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FROM SAIL TO STEAM:
Shipbuilding in the Pittsburgh Area, 1790-1865

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THE construction of ocean-going vessels was an unusual and romantic aspect of Pittsburgh's economic development. Shipbuilding in Pittsburgh and the surrounding region generally coincided with periods of American maritime expansion and commercial growth. It took place also during a time of vigorous technological advancement in which the steam engine began to revolutionize the means of ships' motive power, and iron started to replace wood as the chief construction material for ships' hulls.

Americans along the eastern seaboard theorized about the possibilities of building ocean-going craft on the western rivers. As early as 1761, when no more than a handful of settlers had filtered through the Alleghenies, a Philadelphia publication, *Father Abraham's Almanac*, predicted that Fort Pitt eventually would become a leader in western shipbuilding. Benjamin Franklin suggested in 1770 that sloops and schooners be built on the Ohio River for the West Indies trade. However, none of these proposals materialized until the 1790s.¹

Cut off from markets in the east by a nearly impenetrable mountain barrier, the early residents of the upper Ohio Valley accumulated an agricultural surplus. Water transportation down the Ohio and Mississippi, usually by flatboats or crude rafts, enabled western farmers to sell their goods in New Orleans, and from that port the

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1 Charles H. Ambler, *A History of Transportation in the Ohio Valley* (Glendale, Calif., 1932), 81-82; Leland D. Baldwin, "Shipbuilding on the Western Waters, 1793-1817," *Mississippi Valley Historical Review* 20 (June 1933): 29-30 (hereafter cited as Baldwin, "Shipbuilding").

products were transshipped to the east coast or other destinations. Though slow and roundabout, the rivers provided a relatively inexpensive means of getting commodities to distant markets.²

Boatbuilders supplied the vessels required for inland navigation. Among the influx of recent settlers in the Pittsburgh area prior to 1790 were former shipwrights from New England and the Chesapeake Bay, bringing with them considerable knowledge of the shipbuilder's craft. The September 30, 1786, edition of the *Pittsburgh Gazette* carried an advertisement for Joseph Chester, a boatbuilder who had opened a yard opposite the mouth of Little Redstone Creek near present-day Brownsville. The establishment was billed as capable of making "all kinds of keel and other boats, in the most improved manner and at the shortest notice." In the spring of 1788, John Perry advertised his yard on the Monongahela River near the mouth of Turtle Creek, "within ten miles of Fort Pitt," and the firm of Turnbull, Marmie and Company in Pittsburgh announced the sale of "several Kentucke Boats." Meanwhile, Stephen Bayard constructed boats at Elizabeth, a new community on the Monongahela above Pittsburgh. He noted that "four of the first carpenters and boat builders from Philadelphia are now employed in the boatyard, . . ." Operations of this sort generated the expertise required for later shipbuilding activities.³

In addition to experienced workers, the Pittsburgh vicinity was rich in the resources necessary for the construction of ocean vessels. Black walnut was common along the banks of the Monongahela, and it made excellent material for shaping the frames of ocean-going craft. Along the Allegheny River there were great stands of white pine and hemlock. An early account found that "these are noble trees . . . remarkably tall and straight, . . . They are well calculated for the masts of ships. . . ." Many river towns, including Pittsburgh, had rope walks capable of supplying cordage for ships' rigging. Iron for ships' fittings at first had to be imported from the east, but later domestic iron was available from Pittsburgh forges. Locally grown flax provided the raw material for linen sailcloth.⁴

No one knows for certain when or where the first ship was built

2 George Rogers Taylor, *The Transportation Revolution, 1815-1860* (New York, 1951), 56-57; Leland D. Baldwin, *The Keelboat Age on Western Waters* (Pittsburgh, 1941), 40-42, 47-49 (hereafter cited as Baldwin, *Keelboat Age*).

3 *Pittsburgh Gazette*, Sept. 30, 1786, Feb. 16, 23, Apr. 19, 1788.

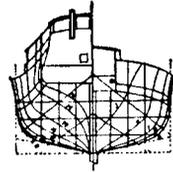
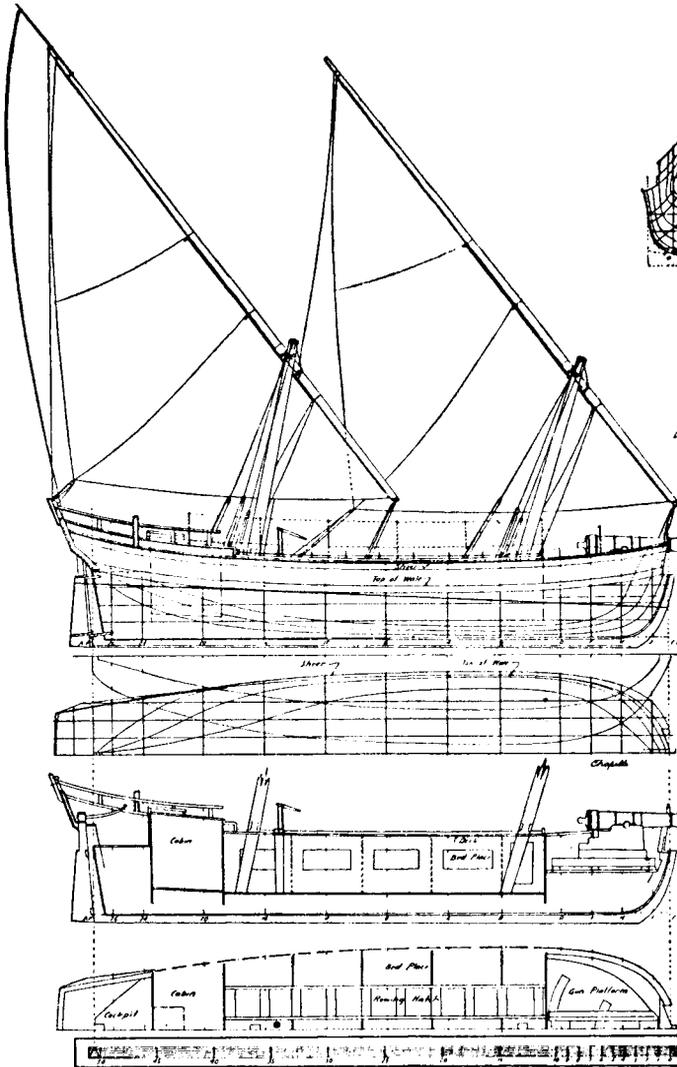
4 Zadok Cramer, *The Navigator*, 8th ed. (Pittsburgh, 1814), 23, 60.

