1	Second officer	9 10	75
1	Third officer	7 10	60
1	Fourth officer	5 10	55
1	Purser	8	125
1	Surgeon	9	100
1	Carpenter	7	65
1	Boatswain	7	65
1	Boatswain's mate	5 10	50
4	Quartermasters	4 5	45
22	Able seamen	4	40
2	Ordinary seamen	1 10	12
1	Chief engineer	18 5	180
1	Second engineer	14 5	105
1	Third engineer	12 5	90
1	Fourth engineer	10 5	75
1	Fifth engineer	10 5	75
6	Firemen	5	55
11	Firemen	4 10	45
7	Trimmers	4	40
1	Donkeyman	5	60
1	Lamp trimmer	4 5	50
1	Storekeeper	4 5	75
1	Barkeeper	5	60
1	Chief steward	10	100
1	Second steward	5	50
1	Steerage steward	6	40
1	Steerage steward	4 10	40
3	Steerage stewards	4	35
10	Steerage stewards	3	30
2	Steerage stewards	2 10	25
2	Steerage stewards	1	15
1	Chief cook	8	75
1	Chief cook	5	60
1	Chief cook	4	55
1	Chief cook	3 10	45
1	Chief cook	3	35
1	Baker	6	60
1	Baker's mate	3	50
1	Butcher	4	55
1	Stewardess	3	30
101			

British steamer, £520 11*s.* 8*d.* per month, or £6,247 per year, gold and exchange 132, equal to (in United States currency) $36,649 06. American steamer, $5,149 per month, equal to $61,788 per year.

STATISTICAL CHARTS.

DESCRIPTION OF STATISTICAL CHARTS.

The statistical charts forming a part of this report are intended to present at a glance a historical exhibit of the foreign commerce and shipping of the United States.

Charts 1 to 6, show the foreign commerce of our six principal sea-ports: Boston, New York, Philadelphia, Baltimore, New Orleans, and San Francisco, distinguishing the American, foreign, and British tonnage entered at these ports from foreign ports from 1850 to 1869. The charts 2 and 6, showing the foreign commerce of New York and San Francisco, include the entrances from New Granada and the Isthmus of Panama.

Chart 7 shows the tonnage of American, foreign, and French vessels entered at ports of the United States from France; and charts 8 to 14, inclusive, entrances of American, foreign, and British tonnage, from Great Britain, the German States, embracing Denmark, Holland, Belgium, and Austria, the Mediterranean, the West Indies, South America, the East Indies, and China. These charts, 1 to 14, inclusive, show the tonnage entered from 1850 to 1869, inclusive.

Chart 15 is a resumé of the first six, showing at a glance the relative importance of the commerce of the six principal sea-ports, and of all other ports, giving the total tonnage entered from foreign ports at Boston, New York, Philadelphia, Baltimore, New Orleans, and San Francisco, and at all other ports, from 1850 to 1869.

Chart 16 shows the total tonnage entered at the port of New York, from foreign ports, (not including the Isthmus of Panama,) from 1844 to 1869, distinguishing sail, steam, American steam, foreign steam.

Chart 17 shows the sailing tonnage and steam tonnage entered at all the sea-ports of the United States from foreign ports, (not including the Isthmus of Panama,) from 1844 to 1869.

Chart 17½ shows the sailing tonnage entered at sea-ports of the United States from foreign countries, (not including the Isthmus of Panama,) from 1844 to 1869, distinguishing American and foreign sailing tonnage.

Chart 18 shows the tonnage of steam vessels entered at sea-ports of the United States from foreign countries, (not including the Isthmus of Panama,) from 1844 to 1869, distinguishing American and foreign steam.

Chart 19 shows the total American, foreign, and British tonnage entered at sea-ports of the United States from foreign countries, from 1821 to 1869. It does not embrace tonnage entered from New Grenada and Nicaraugua, nor from Canada.

Chart 20 shows the value in thousands of dollars of the total imports of the United States, (including coin and bullion,) in American and foreign vessels, from 1821 to 1869.

Chart 21 shows the foreign commerce of the United States since 1821, giving the value of the annual exports, imports and total of exports and imports in thousands of dollars. The value of exports stated is the

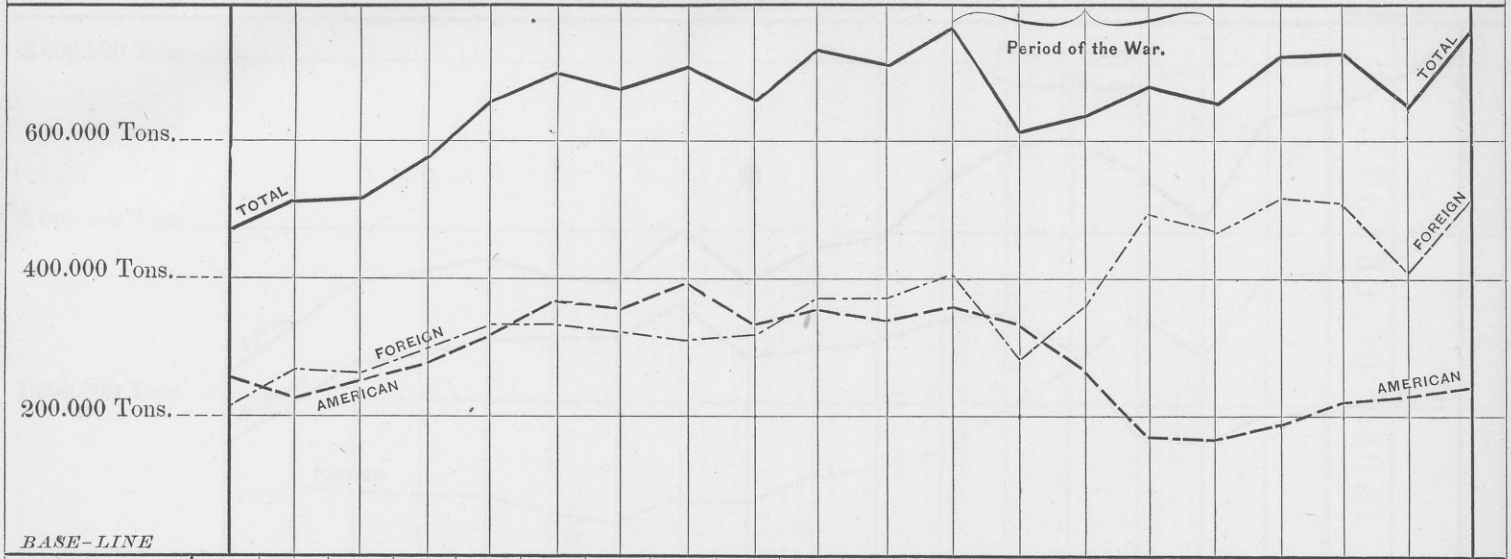
declared gold value of domestic merchandise, (not including coin and bullion,) exported. The value of imports is the estimated gold value, on which duties are levied, of foreign merchandise, (not including coin and bullion,) imported for consumption.

Chart 22 shows the tonnage of vessels built annually since 1827, distinguishing the tonnage built on the coast, the lakes, the western rivers, and the New England States.

INDEX OF CHARTS.

TONNAGE OF VESSELS ENTERED AT THE PORT OF BOSTON,
FROM FOREIGN COUNTRIES, FROM 1850 TO 1869.

Jewett & Chandler, Engravers, Buffalo, N. Y. *Jos. Nimmo, Jr.*

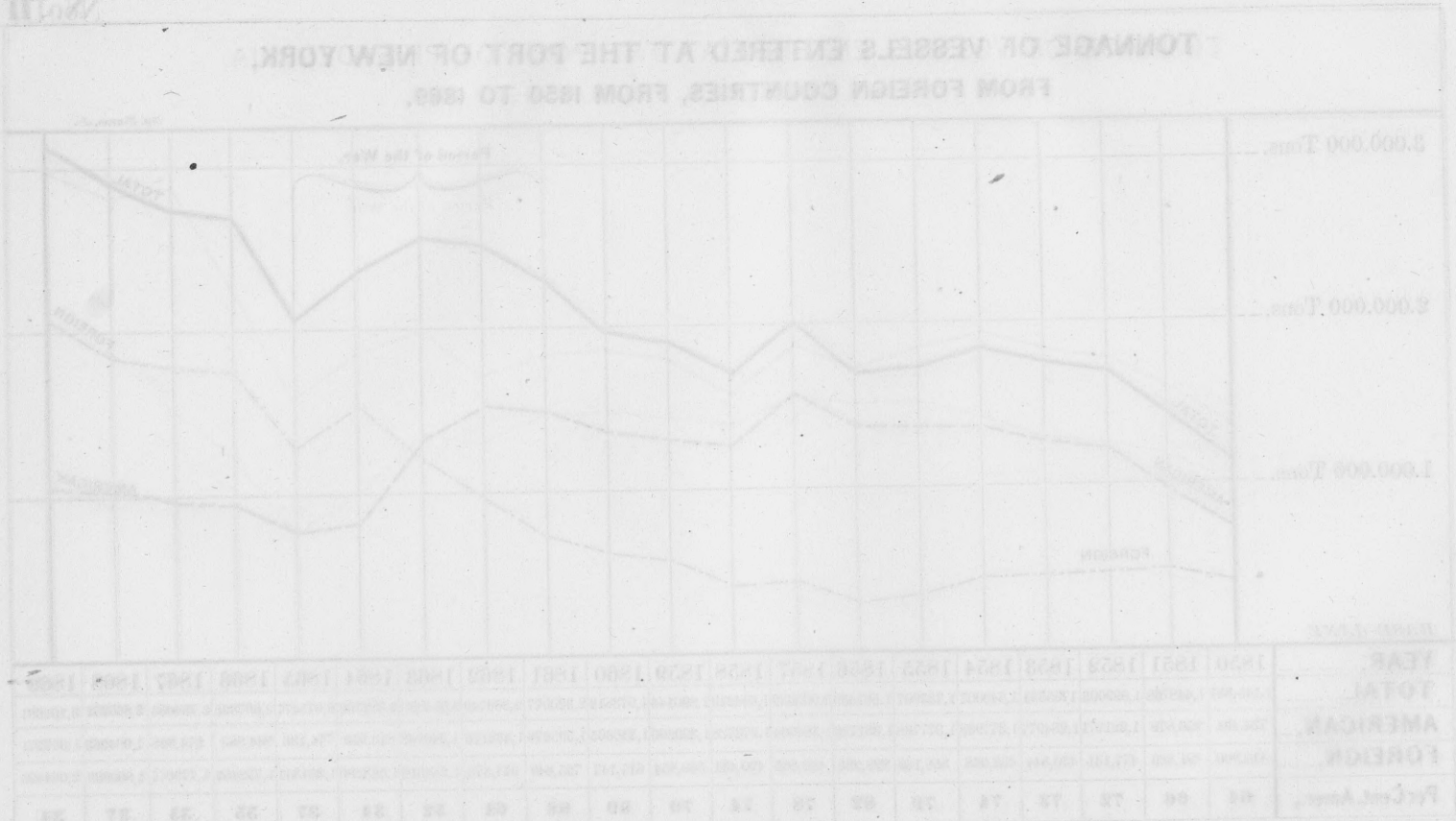


YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	478,859	512,217	518,078	582,490	653,443	707,924	682,165	714,821	665,442	734,167	718,587	771,948	619,435	639,828	681,189	655,035	725,424	731,930	642,478	779,371
AMERICAN,	260,550	236,900	257,320	287,969	320,174	373,626	354,526	397,756	337,803	359,339	344,191	366,212	337,441	275,593	181,484	178,202	196,725	216,535	237,613	249,977
FOREIGN,	218,309	275,317	260,758	294,521	333,269	334,298	327,639	317,065	327,639	374,828	374,396	405,736	281,994	364,235	499,705	476,833	528,699	515,395	404,865	529,394
Per Cent, Amer.,	54	46	49	49	49	52	52	55	51	49	49	47	54	43	26	27	27	29	37	32

TONNAGE OF VESSELS ENTERED AT THE PORT OF NEW YORK, FROM FOREIGN COUNTRIES, FROM 1850 TO 1869.

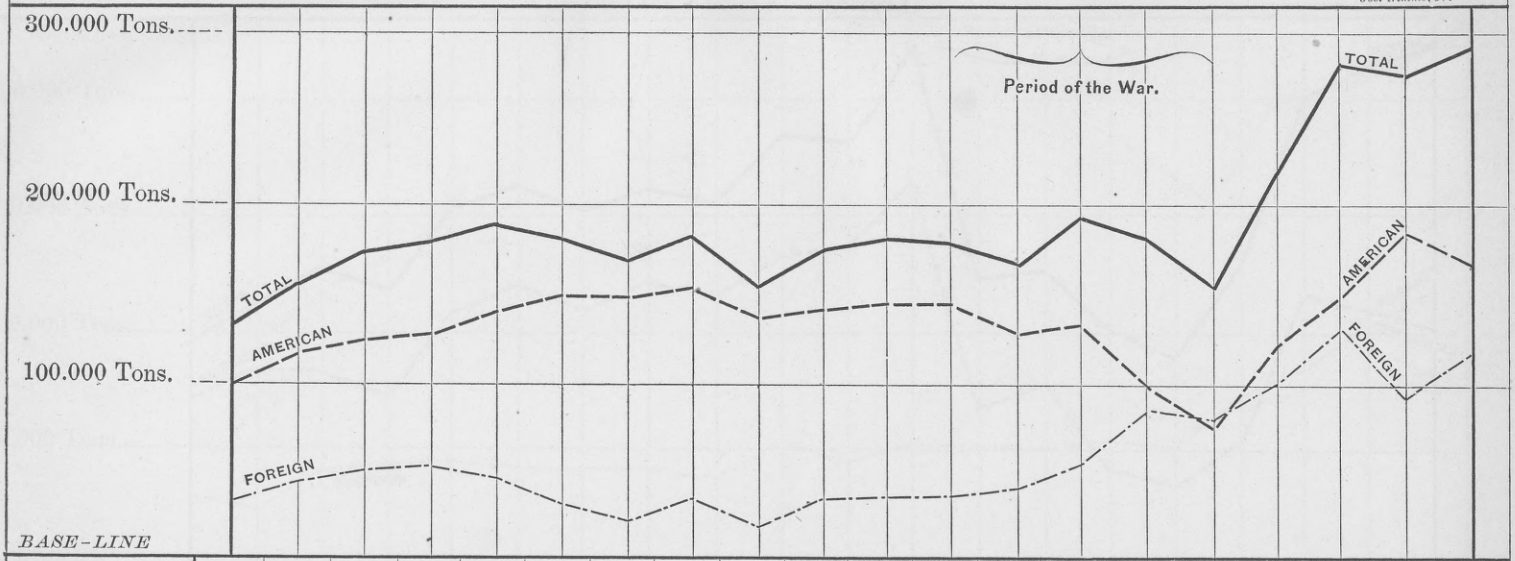
Jos. Nimmo, Jr.

YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	1,145,331	1,448768	1,699002	1755521	1,840007	1,735907	1,681659	2,035649	1,694219	1,890144	1,973812	2,320927	2,509749	2,554858	2,382192	2,075477	2,697325	2,754005	2,865252	3,101691
AMERICAN,	734,431	956,879	1,221871	1,284977	1,377939	1,377738	1,381726	1,584764	1,273788	1,320290	1,356665	1,595278	1,532176	1,340248	818,912	774,136	944,863	974,928	1,064263	1,057271
FOREIGN,	410,900	491,889	477,131	470,544	462,068	358,169	299,933	450,885	420,431	569,854	617,147	725,649	977,573	1,214610	1,563280	1,301341	1,752462	1,779077	1,800989	2,044420
Per Cent. Amer.,	64	66	72	73	74	79	82	78	74	70	69	68	61	52	34	37	35	35	37	34



TONNAGE OF VESSELS ENTERED AT THE PORT OF PHILADELPHIA,
FROM FOREIGN COUNTRIES, FROM 1850 TO 1869.

Jos. Nimmo, Jr.



YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	132,370	159,636	178,364	183,944	191,673	185,975	173,178	189,102	156,671	180,421	185,162	183,408	171,882	194,443	188,938	159,579	222,552	286,735	278,440	292,595
AMERICAN,	100.009	117,377	126,562	130,972	142,774	152,822	150,262	155,418	137,045	146,180	148,459	147,002	131,127	137,722	100.206	78,836	122,692	153,921	188,318	176 441
FOREIGN,	32,361	42,259	51,802	52,972	48,899	33,153	22,916	33,684	19,626	34,241	36,703	36,406	40,755	56,721	88,732	80.743	100,260	132,814	90,122	116,154
Per Cent, Amer.,	76	74	71	71	75	82	87	82	88	81	80	80	76	71	53	49	55	54	68	60

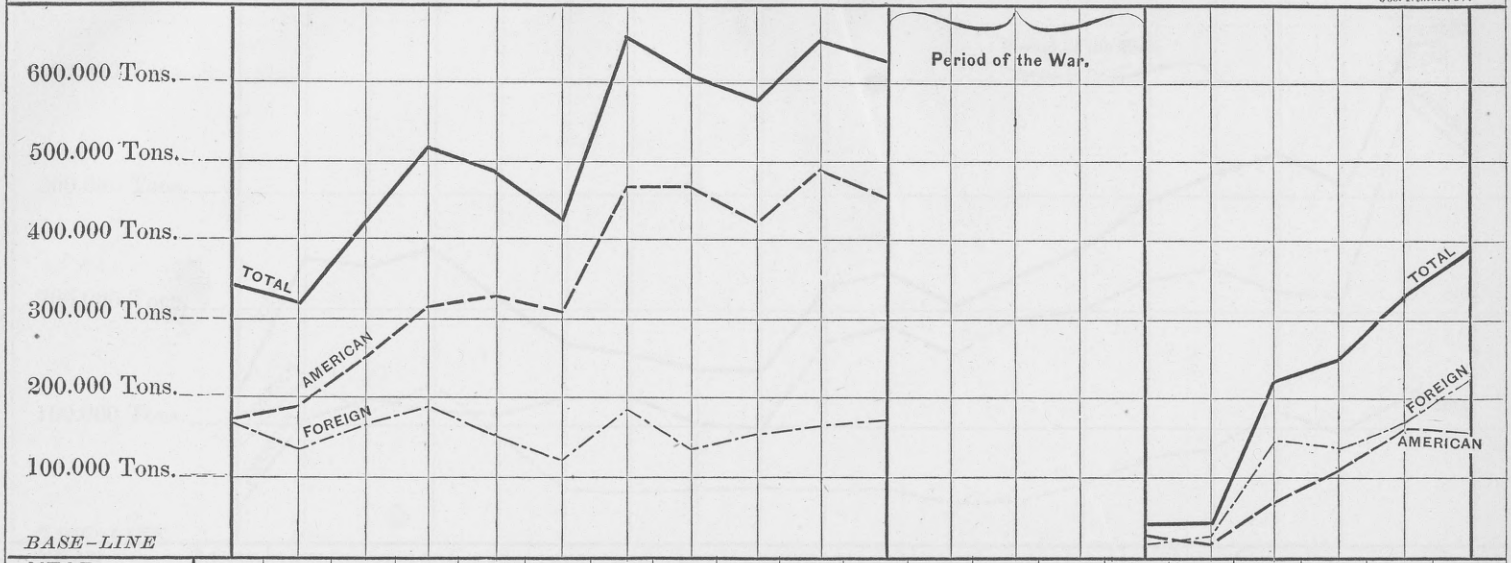
TONNAGE OF VESSELS ENTERED AT THE PORT OF BALTIMORE,
FROM FOREIGN COUNTRIES, FROM 1850 TO 1869.

Jos. Nimmo, Jr.

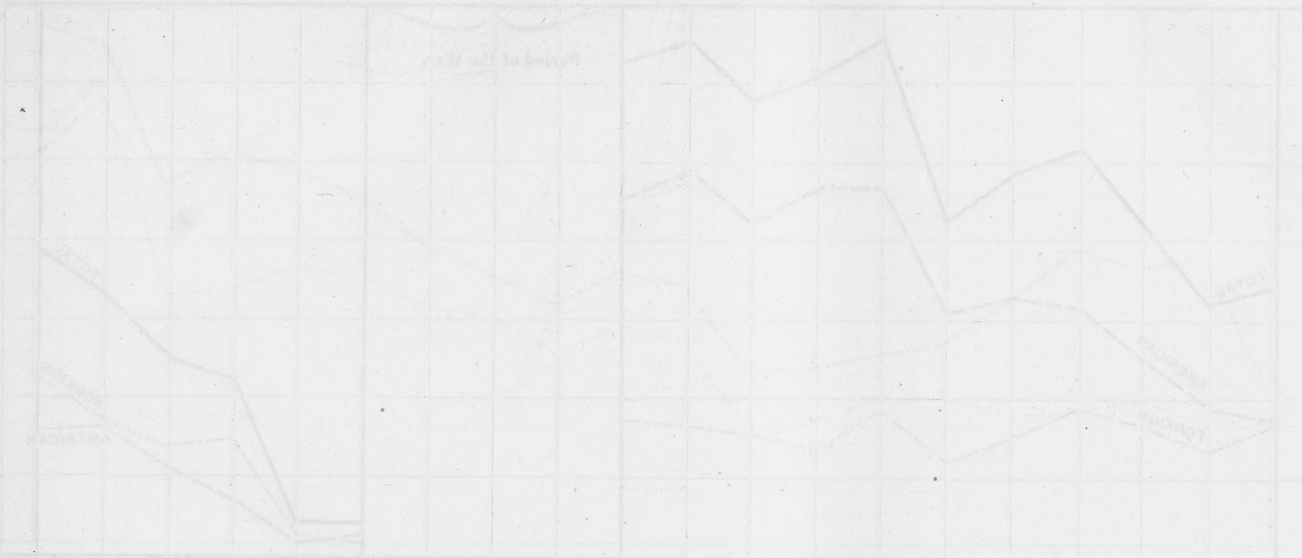
YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	99,588	113,027	128,021	119,089	156,448	165,127	153,323	163,381	156,810	189,982	186,417	225,110	123,688	128,565	102,752	88,466	132,836	203,618	216,727	225,302
AMERICAN,	70,427	86,774	85,606	73,188	111,404	121,337	111,400	122,119	118,488	134,820	139,514	169,555	69,522	78,505	45,764	35,006	57,855	119,190	115,146	106,445
FOREIGN,	29,161	26,253	42,415	45,901	45,044	43,790	41,923	41,262	38,322	55,172	46,903	55,555	54,166	50,060	56,988	53,460	74,981	84,428	101,581	118,857
Per Cent. Amer.,	70	76	66	61	71	73	72	74	75	71	75	75	56	61	45	40	43	58	53	47

TONNAGE OF VESSELS ENTERED AT THE PORT OF NEW ORLEANS, FROM FOREIGN COUNTRIES, FROM 1850 TO 1869.

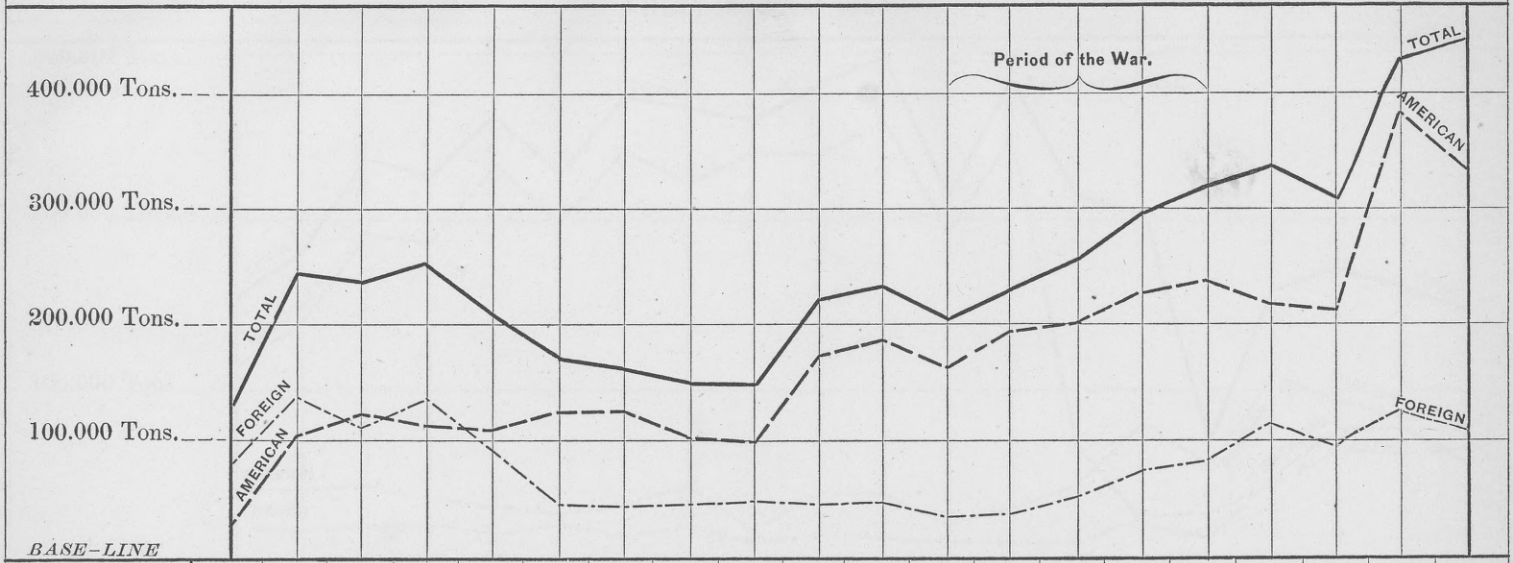
Jos. Nimmo, Jr.



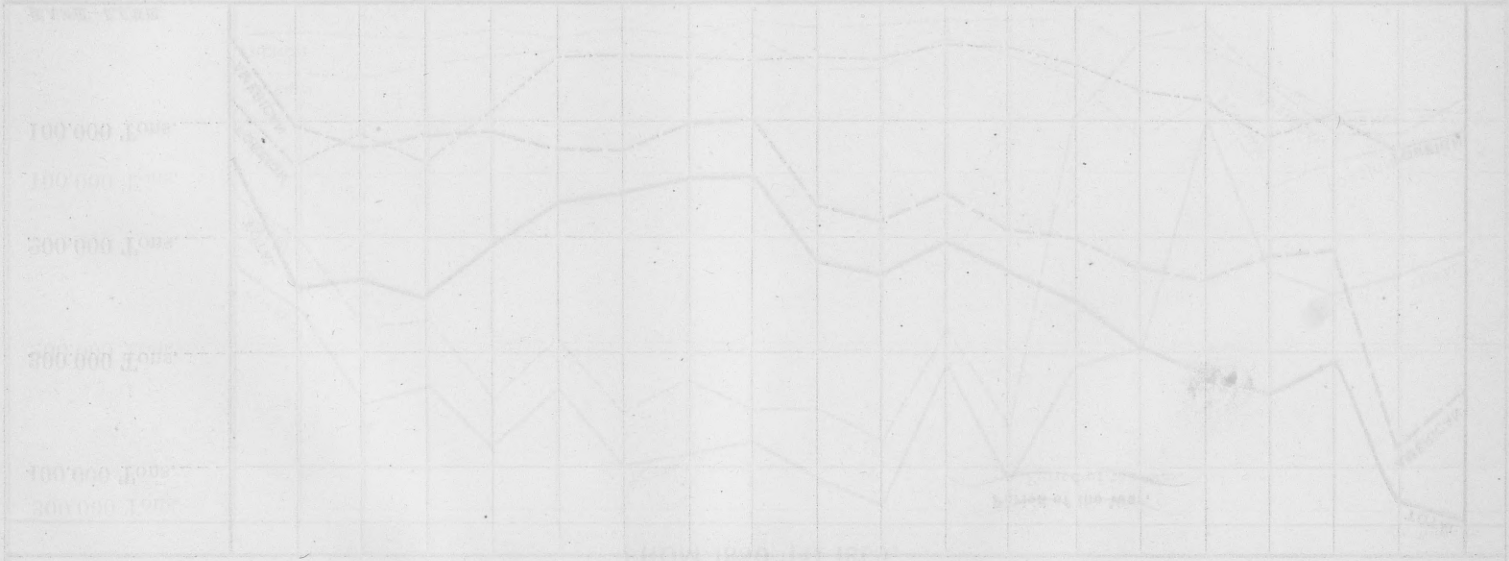
YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	349,949	328,932	423,358	511,878	492,434	435,863	663,067	612,286	583,776	659,083	632,398	68,993	-----	-----	50,588	50,970	228,339	253,729	326,216	381,882
AMERICAN,	175,065	194,776	253.009	320,724	335,970	312,318	472,701	472,970	428,516	492.523	458,310	58,724	-----	-----	31,029	23,508	74,116	108,678	161,615	156,932
FOREIGN,	174,884	134,156	170,349	191,154	156,464	123,545	190,366	139,316	155,260	166,560	174,088	10,269	-----	-----	19,559	27,462	154,223	145,051	164,601	224,950
Per Cent, Amer.,	51	59	59	62	68	71	71	77	73	74	72	86	-----	----	60	46	32	42	50	41



TONNAGE OF VESSELS ENTERED AT THE PORT OF SAN FRANCISCO, FROM FOREIGN COUNTRIES, FROM 1850 TO 1869.



