

## AMERICA'S STEPCHILD

by James M. Morris

They were "the most beautiful creations of man in America. With no extraneous ornament except a figurehead, a bit of carving and a few lines of gold leaf, their one purpose of speed over the great ocean routes was achieved by perfect balance of spars and sails to the curving lines of the smooth black hull. . . . These were our Gothic cathedrals, our Parthenon."

So wrote historian Samuel Eliot Morison, recalling one of the early achievements of American technology: the clipper ship.

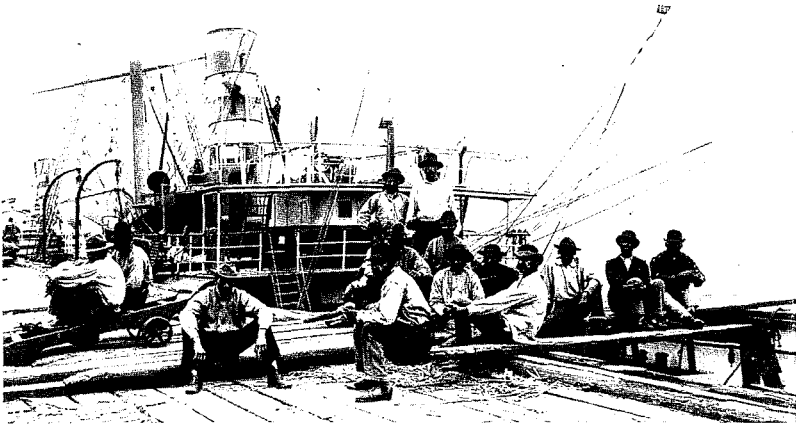
During the two decades before the Civil War, such designers and builders as Donald McKay in East Boston and John W. Griffiths in New York launched about 500 of these lean, heavily canvassed greyhounds. They helped win for the United States a dominance in ocean trade long held by British packets. At 265 feet, McKay's *Sovereign of the Seas* was the largest merchant ship ever when launched in 1852. On one voyage she briefly achieved a speed of 22 knots, the record for a sailing ship. Other clippers set marks for sail that still stand.

In 1846, the first clipper, *Rainbow*, reached New York from Canton in 88 days. In 1851, *Flying Cloud* took men and cargo headed for the California gold fields from New York to San Francisco via Cape Horn in 89 days; a *New York Commercial* editorial observed that such speed, over a course that once took a minimum of 180 days to sail, pointed "unmistakably to the preeminence upon the ocean which awaits the United States of America."

In 1854, bound for Liverpool from Boston on her maiden voyage, *Lightning* clocked a day's average speed of 18.2 knots; no steamship would exceed that for another 35 years. *James Baines* set records for runs from Boston to Liverpool (12 days, six hours) and Liverpool to Melbourne (63 days, 18 hours). In 1860, *Stag Hound*, whose launching at the McKay yard drew more than 10,000 spectators, won a prize offered by *New York Herald* publisher James Gordon Bennett by getting the news of Abraham Lincoln's first inaugural address from New York to Britain before the mail steamer *America*.

Yet the clippers' hour was short. "They flashed their splendor around the world," noted Morison, "then disappeared with the finality of the wild pigeon."

So, coincidentally, did one of the United States' earliest prides: its number-one ranking among merchant fleets. Soon the fleet became "America's cross-eyed stepchild," as an early Maritime Commission chief, Emory S. Land, called it 50 years ago. So it remains



*U.S. ports grew as links to a rich hinterland. King Cotton brought the ships and stevedores in this photo (circa 1895) to New Orleans. Today, the city, 110 miles up the Mississippi, counts on Midwestern grain as its main export.*

today—the *first* important U.S. export industry to wither away.

Despite bouts of global recession during the 1970s, world trade has expanded since World War II. Jet aircraft notwithstanding, most goods in international trade are still moved by ship. Some 25,000 oceangoing vessels now shuttle among the ports of the world under the flags of 115 nations. No country accounts for more trade than the United States; its annual imports and exports total more than 640 million tons by weight, and some \$600 billion by value. Yet the Stars and Stripes is hard to find at sea nowadays.

In terms of total tonnage, the privately owned U.S.-flag merchant fleet ranks sixth—after Greece, Japan, Britain, Norway, and the Soviet Union, and just ahead of France, Italy, Spain, and West Germany. In terms of numbers of ships, the U.S.-flag fleet of 477 vessels ranks a mere 14th, trailing Spain and China. Of these ships, at least a fifth are laid up, idled by the worldwide oversupply of vessels that followed the construction boom of the 1970s. For the first time, the U.S. Navy (600 ships) is larger than the U.S.-flag merchant fleet.