in the Pittsburgh area. Albert Gallatin recalled that a schooner constructed on the Monongahela between Pittsburgh and Brownsville descended the Ohio and Mississippi and "arrived safely in Philadelphia" in 1793. Leland Baldwin has noted that the sloop *Western Experiment*, built on the Monongahela, appeared in the *Lexington Kentucky Gazette* in 1792, also bound for Philadelphia. There is evidence of another early ship, probably constructed by John Walker at the Bayard yard in Elizabeth. As a boy, John Walker came west with his father from Delaware in 1785, and in the early 1790s associated with Stephen Bayard at Elizabeth. According to a Spanish passport issued to Walker in July 1795, he booked as a passenger on the schooner *Polly* sailing for Philadelphia, a fact which R. T. Wiley has used to suggest that *Polly* was among the first ocean craft constructed west of the Alleghenies.⁵

International problems flaring up later in the decade may have retarded shipbuilding in the Upper Ohio Valley. By the terms of the 1795 Pinckney Treaty, Spain had granted Americans the right of deposit at New Orleans, but three years later she rescinded the concession. Preparing for the possibility of war with Spain, Congress authorized the president on May 4, 1798, to build or purchase up to ten war galleys and appropriated the sum of \$80,000 to that end. Two of the oared vessels were built in Pittsburgh under the supervision of Major Isaac Craig. The first, *President Adams*, was launched on May 19, 1798. Designed by Samuel Humphreys, *President Adams* measured fifty feet six inches overall, had a fourteen-foot beam, and a draft of six feet eight inches. Her rig included two masts with lateen sails, and she mounted a single eighteen pounder in the bow, complemented by four brass three-pounder swivels on the quarterdeck rail.

Two months later, the second galley, *Senator Ross*, was ready for launch, but, according to a letter from Major Craig, there was "not water enough to float her." The rivers continued to fall throughout the remainder of 1798, and it was not until March 25 of 1799 that the warship was finally put in the water. Built along different lines from *Adams*, *Senator Ross* was fifty-six feet long, fourteen feet six inches wide, and drew only five feet eight inches of water. The armament of the vessel consisted of a twenty-four pounder forward in addition to

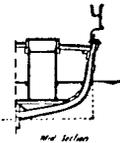
5 Albert Gallatin, "Report on Roads and Canals," *American State Papers, Miscellaneous*, 1: 732; Baldwin, *Keelboat Age*, 161; Richard T. Wiley, "Ship and Brig Building on the Ohio and Its Tributaries," *Ohio Archaeology and Historical Quarterly* 22 (Jan. 1913): 60-61.



Galley 1799
by J. Humphreys

Length 61' 6" (top of mast) 21' 6"
Depth, subject to plow-line 6' 6"

Reference 108 & 9
Humphreys' Papers



Deck
14' 3" from P.P. 2' 1.5" from P.P.
16' 11" 8.5" A.P. Stern & Space 4' 8"
Top edge, frame out 5' 7" inside mainmast
Stern cross 8' 10" 18' 2" mark 10' 4" main
Arch
Waterlines spaced 10"
Deck
24' 10" length
4' 10"
8' 10"
Thru. stem with rope ground
3" dia. Mast-eyes
18 or 20 pair guns
One part in stern
Two rails, to yard

Reprinted, by permission, from Howard I. Chapelle, *The History of the American Sailing Navy: The Ships and Their Development*, p. 152. © 1949, by W. W. Norton & Company, Inc.

Plan of row galley *President Adams*, 1798. The second Pittsburgh galley, *Senator Ross*, launched in 1799, was similar. Joshua Humphreys's son Samuel is credited with the design for both ships.

quarterdeck swivels. Even though Craig's son Neville later wrote that "these were the first vessels capable of a sea voyage" built in Pittsburgh, the galleys were used mostly as revenue cutters on the lower Mississippi and were of little value along the coast or at sea.⁶

Although Spain's restoration of the right of deposit at New Orleans in 1799 meant that no additional galleys were built at Pittsburgh, the action of the Spanish reopened river traffic in the west. Simultaneously American commerce and shipping flourished. Encouraged by the prospects of the export trade, merchants in the Pittsburgh area approached boatbuilders for the construction of ocean craft. At the Chester yard in Brownsville, Samuel Jackson financed the schooner *Redstone*, forty-five feet in length, in the latter part of 1800. Newspaper accounts show her riding at anchor on the Monongahela near Pittsburgh in March 1801, and by June the vessel had passed the Falls of the Ohio at Louisville. Another ship, *Monongahela Farmer* (100 tons), was begun by John Walker at Elizabeth in the summer of 1800. Owned by a consortium of farmers known as the Monongahela Company, the ship was nearly complete in August, but various delays postponed her launch until April 23, 1801. With Walker himself in command, the little schooner stopped briefly at Pittsburgh on May 13, loaded with 750 barrels of Elizabeth flour, and in August the ship safely negotiated the Falls. Later Walker sold the vessel at New Orleans and returned to Elizabeth to construct *Ann Jane*, a large brig of 450 tons burden. Two Pittsburgh merchants, Robert and James McFarland, purchased the craft, which in May 1804 sailed for New York with Walker serving as master. *Ann Jane* proved an exceptionally fast sailer, reportedly putting in years of good service between New Orleans and New York.⁷

In the early years Pittsburgh shipbuilding was almost entirely

6 U.S., Congress, *Annals of the Congress of the United States*, 5th Cong., 1797-99, 2 (Washington, 1851): 3727; "Memorials of Major Isaac Craig" (bound collection of manuscripts, handwritten narrative by Neville Craig, 1859), 16-17, Neville B. Craig Family Papers, Historical Society of Western Pennsylvania, Pittsburgh (hereafter cited as HSWP); *Pittsburgh Gazette*, June 9, 1798, Mar. 30, 1799. See also Howard I. Chapelle, *The History of the American Sailing Navy: The Ships and Their Development* (New York, 1949), 151-53.

