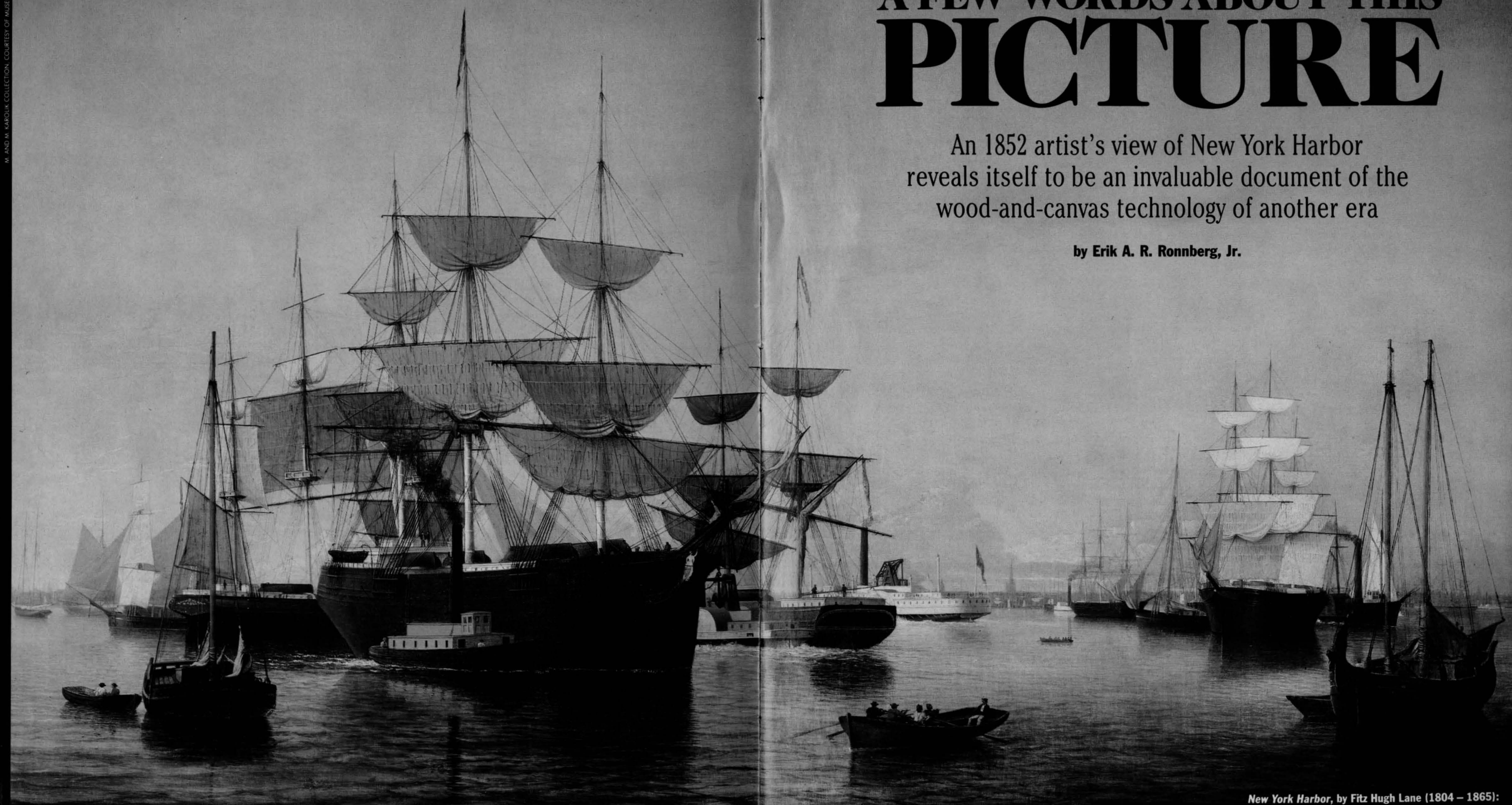


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A FEW WORDS ABOUT THIS PICTURE

An 1852 artist's view of New York Harbor
reveals itself to be an invaluable document of the
wood-and-canvas technology of another era

by Erik A. R. Ronnberg, Jr.