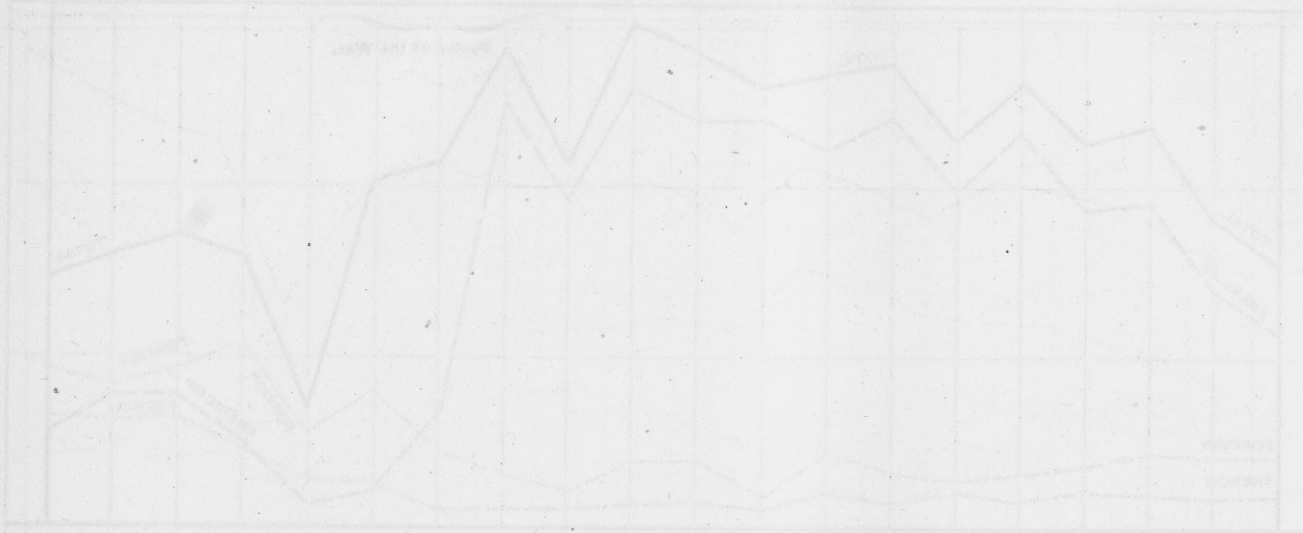
YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	130,864	245,588	238,238	252,820	208,952	172,947	168,352	149,242	147,175	221,439	235,001	205,602	231,698	256,584	299,558	321,253	338,130	310,896	413,673	443,737
AMERICAN,	47,950	104,617	123,560	115,003	111,730	125,657	123,576	102,639	100,003	175,051	186,466	162,121	194,392	203,847	227,836	239,907	218,397	211,346	299,676	334,651
FOREIGN,	82,914	140,971	114,678	137 817	97,222	47,290	44,776	46,603	47,172	46,388	48,535	33,481	37,306	52,737	71,722	81,346	119,733	99,550	113,997	109,086
Per Cent, American,	36	42	52	45	53	72	73	68	68	79	79	79	84	79	76	74	64	67	72	75



AMERICAN, FOREIGN, AND FRENCH TONNAGE,
ENTERED AT PORTS OF THE UNITED STATES, FROM FRANCE, FROM 1850 TO 1869.

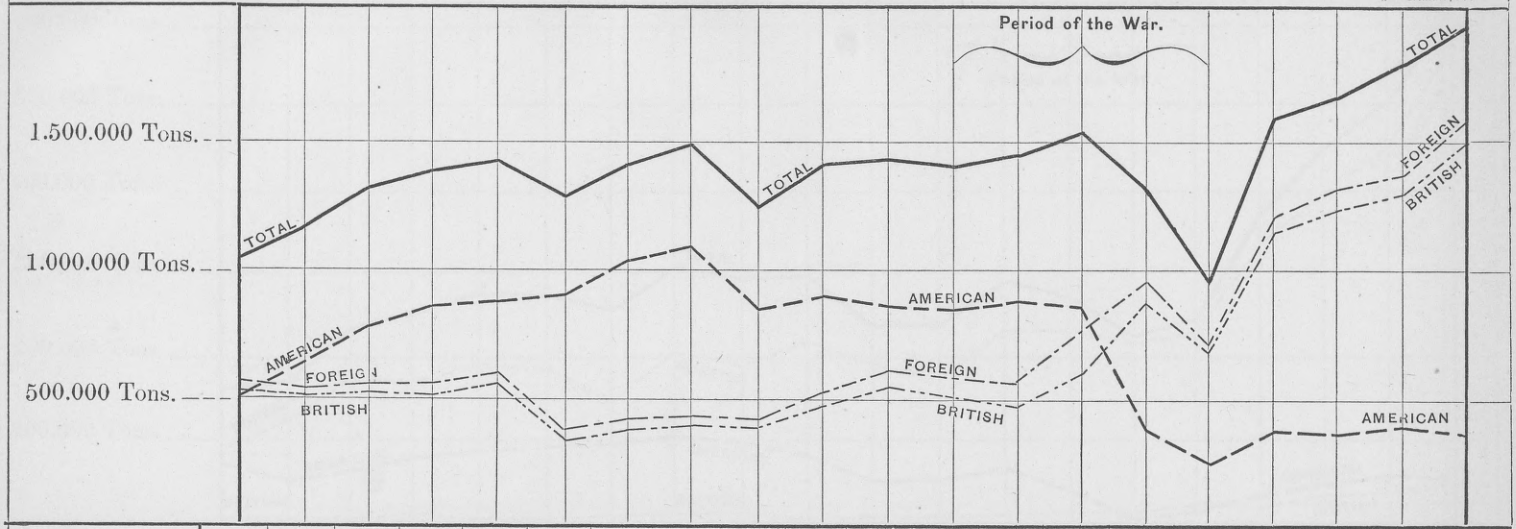
Jos. Nimmo, Jr.

YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	157,719	183,996	240,010	227,882	264,981	228,460	273,115	267,977	259,020	281,212	298,436	214,587	283,512	113,588	103,186	68,954	158,051	171,981	160,322	149,620
AMERICAN,	114,867	142,842	193,242	189,916	233,148	199,695	241,310	223,204	240,131	240,790	259,914	192,463	251,275	66,763	21,005	13,820	49,126	77,890	76,486	56,077
FOREIGN,	42,852	41,154	46,768	37,966	31,833	28,765	31,805	44,773	18,889	40,422	38,522	22,124	32,237	46,825	82,181	55,134	108,925	94,091	83,836	93,603
FRENCH,	19,220	17,272	20,634	21,992	15,246	12,875	15,648	20,919	10,647	14,630	13,623	10,234	11,817	10,319	26,644	28,911	46,372	64,600	61,989	65,044
Per Cent, Amer.,	72	77	80	83	89	87	88	83	92	85	87	89	88	58	20	19	31	45	47½	38

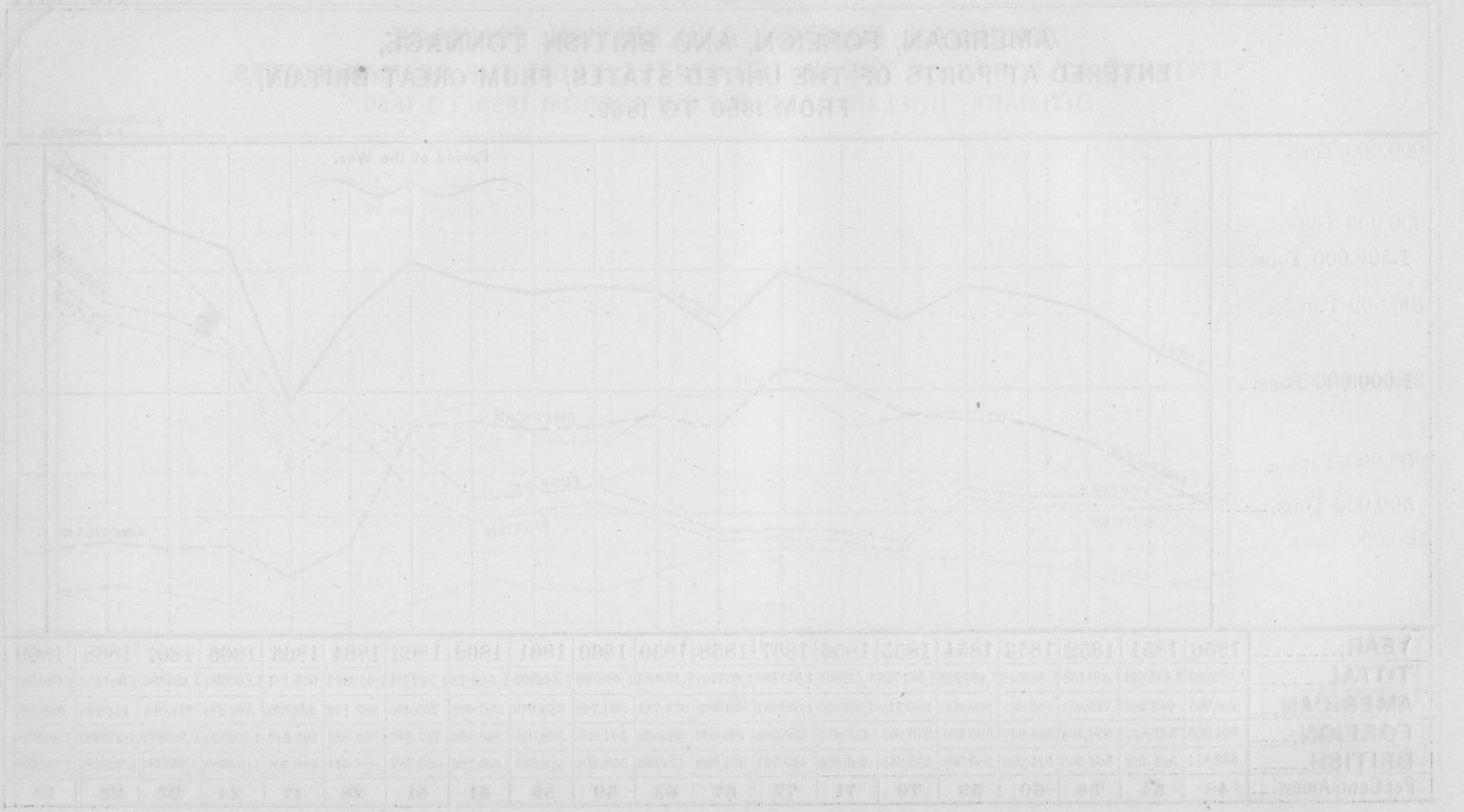


AMERICAN, FOREIGN, AND BRITISH TONNAGE,
ENTERED AT PORTS OF THE UNITED STATES, FROM GREAT BRITAIN, FROM 1850 TO 1869.

Jno. Nimmo, Jr.

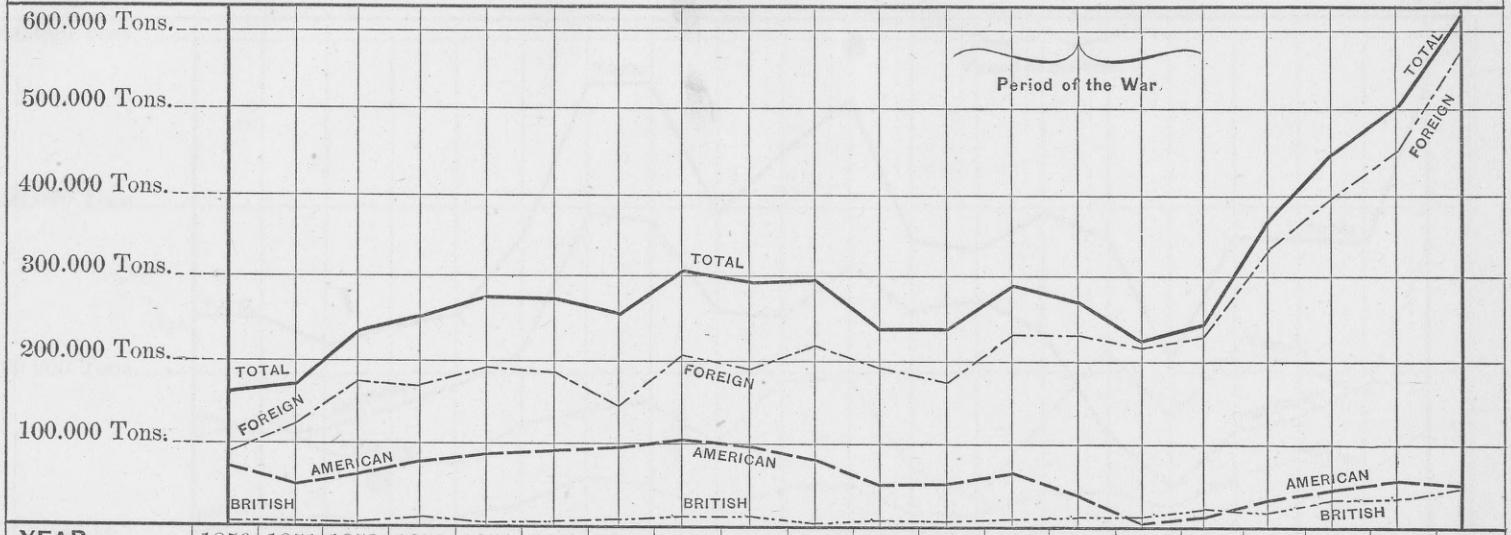


YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	1,072829	1,175146	1,331135	1,409048	1,456050	1,281723	1,451965	1,511380	1,257741	1,439651	1,464526	1,442999	1,449913	1,542781	1,355067	965,181	1,622092	1,691686	1,801155	1,966305
AMERICAN,	518,766	643,299	776,971	855,081	860,996	905,718	1,036495	1,081091	852,082	914,721	866,720	854,979	889,023	785,495	389 172	263,532	389.274	378,014	424 223	363,507
FOREIGN,	554,063	531,847	554,164	553,967	595,054	376,005	415,470	430,289	405,659	524930	597,806	588.020	560,890	757,286	965,895	701.649	1,232818	1,313672	1,376933	1,602798
BRITISH,	532,811	501,498	534,253	521,299	560,508	350,655	383,550	410,327	381,922	478,881	552,201	513,245	490,126	603,507	888.644	680,101	1,169782	1,256494	1.322182	1 503092
Per Cent, Amer.,	48	54	58	60	59	70	71	72	67	63	59	59	61	51	28	27	24	22	23	18



AMERICAN, FOREIGN, AND BRITISH TONNAGE,
ENTERED AT PORTS OF THE UNITED STATES, FROM THE GERMAN STATES, DENMARK, HOLLAND AND BELGIUM, FROM 1850 TO 1869.