As recently as the mid-1970s, 19 U.S. lines operated cargo ships on regular schedules. Now only eight “liner” firms remain. Among the proud names that have disappeared from shipping: American Export-Isbrandtsen, Pacific Far East Lines, Grace Lines, and Moore-McCormack. United States Lines, once the nation’s largest, went bankrupt in 1986. The 10 top shipping nations move, on average, 32 percent of their exports and imports in their own-flag ships.

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The Soviets lead with 50 percent, trailed closely by Greece, Spain, Japan, and Norway. The U.S. figure—four percent—is the lowest.

Of course, the U.S.-owned fleet is larger than the U.S.-flag fleet. American operators, such as oil companies and tramp ship owners, account for much—perhaps as high as 31 percent—of the shipping tonnage registered in “flag of convenience” countries such as Liberia and Panama. When the flag-of-convenience ships (some 400 in number) are added to the U.S.-flag fleet, the tonnage under U.S. “beneficial ownership” rises, from three to nine percent of the world total. But most flag-of-convenience ships are specialized—e.g., tankers that supply nearly all of the country’s imported oil, and “bulklers” that carry coal, grain, and other commodities.

### Beating the British

In commercial shipbuilding, the United States ranks 10th, after Romania, Spain, Poland, Yugoslavia, and China. (Japan and South Korea now have more than 60 percent of the business.) U.S. yards have few domestic commercial orders, and have not built a ship for a foreign customer in 27 years; 33 yards have closed just since 1982. At the 74 remaining yards, employment—at about 100,000, the lowest since the early 1970s—now depends on Navy work. The merchant marine itself, which employed more than 100,000 seamen during the 1960s, now provides 29,100 jobs. (By contrast, the government reckons total employment at the nation’s “eating and drinking places” at almost six million.) There is only one shipper among the 50 largest U.S. transportation companies: the Overseas Shipholding Group, which operates three times as many foreign-registered vessels as it does ships under the U.S. flag.

How did the nation’s maritime weakness develop? The answer is both simple and complex.

Early America was a maritime nation. Historian Frederic C. Lane has likened it to Venice. To its people, settled along the Atlantic coast, “the sea was a source of wealth, contributing to the expansion of the rest of the economy.”

The early colonists, few of whom were seamen when they left England, found the Atlantic crossing a terrible trial. The 105 fortune-seekers who established the first permanent English colony at James-

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England and returned with Chippendale furniture and books for the owners' mansions. During the month of December 1774, 42 overseas arrivals and departures were recorded in Annapolis, Maryland. (A typical log entry: "Ship *Richard Penn*, Isaac All, Master, 200 tons, 10 men, for Leghorn [Italy] with 12700 bushels of wheat, 20 barrels of flour.") When it was incorporated in 1779, Alexandria, Virginia, then a tobacco-and-grain port on the Potomac, had its seal show "a ship in full sail with a balance equally poised above the ship."

The Northern colonies, cursed with thin soil and a short growing season, were even more dependent on the sea. As Massachusetts's Josiah Quincy said, "New Englanders would rather see a boathook than all the sheep crooks in the world."

To survive, the earliest New England colonists took to fishing. Soon, they began to trade. William Pepperell of Portsmouth, New Hampshire, who kept 100 vessels fishing off Nova Scotia, sent others as far as Spain and Portugal to barter cod for salt, iron, rope, wine, and fruit. Eventually, despite a poor harbor, harsh weather, and a certain Puritan hypocrisy—kissing in public was forbidden, but smuggling went on unchecked—Bostonians took the lead. With 7,000 inhabitants in 1690, Boston was the colonies' largest town, and its leading citizens were merchants.

Most of them owned shipyards, warehouses, wharves, and vessels. By 1700, they were sending their captains as far as the eastern Mediterranean and Madagascar in the Indian Ocean. Boston's 2,000-foot Long Wharf, built in 1710, and other docks became a transport hub. Coasters brought tobacco, cotton, and turpentine from Virginia; Cape Cod shallops arrived with whale oil, rum, and West Indian sugar. Boston ships took these cargoes, and wheat, rye, and furs, to London, returning with linen, woolens, shoes, and dry goods. American vessels were faster and less costly than British ships; Boston merchants could carry goods more cheaply than their London rivals.

### A 'Civilizing Effect'

The Revolution all but ended commerce with the West Indies, but something new helped keep the young Republic's merchants alive: the "China trade."

New York would not blossom as the major U.S. port until the 19th century, but investors there owned the first ship to carry the U.S. flag to the Far East. Cheered by *The Independent Gazette*, which praised the owners' "ambition to discover new resources of wealth" by the "extension of our commerce," the 360-ton *Empress of China* sailed to Whampoa and back in 1784–85 to trade ginseng and other cargo for tea, spices, silk, and china. The voyage returned a \$30,000 profit on an investment of \$120,000.