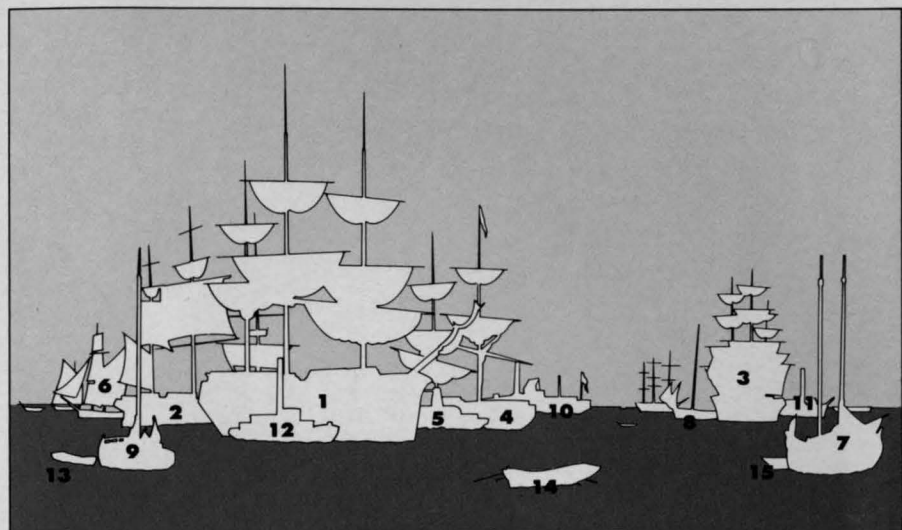


New York Harbor, by Fitz Hugh Lane (1804 – 1865):
oil on canvas, thirty-six by sixty inches.

During the first half of the nineteenth century, New York City became the most important mercantile crossroads in North America. Geographically midway between ports in New England and on the Chesapeake Bay, and connected to the interior by the Hudson River and a growing canal system, New York was at the focal point of vital east-west and north-south trade routes. Furthermore, its deep harbor was ringed by land that lent itself to the construction of wharves, shipyards, canal and railroad terminals, and commercial roads and buildings. With this combination of assets, it was inevitable that the country's most important commercial routes would be drawn to this natural concourse.

If the marine artist Fitz Hugh Lane was not concerned with the reasons for New York's commercial preeminence, he was certainly impressed by its results, for his 1852 painting of its harbor is one of his most kinetic works. Renowned in his time for the accuracy and fine detail of his canvases, Lane is today more highly regarded for his pioneering techniques of illuminating his subjects to create moods whose nature and presence seem to transcend their subject matter. With Manhattan's skyline all but hidden by a forest of masts, Lane chose to portray this port by focusing on its harbor traffic, keeping the city behind it at a distance. The painting that resulted is one of the most magnificent and informative views of any harbor in the mid-nineteenth century.

The ships and boats in the painting represent four of the five kinds of waterborne commerce that sustained the city: foreign trade (deep-water voyages to and from Europe, South America, and beyond), coastal trade (the transportation of goods to and from other American ports), river navigation (via the Hudson, Raritan, and East rivers and the Staten Island kills), and harbor navigation (moving vessels, people, and goods to and from city anchorages and wharves). The fifth kind, lost to view, was the extensive barge commerce to and from the canal



A key to vessels in the painting mentioned in the text: (1, 2) packet ships; (3) ocean carrier; (4) packet brig; (5) side-wheel towboat; (6) hermaphrodite brig; (7, 8) coastal schooners; (9) sloop; (10) sound steamer; (11) deep-water steamship; (12) steam-propeller towboat; (13) yawl boat; (14) Whitehall boat; (15) dory.

terminals across the Hudson, which gave New York access to Philadelphia, the coal-mining regions of eastern Pennsylvania, and barge freight on the Erie and Champlain canals.

The Atlantic Shuttle

Foreign trade was the most glamorous aspect of New York shipping. New York merchants sent their vessels to every significant trading port in the world, leaving only the Baltic, the Levant, India, and Canadian ports to be dominated by Boston, New York's chief rival. Of greatest importance was the "Atlantic shuttle," a regular procession of ships loaded mainly with cotton, tobacco, and flour, bound east to ports like Liverpool, London, and Le Havre, returning with immigrants, textiles, industrial hardware, and fine housewares. The best of these ships were operated by large trading firms called packet lines, which sent their vessels out on regular year-round schedules, regardless of weather. Designed and built in the best American shipyards and manned by capable officers and seamen, the packets set high standards for speed, reliability, and safety under sail. Beginning in the 1820s, succeeding designs grew steadily larger and finer in hull form; by 1850, ships of a thousand tons and more were common. Two

such ships are prominent in the left middle ground of this view. Their design after three decades of deliberate change was a shrewd and profitable compromise of speed and capacity.