Jos. Nimmo, Jr.

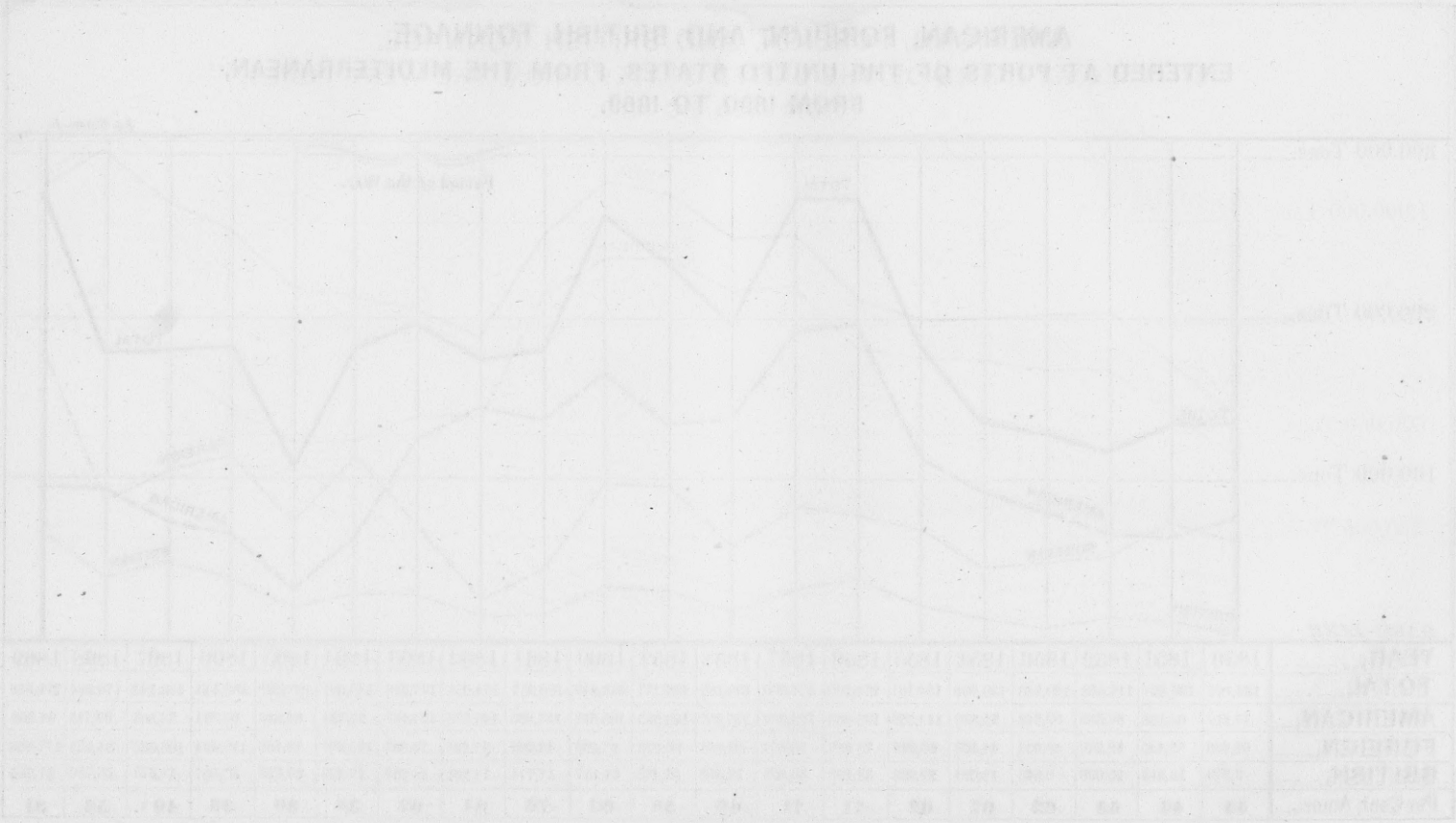


YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	162,195	173,693	234,612	247,691	277,512	276,667	247,852	303,542	289,619	298,147	238,964	238,155	283,390	263,083	218,033	228,018	364,762	444,087	500,155	608,510
AMERICAN,	72,033	50,543	60,187	79,566	87,704	93,489	98 997	102,111	99,194	80,611	47,397	54,484	62,064	38,834	4,291	11,267	33,081	48,770	51,451	43,003
FOREIGN,	90,162	123,150	176,425	168,125	189,808	183,178	148,855	201 431	190,425	217,536	191,567	183,671	226,326	224,249	213,742	216,751	331,681	395,317	448,704	565,507
BRITISH,	3,204	3,083	3,345	9,273	1,596	2,591	6,337	9,255	11,692	1,389	4,317	2,806	4,240	10,022	10,292	19,961	15,850	33,292	35,640	40,800
Per Cent, Amer.,	44	29	26	32	31	33	39	33	34	27	20	21	21	21	2	5	9	10	10	7

AMERICAN, FOREIGN, AND BRITISH TONNAGE,
ENTERED AT PORTS OF THE UNITED STATES, FROM THE MEDITERRANEAN,
FROM 1850 TO 1869.

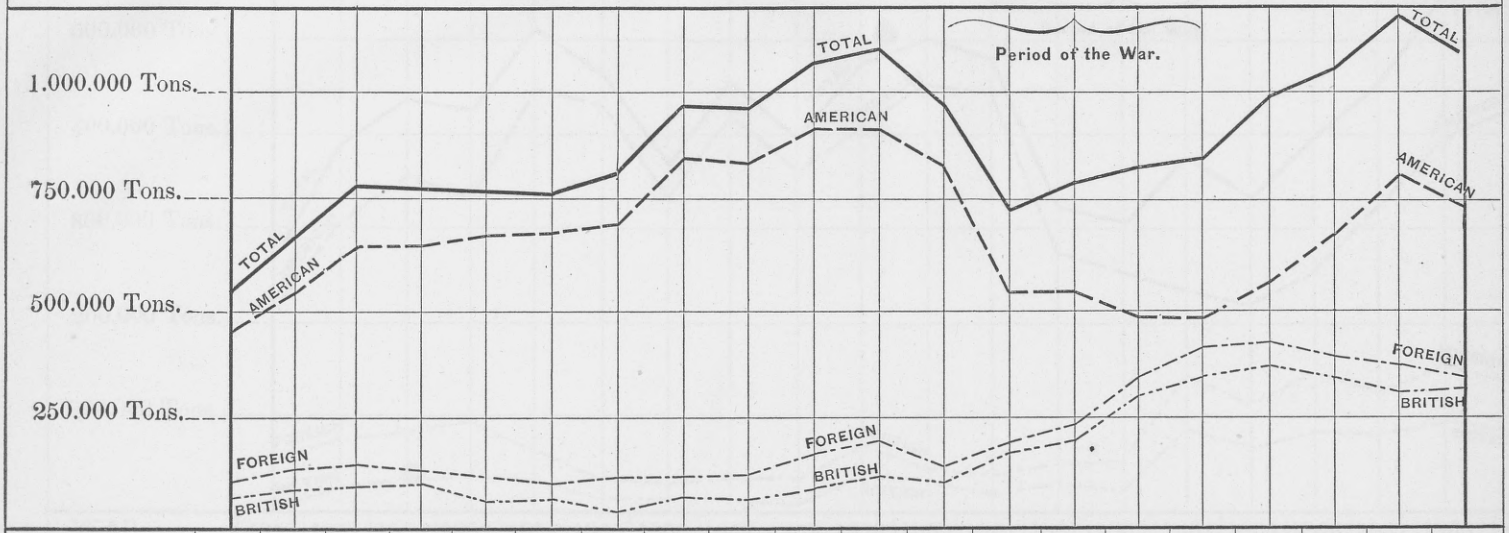
Jos. Nimmo, Jr.

YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	136,167	136,324	119,532	129,746	136,903	184,181	274,109	274,560	197,160	232,171	263,249	180,957	174,057	197,918	180,031	108,029	183,145	180,123	178,284	271,833
AMERICAN,	75,117	64,183	66,556	80,842	92,380	114,589	195 852	190,689	137,977	135,555	165,650	137,955	146,776	124,583	64,524	32,849	66,721	73,563	93,711	94,303
FOREIGN,	61,050	72,141	52,976	48,904	44,523	69,592	78,257	83,871	59,183	96,616	97,599	43,002	27,281	73,335	115,807	75,180	116,424	106,560	84,573	177,530
BRITISH,	3,970	13,213	15,096	8,548	12,064	22,923	38,193	33,898	19,593	31,435	34,157	17,774	14,251	27,916	27,476	20,372	38,307	48,075	38,780	67,265
Per Cent, Amer.,	55	46	55	62	67	62	71	71	69	58	63	76	84	62	35	30	36	40½	52	31

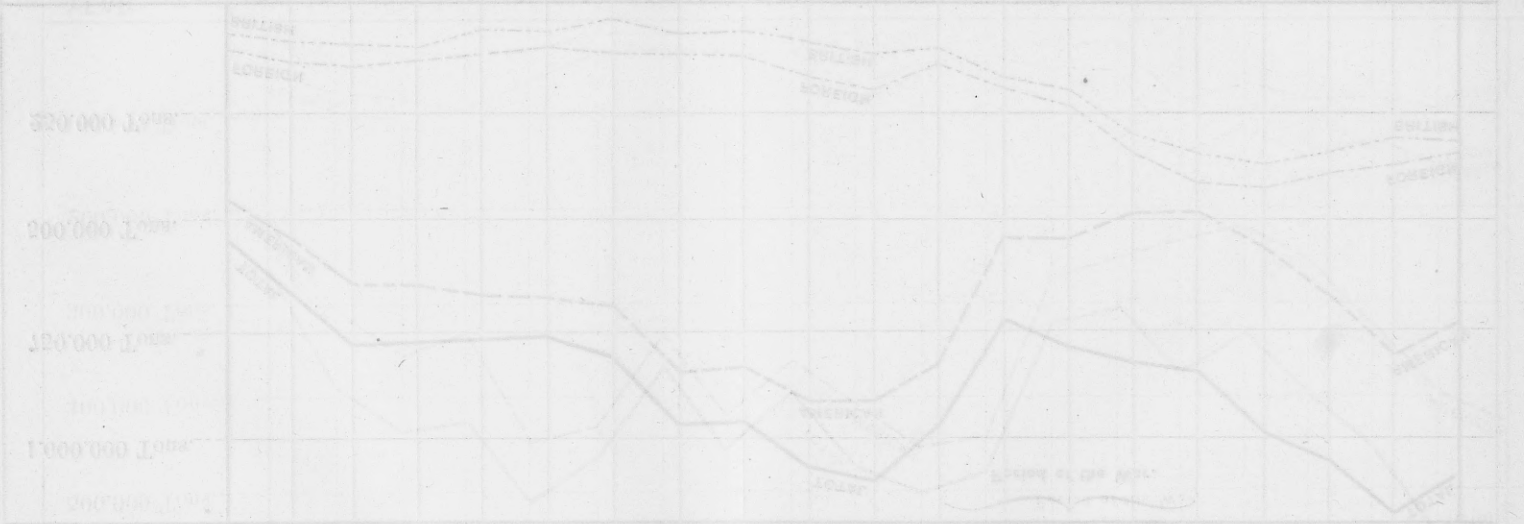


AMERICAN, FOREIGN, AND BRITISH TONNAGE, ENTERED AT PORTS OF THE UNITED STATES, FROM THE WEST INDIES, FROM 1850 TO 1869.

Jos. Nimmo, Jr.

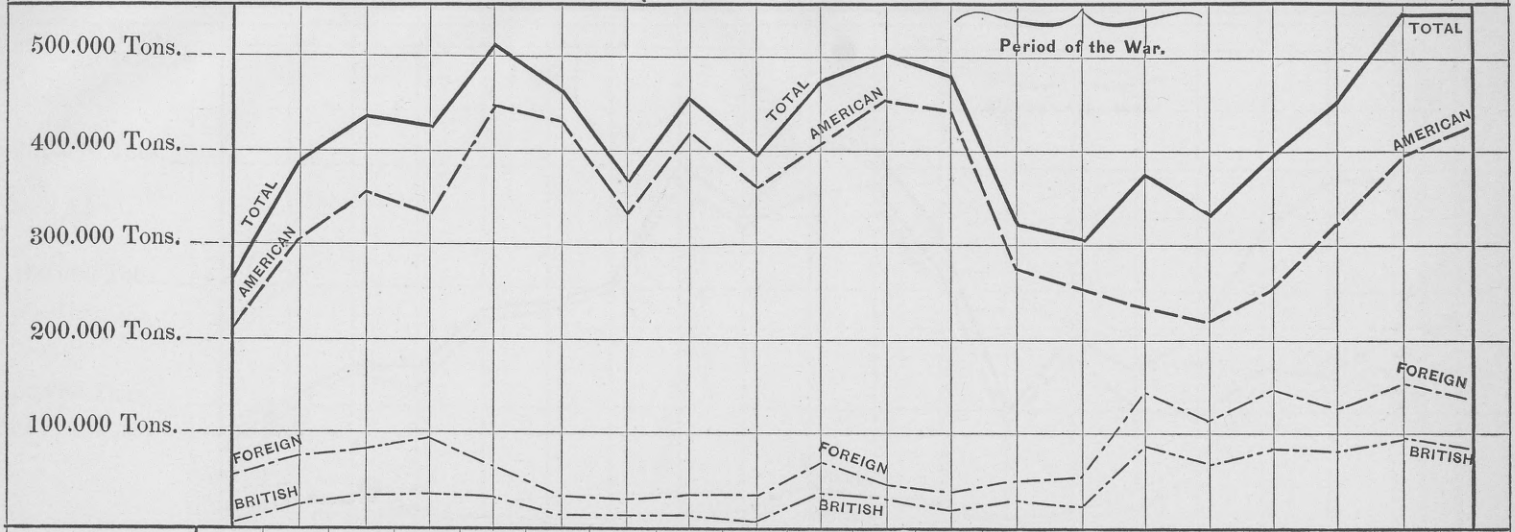


YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	544,778	659,953	775,889	774,001	772,266	764,718	807,868	964,862	954,097	1,068279	1,090458	962,220	734,921	778,692	826,903	841,267	990,624	1,047071	1,179380	1,078651
AMERICAN,	444,279	532 714	645,427	648,826	657,456	664,315	690,208	848,223	831,009	901,282	903,901	829,057	544,710	547,312	484,932	475,931	570,831	664,807	817,316	733,063
FOREIGN,	100,499	127,239	130,462	125,175	114,810	100,403	117,660	116,639	123,088	166,997	186,557	133,163	190,211	231,380	341,971	365,336	419,793	382,264	362,064	345,588
BRITISH,	71,720	79,402	94,730	97,886	57,371	73,585	30,034	74,969	69,749	89,607	115,233	100,374	168,573	181,373	294,730	339,752	366,632	336,338	304,499	305,653
Per Cent, Amer.,	81	81	83	82	86	86	85	87	87	84	83	86	74	70	58	56	57	63	69	68