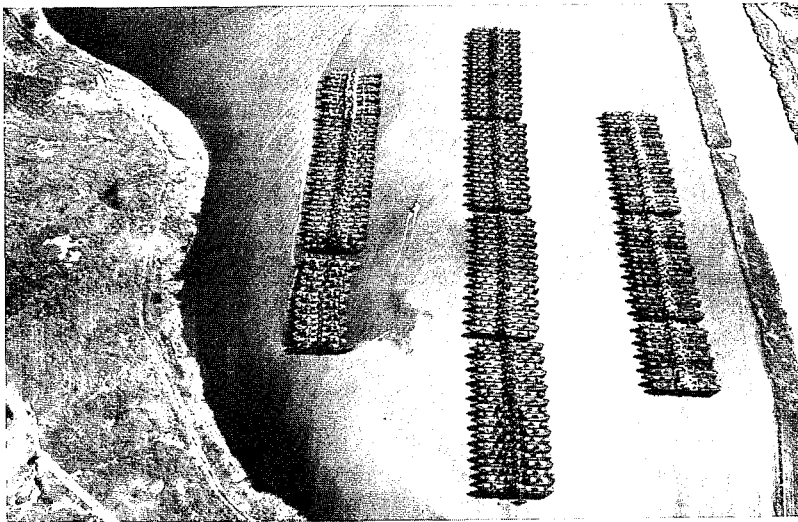
A Philadelphia-built ship, *Canton*, made the next trip. But the

New Englanders would not be outdone. In December 1785, the first American shipping millionaire, Elias Hasket Derby of Salem, Massachusetts, sent the 300-ton *Grand Turk* on a 17-month round-trip to Canton. His profit: 100 percent.

In time, merchants in Salem and nearby Boston virtually monopolized the U.S. Far Eastern trade—Boston's ships sailing west via Cape Horn, Salem's going east around Africa's Cape of Good Hope.

For a couple of decades, Salem became one of America's richest cities. Many of its wealthy captains learned to trade as youths in Derby's countinghouse. Five young Crowninshields commanded ships for Derby before the age of 20. At age 19, John Boit, Jr., took the 84-ton sloop *Union* to Canton and back. At 22 in 1787, Derby's son Elias, Jr., just out of Harvard, took *Grand Turk* on a voyage to Canton. But he found that he could sell his cargo—17,000 pounds of tobacco, 2,482 gallons of rum, 610 firkins of butter, 300 barrels of fish—on Mauritius. The island was short of ships, too, so he sold *Grand Turk*, worth \$6,500, for \$13,000.

The trading fever in New England was such that a Southerner dourly remarked that "every little village on every little creek with a sloop that can hold five Yankees was now planning to embark on the far eastern trade." But besides helping the Republic through a hard economic time, the distant commerce paid other dividends. For New Englanders, as Williams College's Benjamin W. Labaree noted, trade



*By early 1947, 1,681 ships, built for World War II, lay idle in nine Reserve Fleet anchorages like this one at Beaumont, Texas. They were the survivors; in 1941-45, 733 U.S. merchant ships were lost; 5,638 crewmen died.*

## HOW SHIPPING WORKS: AN UNFORGIVING BUSINESS

Sea transport is the cheapest way of moving things that man has ever devised.

For scheduled "liners"—ships serving designated ports and charging set rates—a good profit may be 1.5 cents to 2 cents per pound of cargo. For "tramp" ships—typically hired for a single voyage, like moving vans, often to haul low-value commodities such as ore and grain—margins are even thinner. A pound of sugar can be shipped a quarter of the way around the world for under a penny. A rough rule: Tramps move goods at one percent of the cost of aircraft, five percent of that of trucks, and 10 percent of that of trains.

Thus oceans are no barrier to international trade. They facilitate it.

Early European merchants traveled with their wares; only beginning in the 14th and 15th centuries were bank credit and bills of lading devised to allow goods to be brought to market by third parties. Today, most cargoes are carried by liners and tramps. But all shippers compete for cargo. That is why, notes Lane C. Kendall in *The Business of Shipping* (1986), they all share an "almost instinctive hostility toward regulation."

After the Suez Canal opened in 1869, owners of the new steamships, which could use the narrow waterway, fell into a rate war on the London-Calcutta route with owners of sailing vessels, which still had to round Africa to reach Asian ports. The war (and the Age of Sail) ended after a conference at which the steamer men agreed to offer "loyalty rebates" to customers who used their ships regularly. Shipowners continue to form "conferences" to set rates and share trade on routes. Yet an essentially free market persists. Supply and demand, observes Kendall, markedly influence "the rise or fall of freight rates from day to day and from cargo to cargo."

Rates are low partly because so many operators, large and small, seek cargoes. Among the world's 4,000-odd tramps, a typical owner's "fleet" is two to four ships. Except in times of war or famine, shipping is a buyers' market.