The advancing packet, with a tug alongside, is in all likelihood bound for Europe with a cargo mostly of cotton, this country's leading export at the time. This staple was very light for its bulk; ships loaded only with cotton would ride high in the water, adversely affecting their stability. To make them stiffer, a small but very heavy cargo such as lead or iron pigs might first be placed in the hold for ballast. When this packet reached her European destination, she would likely be loaded with much heavier fare, including seven hundred (more or less) immigrants, who would face the discomforts and dangers of sea travel for five weeks or more in hopes of finding a better life in America. This human cargo was the backbone of the packet trade, the main reason for scheduled voyages, and the last hope for survival of the packet lines after steamships had lured away the mail-carrying contracts and more glamorous cargoes.

Conspicuous by their absence from this scene are clipper ships, which in any year of their heyday were an uncommon sight. There were probably

only a few hundred clipper ships ever built, the number depending on how strictly one defines the type and how much one can trust surviving records. If Lane's view of New York includes no such ship, it is likely that none was in sight when he was sketching for the painting.

The simultaneous development of clippers and very large packets in the early 1850s led to a new design that combined characteristics of both, permitting a large, capacious hull with only a moderate sacrifice in the clipper's speed. Many of these ocean carriers were put on the packet runs, where they were admired for their handsome profiles and speed. After the Civil War the shipyards of Maine specialized in this breed, which came to be known as the down easter.

The large ship in the right mid-ground is an early example of this breed, with a graceful bow that combines the fancy headrails of the packet with the hollow lines and flare of the clipper bow. In cross section the hull is very boxlike, with an almost flat bottom and nearly vertical sides. The rigs on these ships were enormous; their lower masts could be three feet or more in diameter, with lower shrouds and topmast backstays nearly four inches thick. The height of the mainmast from deck to flag halyard truck often exceeded 160 feet, and the square sails that hung from the lower and topsail yards were made from canvas nearly one-eighth of an inch thick; one of these sails could weigh well over a ton. For all its mass and power,

The big packets represented a shrewd, profitable compromise of speed and capacity.

a crew of forty could work such a ship, whereas clippers of similar tonnage might require one hundred men.

Sailing the Coasts

Although New York's deep-water trade employed the port's largest ships and has had romanticists and historians under its spell ever since, the more prosaic fleet of coastal vessels actually carried more cargo, connecting New York with virtually every coastal community that had a landing. New York merchants even had their ships plying the West Coast, capitalizing on the gold stampede in California, but also mindful of fish, lumber, and furs. The West Coast was still reserved by our mercantile laws for American ships only, and this protectionism did much to insulate coasting vessels from rapid technological changes.

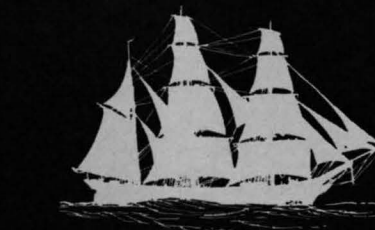
By mid-century cotton was undisputedly the country's most important export, and New York ships and New York agents were carrying most of it. The cotton was first taken from the plantations in bales to four principal Southern ports: Charleston, Savannah, Mobile, and New Orleans; from there it was sent to New York via the coasting

fleet. At New York the cotton was transferred to large packets and ocean carriers for delivery to Europe. Such a central role for New York in the cotton business might seem illogical and even predatory, but the city's capital, in the form of loans and advances, actually made possible the expansion of cotton production in the South on such a vast scale. Save for Charleston, the Southern ports were poor for the direct-export business, as shifting sandy bottoms and sandbars limited the depths of vessels entering them; the shallow-draft coasters required for that end of the trade were not well suited for the transatlantic trade.