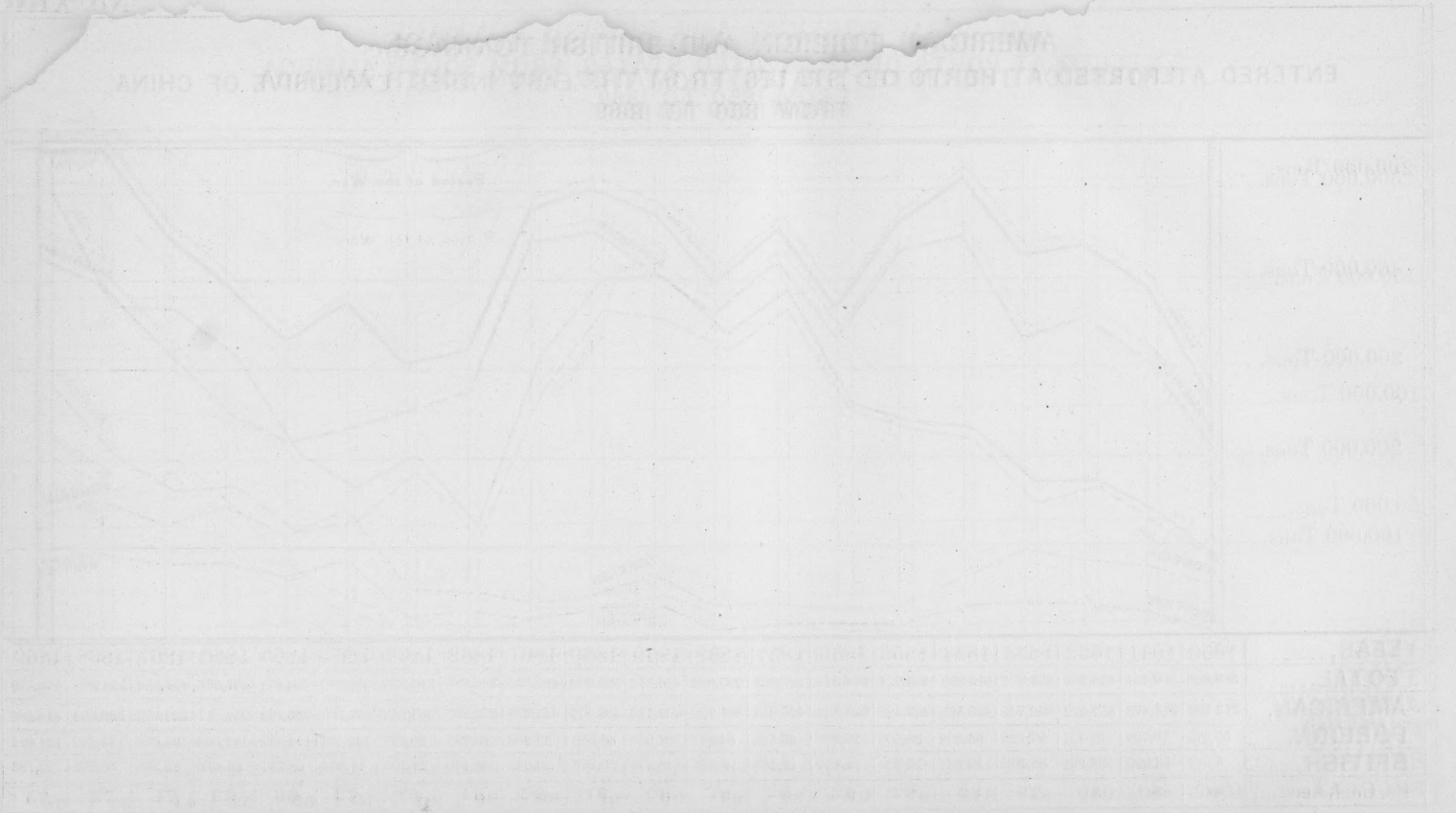


AMERICAN, FOREIGN, AND BRITISH TONNAGE,
ENTERED AT PORTS OF THE UNITED STATES, FROM SOUTH AMERICA, FROM 1850 TO 1869.

Jos. Nimmo, Jr.

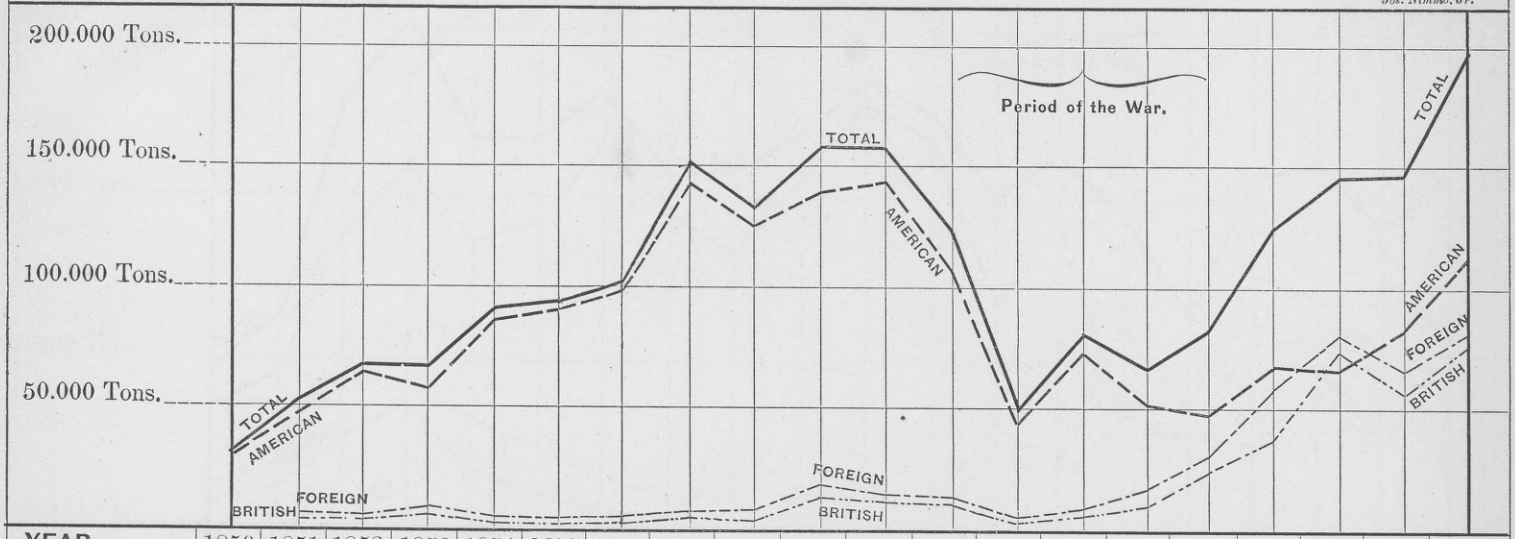


YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	268,828	390,184	438,763	429,874	516,858	465,631	364,614	459,601	395,822	476,134	503,099	482,596	326,886	310,835	378,840	334,971	401,665	454,552	554,088	553,372
AMERICAN,	213,153	311,475	357,612	332,745	450,565	429,422	335,234	426,055	361,295	409,126	456,947	445,396	276,896	257,238	236,109	220,492	254,317	324,876	398,630	418,880
FOREIGN,	55,675	78,709	81,151	97,129	66,293	36,209	29,380	33,546	34,527	67,008	46,152	37,200	49,990	53,597	142,731	114,479	147,348	129,676	155,458	134,492
BRITISH,	6,017	26,090	35,801	38,700	35,048	16,769	14,120	15,435	11,535	40,475	30,973	20,045	30,270	22,204	71,364	68,757	86,494	82,765	96,782	85,193
Per Cent, Amer.,	80	80	80	79	89	92	92	92	91	90	91	92	84	83	72	66	63	71	72	75

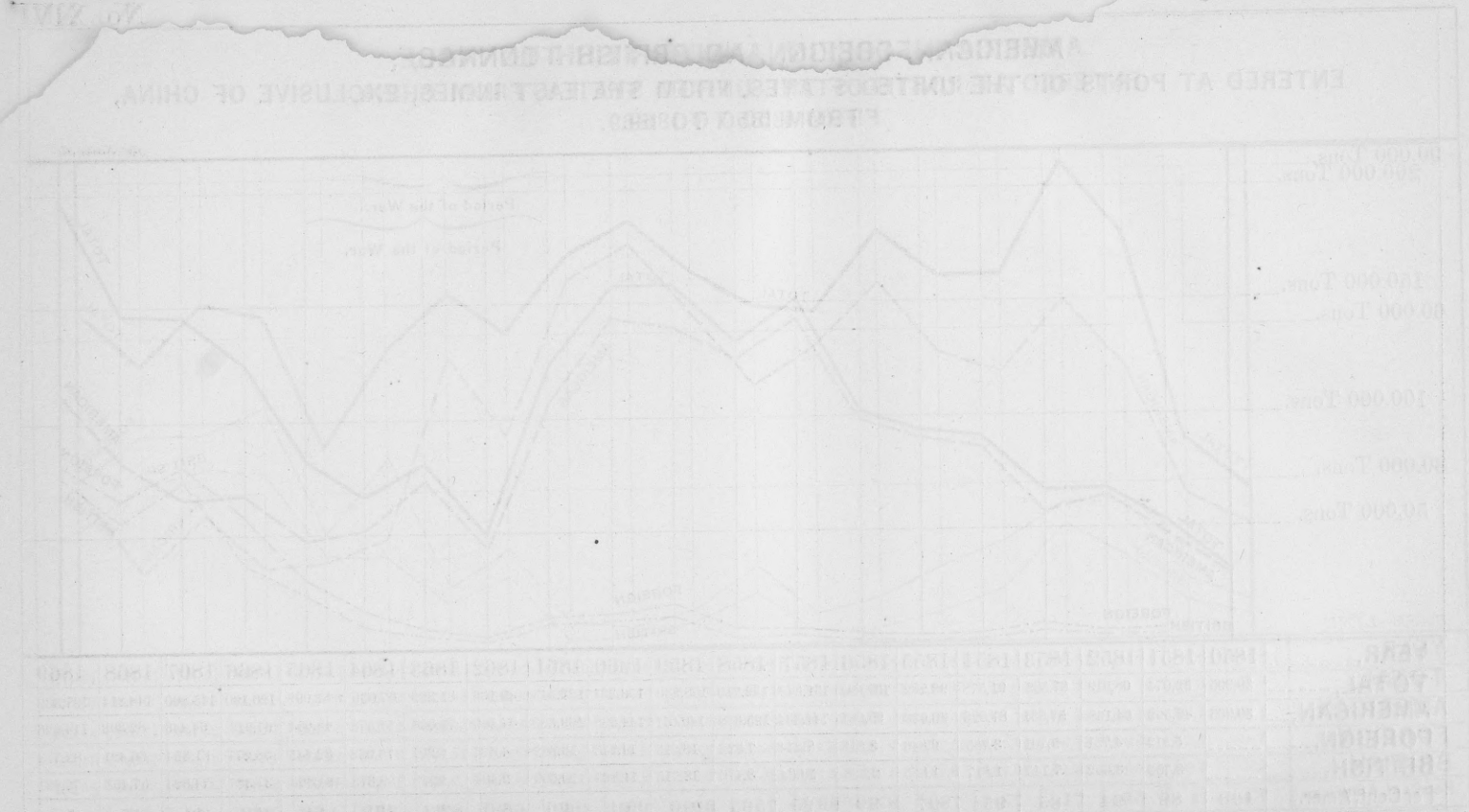


AMERICAN, FOREIGN, AND BRITISH TONNAGE,
ENTERED AT PORTS OF THE UNITED STATES, FROM THE EAST INDIES, EXCLUSIVE OF CHINA, FROM 1850 TO 1869.

Jos. Nimmo, Jr.



YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	30,905	52,074	68,919	67,532	91,578	93,282	102,894	151,548	132,710	158,230	158,331	123,545	49,106	81,329	67,636	81,099	126,190	145,800	148,814	197,239
AMERICAN,	30,905	46,562	64,168	57,831	87,823	90,636	99,081	144,334	125,388	140,011	144,088	109,583	44,569	75,038	51,573	48,654	67,913	64,446	82,393	114,626
FOREIGN,		5,512	4,751	9,701	3,755	2,646	3,813	7,214	7,322	18,219	14,243	13,962	4,537	6,291	16,063	32,445	58,277	81,354	66,421	82,713
BRITISH,		3,755	3,652	7,145	1,817	1,855	2,388	5,664	3,476	13,715	11,807	10,799	2,404	4,818	9,378	24,863	37,337	74,824	57,453	77,991
Per Cent, Amer.,	100	88	94	85	95½	97	99	95	95	90	91	90	90	92	79	69	52	44	55	58



AMERICAN, FOREIGN, AND BRITISH TONNAGE,
ENTERED AT PORTS OF THE UNITED STATES, FROM CHINA,
FROM 1850 TO 1869.

Jos. Nimmo, Jr.

