

A Boston wharf, in an 1832 painting by Robert W. Salmon. "There are classes of men in the world," wrote Herman Melville, who first went to sea as a ship's boy in 1839, "who bear the same relation to society at large that the wheels do to a coach: and are just as indispensable. Now, sailors form one of these wheels."

The Maritime World

Samuel Johnson once defined the merchant as "one who trafficks to remote countries." Seaborne "trafficking" has grown, to wide benefit. However, world trade is now a sore subject to Americans. Big trade deficits (\$170 billion in 1986) have stirred fears in Washington for U.S. "competitiveness." Congressmen seek import curbs; in April the Reagan administration placed sanctions on Japan for "dumping" microchips. What is *not* on many American minds is something vital to international trade: merchant shipping. Changes in the maritime world are part of the reason why U.S. wheat and Caterpillar tractors sell in Europe, as do European and Japanese cars in the Americas, Argentine beef in Italy, Australian iron ore in South Korea. Here, Clark G. Reynolds analyzes the great maritime nations of the past; James M. Morris traces the United States' rise and decline as a maritime nation.

TRADERS

by Clark G. Reynolds

The empire of Atlantis, wrote Plato in the *Critias* (circa 370 B.C.), gained its wealth from trading across the seas with many lands. Its merchant vessels were protected by a great fleet of warships.

But Atlantis's power, Plato emphasized, was not abused. The Atlanteans possessed "in every way great spirits uniting gentleness with great wisdom." They "were obedient to the laws." Gold and other riches "seemed only a burden to them." Not "intoxicated by luxury," they were "sober, and saw clearly that all [their] goods are increased by virtue and friendship with one another."

While Atlantis was probably mythical, the *idea* of a benevolent maritime empire was not. Most likely, Plato was idealizing his own city-state of Athens at its peak, during the fifth century B.C. Or perhaps he was reporting the story, passed on to him by the Egyptians, of the first great seagoing peoples: those of Minoan Crete and the southern Aegean islands more than 1,000 years earlier. These soci-

eties were all what Thucydides, using the Greek word for the sea (*thalassa*), called thalassocracies.

What was special about them? Their singular characteristic, Plato thought, was a sense of virtue. Its erosion brought decline.

Atlantis, Plato observed, sank beneath the waves after "human nature got the upper hand" and the people "behaved unseemingly" by trying to conquer the sea *and* the land.

As for Athens, Isocrates, a contemporary of Plato, noted that the city-state "readily obtained command of the sea." But "arrogance" bred by maritime success eventually cost the Athenians their supremacy. They "no longer kept the laws which they had inherited from their ancestors nor remained faithful to the ways which they had followed in times past."

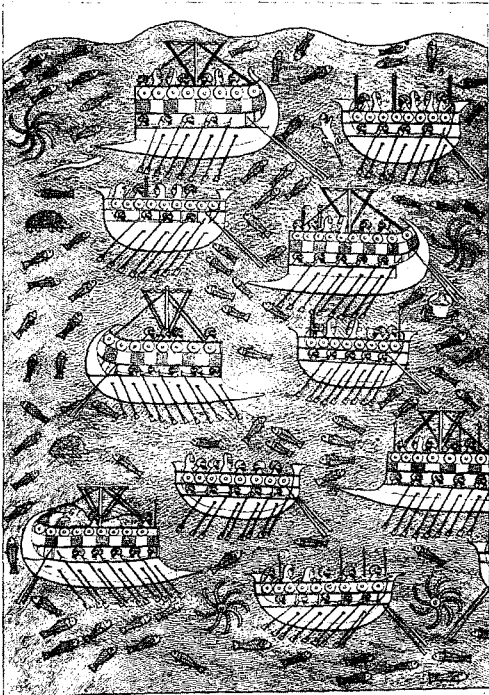
How Athens Fell

Athens's maritime era began with the leadership of the statesmen Themistocles and Pericles. After Athenian-led Greek forces repulsed a Persian invasion fleet at Salamis in 480 B.C., the Aegean Sea was ruled by the Athenians' galleys—long, slender craft, each propelled by 170 oarsmen, which were built and manned by volunteers.* Naval supremacy enabled Athenian merchants to create a sophisticated maritime trading network. Colonies and enclaves arose along Mediterranean shores from Iberia to the Nile. Traders aboard Athens's squat, sailing round-ships bought (and sold) grain and oil from Iberia, lead, salt, and ivory from North Africa, and fruit, cattle, and copper from the Levant. From Black Sea ports they brought wheat and alluvial gold from the Russian rivers.