7 *Pittsburgh Gazette*, Mar. 28, 1801; *Tree of Liberty* (Pittsburgh), June 6, 1801. For *Monongahela Farmer* see *Pittsburgh Gazette*, Aug. 23, 1800, May 15, 1801; *Elizabeth Herald*, June 7, 1900; Walker to his wife, Louisville, Aug. 26, 1801; and receipt for sale of "Schooner Monongahela Farmer," New Orleans, May 17, 1802, John B. Walker Papers (in the possession of Mr. Albert Walker, Elizabeth, Pa.). *Ann Jane* (or sometimes *Ann Jean*) was mentioned in *Pittsburgh Gazette*, May 25, 1804.

indigenous; only local money and resources were utilized by the industry. After 1801 or 1802, however, this changed with the introduction of eastern capital. Louis Anastasius Tarascon, a French merchant from Philadelphia, had investigated the suitability of Pittsburgh for shipbuilding. In September 1802, Louis and his brother John joined with James Berthoud to create the firm of Tarascon Brothers, James Berthoud and Company. The Tarascons shortly thereafter opened a fairly extensive shipyard on the Monongahela a short distance above Pittsburgh, and in November they advertised for a quantity of white-oak ship planks and pine boards to be used for the decks of ocean-going vessels. On December 24, 1802, the company launched the 100-ton schooner *Amity*, designed and constructed by Eliphalet Beebe, followed on February 8, 1803, by the ship-rigged *Pittsburgh* (270 tons), reputed to be "the largest vessel that ever floated on these waters." *Amity* departed Pittsburgh on April 28, 1803, in the command of Samuel McCutcheon, bound for St. Thomas, Danish West Indies, her hold filled with local flour. *Pittsburgh* left the same day for Lisbon, captained by James McKeever. Both ships arrived together at Louisville and passed the Falls on May 3, having completed a 700-mile journey in six days.⁸

The Tarascon firm continued building ships in 1804. On January 5 the brig *Nanina* (150 tons) was launched. She sailed from Pittsburgh with Samuel McCutcheon as master and arrived at Limestone (Maysville, Ky.) "all well." On March 30, the ship *Louisiana* (300 tons) was completed by the Tarascons. She left on the following day for Marietta, Ohio, where she was turned over to her owners and renamed *Louisiana of Marietta*. The records and logs of the vessel have been preserved, and they document her later service. After taking on a load of cotton at the mouth of the Cumberland River, *Louisiana of Marietta* put in at New Orleans before proceeding to Norfolk, Virginia. From there the vessel set sail for Liverpool and later engaged in the Mediterranean trade. The far-ranging ship ultimately found her way to Philadelphia but, like all Pittsburgh-made vessels, never returned to her original home port.⁹

8 *Pittsburgh Gazette*, Sept. 24, Nov. 26, 1802, Feb. 11, 1803; *Tree of Liberty*, Sept. 25, 1802, Apr. 30, May 21, 1803.

9 *Ibid.*, Jan. 7, Apr. 21, 1804. The launch of *Louisiana* appeared in *ibid.*, Apr. 7, 1804. Accounts of her subsequent voyages are detailed in Baldwin, "Shipbuilding," 35-36, and Archer B. Hulbert, "Western Ship-Building," *American Historical Review* 21 (July 1916): 726-27. While no ships ascended the rivers as far as Pittsburgh, the ship *Mary* of Boston reached Natchez in 1803; *Pittsburgh Gazette*, Feb. 25, 1803.

Another vessel constructed by the Tarascons was the schooner *Conquest* (126 tons), launched on April 1, 1804. Owned by the prominent Pittsburgh merchant, James O'Hara, and pierced for eighteen guns, *Conquest* sailed from Pittsburgh on April 4 with a cargo of flour for the West Indies. Her voyage downriver was marred by an incident between the master, Captain Kenny, and members of the crew. Kenny had been drinking heavily since the schooner's departure and upon reaching Marietta was involved in a violent argument with one of the ship's mates. The altercation concluded when the captain tossed the mate overboard, whereupon the entire crew mutinied and refused to go farther. After Kenny hired "landlubbers" to man her, *Conquest* completed the journey but not before grounding on a sand bar and requiring the assistance of a lighter sent out from Marietta to free her.¹⁰

The Tarascons built two additional ships for James O'Hara. The first, the ship *General Butler* (400 tons), lay at anchor at Pittsburgh on March 4, 1805, with a cargo of locally manufactured glass. The latter was disposed of at intermediate ports, and at Natchez the vessel took on a cargo of cotton for Liverpool. O'Hara's orders to the ship's master, Captain Lake, specified that the vessel be sold at Liverpool, but low prices prevented this. In 1807, while on a voyage from New Orleans to Greenock, Scotland, with more cotton, *General Butler* was intercepted by a Spanish warship and impounded at Vera Cruz. A second ship, the small schooner *Betsey O'Hara* (100 tons) was constructed the next year. She passed the Falls at Louisville on March 24, 1806, laden with flour for New Orleans and later was reported to have engaged in trade between Baltimore and the West Indies.¹¹

Pittsburgh shipbuilding reached its zenith between 1803 and 1810. Following the Louisiana Purchase, westerners gained free access to New Orleans and thereby the commercial centers of the east coast. The Tarascons built several more vessels in Pittsburgh, including the ship *Western Trader* (410 tons) and possibly the 150-ton brig *Black Walnut* in 1806. In late 1806, John Nicholson acquired the Tarascon yard and on May 13, 1807, launched the tiny 50-ton schooner *Experiment*, owned by the Pittsburgh merchants James and Crosky. Nicholson announced that he had procured a "large supply of excellent sea-

10 *Tree of Liberty*, Apr. 7, 1804; John Watson to James O'Hara, Marietta, Apr. 11, 1804, James O'Hara Papers, HSWP.

11 Mrs. M. Carson (O'Hara) Darlington, *Fort Pitt and Letters From the Frontier* (Pittsburgh, 1892), 216-17; *Pittsburgh Commonwealth*, Mar. 26, 1806.