At center in the painting, we see an inbound brig with a side-wheel towboat alongside. At nearly four hundred tons, the brig is about as large as any commonly used in the cotton trade on runs to Savannah, Mobile, and Charleston. The large cabin indicates accommodations for passengers; thus it is a vessel built for coastal packet service, making regular runs south with passengers and supplies and returning with passengers and cotton. The brig rig — with two masts, both square-rigged — was soon to pass out of favor, having reached its practical limits in size. The rig that replaced it was the hermaphrodite brig, a two-master whose foremast was square-rigged but whose mainmast carried the fore-and-aft rig of the schooner. This represented a fifty-fifty compromise between the brig and schooner rigs, but the hulls of hermaphrodite brigs were more like those of the coasting schooners — shallow and

SAILING SHIP RIGS

Following are profiles and definitions for vessels that appear in Lane's painting or are mentioned in the article.



BARK — A large three-masted vessel whose foremast and mainmast are square-rigged, but whose mizzen (third) mast is fore-and-aft-rigged.



SHIP — A large vessel with three masts, all square-rigged. Clipper ships, packet ships, and large ocean carriers were usually ship-rigged.

broad — than the deeper hulls of the brigs.

In the far left background is a typical hermaphrodite brig of the period: a small vessel, less than two hundred tons, her deck loaded with lumber. The lumber trade was a Maine specialty, and most of the vessels working in it also came from there. Their hulls tended to be very boxy and full-ended, with little or no fancy paintwork nor even a figurehead. They were quickly built and plainly fitted for a decade's worth of hard work, then disappeared from the registers, unremembered for having brought millions of board feet of pine and spruce into New York to build hundreds of tenement houses and other rough carpentry. Hermaphrodite brigs were never as common as schooners in the coastal trade, but their larger rigs made them better for the longer passages along the coast, and the square rig gave them an easier motion in heavy seas.

The most common rig in the coasting fleet was the schooner. A number of them have survived to this day and still make a living as summer cruising boats on the Maine coast. In 1850 the two-masted schooner was nearly universal; only a few three-masters, called tern schooners, had yet been built. Schooners fitted for the packet trade often carried square topsails on their foremasts, which steadied their motion in rough seas and gave them an extra push off the wind. The majority of coasting schooners had simple fore-and-aft rigs, which were the handiest for short hauls from one port to the next. Vast

stretches of the Atlantic seaboard were still more accessible by sea than by land, even after the coming of the railroads. On the highways of water the coasting schooner was the analogue to the modern motor truck and bus combined, carrying people, mail, and freight to towns and villages that had communicated with the rest of the world this way since their colonial origins.

Lane included two coasting schooners, in the extreme right foreground and the right middle ground. The former is quite small, probably no more than sixty tons, and of a very old model. But for the presence of the large trunk cabin abaft the main mast, she might have passed for a Marblehead schooner, a type of fisherman descended from the colonial fisheries. Her rig is the simplest that still defines a schooner: two masts and three sails, including jib, foresail, and mainsail. The other, much larger schooner, approaching two hundred tons, is rigged with topmasts from which she can set additional jibs as well as the fore- and main topsails. In the decade preceding the Civil War, progressively larger coasting schooners were built until it was realized that the sails set from two masts were too large and difficult for small crews to handle. When a third mast was added, the rig could be made lower, and individual sails smaller and more manageable. The resulting tern schooner did not become common until after 1865.

The sloop — a single-masted fore-and-aft — had a complex history in

New York waters. Small versions with the simplest rigs were frequently found working from the seaward end of the harbor, but up the Hudson the traffic was dominated by a magnificent class of large sloops whose graceful hulls and enormous sail plans had no parallel elsewhere. Lane shows a solitary coasting sloop in the left foreground, but alas, no Hudson River sloop is to be seen. Like the schooner, this rig had its practical limits in size; the sloop that exceeded ninety tons was a rarity. The large mainsail was a brutish thing to handle, and as crew wages increased, many such vessels were rigged over as schooners to make them easier to handle by a smaller crew.