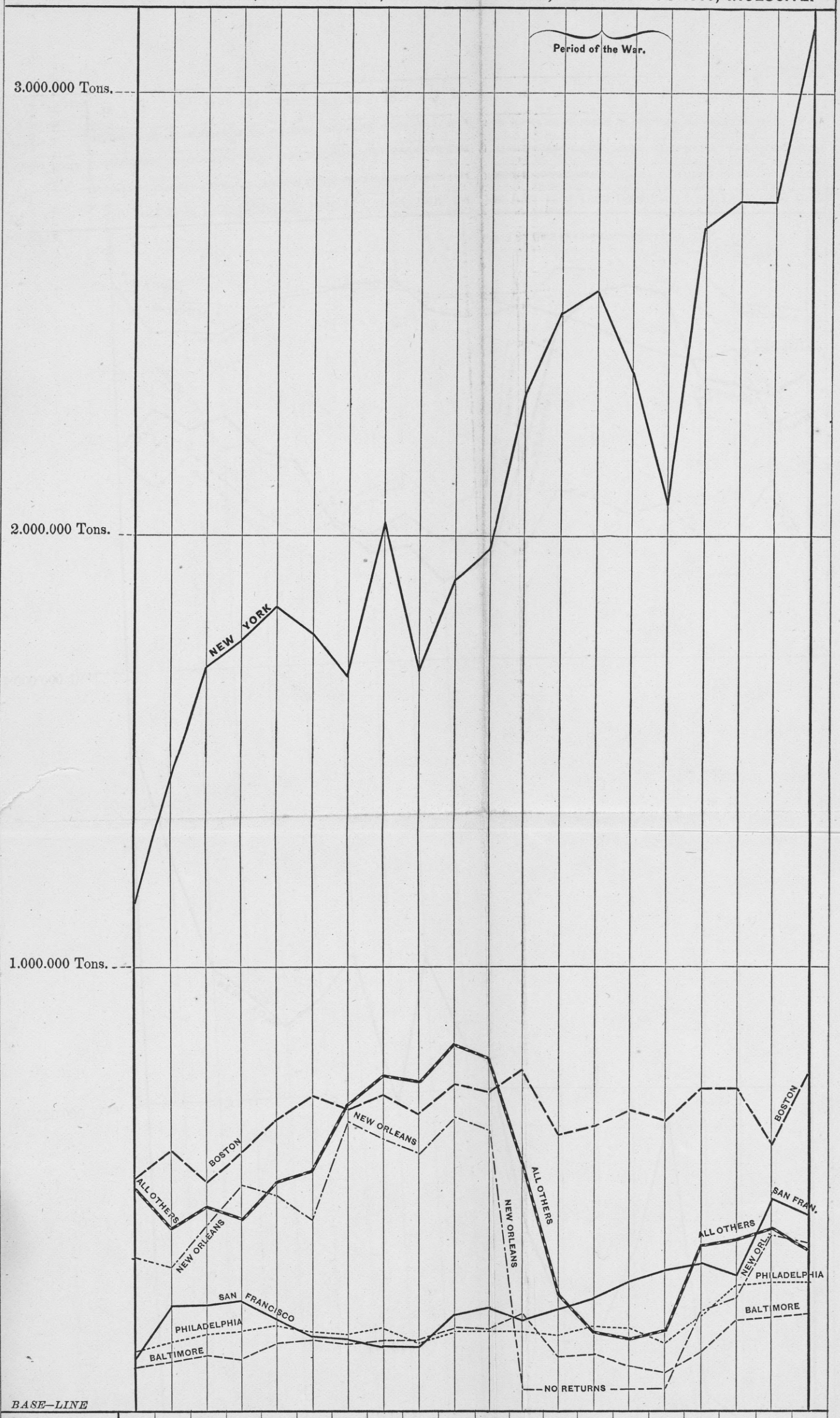
YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	29,414	38,914	78,085	92,864	70,426	70,815	79,175	64,029	65,772	71,085	81,467	75,950	60,569	68,519	58,941	39,644	64,423	67,850	56,161	65,854
AMERICAN,	21,969	27,587	52,076	65 899	51,196	55,048	69,194	57,042	49,958	63,275	77,254	70,295	40,962	56,382	21,765	17,272	16,984	26,176	15,093	31,674
FOREIGN,	7,445	11,327	26,009	26,965	19,230	15,767	9,981	6,987	15,814	7,810	4,213	5,655	19,607	12,137	37,176	22,372	47,439	41,674	41,068	34,180
BRITISH,	4,526	7,884	16,993	22,251	10,186	6,734	3,978	2,810	10,525	5,331	2,803	1,250	14,904	9,901	18,291	18,077	34,847	35,007	32,641	23,341
Per Cent, American,	72	71	66	71	73	78	87	89	75	90	95	96	66	82	36	44	25	40	26	48


AMERICAN
FOREIGN
BRITISH
TOTAL

No. XV

STATEMENT,

SHOWING THE TOTAL TONNAGE ENTERED AT THE PORTS OF NEW YORK, BOSTON, PHILADELPHIA, BALTIMORE, SAN FRANCISCO, NEW ORLEANS, AND OTHER PORTS; FROM 1850 TO 1869, INCLUSIVE.



BASE—LINE

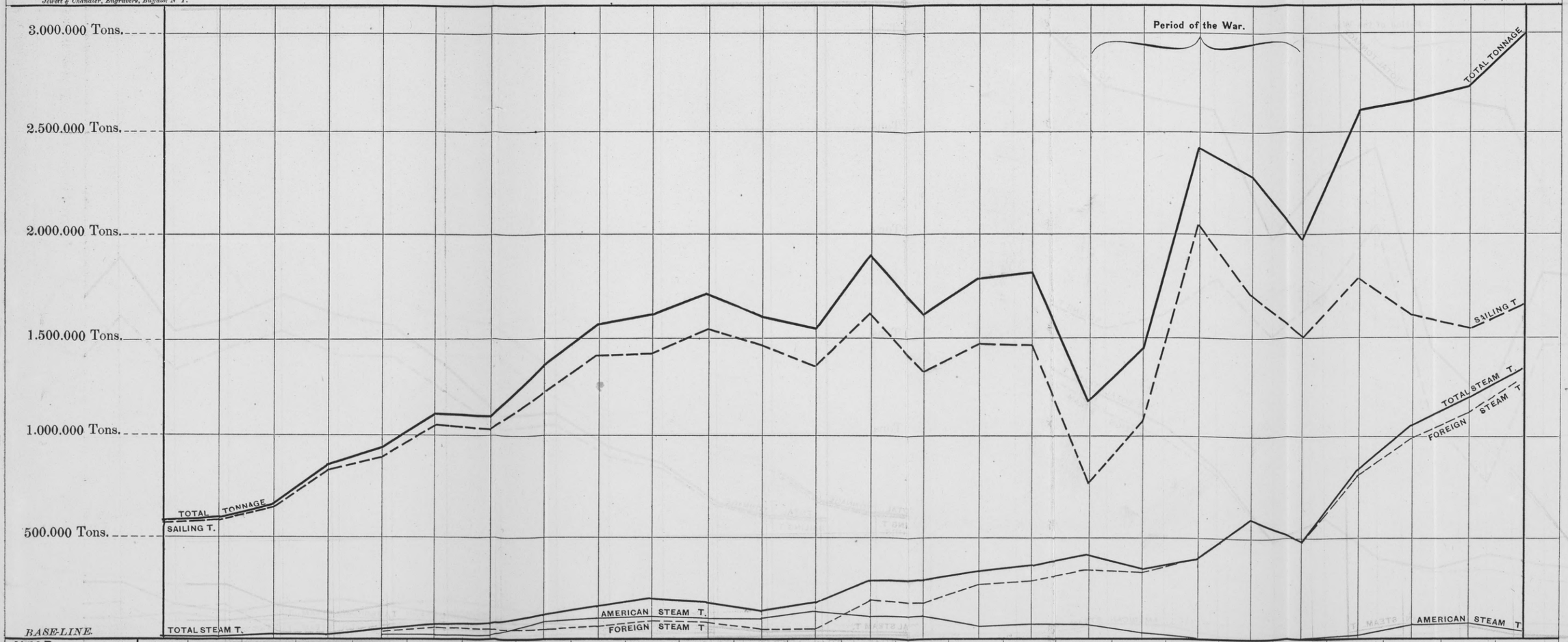
YEAR,	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL.	2845223	3226777	3652888	3846091	4064184	3945467	4218536	4622030	4150132	4706953	4726022	4334992	3930075	3960068	3873083	3537770	4720628	4928149	5160714	5591217
Six Principal Ports,	2336961	2808168	3185061	3405742	3542957	3403743	3521744	3864481	3404093	3875236	3931377	3775988	3656452	3774278	3705217	3350780	4344606	4540913	4745298	5224578
All other Ports,	508,262	418,609	467,827	440,349	521,227	541,724	696,792	757,549	746,039	831,717	794,645	559,004	273,623	185,790	167,866	186,990	376,022	387,236	415,416	366,639
(ALL OTHERS) What Per Ct. of Total,	18	13	13	11½	12½	13	16	16	18	17½	17	13	7	5	4	5	8	7½	8	6½

Jos. Nimmo, Jr.

THE TONNAGE OF SAILING-VESSELS AND OF STEAM-VESSELS,

ENTERED AT THE PORT OF NEW YORK, FROM FOREIGN COUNTRIES, FROM 1844 TO 1869: (VESSELS ENTERED FROM THE ISTHMUS OF PANAMA NOT INCLUDED.)

Jewett & Chandler, Engravers, Buffalo: N. Y. — Jos. Nimmo, Jr.

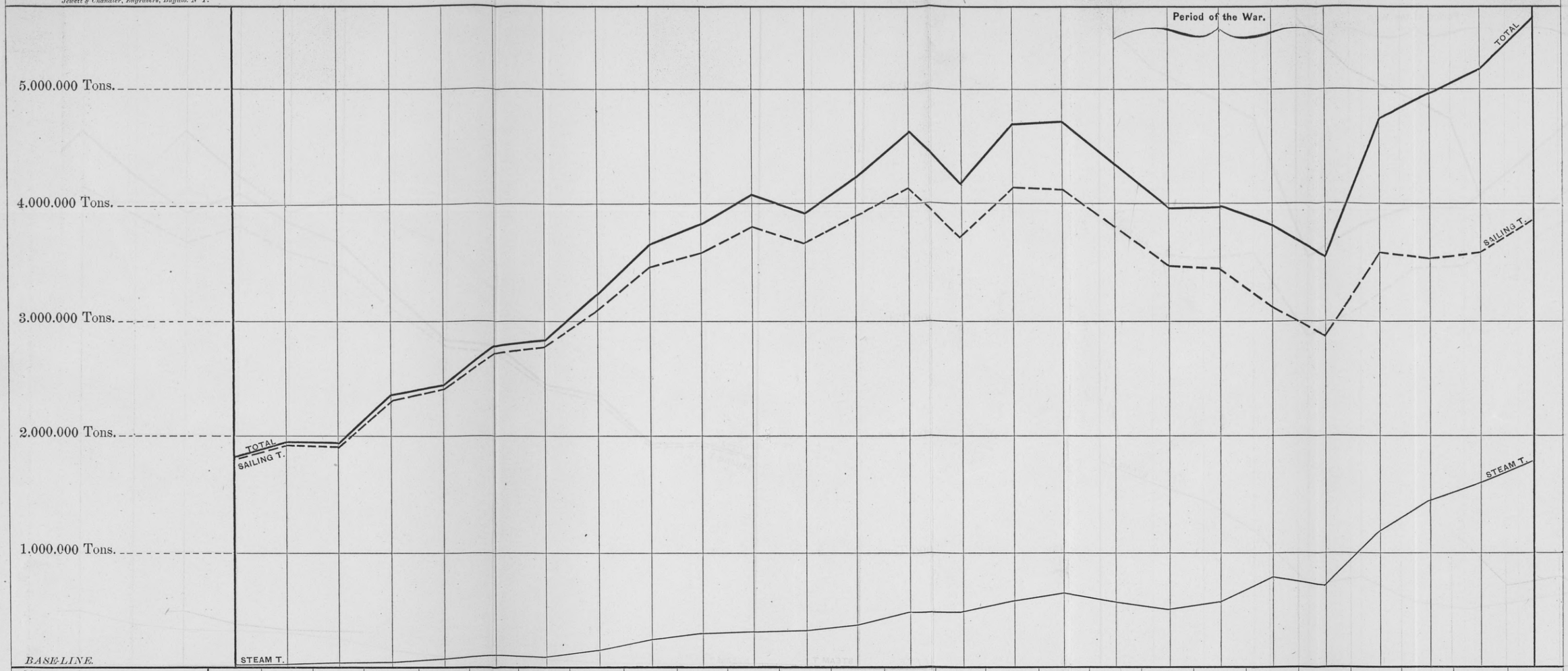


YEAR,	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL TONNAGE,	576,480	579,218	655,877	853,668	931,573	1,110,593	1,090,879	1,340,596	1,541,816	1,585,500	1,092,780	1,582,560	1,519,250	1,890,413	1,591,209	1,778,801	1,803,171	1,170,393	1,415,188	2,429,843	2,286,323	1,981,045	2,609,161	2,652,907	2,728,107	2,994,910
SAILING TONNAGE;	571,908	575,438	642,526	844,547	892,441	1,035,895	1 021,236	1,219,794	1,382,063	1,386,107	1,506,811	1,440,332	1,334,144	1,600,895	1,301,954	1,450,524	1,445,298	767,717	1,071,573	2,032,596	1,698,672	1,481,810	1,780,421	1,599,972	1,542,989	1,653,348
STEAM TONNAGE;	4,572	3,780	13,351	9,121	39,132	74,698	69,643	120,802	159,753	199,393	185,969	143,228	185,106	289,518	289,255	328,277	357,873	402,676	343,615	397,247	587,651	499,235	828,740	1,052,935	1,185,118	1,341,562
AMERICAN STEAM;					12,614	20,801	19,181	76,862	100,199	118,005	107,713	94,423	138,983	102,706	112,391	63,542	68,564	68,880	15,884				17,383	71,474	75,151	34,801
FOREIGN STEAM;	4,572	3,780	13,351	9,121	26,518	53,897	50,462	43,940	59,554	81,388	78,256	48,805	46,123	186,812	176,864	264,735	289,309	333,796	327,731	397,247	587,651	499,235	811,357	981,461	1,109,967	1,306,761

TONNAGE of SAILING and of STEAM VESSELS, entered at PORTS of the UNITED STATES, from FOREIGN PORTS, from 1844 to 1869.

Jewett & Chandler, Engravers, Buffalo. N Y.