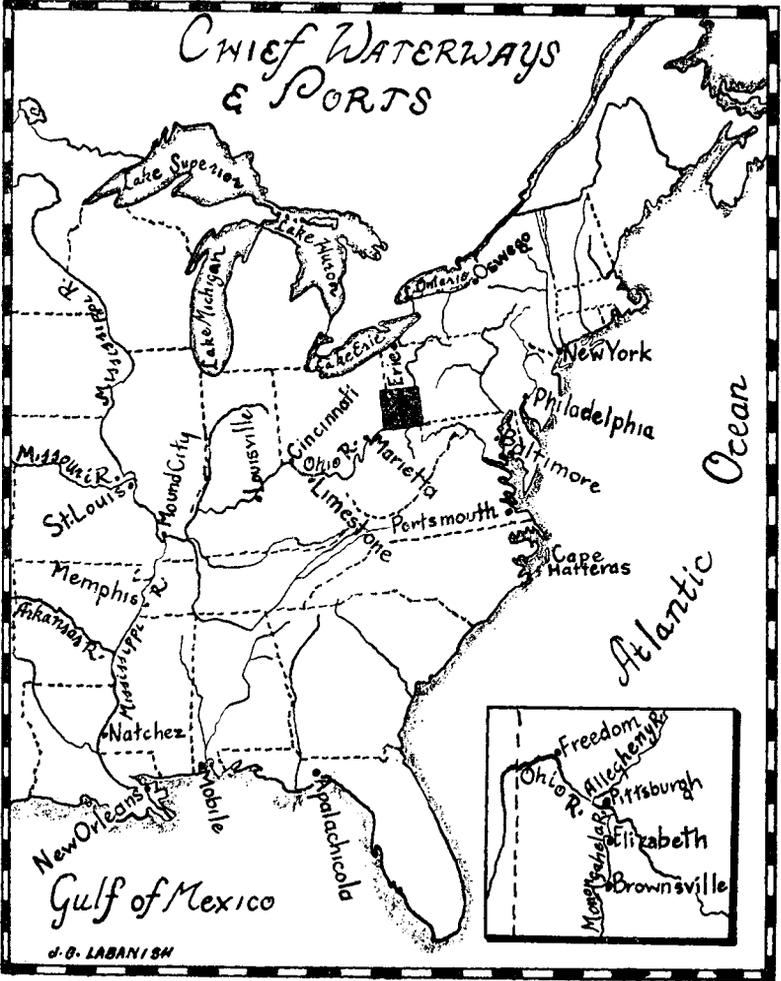
soned timber” and “employed experienced and capable workmen” to produce the finest ocean craft at the most moderate prices. While these activities took place on the Monongahela, another yard operated by Brintley Robbins turned out ships on the Allegheny near Plum Creek about twelve miles above Pittsburgh. Robbins’s business probably constructed the brig *Dean* (170 tons), which on January 16, 1803, sailed from Pittsburgh for the Cumberland to pick up cotton for Liverpool. In later years Robbins may have been responsible for the schooner *Allegheny* and in November 1810 he did launch a 160-ton brig.¹²

In 1803 “boatbuilding” (which one assumes included shipbuilding) held a position of third among Pittsburgh’s increasingly diversified industries. According to one estimate, the yearly value of boatbuilding enterprises was \$40,000. By 1810 this figure had climbed to \$43,000, but in rank boats had slipped to fourth among Pittsburgh’s leading products, trailing iron, leather, and glass. Zadok Cramer noted the presence of “8 boat, barge and ship builders” in Pittsburgh in 1808 and described the booming town as “a place of general deposit for goods going from the seaports to the Westward. By an act of Congress, it is made *A Port of Clearance* for all goods, wares, &c.” William Mason’s beautiful 1805 map portrayed Pittsburgh at the height of early shipbuilding. The map plainly showed a dozen ocean-going vessels, all of them rigged with full complements of sails, as well as a sizable establishment on the Monongahela labeled the “William Greenough Ship Yard.”¹³

Just as shipbuilding seemed to have been firmly established in Pittsburgh, it went into a sharp decline around 1810. After selling their yard to Nicholson, the Tarascon brothers, continuing the partnership with James Berthoud, reopened business at Shippingport on the Ohio near Louisville. At the latter location they set up a flour mill, a rope walk, and a shipyard that carried on a “brisk business” for a number of years. But Pittsburgh was not so fortunate. In reference to

12 *Ibid.*, June 3, 1807; *Pittsburgh Gazette*, Jan. 21, 1803; *Tree of Liberty*, Mar. 19, 1803; *Navigator*, 8th ed., 21.

13 Catherine Reiser, *Pittsburgh’s Commercial Development, 1800-1850* (Harrisburg, 1951), 14-15; *Navigator*, 6th ed., 1808, 39 (emphasis is Cramer’s). The Mason (or Masson) map hangs in the Historical Society of Western Pennsylvania. There is no direct evidence that the wind actually drove these ships on Pittsburgh waters; even though most builders finished the vessels with masts and spars in place, they used sweeps or long oars to make their way to Natchez or New Orleans where the sails were broken out. Mason was a well-known local sailmaker who most likely used the map to advertise his wares.



the town after 1810, Cramer remarked: "At one time shipbuilding was carried on with considerable spirit; whether this has been relaxed in consequence of the war [War of 1812], or from its having been shown by experience not to be profitable, is not well known." Elizabeth also declined as a shipbuilding center. According to Cramer: "Here is a boat yard, out of which were launched the 'Monongahela Farmer,' and the brig 'Ann Jean.' The town does not thrive much." Census figures for 1810 showed only twenty-seven tons of shipping in Fayette County, worth \$2,430, and seventy tons for Washington County, worth an indeterminate sum. No shipping at all was shown for either Pittsburgh or Allegheny County.¹⁴

What brought about the end of Pittsburgh shipbuilding in the second decade of the nineteenth century? Zadok Cramer attributed its cessation to the steamboat. The first such vessel in the west was *New Orleans*, launched at Pittsburgh in 1811, but the steamboat did not really come into its own until after 1820. By 1817 there were only seventeen steamboats in the west, totaling 3,290 tons, and Louis C. Hunter has argued that "above the Falls at Louisville there was little steamboat activity before 1820, . . ." Since upstream voyages were rare even after 1815, the year *Enterprise* returned to Pittsburgh from New Orleans, it would seem that the advent of the steamboat, which in later years did much to solve the transportation problems of the west, was not a direct reason for the decline of Pittsburgh shipbuilding.¹⁵

Other causes, however, can be identified. The foremost was the Embargo Act of December 1807. An attempt on the part of the Jefferson administration to halt American overseas trade in order to avert United States involvement in the European war, the embargo severely curtailed shipping and overseas commerce. The less-restrictive Nonintercourse Act superseded the embargo in early 1809, but the damage had already been done. Exports dropped off markedly; in 1808 the value of American exports fell from \$108 million to \$22.4 million, or less than one-fifth of what they had been in 1807. Shipbuilding throughout the nation suffered as a consequence of the trade restrictions, and the industry in Pittsburgh received a damaging blow

14 Newman F. McGirr, "Tarascon of Shippingport at the Falls of the Ohio," *West Virginia History* 7 (Jan. 1946): 89, 100; also *Navigator*, 6th ed., 74; 8th ed., 66, 43; U.S., Census, *Third Census of the United States, 1810*, v. 2, *Statement of the Arts and Manufactures of the United States*, prepared by Tench Coxe, 60.