Example: A Chicago exporter wants to send wheat from New Orleans to France. His shipping agent in New York canvasses local ship brokers, then cables an agent at the Baltic Exchange in London, where most tramp charters are made. A Norwegian shipowner has a ship available; *his* agent relays to Chicago an offer to move 60,000 tons of wheat for \$15 a ton—which is soon bargained down to \$13.25 a ton. Out of his charter fee the Norwegian must cover his costs (fuel, wages, insurance, interest) and pay commissions to the brokers (for each, one and a quarter percent of his net earnings). But a profit should remain. Occasionally, shipowners carry cargo at a loss, to gain *some* cash to meet expenses.

The need to cut costs has led to greater ship size and speed. The faster the ship, the more voyages it can make over its normal 20–25-year life.

For decades, merchant ships were small and slow. The World War II Liberties steamed at 11 knots; until about 1960, most dry bulk cargoes, such as iron ore, wheat, and coal, were moved in ships with no more than 15,000 tons of freight capacity. Then, growth began. "Bulkers" rose to 50,000 tons,

then 150,000 tons. Supertankers debuted in 1955, when an American, Daniel K. Ludwig, built the 84,000-ton *Universe Leader* in Kure, Japan (and thus also launched the Japanese as builders of big ships). In 1956, Aristotle Onassis ordered a 100,000-tonner. By 1974, there were 388 tankers of 200,000 or more tons afloat, and 493 on the way.

Size entranced owners and their eager bankers: One 200,000-tonner cost less to build and operate than two 100,000-tonners. And the 1967 Arab-Israeli war, which closed the Suez Canal for eight years, made billionaires out of owners of supertankers. For one Persian Gulf trip for Shell, an Onassis 200,000-tonner garnered some \$4 million, nearly a third of its construction cost.

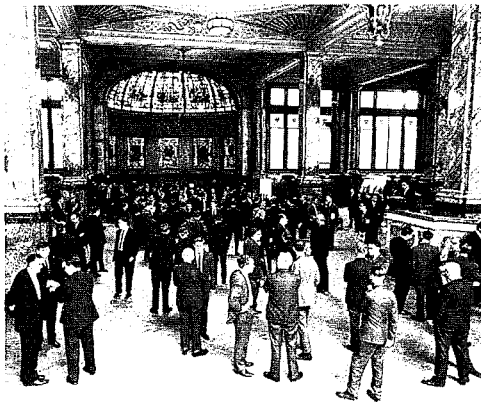
But shipping fortunes change. The tanker boom ended when oil prices rose after the 1973 Middle East war. Idle ships that cost \$80

million or more still crowd Piraeus, Norwegian fjords, and other anchorages.

Other operators have had woes, too. In 1972, Sea-Land introduced 33-knot containerships (almost as swift as the record-holding liner *United States*); after 1973, when fuel surpassed crew wages as the chief ship-operating cost, the eight vessels proved uneconomical and were sold to the U.S. Navy. Then, in 1984, Sea-Land founder Malcom McLean, as owner of U.S. Lines, received 12 South Korean-built containerships of unprecedented size, 950-footers designed for round-the-world service at an economical 18 knots. But the market was—and is—glutted; since 1976 the number of containerships vying for cargo has grown from 480 to 1,080. Result: U.S. Lines' 1986 bankruptcy.

Shipping is an unforgiving business. There is no blue-water trade route where a carrier is without competition. No single nation's shipowners rule the waves as Britain's did before World War I. But for some countries—e.g., Britain, Norway, Greece, Italy, and Japan—shipping (an "invisible export") is a key source of foreign exchange. Especially in nations whose own commerce is modest (e.g., Norway, Greece), shipowners seek profits in "cross trades" involving cargo movements between countries other than their own. Some nations, not including the United States, encourage multinational maritime ventures. Atlantic Container Lines, formed in 1967 by six operators (Swedish, Dutch, French, and British), runs 10 ships between U.S. and European ports.

And a "harsh fact," notes Kendall, is that "there is no patriotism among shippers anywhere." They use "the carrier who provides the best service at the lowest cost, without regard to the flag under which the ship sails."



*Baltic Exchange (est. 1744)*



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had a "civilizing effect, for the life of the Yankee mariner became part of the wider world around him—the world of the Carolinas and Cadiz, of the Chesapeake, the Caribbean, and London itself."

The federal government took its first steps to protect U.S. shipping in 1789–90. To pressure the British and other Europeans to lower bars to U.S. shipping, Congress levied high duties on foreign vessels carrying trade between U.S. ports.\*

During the decades before the Civil War, the merchant marine flourished. The clippers, and hundreds of other U.S. vessels, carried the flag not just to Canton, but to Macao, Hong Kong, Hakodate, and Honolulu, to Cuba, Puerto Rico, and Brazil, and to London, Liverpool, and Le Havre. Americans continued to build better ships at lower cost than the British, and to innovate. Robert Fulton's Hudson River paddlewheeler *Clermont* introduced steam power to water transport in 1807. Twelve years later, *Savannah* became the first ship to use steam engines (intermittently) in an Atlantic crossing.