The Coming of Steam

By 1850, the steamship was well established in the coastal trade and had assumed two basic forms. The older was that of the river steamers built for Robert Fulton, with shallow hulls, flat bottoms, and extensive superstructures. In later designs the superstructures reached even farther, overhanging the sides of the hull and merging with the paddle-wheel housings. The hulls were lightly constructed and very flexible, and the boats were generally confined to runs between New York, Providence, and ports on Long Island Sound. Travel beyond these sheltered waters was as yet risky. One of these sound steamers can be seen in the center background. Very noticeable is its walking-beam engine, which was the

cheapest and simplest steam engine suitable for ships and could still function if its parts got out of alignment as a result of the flexing of the hull. At the time of the painting, river steamboats and sound steamers still looked fundamentally alike. Riverboats had open decks around their sterns fitted with guardrails, permitting passengers open-air spaces; the sound steamers were completely enclosed, to shelter their passengers from the less gentle ocean breezes. Both these types remained popular among commuters and travelers well into the twentieth century. Only gradually did the paddle wheel and walking-beam engine yield to the screw propeller and compound engine, and there was always a great reluctance to give up the side-wheeler's distinctive form.

As the steamship ventured farther out into the Atlantic, the weaknesses of the riverboat hull became obvious; hulls for ocean service would have to be stronger, stiffer, and more sea-kindly. The British took an early lead in constructing ocean steamers; American builders were handicapped by unreliable cast- or forged-iron engine parts and the difficulties of building large, rigid hulls in wood. Ever eager to push the wooden steamship to its limits, steamship owners seldom had the patience to allow the technologies of shipbuilding and engine making to catch up with their demands. Not until the mid-1850s were there transatlantic steamers numerous and reliable enough to maintain frequent scheduled crossings.

A coastal schooner was like a modern truck and bus combined, carrying people, mail, freight.

They came too late for Lane's painting.

The operators of coastal steamship lines were more successful in these years. As early as 1846 they were making regular runs from New York to the cotton ports, as well as to the West Indies and Central America. A terminal at the isthmus of Panama allowed westbound passengers to transfer to coastal steamers on the Pacific side, which took them on to California. It was on these routes that the American deep-water steamship was refined and made practical for long ocean passages, and in the far right background of Lane's painting one of them is visible. With her stern hidden from view, one can only assume that she had three masts and that the foremast could carry square sails, which were set from the deck. There is no sign of a walking-beam engine: American steamers built for this service before 1850 were fitted with side-lever engines whose components were mounted very low and contributed much to the stability of the hull. The height of the stack seems exaggerated, but if this were modified, the ship might well pass for either the *Cherokee* or the *Tennessee*, both built in New

York in the late 1840s and employed on the Savannah run.

Harbor Boats and Small Craft

The diversity of New York's harbor craft is well represented in this picture, but by no means comprehensively. Oars, sails, paddle-wheels, and screw propellers moved an amazing variety of hulls, ranging from small rowboats to large towboats, which continuously shuttled about people, goods, and other vessels. Large inbound ships were taken in hand by towboats that moved them to and from wharves. If for any reason a ship had to lie at an anchorage, her cargo could be taken on or off by lighters, small bargelike sailing vessels that engaged solely in transferring goods between vessel and wharf. By 1850 steam-powered ferryboats were transporting thousands of people into Manhattan from Long Island, Staten Island, and the New Jersey shore in a modest prologue to the swarms of commuter traffic of the next century. The ferries bore a strong resemblance to river and sound steamers.

Lane shows two types of towboat, both at work moving large sailing ships. The paddle-wheel towboat in charge of the brig shows plainly its riverboat origins, especially in its primitive crosshead engine, whose use dates back to Fulton's pioneering craft. Mechanically obsolete, these hardy engines nevertheless survived in harbors that offered plentiful coal and very short distances to travel. Much more progressive, and prophetic of the steamship's future, is the tug alongside the packet ship. Of very recent design, it combines the screw propeller with a steam plant using a much later type of engine, probably a one-cylinder vertical or an early two-cylinder engine. The superstructure extends out to the rails, unlike on later tugs, which have open passageways between rails and cabin; excepting this, we see in this boat the basic arrangement that has characterized tugs to this day. In Lane's time American tugboats weren't



BRIG — A small or medium-size vessel with two masts, both square-rigged.



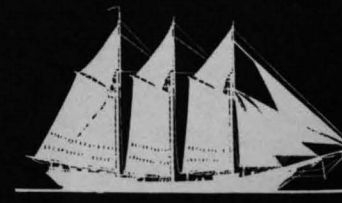
HERMAPHRODITE BRIG — A two-masted vessel whose foremast is square-rigged and whose mainmast is fore-and-aft-rigged.