15 *Navigator*, 11th ed., 1821, 54; *Steamboats on the Western Rivers: An Economic and Technological History* (Cambridge, Mass., 1949), 43, 33.

from which it did not recover for thirty years.¹⁶

A second contributing factor was the lack of navigational improvements on the upper Ohio River. The Falls of the Ohio were a hazard to all shipping but were an especial danger to deep-draft, rounded-hull, ocean-going ships that were not designed expressly for river travel. Most Pittsburgh vessels were larger than the average American merchantman, which undoubtedly led to the numerous incidents of grounding and striking submerged obstacles. At best, the Falls and chronically low water conditions at certain times of the year were delaying factors that held up vessels and their cargoes for weeks, and even months, at a time. It was not until the 1830s that river navigation was made safer and more convenient by slack-water improvements on the Monongahela and the construction of a canal bypassing the Falls at Louisville.¹⁷

An additional fact is that westerners in general, and Pittsburghers in particular, lacked adequate credit facilities. By 1801 there were thirty state-chartered banks in the United States with a combined capital of \$12 million. In 1811 the number of state banks increased to eighty-eight. But the frontier did not have the number of banks to provide the money necessary for rapid commercial expansion, and many of the banks that did exist were far from sound. The first Pittsburgh bank opened in 1804, and thereafter businessmen and merchants regularly petitioned the state legislature for more financial institutions to handle the growing trade and commerce. Due to the scarcity of capital and the weaknesses of the banking structure, few merchants were willing to invest in the risky business of building ocean-going ships at a place as far from blue water as Pittsburgh.¹⁸ For these reasons, then, shipbuilding was discontinued around 1811; but it proved only a temporary setback, for later in the century ocean-going vessels again were constructed in and around Pittsburgh.

Because the American merchant marine lay dormant for nearly thirty years after 1815, there was little interest in shipbuilding in Pittsburgh. Two developments changed this. First, around 1840 the

16 Trade figures are in U.S., Department of Commerce, *Statistical Abstract of the United States, 1930* (Washington, 1930), 473 (hereafter cited as *Statistical Abstract*). For the effect of the embargo see Baldwin, "Shipbuilding," 42-43, and John G. B. Hutchins, *The American Maritime Industries and Public Policy, 1789-1914* (New York, 1941), 189.

17 Baldwin, "Shipbuilding," 40-42; Hunter, 182-83.

18 Hulbert, 729-30; Reiser, 159-60.

United States underwent a period of phenomenal commercial expansion and maritime growth. This was reflected in increased shipbuilding along the east and Gulf coasts, as well as at river ports such as St. Louis, Cincinnati, Marietta, and Pittsburgh. Second, technological progress at last overtook the shipbuilding industry. Beginning in 1840 the steam engine came into its own as a practical means of ship propulsion, and iron hulls were found stronger, safer, and more durable than those made of wood. An early leader in the iron industry in America, in addition to having the skilled mechanics necessary to put together steam engines and boilers, Pittsburgh shared in the widespread resurgence of shipbuilding in the mid-nineteenth century. In 1838 local newspapers editorialized about the desirability of constructing iron vessels, and the following year the first iron-hulled steamboat, *Valley Forge*, was built at Pittsburgh.

The federal government, however, was primarily responsible for stimulating iron shipbuilding in Pittsburgh. On September 9, 1841, Congress authorized the construction of an iron steam warship for duty on the Great Lakes. In response to this, the navy in late 1841 directed its chief constructor, Samuel Hartt, to furnish preliminary plans and cost estimates preparatory to granting the contract for the vessel. Secretary of the Navy Abel P. Upshur selected Pittsburgh for building the vessel because of its proximity to the Great Lakes and the presence of several well-established iron-working companies. On May 19, 1842, after carefully considering five separate bids, the Board of Navy Commissioners notified the Pittsburgh firm of Stackhouse and Tomlinson that they had permission to go ahead with construction of the warship.¹⁹

The partnership of Stackhouse and Tomlinson had been formed in the late 1830s. Mark Stackhouse came to Pittsburgh around 1815 to work as a designer for one of the town's first steam-engine builders. Joseph Tomlinson was a native of Philadelphia who had organized a machine and foundry business in Pittsburgh. Together, the two pioneered the construction of iron steam warships in the United States. Upon acceptance of the navy contract, Stackhouse and Tomlinson turned to Lyon, Shorb and Company to obtain the iron plates and frames required for the vessel, and actual construction got under

¹⁹ *Daily Pittsburgh Gazette*, Sept. 14, 1838; U.S., Census, *Tenth Census of the United States, 1880*, v. 8, *Report on the Shipbuilding Industry of the United States*, prepared by Henry Hall (Washington, 1884), 215-16; U.S., Congress, Senate, Doc. No. 211 (27th Cong., 2d sess.); House, Doc. No. 238 (27th Cong., 2d sess.).

way almost immediately. The warship was put together in its entirety at the Tomlinson yard on the Allegheny, then broken down and hauled in sections to Erie over the recently opened Beaver Division of the Pennsylvania Canal. Samuel Hartt oversaw the vessel's re-erection at Erie and her launch as U.S.S. *Michigan* on December 5, 1843.²⁰

Built at a cost of \$165,000, *Michigan* was the first iron warship in the United States Navy. She measured 177 feet long overall, had a beam of 27 feet, an 8-foot 6-inch draft, and displaced over 600 tons. She was rigged as a three-masted barkentine but was propelled mostly by a two-cylinder engine and side paddle wheels that drove her through the water at eight knots. Originally the navy had planned to arm her with fourteen guns, but further inquiry revealed that this violated the terms of the 1817 Rush-Bagot disarmament treaty. At her commissioning in August 1844, *Michigan* therefore mounted only two eight-inch Paixhans shell guns and four thirty-two-pounder smooth-bores. The ship put in many long years of service for the navy. In 1905 she was renamed *Wolverine*, and after an engine casualty cut her speed in half, the navy — feeling she was not worth the cost of repairs — struck her from its lists in 1927. The old ship remained tied up at Erie as a tourist attraction until finally broken up for scrap in 1949.²¹

Soon after Stackhouse and Tomlinson initiated work on *Michigan* for the navy, the United States Revenue Marine selected Freeman, Knapp and Totten to construct three iron steamers at the Fort Pitt Foundry works on the Allegheny across from Pittsburgh. The plates and frames for the first of these vessels were set up at the Fort Pitt yard, then taken apart and transported by canal boat to Oswego on Lake Ontario where the final assembly of the ship took place. Christened *Jefferson* upon completion in early 1844, the steam cutter was 150 feet long, 23 feet wide, and drew 7 feet 6 inches of water on a displacement of 343 tons. In the spring of 1844 the Fort Pitt works riveted together the second cutter, a near-sister of *Jefferson*, named *John Tyler*. Steam tugs towed the vessel to New Orleans where she fitted out for service in the Gulf of Mexico.