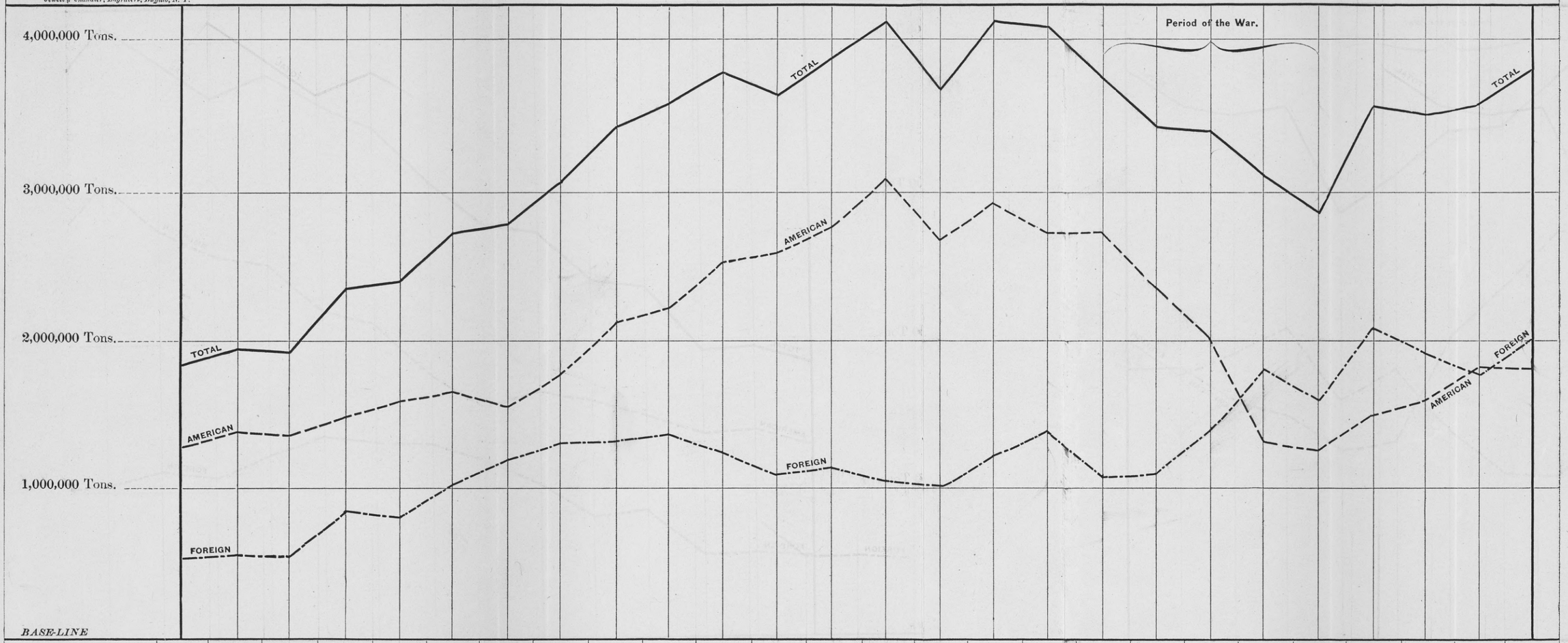
Jos. Nimmo, Jr.



YEAR,	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL Tonnage,	1,838,868	1,951,240	1,949,439	2,358,445	2,443,922	2,798,339	2,845,223	3,226,777	3,652,888	3,846,091	4,064,184	3,945,467	4,218,536	4,622,030	4,150,132	4.706.953	4,726,022	4,334,992	3.930.075	3,960,068	3,873,083	3,537,770	4,720,828	4,928.149	5,160,714	5,583,233
Sailing Tonnage,	1,834,296	1,947,460	1,920,943	2,337,209	2,389,951	2,707,641	2,755,580	3,065,788	3,428,256	3,573,642	3 782,808	3,649,571	3,873,123	4,138,018	3,686,983	4,140,854	4,104,598	3,787,688	3,444,927	3,405,995	3,108,364	2,854,802	3,569,623	3,512,990	3,588,074	3,822,156
Steam Tonnage,	4,572	3,780	28,496	21,236	53,971	90,698	89,643	160,989	224,632	272,449	281,376	295,896	345,413	484,012	463,149	566,099	621,424	547,304	485,148	554,073	764,719	682,968	1,151,205	1,415,159	1,572,640	1,761,077
Per Cent, Steam,	00¼	00⅕	1½	00 9/10	2⅕	3⅕	3	5	6	7	6½	7½	8	10	11	12	13	12½	12½	13	19	19	24	28	30	31

TONNAGE of AMERICAN and FOREIGN SAILING VESSELS, entered at SEA-PORTS of the UNITED STATES, from FOREIGN PORTS, from 1844 to 1869.

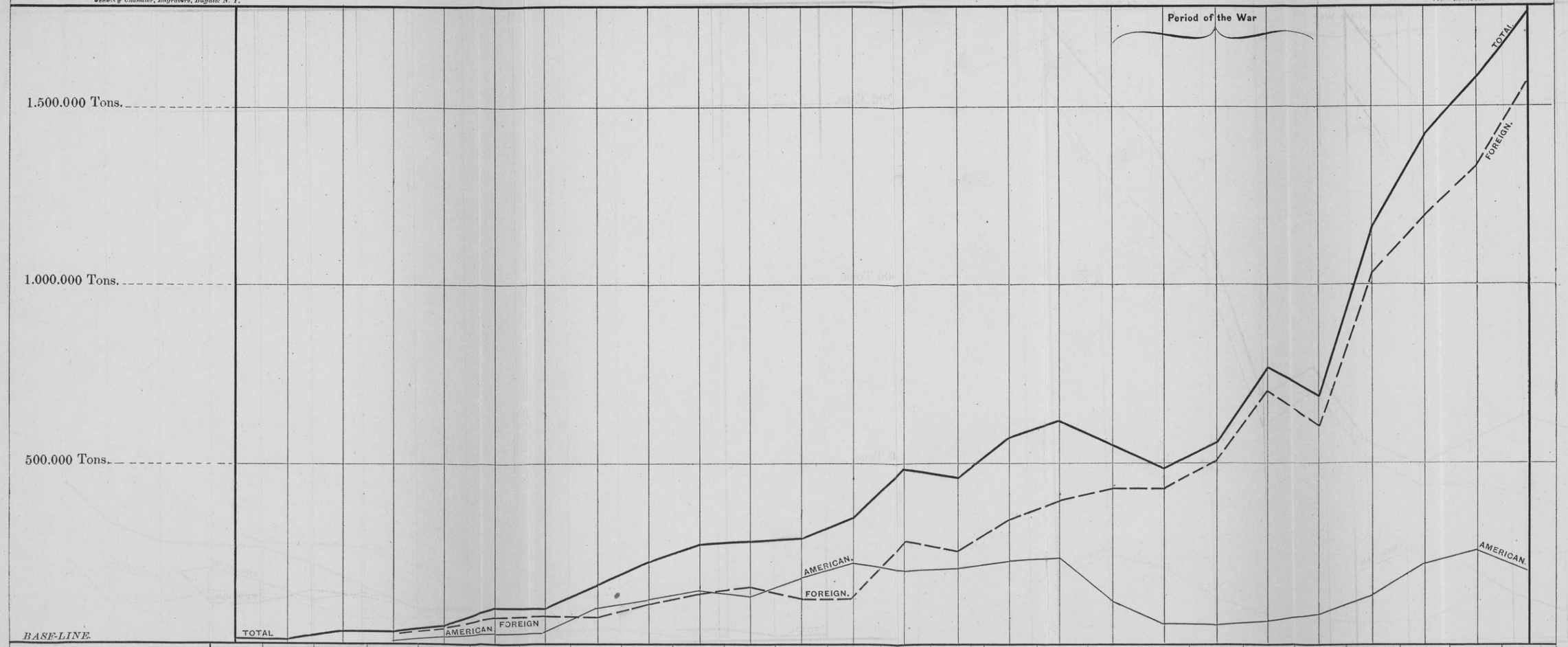
Jewett & Chandler, Engravers, Buffalo, N. Y. *Jos Nimmo Jr.*



YEAR,	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL TONNAGE,	1,834,296	1,947,460	1,920,943	2,337,209	2,390,951	2,707,641	2,755,580	3,065,788	3,428,256	3,573,642	3,783,808	3,649,571	3,873,123	4,138,028	3,686,983	4,140,854	4,104,598	3,787,688	3,444,927	3,405,995	3,108,364	2,854,802	3,569,023	3,512,990	3,588,074	3,822,156
FOREIGN TONN.,	553,398	571,270	570,905	864,753	816,221	1,058,918	1,204,933	1,306,052	1,319,392	1,359,197	1,266,316	1,078,334	1,129,409	1,054,772	1,015,681	1,232,701	1,389,121	1,079,531	1,101,158	1,378,594	1,789,309	1,595,361	2,085,430	1,913,056	1,771,151	2,003,558
AMERICAN TONN.,	1,280,898	1,376,190	1,350,038	1,472,456	1,574,730	1,648,723	1,550,647	1,759,736	2,108,864	2,214,445	2,517,432	2,571,237	2,743,714	3,083,256	2,671,302	2,908,153	2,715,477	2,708,157	2,343,769	2,027,401	1,319,055	1,259,441	1,484,193	1,599,934	1,816,923	1,818,598
Per Cent, American,	60	70	70	62	65	60	56	57	61	65	66	70	70	74	72	70	66	71	68	59	39	51	41	45	49	49

TONNAGE of AMERICAN and FOREIGN STEAM VESSELS, entered at SEA-PORTS of the UNITED STATES from FOREIGN PORTS, from 1844 to 1869.

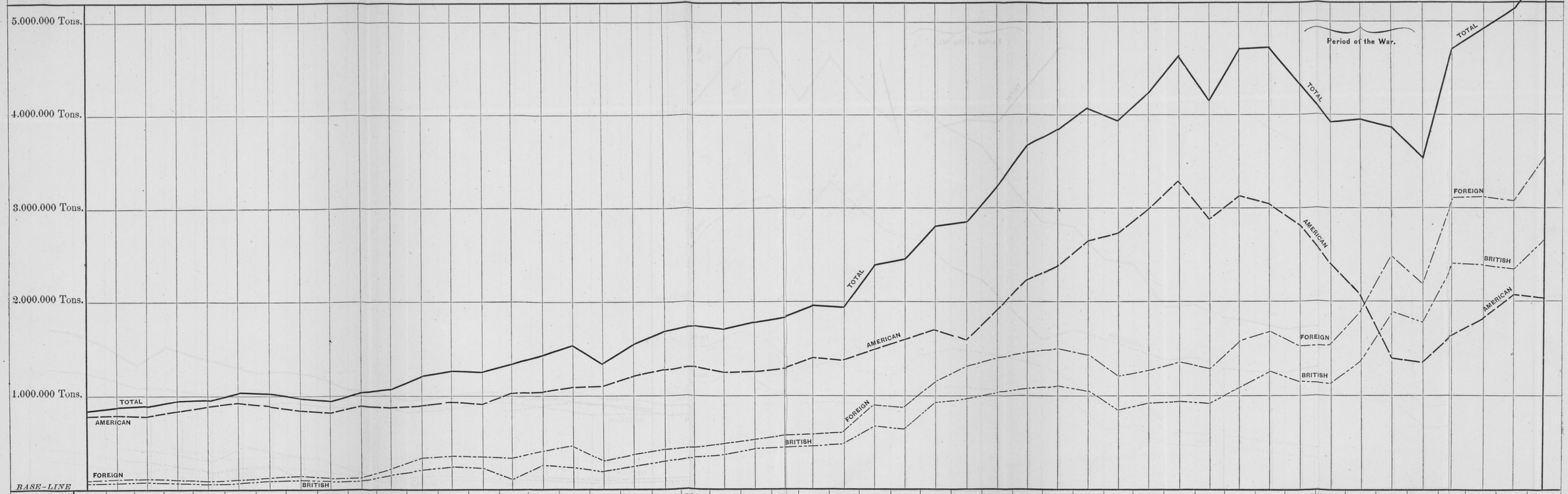
Jewett & Chandler, Engravers, Buffalo: N. Y. — Jos. Nimmo, Jr.



YEAR,	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL TONNAGE,	4,572	3,780	28,496	21,236	53,971	90,698	89,643	160,989	224,632	272,449	281,376	295,896	345,413	484,012	463,149	566,099	621,424	547,304	485,148	554,073	764,719	682,968	1,151,295	1,415,159	1,572,640	1,761,077
FOREIGN,	4,572	3,780	28,496	21,236	41,357	69,897	70,462	69,201	105,737	132,444	151,346	120,118	120,655	282,875	254,748	329,016	391,016	432,701	428,410	503,927	706,038	603,004	1,021,771	1,196,863	1,316,572	1,559,239
AMERICAN,					12,614	20,801	19,181	91,788	118,895	140,005	130,030	175,778	224,758	201,137	208,401	227,083	230,408	114,603	56,738	50,146	58,681	79,964	129,434	218,296	256,068	201,838
Per Cent, American,					21	22	22	57	53	51	46	59	65	41	45	40	37	20	11½	9	7½	11½	11	15	16	11½

THE DECADENCE OF AMERICAN SHIPPING:

THE TONNAGE OF AMERICAN AND FOREIGN VESSELS, ENTERED AT SEA-PORTS OF THE UNITED STATES, FROM FOREIGN COUNTRIES, 1821 TO 1869.