SCHOONER — A small to medium-size vessel with two masts, both fore-and-aft-rigged. This was the most common rig in the coastal trade.



MARBLEHEAD SCHOONER—A small schooner of colonial origins, with a full, round bow and a high quarter deck.



TERN SCHOONER, or TERN — A name given to a schooner with three masts when the type first appeared in American shipping.

called such; the early paddle-wheelers were known as towboats. When screw-driven boats appeared, they were called steam propellers. The term *tugboat* was brought to this country from England, first, probably by 1860, in speech, and much later in print.

While the rowing craft in this painting may seem unimportant, to the artist they were essential elements of contrast in a scene of harbor activity on so gigantic a scale. Lane was as meticulous with small boats as he was with the largest ships, taking care to give hulls their proper forms and proportions; the boats float in proper trim and are rowed with correct oarsmanship. Three very different types of boat are visible in the foreground. At left, the crew of the sloop is approaching in a yawl boat, a type that served as lifeboat and workboat for most sailing coasters and fishermen. Usually twelve to twenty feet long, yawl boats hung from davits when at sea. They were usually full-ended and heavily built; many could be fitted with simple sailing rigs.

In the center foreground is a handsome and large Whitehall boat, so named for New York's Whitehall Street, whose boat shops first produced the type. Finely modeled and easily rowed, they were the preferred means of ferrying individuals or small groups between ship and shore. They varied from fifteen to thirty feet in length (or more for special uses, including racing) and were usually rather narrow. The smaller boats could be rowed by one person; larger examples had up to six oarsmen. The superb lines and han-

One of the two towboats is obsolete; the other is prophetic of the steamboat's future.

dling of these craft endeared them to yachtsmen, so nearly every yacht of respectable size had one or more on the davits. Today they survive as recreational boats, and many rowers enjoy the double pleasure of building as well as owning their own Whitehall boats.

Made fast to the little schooner in the right foreground, with only its stern visible, is a boat very familiar to Lane — a dory. Although we think of dories as piled high in nests on the decks of schooners bound for the fishing banks, they were used in Lane's time almost exclusively for the shore fisheries — lobstering, gill netting, and hand-lining — by men who were too poor to afford anything better. Dories were in fact better suited to be launched from the shore and beached than any other type of boat, but they were the badge of the solitary fisherman who eked out a living the way his forebears had for two centuries.

The Nonphotographic Record

For all the variety of vessels in this picture, many others eluded Lane's criti-

cal eye, several of which have already been mentioned. No warships — sail or steam — are in view, nor pilot boats, nor the multitude of specialized craft that were needed to maintain wharves, shipping channels, and loading facilities. In a sense the later photographic record, for all its advantages, could do no better with a single image; there were simply too many ships in too great a variety to include in one view.

In 1850 photography was still handicapped by slow film emulsions and cumbersome equipment, and it was not until the mid-1850s that photographers were able to capture the activity of a waterfront or harbor scene with satisfactory results. For a painter like Fitz Hugh Lane, the problem of "stopping" the activity in a busy harbor was even greater, considering the amount of time required to include so much subject matter in such detail on a canvas five feet wide and three feet high. Lane's large harbor views are the combination of a detailed drawing of the background scenes and a variety of sketches and small paintings of individual vessels, carefully arranged to make a composition that draws the eye easily from one element to another. One startling aspect of Lane's drawing technique is that there is little evidence of the use of mechanical aids for drawing fine lines or establishing proportions. Not even in his ship portraits did he use a straight edge or other device to delineate fine rigging lines. This discipline is probably the result of his rigorous training in lithography.

This view was probably painted in 1852 from sketches and small oils made during Lane's visit to New York in 1850. Seldom has any maritime port of any age had its ships recorded so precisely, in such variety, and with such vitality. ★

Erik A. R. Ronnberg, Jr., is a freelance ship-model maker and consultant on history and has published extensively on technical aspects of historic ships. He is vice-president of the Cape Ann Historical Association, home of the country's largest collection of paintings and drawings by Fitz Hugh Lane.



SLOOP — A small to medium-sized fore-and-aft-rigged one-masted. This is a Hudson River sloop; sloops in the coastal trade usually had smaller sail plans.



LIGHTER — A small sloop-rigged craft used for bringing cargoes to and from a vessel anchored offshore.