### Fleeing the Flag

Packet service—the transport of passengers, mail, and cargo on a regular schedule—was begun in 1817 by four Quaker entrepreneurs who started the New York-based Black Ball Line, a fleet of fast transatlantic square-riggers. Rivals appeared—the Red Star Line, the Swallowtail Line, and the Boston and Liverpool Line, whose ship *Emerald* made a record 17-day passage home. The Atlantic packets, as Ralph D. Paine observed in *The Old Merchant Marine* (1919), "brought a different order of things, which was to be continued through the clipper era." Painting and other maintenance was done only in port; at sea the ships were "remorselessly driven for speed."

East Coast ports flourished. As late as the 1820s, more than half of the nation's urban population resided in just four harbor cities: New York, Philadelphia, Baltimore, and Boston. Fostered partly by larger, faster ships and improved communications (e.g., the transatlantic cable and the Suez Canal, both inaugurated in 1869), trade expanded throughout the world. And of that commerce, the U.S. share climbed—from about six percent during the 1820s to around 10 percent during the 1880s. During the early 19th century, two-thirds of America's trade, measured by value, was carried in U.S. ships. New York, linked after 1825 to the Great Lakes and Western states and territories by the Erie Canal, became the premier U.S. port. Within 15 years, nearly half of the United States' foreign trade moved over New York's crowded wharves.

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\*Then, in 1813, "coastal trade" was reserved exclusively for ships built in the United States and flying the U.S. flag. The curbs against U.S. shipping in Europe were eventually relaxed, but the U.S. coastal trade restriction continued, and indeed was expanded to cover trade with Hawaii, Alaska, Puerto Rico, and other possessions.



*Shipowners: Aristotle Onassis (1906?-1975) and Stavros Niarchos, with Eugénie Livanos Niarchos (left) and Tina Livanos Onassis; Hong Kong's Sir Y.K. Pao; Americans Malcom McLean and (right) Daniel K. Ludwig.*

Yet over a 60-year period ending in 1914—during which the nation's foreign commerce increased by almost 800 percent—the amount of U.S. trade carried aboard U.S. ships fell to 26 percent. In 1882, a congressional committee investigated the slump. Testified a Boston captain, John Codman: "We have lost our prestige and experience; we are no longer a maritime nation." The old ship-masters "are dead, and they have no successors."

The reasons for the sharp 19th-century decline of the U.S. merchant marine are debatable. But some factors appear clear.

The very success of U.S. shipowners and builders early in the century brought future problems. The British government moved to help its shippers regain supremacy. A subsidy was granted to the Peninsula and Oriental Line in 1837; by 1840, Cunard and two other major lines were also receiving help. The subsidies worked; after 1840, dominance in transatlantic services passed to British lines. The U.S. Congress made an attempt to respond, but abandoned subsidies during the 1850s. For all the ingenuity of U.S. naval architects, the British were the first to make wide use of steam and iron. The first

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ship to cross the Atlantic under steam power *alone*, in 1833, was Canadian; two British paddlewheelers followed in 1838.

Then came the Civil War.

Upwards of 1,000 ships—a third of the U.S. tonnage in foreign trade—“fled the flag,” i.e. were transferred to foreign registry to escape Confederate raiders and high insurance rates. When the war was over, Congress, led by Westerners who cared little about shipping as long as vessels were around to carry their states’ wheat abroad, would not let the “runaways” regain U.S. registry. This, combined with the earlier loss of many ships and the cotton trade during the war, was a blow. The industry never really recovered.

### \$30 a Ton

Shipping was left behind in the transportation revolution that transformed the United States in the postwar decades. It was railroads that now intrigued Wall Street and Washington. Some of Boston’s old China traders became investors in Western roads. By 1884, the Northern Pacific, the Southern Pacific, and the Santa Fe all reached the West Coast, spurred by federal land grants (20 square miles for each mile of track laid). The U.S. total, 35,000 miles of track in 1865, more than quintupled by 1900, exceeding Europe’s.

Many of the newcomers to shipping were railroad barons. By the 1890s, James J. Hill was running steamers from Seattle to Japan and China to feed his Northern Pacific system. Collis P. Huntington of the Southern Pacific ran the Pacific Mail Line (it was scuttled in 1915, by a law requiring its low-wage Oriental crews to be replaced by Americans). When someone suggested to J. P. Morgan that the U.S. merchant marine, suffering from rate wars and British dominance, could be the core of an international shipping trust, he replied: “It ought to be.” But it was not. Morgan’s International Mercantile Marine Company merged several U.S. shippers and acquired two British lines, White Star (the 1911 builder of the *Titanic*) and Leyland. Yet his dream faded. The British government blocked the sale of Cunard, and Kaiser Wilhelm would not let the Hamburg-American Line go. Morgan wanted his trust’s ships to fly the U.S. flag.