20 *History of Allegheny County, Pennsylvania* (Chicago, 1889), 291; *Pittsburgh Daily Morning Post*, Sept. 21, 1842. A description of *Michigan's* launch appeared in *Erie Gazette*, Dec. 7, 1843.

21 *Ibid.*, Dec. 14, 1843; Frank F. Fowle, "100th Anniversary of First Iron Steamboat on the Great Lakes," paper presented at the annual meeting of the Western Society of Engineers, Chicago, May 18, 1943. *Michigan's* longevity resulted from the less-corrosive effects of fresh water. Numerous attempts were made to preserve the vessel, but money was not forthcoming. All that remains of the ship now is a small section of her bow and cutwater in a park in downtown Erie.

On March 8, 1845, the third steamer, *George M. Bibb*, slid down the Fort Pitt ways into the Allegheny. The launch occurred prematurely, sending a large crowd of spectators scrambling out of the vessel's path. Miraculously, only two workmen were injured, but one of them was left in such serious condition that he died a short while later. Tugs guided the 250-ton, three-masted ship to her moorings on the Monongahela near the foot of Ferry Street where she took on her eight-gun armament before setting off down the Ohio for New Orleans. *Bibb* got as far as Cincinnati where she sprang a leak of such magnitude that within hours it left her resting on the river bottom. A subsequent inquiry determined that deterioration of the packing around one of the vertical shafts for the ship's two submerged paddle wheels caused water to rush in so fast that the vessel sank. Pittsburghers were relieved to learn that the accident was not due to any defects of the ship's construction, but later machinery difficulties persuaded the Treasury Department to have the ill-starred cutter completely rebuilt at Cincinnati with side paddle wheels, strengthened iron frames, and a more powerful engine. With the latter modifications, the ship proved entirely successful, remaining on active duty in the Gulf of Mexico until the late 1880s.²²

Stackhouse and Tomlinson built two iron steamships in Pittsburgh utilizing the same type of submerged paddle wheels that led to many of *Bibb's* problems. Invented by Lieutenant William W. Hunter, United States Navy, the wheels were mounted in enclosed chests, or cases, below the ship's waterline, with only the paddles themselves extending from the vessel's sides. A number of advantages supposedly accrued from these "Hunter's wheels," including added protection from enemy shell fire, a lower center of gravity, and (it was hoped) increased efficiency and speed. Three weeks before *Bibb* entered the water, the Tomlinson yard launched a small experimental steamer appropriately named *Hunter*. Built entirely as a private enterprise, *Hunter* had a burden of ninety-six tons, within an overall length of 100 feet and a beam of 18 feet. She was equipped with a two-cylinder engine driving a single centrally located eight-foot diameter Hunter's wheel, and on a trial run up the swiftly flowing Monongahela she steamed at an average of four to five miles per hour. *Hunter* left

²² *Pittsburgh Morning Chronicle*, Nov. 11, 1843, Nov. 21, 1846; *Pittsburgh Daily Gazette and Advertiser*, Jan. 11, Mar. 10, July 1, 1845; George H. Thurston, *Allegheny County's Hundred Years* (Pittsburgh, 1888), 118. The Revenue Marine was the predecessor of the modern Coast Guard.

Pittsburgh on July 5 under the command of Captain John T. McLaughlin but ran aground on a sand bar a short distance downriver. Because of unusually low water in the fall of 1845, she could not be refloated until February 1846. *Hunter* then made a fast voyage to New Orleans, where the navy was sufficiently impressed by her performance to purchase her for a dispatch vessel in the Mexican War. Her career came to an end when she was driven ashore by a violent storm and wrecked on an island off Vera Cruz on March 21, 1847.²³

Despite some misgivings on the part of Pittsburgh newspapers, Hunter's principles were given their first full-scale test with the completion of the iron steamer *Alleghany* in 1847. Secretary of the Navy Upshur directed the Bureau of Construction on July 8, 1843, to examine the feasibility of constructing a large warship in Pittsburgh. In October the navy awarded Stackhouse and Tomlinson the contract for the vessel, and, under the watchful superintendence of Lieutenant Hunter, work on the ship began in 1844. On February 2, 1847, reporters examined the nearly complete *Alleghany*, acknowledging her to be "a beautiful spectacle, as she stands upon the stocks, with her graceful proportions and fine workmanship, . . ." A large crowd witnessed the warship's launch twenty days later, and within a matter of hours the vessel set off from Pittsburgh for Memphis to receive her armament and be rigged for the sea.²⁴

Alleghany was by far the largest and most powerful warship built in Pittsburgh to date, but as a naval vessel she was a total failure. The three-masted frigate displaced 1,000 tons, measured 185 feet overall, was 33 feet wide, and had a draft of 13 feet 6 inches. As originally constructed, she mounted ten guns, including four of the newest eight-inch shell-firing Paixhans weapons. Two engines turned the ship's twin Hunter's wheels, which on the frigate's first ocean trials pulled her through the water at only 4.9 knots. *Alleghany's* only overseas tour of duty took her to the Brazilian station and the

23 *Pittsburgh Morning Chronicle*, Feb. 18, 1845; a complete description of the ship is in the *Pittsburgh Daily Gazette and Advertiser*, June 9, 1845. See also *ibid.*, June 26, 1845; *Pittsburgh Post*, Feb. 16, 1846. For the ship's later service see K. Jack Bauer, *Surfboats and Horse Marines: U.S. Naval Operations in the Mexican War, 1846-48* (Annapolis, Md., 1969), 225.

24 In reference to the earlier revenue cutter *Bibb*, the *Pittsburgh Daily Gazette and Advertiser* of Mar. 10, 1845, skeptically commented: "We are doubtful . . . of the success of Lieut. Hunter's plan of propelling her." For correspondence regarding *Alleghany* see U.S., Congress, House, Exec. Doc. No. 65 (33rd Cong., 1st sess.), 77-90. Also see the *Pittsburgh Daily Gazette and Advertiser*, Feb. 3, 23, 1847.