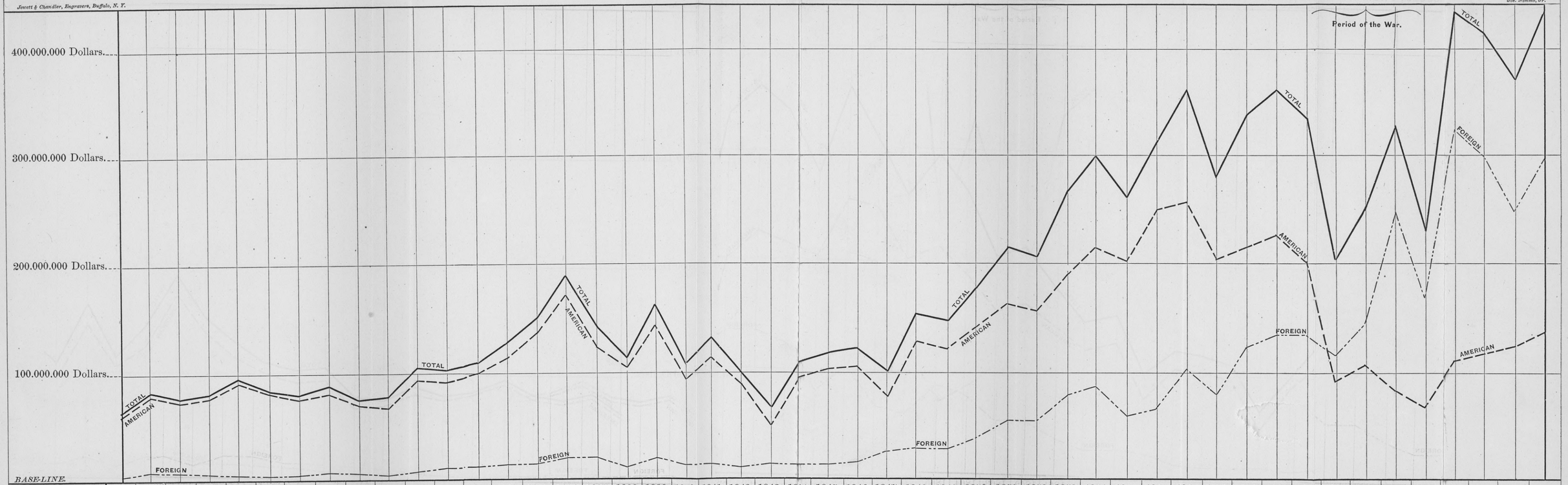
YEAR,	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	846,624	888,502	894,739	952,400	973,681	1,040,240	1,030,050	989,259	945,748	1,019,311	1,071,721	1,214,148	1,360,387	1,247,625	1,321,268	1,410,070	1,534,273	1,374,150	1,545,073	1,673,103	1,721,134	1,704,034	1,773,450	1,838,968	1,951,340	1,949,439	2,358,445	2,443,922	2,798,339	2,845,223	3,226,777	3,652,888	3,846,091	4,064,184	3,945,467	4,218,536	4,622,030	4,150,132	4,706,953	4,726,022	4,334,992	3,930,075	3,960,068	3,873,083	3,537,770	4,79,928	4,928,149	5,160,714	5,583,233
AMERICAN,	765,098	787,961	775,271	850,033	880,754	936,276	898,617	842,480	822,128	895,694	861,854	899,930	930,956	924,857	1,013,473	1,028,004	1 065,730	1,094,480	1,188,817	1,263,771	1,294,294	1,223,432	1,261,735	1,28898	1,376,190	1,350,038	1,472,456	1,586,344	1,669,523	1,569,828	1,851,534	2,227,749	2,354,450	2,646,462	2,747,014	2,968,472	3,284,388	2,879,703	3,135,286	3,045,885	2,822,760	2,400,507	2,077,547	1,377,736	1,390,405	1,63,627	1,818,230	2,072,991	2,020,436
FOREIGN,	81,526	100,541	119,468	102.367	92,927	103,964	131,433	146,779	123,620	123,617	209,867	314,218	338,431	322,768	307.795	381,966	448.543	279.670	356,256	409,332	426,840	480,602	511,716	55970	575,050	599,401	885,989	857,578	1,128,816	1,275,395	1,375,253	1,425,139	1,491,641	1,417,722	1,198,452	1,250.064	1,337,647	1,270,429	1,571,717	1,680,137	1,512,232	1,529,568	1,882,521	2,495,347	2,198,365	3,17,901	3,109,919	3,087,723	3,562,797
BRITISH,	55.188	70,669	89,553	67.351	63,036	67,605	92,958	100,728	79,154	78,947	143,806	206.066	225,213	208,215	196,407	246,527	224,860	172,262	226,795	276,461	305,891	347,329	403,397	407325	424,582	453,579	659,203	629,840	901,595	954,071	1,006,218	1,053,126	1,090,021	1,035,898	847,314	909,881	944,608	906,041	1,086,043	1,244,626	1,127,408	1,123,185	1,341,438	1,809,816	1,779,996	2,46,812	2,307,741	2,335,414	2,652,950
Per Cent Amer.	90	88	86	89	90	90	87	85	88	87	80	74	73	74	76	80	73	79	76	76	74	71	71	69	70	69	62	64	59	55	54	60	60	65	69	70	71	69	66	64	65	61	52	35	37	34	36	40	36

THE DECADENCE OF AMERICAN SHIPPING:

VALUE OF IMPORTS INTO THE UNITED STATES, IN AMERICAN AND FOREIGN VESSELS; FROM 1821 TO 1869.

Jewett & Chandler, Engravers, Buffalo, N. Y.

Jos. Nimmo, Jr.

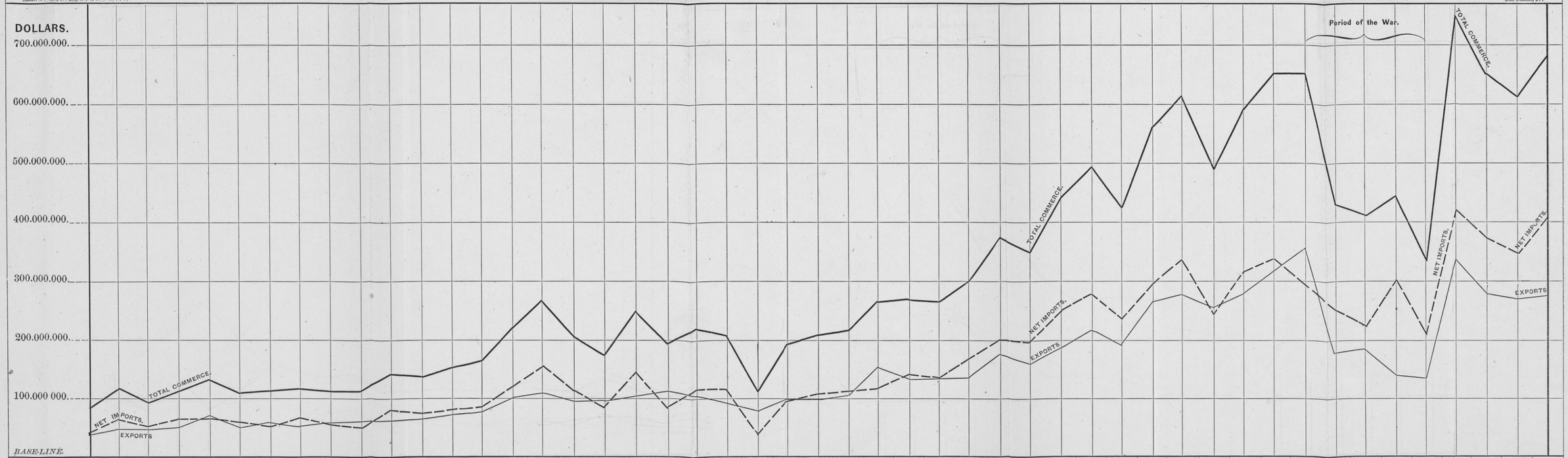


YEAR,	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
													Value of Imports in Thousands of Dollars.																																									
Total Imports,	62,585	83,241	77,579	80,549	96,340	84,974	79,484	88,509	74,492	70,876	103,191	101,029	108,118	126,521	149,895	189,980	140,989	113,717	162,092	107,141	127,946	100,162	64,753	105,435	117,254	121,691	101,581	154,998	147,857	178,138	216,224	208,296	267,978	301,494	261,468	314,639	360,890	282,613	338,768	362,166	335,650	205,771	252,919	329,562	234,434	437,640	417,831	371,624	437,309
Imports in AMERICAN VESSELS,	58,025	76,984	71,511	75,265	91,902	80,778	74,965	81,951	69,325	66,035	93,962	90,298	98,060	113,706	135,288	171,656	122,177	103,087	142,874	92,802	113,221	88,724	49,971	94,174	102,438	106,008	76,502	128,647	120,382	139,657	163,650	155,258	191,688	215,376	202,234	249,972	259,116	203,700	216,123	228,164	201,544	92,274	109,744	81,212	66,922	110,469	117,309	122,965	136,844
Imports in FOREIGN VESSELS,	4,559	6,257	6,067	5,283	4,437	4,196	4,518	6,558	5,166	4,841	9,229	10,731	10,057	12,821	14,606	18,323	18,812	10,629	18,217	14,339	14,724	11,437	14,781	11,260	14,816	15,683	25,078	26,351	27,475	38,481	52,574	53,038	76,290	86,117	59,233	64,667	101,773	78,913	122,644	134,001	134,106	113,497	143,175	248,350	168,111	327,170	300,622	248,659	300,465
PER CENTAGE IN AMERICAN VESSELS,	93	93	92	94	94	95	95	93	93	86	91	91	91	90	90	90	90	91	89	87	89	88	77	87	87	87	75	83	82	78	76	74	72	71	70	80	72	72	64	63	60	44	42	25	28	25	27	33	31

THE FOREIGN COMMERCE OF THE UNITED STATES:

The NET IMPORTS of FOREIGN MERCHANDISE, and EXPORTS of DOMESTIC MERCHANDISE, from 1821 to 1869, (Gold Rates.)

Jewett & Chandler, Engravers, Buffalo, N. Y. — Jos. Nimmo, Jr.



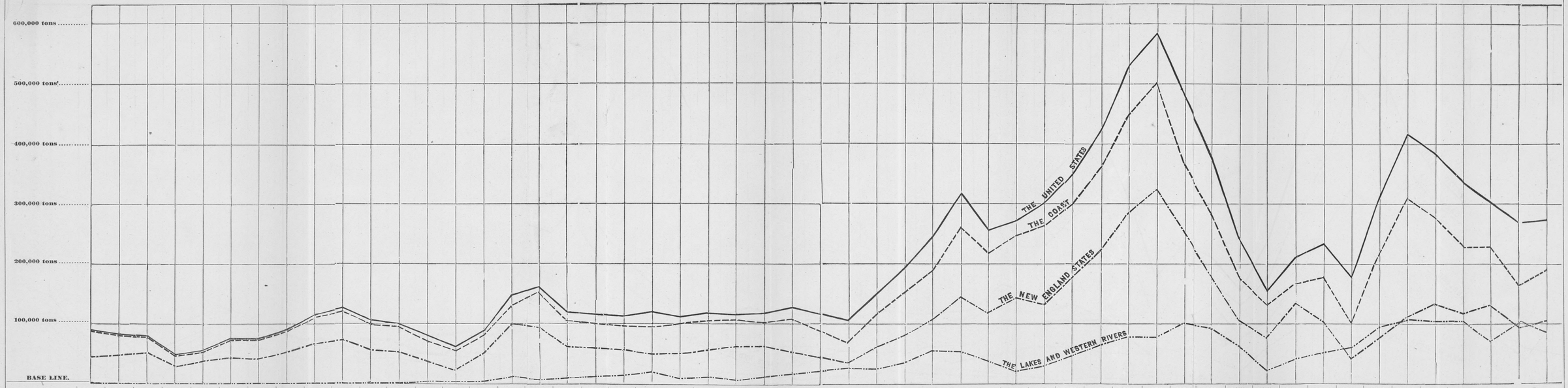
Values, in Thousands of Dollars.

YEAR,	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869
TOTAL,	87,367	118,269	98,466	113,495	133,339	110,110	112,779	116,951	109,828	108,099	142,026	137,053	153,400	167,596	222,466	265,381	207,590	182,112	247,405	197,910	218,412	206,677	114,909	195,921	204,054	211,766	266,831	270,854	264,275	298,934	379,096	350,317	440,026	491,078	424,401	562,088	612,418	494,029	595,215	652,524	650,781	432,937	409,788	442,760	341,273	757,968	654,318	616,591	692,274
IMPORTS,	43,696	68,395	51,311	62,846	66,395	57,661	54,901	66,975	54,741	49,575	82,808	75,327	83,450	86,973	122,007	158,811	113,310	86,552	145,870	86,250	114,776	114,878	37,223	96,390	105,599	110,048	116,257	140,651	132,565	164,034	200,476	195,387	250,157	277,093	231,650	295,650	333,511	242,678	316,823	336,282	291,745	250,738	225,375	301,115	209,656	423,470	374,943	347,549	406,541
EXPORTS,	43,671	49,874	47,155	50,649	66,944	52,449	57,878	49,976	55,087	58,524	59,218	61,726	69,950	80,623	100,459	106,570	94,280	95,560	101,535	111,660	103,636	91,799	77,686	96,531	98,455	101,718	150,574	130,203	131,710	134,900	178,620	154,930	189,869	213,985	192,751	266,438	278,907	251,351	278,392	316,242	359,036	182,209	184,413	141,645	131,617	334,498	279,375	269,042	275,733
Per Cent of Exports,	50	41	48	45	50¼	48	51¼	43	50	54	42	45	46	49	45	40	45	52	41	56	47	44	67	51	48	48	56	51	50	45	47	44	43	43	45	47	46	51	47	48	55	42	45	32	39	44	43	44	40

THE PROGRESS OF SHIP-BUILDING IN THE UNITED STATES, FROM 1817 TO 1869, INCLUSIVE.

THE PERIOD OF THE WAR.

Jos. Nimmo, Jr.



	1817.	1818.	1819.	1820.	1821.	1822.	1823.	1824.	1825.	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.	1838.	1839.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.
The United States	86,393	82,421	79,818	47,784	55,856	75,347	75,008	90,939	114,997	126,438	104,343	98,376	77,099	58,084	85,763	144,539	161,626	118,330	115,978	113,627	122,987	113,135	120,989	118,309	118,894	129,084	116,310	103,537	140,018	188,204	243,733	318,076	256,577	272,219	298,204	351,493	425,571	535,636	583,450	469,394	378,805	242,287	156,602	212,892	233,194	175,076	310,884	415,741	378,246	336,147	303,529	273,375	275,230
The Coast	85,144	82,232	79,551	47,696	55,607	75,242	73,942	89,166	112,616	121,908	99,343	95,349	71,655	52,086	80,541	130,064	153,455	105,683	101,906	98,130	98,997	100,074	107,232	169,706	103,576	108,302	90,017	71,732	116,156	149,332	185,493	262,581	217,261	247,847	264,379	300,677	356,733	455,136	505,052	368,681	285,453	177,353	133,294	169,836	179,767	112,487	215,505	310,421	275,336	233,388	230,810	172,512	191,194
The Western Lakes and Rivers	1,250	189	267	88	249	105	1,066	1,773	2,381	4,530	5,000	3,027	6,044	5,398	5,222	14,475	8,171	12,647	14,072	15,497	23,990	13,061	13,757	8,693	15,318	20,782	26,293	31,805	29,862	38,872	58,240	55,495	39,313	24,372	33,895	50,816	68,839	80,500	78,398	100,715	93,392	64,934	23,308	43,056	53,427	62,589	95,379	105,220	102,910	103,758	72,719	100,764	84,636
The Lakes	1,250	189	267	88	249	105	403	511	627	2,044	1,239	573	729	881	812	2,143	2,485	4,473	3,753	3,632	4,949	3,887	3,493	1,786	3,118	4,260	5,385	6,509	9,634	13,312	27,901	24,429	19,414	7,778	7,867	11,241	31,508	43,306	45,427	63,926	51,498	31,642	6,180	11,992	23,467	53,804	67,972	49,151	36,334	33,204	37,613	56,798	49,460
The Western Rivers							663	1,262	1,754	2,486	3,761	2,454	5,315	4,517	4,410	12,332	5,086	8,174	10,319	12,465	19,041	9,174	10,264	6,817	12,200	16,520	20,908	25,296	20,908	25,560	30,339	31,056	19,899	16,594	25,958	39,575	37,331	37,194	32,971	36,782	41,854	33,292	17,128	31,064	29,960	8,785	27,407	56,169	66,576	76,554	35,106	43,965	34,576
The New England States	46,605	48,823	50,614	29,353	36,651	44,206	42,725	52,445	65,616	72,668	57,156	54,982	38,117	24,169	49,793	100,585	95,143	61,779	60,054	58,330	51,981	53,054	59,204	65,189	63,770	56,234	46,251	36,268	63,835	82,347	104,682	146,111	120,234	142,367	133,349	179,801	222,789	289,598	326,429	252,971	183,625	103,862	79,322	134,989	104,675	45,595	79,576	112,611	139,885	121,333	135,189	98,708	103,604