The decline continued. As manning and building costs rose—reflecting climbing U.S. wages and living standards—U.S. shipowners failed to modernize. As late as 1892, more U.S. tonnage was powered by sail than by steam.

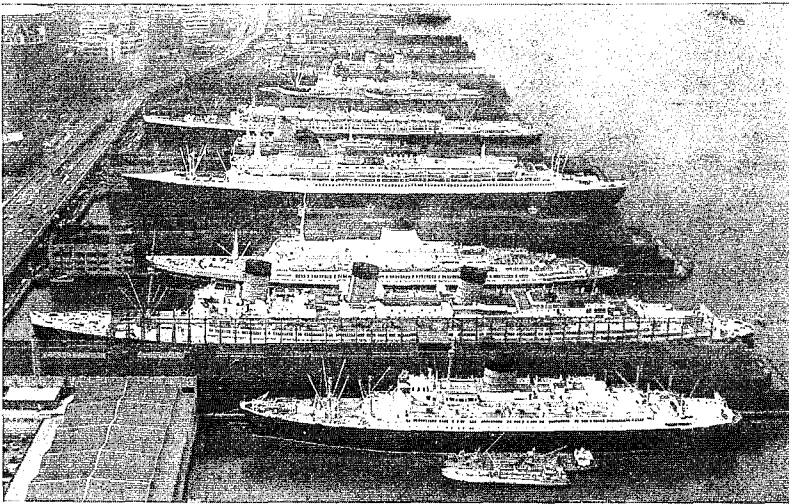
Congress responded with a number of subsidy schemes, and a cargo-preference law (1904) requiring military shipments to be transported in U.S. vessels. But all failed to modernize the merchant marine. America simply could not compete with British and other shippers who enjoyed better technology and lower costs.

Not until World War I broke out in Europe was the merchant

marine revived—temporarily. Congress reversed its no-return policy, and U.S. shipowners rushed to hoist the Stars and Stripes to gain the neutral status that America had before it entered the struggle.

The war underscored the importance of shipping to defense. At the outbreak of hostilities, the U.S. Navy possessed only three transports. President Woodrow Wilson had signed the Shipping Act of 1916 setting up an Emergency Fleet Corporation to build and operate a merchant fleet, because the weakened U.S. industry could not do the job. Before the war was over, old yards were reactivated, new ones built, \$3.3 billion spent, and 178 new vessels joined the vaunted “bridge of ships” to Europe. Even so, about half of the 2,000,000-plus U.S. troops sent “over there” sailed on British transports. And after the 1918 Armistice, there was little need for the U.S. ships, which were soon sold off to American and foreign operators at discount rates—\$30 per ton for vessels built at \$250 per ton. Although the Merchant Marine Act of 1920 aimed at creating new shipping lines around the world, it failed. Despite a mail subsidy scheme enacted in 1928, the merchant marine fell to new lows.

The Depression spawned what remains the blueprint for federal maritime policy, the Merchant Marine Act of 1936. Sponsored by two shipyard-state men, Representative Schuyler Otis Bland (D.-Va.) and Senator Royal S. Copeland (D.-N.Y.), considered in haste by a Congress eager to adjourn for party nominating conventions, and signed by President Franklin D. Roosevelt as a job-creating measure,



*Passenger liners in New York, 1964. In foreground: Sylvania, Queen Mary, Leonardo da Vinci, France, Bremen, United States. France is now Norway, a cruise ship. Only Queen Elizabeth II offers transatlantic service today.*

the act was at best an expedient.

Congress cited a need to maintain an adequate merchant marine in foreign trade for *both* commercial and defense purposes. The act also, as *Fortune* editors warily observed, injected into U.S. business "an entirely new principle" on a "gigantic scale. This is the principle of the direct subsidy." To receive it, owners of cargo ships had to employ U.S. crews and observe U.S.-based minimum wage and manning scales.\* If subsidies did not create a robust merchant marine, the government could build and charter ships to private operators.

### Jumbos, Boxes, Ro/Ros

Under its ebullient first chairman, Joseph P. Kennedy, the new Maritime Commission set out to build 500 ships in 10 years.

World War II changed that plan. The Maritime Commission orchestrated the greatest shipbuilding effort in history: the construction of almost 6,000 vessels—including 2,700 Liberty ships and 400 Victory ships—for the merchant marine. But once again, when the war was over, the government had excess ships on its hands. Some were placed in Reserve Fleet anchorages. Others were sold off at bargain prices, 843 going to U.S. buyers, 1,113 to foreigners. It was this selloff that allowed such European opportunists as Aristotle Onassis and Stavros Niarchos (at that time, sons-in-law of Greek shipowner Stavros Livanos) and Costa "Goldfinger" Lemos to establish Greek dominance in world shipping during the 1950s.