Mediterranean in 1848, but her disappointing speed, combined with excessive fuel consumption and structural weaknesses, caused the navy to condemn the ship as "unfit for a war steamer" in July 1850. While seemingly adequate for smaller vessels, the Hunter's wheel was found by the navy to be particularly inefficient for use in larger ocean-going warships like *Alleghany*. The ship underwent an extensive refit at Portsmouth, Virginia, in 1851-1852, during which the Hunter's wheels were replaced by one of John Ericsson's screw propellers. After another unsatisfactory series of ocean trials, *Alleghany* was laid up at the Washington Navy Yard and finally sold for scrap in 1869.²⁵

In 1846 the Treasury Department chose Stackhouse and Tomlinson to build an iron steam cutter for the Revenue Marine. Work on the ship was interrupted until March 1847, while the Tomlinson yard put the finishing touches on *Alleghany*, so that the 358-ton *Robert J. Walker* was not launched until November 27. A conventional sidewheeler, 125 feet long by 26 feet in beam, *Walker* took on all of her guns, munitions, and rigging at Pittsburgh before weighing anchor on December 14 for the journey downriver. Under the command of Captain Evans, *Walker* reached her home port of Mobile in early 1848 and reportedly served the Revenue Marine well for many years thereafter.²⁶

Despite the proven advantages of iron, its use at this time was almost entirely restricted to warships and revenue cutters; commercial firms deemed the metal too expensive for use in merchant vessels. However, several east coast shipping companies, faced with depleted timber resources and attracted by lower costs west of the Alleghenies, financed the construction of a number of wooden-hulled ships in the Pittsburgh area. In 1845 a small schooner, intended for the West Indies trade, was launched at Freedom on the Ohio below Pittsburgh. Later the Freedom Boat Building Society completed two wooden steamships, *Regina Hill* (137 tons) and *Cyrus Chamberlain* (134 tons). The former, built in September 1845 for a New York syndicate, sailed for New Orleans with a cargo of pork. She arrived in Philadelphia on March 16, 1846, after a particularly harrowing passage from New Orleans during which one seaman fell from a yardarm and drowned and two others mutinied. While *Regina Hill* was on the

25 Frank M. Bennett, *The Steam Navy of the United States* (Pittsburgh, 1896), 53-57.

26 *Pittsburgh Daily Gazette*, May 4, Nov. 29, Dec. 15, 1847.

stocks, a representative of a New Haven mercantile house visited Freedom and, estimating a savings of up to \$10,000 over a similar ship built on the eastern seaboard, contracted with the Building Society to construct a second vessel. *Cyrus Chamberlain* slipped into the Ohio in January 1846 and left sometime after March 9 for New Orleans with a shipment of pork and flour. Unfortunately, there is no record of her further service.²⁷

Porter and Company built two ocean steamships at Shousetown (now Glenwillard) on the Ohio in 1850. On September 24, 1849, J. M. Woodward of New York signed with Porter for the construction of the two wooden vessels, each 165 feet long, 24 feet wide, with three masts and a single Ericsson screw propeller. The 493-ton *Martin Hoffman* was launched first, then towed to Pittsburgh in May 1850 to receive a 270-horsepower engine from the Fort Pitt works. Because of the height restrictions imposed by the newly completed Wheeling Bridge, the ship proceeded downstream without her masts and spars in place. Renamed *Isle of Madeira* in June 1856, the vessel was acquired by a foreign company in 1857. The second ship, christened *Freeman Rawdon* at her launch in late October 1850, also fitted out at Pittsburgh prior to her departure for New Orleans in November. The steamer plied the Atlantic coastal routes until, under the name of *City of Savannah*, she foundered in a gale off Cape Hatteras in 1856 with no loss of life.²⁸

Ships continued to be built on the Monongahela at this time. The Walkers mostly concentrated on steamboats after 1815, but Samuel Walker, son of the pioneering John, launched the ocean steamer *Venezuela* (328 tons) at his Elizabeth yard in 1848. Measuring 150 feet by 26 feet and owned by the Orinoco Steam Navigation Company of New York, *Venezuela* floated to Pittsburgh where James Nelson and Company put her two engines in place. With William B. Walker in command, the wooden two-masted sidewheeler left Pittsburgh on July 16, 1848, and even with her deep eight-foot draft made a fast trip to New Orleans. Hailed by the press as "another testimonial

²⁷ *Pittsburgh Morning Chronicle*, Aug. 20, 1845; *Beaver Argus*, Aug. 20, 1845, Mar. 25, 1846. See also William M. Lytle, *Merchant Steam Vessels of the United States, 1807-1868*, "The Lytle List" (Mystic, Conn., 1952), 160 (hereafter cited as "Lytle List"); and Mrs. Sarepta (Cooper) Kussart, *Navigation on the Monongahela River*, (Monongahela, Pa., 1929-33), 2: 33.

²⁸ *Pittsburgh Daily Dispatch*, Sept. 26, 1849, May 3, 1850; "Lytle List," 121, 68, 237; *State of Pennsylvania v. The Wheeling and Belmont Bridge Company*, U.S. Supreme Court, No. 2 (1849), 19.

. . . of the skill of Pittsburgh ship builders and mechanics," *Venezuela* made frequent runs in the Caribbean from Trinidad to the mouth of the Orinoco River. The Walkers also built two small ocean schooners, *Columbus* and *Americus*, in 1857 for the Atlantic coastal trade. A West Brownsville firm completed the ocean steamer *America* (372 tons) in January 1852. Homeported at Apalachicola, Florida, the vessel participated in coastal commerce until falling into the hands of the Confederates in 1861.²⁹

Shipbuilding in Pittsburgh came to another abrupt end around 1857. The economic dislocation generated by the panic and depression of that year led to decreased commercial ventures, and foreign trade dropped off severely. From a high of \$293.8 million in 1857, total exports sank to \$272 million in 1858, and then to only \$219 million in the first year of the Civil War. American output of wooden sailing vessels and steamships also declined sharply after 1856.³⁰ Finally, the Union blockade of the South and the depredations of Confederate commerce raiders during the war dealt a mortal blow to the once-proud American merchant fleet. But, at the same time, the war stimulated a brief resurgence of Pittsburgh shipbuilding when two firms received navy contracts to construct ironclads in the city.

On August 3, 1861, Congress enacted legislation providing for the construction of a number of armored steamers. Within a short time, John Snowden and Albert G. Mason, associates in a Brownsville iron-fabricating company, were awarded a government contract for a large monitor. Snowden and Mason, unable to build the deep-draft vessel at Brownsville, erected large sheds along the Monongahela in Pittsburgh near the present site of the Pittsburgh and Lake Erie Railroad station. Construction of the ship got under way in October 1862. Lyon, Shorb and Company provided the iron for the huge warship. Upwards of 200 workers labored on the monitor which, as it neared completion, became one of the city's most popular entertainments — provided visitors paid the twenty-five-cent admissions charge. The ironclad's launch as U.S.S. *Manayunk* on December 18, 1864, was a gala occasion for Pittsburghers who, in spite of the inclement weather, lined both banks of the river as well as the Monongahela Bridge. Some forty or fifty dignitaries were aboard the ship as it slid down the ways, and their spirits remained undampened when nearly a quarter of

²⁹ *Pittsburgh Daily Commercial Journal*, July 22, 1848; *Pittsburgh Daily Gazette*, Sept. 1, 1848, June 21, 1849; "Lytle List," 194, 8; Kussart, 34.