Little could be done to revive the U.S. high-seas fleet. But the government tried anyway—by extending subsidies to bulk carriers and tramps and by offering construction-loan guarantees of up to 100 percent for all types of ships. Still, the merchant marine could not meet lower-cost competition. But not until 1954, when a post-Korean War shipping slump sent the ranks of idle U.S.-flag vessels soaring, did Congress pass a Cargo Preference Act requiring 50 percent of all overseas shipments paid for by federal funds or federal loans to be moved in U.S. vessels. Since this included foreign aid cargoes, such as wheat for drought areas, the law has greatly aided the merchant marine, at high cost to taxpayers.

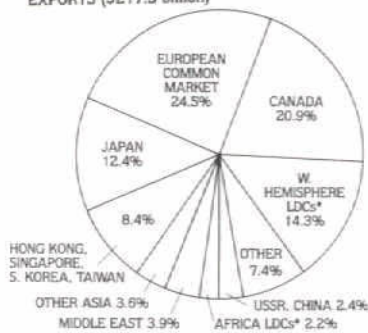
Still, the decline continued. And the competing Greeks were followed by low-cost operators in Norway and then in Taiwan, Hong Kong, and Japan. By 1969, U.S. ships were carrying only 4.6 percent of U.S. trade. Not enough cargo liners, bulk carriers, and tankers were being built to compete for a fair share of America's oceangoing

\*The government promised payments to offset the higher cost of U.S. ship construction over foreign building, to provide low-cost building loans, and to foot the bill for features (e.g., facilities for troops) built into ships to assure suitability for military use. Owners were offered cash to make up for high U.S. wages and operating costs on their U.S.-flag vessels in foreign trade. To date, taxpayers have subsidized the building and reconstruction of some 237 vessels, at a cost of \$3.8 billion. At present, about 110 U.S.-flag ships receive annual operating subsidies, averaging \$3.5 million per ship.

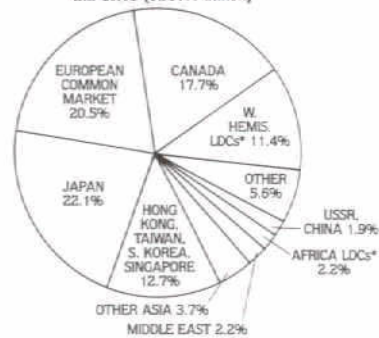
**U.S. MERCHANDISE TRADE, 1986**

\* LDCs: Less Developed Countries

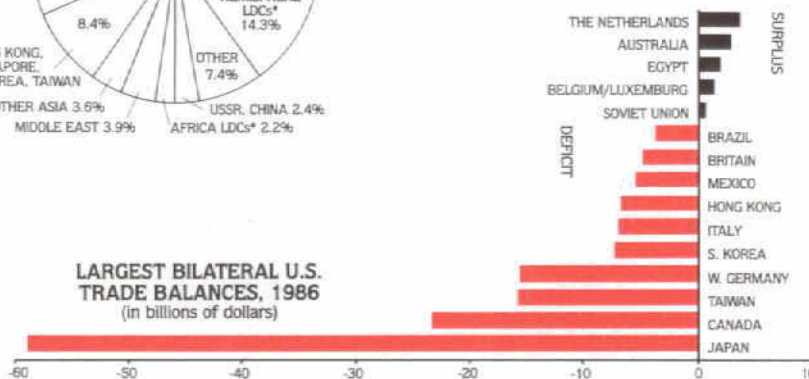
EXPORTS (\$217.3 billion)



IMPORTS (\$387.1 billion)



**LARGEST BILATERAL U.S. TRADE BALANCES, 1986**  
(in billions of dollars)



The U.S. share of world merchandise exports, 18 percent in 1960, fell to 11.4 percent in 1985. On the rise: West Germany (9.8) and Japan (9.4).

trade. President Richard M. Nixon, who took office when war (in Vietnam) was again straining the capabilities of the U.S. merchant marine,\* formulated a modern definition of sea power: "the ability of a nation to project into the oceans in time of peace its economic strength, in time of emergency its defense mobility." The Merchant Marine Act of 1970, signed with fanfare, further extended ship construction aid. But the timing was unfortunate: The post-1973 global economic slump took its toll on *all* international shipping.

The merchant marine entered the 1980s in the same weak position it had occupied since early in the century. American-flag shipping, while it does well in coastal and inland waters, cannot compete on the oceans. The persistent vision held by U.S. shipowners,

\*The job of supplying U.S. forces in Vietnam in 1965-72 required a fleet of 350 cargo ships that shuttled between the United States and ports in and around Indochina. Many were old vessels drawn from the reserve fleets, and most were undermanned. Often, military cargoes had to be entrusted to European and Far Eastern shippers who, ironically, had also served North Vietnamese ports.

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shipbuilders, and others of American vessels carrying 50 percent of the nation's goods in foreign trade remains as chimerical as ever.