³⁰ *Statistical Abstract*, 1930, 473; Hutchins, 403.

the vessel submerged as the ironclad hit the water. Two steam tugs towed *Manayunk* to her moorings at the Monongahela Wharf near the foot of Liberty Street. There the steamer received her nine-foot-high turret and two Pittsburgh-manufactured fifteen-inch guns, each of which weighed over twenty-one tons. On March 5, 1865, during a spell of unusually high water, the vessel broke loose and drifted unattended down the Ohio several miles below the city, until three tugs came to her rescue. *Manayunk* sailed on the following day for trials at Mound City, Illinois, but the war ended before she participated in any fighting.

A *Canonicus*-class monitor, costing a little over \$737,000 to complete, *Manayunk* was a single-screw steamer with a wooden frame covered by up to ten inches of iron armor plate. She displaced 2,100 tons, was 225 feet long overall, 43 feet in breadth, and drew more than 13 feet of water. Two engines propelled the ship at a maximum speed of five knots. Renamed *Ajax* in 1869, the vessel lay at dockside for years until gradual deterioration prompted the navy to rebuild her in 1889 for \$154,000. The ship remained on the navy lists for ten more years, finally being disposed of at public auction at the close of the Spanish-American War.³¹

Snowden and Mason constructed a second ironclad in Pittsburgh during the Civil War. Begun in 1863, the vessel, named *Umpqua*, was completed after Lee's surrender at Appomattox. Delays caused by low water further postponed the ship's launch until December 21, 1865, and as late as January 10, 1866, the monitor still remained tied up at Pittsburgh. A light-draft screw steamship of the *Casco*-class, *Umpqua*, displaced 1,175 tons and cost \$595,000. The navy never officially commissioned the monitor and sold her for scrap at New Orleans in 1874. In 1864 Snowden and Mason also built the 301-ton iron steamer *Tamaulipas* for a private concern. She left Pittsburgh for New Orleans on November 20 and up to 1880 carried cargoes in the Gulf of Mexico.³²

31 *Pittsburgh Post*, Apr. 29, 1864; *Daily Pittsburgh Gazette*, Dec. 19, 1864; *Pittsburgh Commercial*, Feb. 18, Mar. 7, 1865; *Pittsburgh Gazette*, May 2, 1866; U.S., Department of the Navy, *Official Records of the Union and Confederate Navies in the War of the Rebellion*, Series 2 (Washington, 1921), 1: 133.

32 *Daily Pittsburgh Gazette*, Dec. 19, 1864; *Pittsburgh Commercial*, Jan. 10, 1866; *Official Records of the Union and Confederate Navies . . .*, 228; U.S., Department of the Navy, *Monitors of the U.S. Navy, 1861-1937* (Washington, 1969), 23-27 (hereafter cited as *Monitors*); "Lytle List," 184.

In association with Andrew Hartupee, Joseph Tomlinson built two small ironclad gunboats for the navy late in the war. Granted a \$400,000 contract in May 1862, Tomlinson and Hartupee began work on the vessels in mid-1863. The first ship, *Marietta*, was ready for launch on November 21, 1864, and a large crowd gathered near the Tomlinson yard to view the spectacle. After nearly three hours of labor the ironclad had not budged, and the disappointed group dispersed. The next day workmen regreased the ways and, with the help of strategically placed screw jacks, shoved the warship into the river. *Marietta* was a flat-bottomed wooden vessel intended for river duty. She was protected by upwards of 6 inches of iron armor plate, displaced 479 tons, and was 180 feet long, 50 feet wide, with a draft of only 5 feet. The ship's turret enclosed two guns, and the vessel could attain a top speed of nine miles per hour with her screw propeller. Tomlinson's second gunboat, *Sandusky*, entered the water on January 11, 1865. Almost identical to *Marietta*, she was two feet longer and drew about a foot less water on the same displacement. Neither of the gunboats was ready for service until after the end of the war, and it was not until March of 1866 that the two vessels left Pittsburgh for Mound City. Both remained inactive thereafter and were scrapped in April 1873.³³

Pittsburgh shipbuilding failed to recover after the conclusion of the Civil War. During the 1870s, the American mercantile fleet languished. Whereas in the period 1847-1857 the United States constructed an average of 339,000 tons of ships annually, in 1868 only 143,000 tons were built. By 1872 this figure had slumped to 76,299 tons.³⁴ The American shipbuilding industry remained depressed throughout the rest of the century; prosperity did not return until the neutrality years just before United States entry into World War I. Nor did the navy provide any relief for Pittsburgh shipbuilders. After 1865 the navy, which had ranked second only to that of Great Britain, fell into disrepair and neglect. Without government orders shipbuilding companies in Pittsburgh either went out of business entirely or reverted to the construction of barges and steamboats. Others simply concentrated on making boilers or wrought-iron products.

The overall economic impact of shipbuilding in the Pittsburgh

33 *Daily Pittsburgh Gazette*, Nov. 22, 23, 1864, Jan. 12, 1865, Mar. 2, 1866; *Official Records of the Union and Confederate Navies . . .*, 136, 199; *Monitors*, 33-35.

34 Hutchins, 403.

area was slight. Ship- and boatbuilding was an important part of local manufacturing in the early years, but, as Leland Baldwin has pointed out, the ships and their cargoes amounted to little in comparison with the total value of western goods received at New Orleans from 1800 to 1820.³⁵ In the later period shipbuilding contributed only a fraction to Pittsburgh's industry. At its height from 1840 to 1850, only some \$950,000 worth of government and private shipbuilding contracts came to the Pittsburgh region. Over the same ten-year span, manufacturing in Allegheny County totalled approximately \$167 million. From this perspective the historian must conclude that shipbuilding in Pittsburgh was of minor significance. Yet Pittsburgh's nineteenth-century links with the sea, though tenuous, constituted a fascinating chapter in the city's economic growth.

35 Baldwin, "Shipbuilding," 44. Baldwin estimated some 10,000 tons of shipping were produced in the entire Ohio Valley at this time, versus 500,000 tons of keel, flatboat, and barge construction. For manufacturing statistics see U.S., Census, *Compendium of the Seventh Census* (Washington, 1854), 301.