Yet Americans remain the most inventive of maritime folk.

During the early 1950s, U.S. operators such as Daniel K. Ludwig took the lead in "jumboizing" older ships—adding new sections to increase cargo capacity and, therefore, economy. Others launched entirely new kinds of ships, such as liquefied natural gas (LNG) tankers. Some designers and owners produced the first of what became revolutionary ways to end one of the oldest and costliest traditions of shipping: the slow, piece-by-piece loading and unloading of cargo by dockside stevedores. *Comet*, launched in 1958 by Philadelphia's Sun Shipbuilding and Dry Dock Company, was the first "Roll-on/Roll-off" ("Ro/Ro") ship—a vessel whose cargo is carried in trucks and trailers that are driven aboard at one port and driven off at their destination. The "lighter-aboard-ship"—or LASH—vessel developed during the 1960s by a U.S. naval architect, Jerome L. Goldman, employs the same principle with barges. Loaded and sealed barges can be towed down the Mississippi River, lifted aboard LASH ships in New Orleans, and then taken to Rotterdam or other ports. There they are refloated for movement up European rivers to their destination—without ever being opened or sitting at a dock.

One of the great revolutions in commercial transport began on April 27, 1956, when a dockside crane in Newark, New Jersey, loaded 58 containers aboard a converted tanker, *Ideal X*, for shipment to Houston. This was the idea of Malcom McLean, a trucking company founder, who bought the Pan Atlantic Steamship Corporation to try a new concept of point-to-point delivery of goods. In just 12 years, the "container revolution" launched by McLean's Sea-Land Service spawned uniform international standards allowing the boxes to be moved by road, rail, and ship just about anywhere. Containerizing freight means fast handling, less damage to goods, and less pilfering. Most merchandise moved by sea is now packed in containers.

### **The Siberian Bridge**

One result: Major harbors no longer resemble the crowded warrens of piers, sheds, and carts that Herman Melville and Joseph Conrad knew. There are more than 2,000,000 containers in commerce today, and their handling requires space—acres of open surface. In established port cities, the action has gravitated to new, more distant facilities away from the old waterfront. Ships are thus not as visible to people as they used to be.

Containers led to "land bridges." When a shipment would be very lengthy by sea alone, the boxes may be moved across land masses by rail, at a typical cost saving of about 20 percent. Between 1967 and 1972, two such routes were established. Containers of

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goods from Japan can be shipped to the Soviet port of Nakhodka, near Vladivostok, for loading aboard trans-Siberian trains. Some containers might be taken to northwest Russian ports, to be lifted aboard ships bound for northern Europe; others may go to Black Sea ports for transshipment to Italy, Spain, or France. About 100,000 containers are moved over the Siberian land bridge each year. On the also-busy North American land bridge, containers can be moved by rail between Atlantic and Pacific, or Gulf, ports in four days or less.

The major U.S. ports—New York, Philadelphia, Baltimore, Hampton Roads, Charleston, Savannah, Mobile, New Orleans, Galveston-Houston, Los Angeles, San Francisco, and Seattle—compete hard to accommodate the growth of transportation “intermodalism.” The next step may be the wide adoption of another U.S. innovation: “RailRoaders,” trailers with retractable highway wheels that can be moved by rail not on flatcars like present-day containers, but on their own attachable railroad bogeys. Such trailers could easily be loaded aboard Ro/Ro vessels or other ships.

### Chasing Cargo

All of these developments have involved one of the fastest-growing merchant marines: that of the Soviet Union.

Run by the Merchant Marine Ministry, the 2,514-ship Soviet commercial armada is designed not only to earn foreign exchange in peacetime but also to serve the military in logistical, surveillance, and auxiliary missions in time of war or Cold War. Almost two-thirds of all Soviet foreign trade is carried by ship. Half of this is carried by Soviet vessels, the rest by chartered foreign-flag ships. With more than 45 Ro/Ro vessels having decks and ramps built to support tanks; with at least half a dozen barge carriers that can offload military equipment without shore facilities; with 40 ports able to handle containers; with more than 100 containerships (most of them self-unloading); and with over 2,000 “breakbulk” ships with their own cargo-handling equipment on board capable of supporting the Soviet military or those of client states—plus about 50 ships engaged in intelligence collection and 2,700 fishing vessels equipped for that, too—the Soviet merchant marine is a valuable commercial *and* military asset. And it turns a profit.

Soviet shipbuilding is proceeding rapidly, aided by construction programs in the East European satellites and directed by Moscow’s Ministry of Shipbuilding. Ten to 20 vessels are launched each year, about a third for export—to Cuba, Algeria, West Germany, and Scandinavia. Like the Soviet merchant fleet, Soviet shipbuilding receives strong government support and is moving to become a major power in seaborne commerce during the late 20th century.

As do their Far Eastern, Western European, and Third World