Trading profits built temples and financed the arts. Philosophers gravitated to the thriving Athenian democracy, bringing with them new ideas from Persia, Egypt, and even more remote Western Europe. "Our city is open to the world," proclaimed Pericles, who proudly declared that Athens stood as "an education to Greece." Recalled Isocrates: "We helped the common people and were declared enemies of narrow oligarchies, for we thought it monstrous

*Galley "slaves" did not appear in significant numbers until the mid-15th century A.D., when the French, short on manpower, forced war prisoners, criminals, and other *miserables* to pull ships' oars. Such crews appeared only on Mediterranean galleys, which were last rowed into combat in 1717. The Spanish employed galleys on the Mississippi River as late as 1804.

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Phoenician galleys, circa 700 B.C. Those with pointed bows are warships. The others are transports. When the Phoenician traders developed "sail power," they continued to favor beamy, rounded hulls. The best known of their merchantmen was called a gaulos—a tub.

that the many should be subject to the few.”

Yet the strategic burdens of empire finally undermined the Athenian state. Its allies revolted against the tribute it levied for the defense of the Aegean. Athens moved to crush the rebel island- and city-states one by one. Eventually, Sparta, Athens's oligarchic rival, began the Peloponnesian War (431–404 B.C.). Athenian leaders undertook major campaigns by sea and by land; they rejected their own long-standing laws and customs and appointed dictators to head the state. Finally, after 27 years of conflict, warships of the painstakingly created Spartan navy surprised and destroyed the Athenian fleet of 180 galleys at Aegospotami near the Hellespont.

Despite this traumatic defeat, Athenian mariners and ships continued to engage in trade and to fight for various masters. And Athenian ideas survived. They transformed the conquering empires of Alexander the Great and Rome into Hellenized societies and, indeed, shaped Western civilization. No other society would so combine the advantages of maritime trade, democracy, and intellectual élan until an upwelling of interest in both classical culture and seaborne commerce began in Italy nearly 2,000 years later, a phenomenon now known as the Renaissance.

Seen through modern eyes, Athens had a special advantage:

insularity. Isolated on a mountainous peninsula, Athenians enjoyed what historian C. Vann Woodward called "free security." Athens had little need of a costly standing army, or of authoritarian rule. The city-state, perhaps 55,000 souls in all, spawned free institutions—not perfect, but unique in the ancient world. Democracy could mature in safety, a prerequisite of all democratic states since then. And free enterprise—as opposed to royal monopoly—led to the rise of a trading class virtually unknown in the authoritarian, agrarian oligarchies and kingdoms (e.g., Sparta, Macedonia, Persia). These societies of landed aristocrats and peasants had exposed borders to defend; to survive, they required warrior-rulers. By contrast, the thalassocracy of Athens was a civilian enterprise.

Looking Beyond Land

Rome, founded as a republic, developed from a warrior state into a far-flung empire because of the threat of enemies on its land frontiers. Rome's conquest of the Mediterranean by the mid-first century B.C. was wrought not by war fleets but by the legions. They seized ports by advancing overland and waged infantry battles at sea, boarding enemy ships for hand-to-hand combat. As historian Lionel Casson noted, the Romans were "an anomaly in maritime history, a race of lubbers who became lords of the sea in spite of themselves." Like the Spartans, they built a navy reluctantly. Rome's warriors suffered grievous disasters on open water, especially at the hands of the Carthaginians, before they made the "middle sea" a *mare nostrum* at the time of Christ. Thereafter, Rome left maritime pursuits to the empire's seafaring subjects, notably the Greeks.

Rome's landowning aristocrats disdained engaging in commerce on land *or* sea. Ordinary citizens saw service on merchantmen or warships as beneath their dignity. For centuries, the fleet's main role was to transport the army. Even when special anti-pirate squadrons had to be deployed after the first century A.D., these forces were controlled by the army.

Yet Rome maintained its power at sea as an imperial necessity. Wrote Vegetius: "None will attack or insult" a state known to be ready at sea "to avenge any affront."

Late in the Middle Ages, new maritime city-states emerged, this time on the Italian peninsula. By the end of the 12th century, the ships and merchants of republican Venice, Genoa, and Pisa (and, later, Florence) were competing for the growing trade of the Mediterranean world. Despite religious differences and costly wars, Italian ships carried goods as well as armed crusaders throughout the flourishing trade triangle of the European Christian West, the Byzantine Christian East, and the Islamic Ottoman Empire.

Why these people, these few Italian city-states, and not others?

Fernand Braudel (1902–86), the great French dean of the *Annales* school of “total history,” observed that the Mediterranean shores did not inevitably spawn a “chosen country of seafarers.” Far from being “inhabited by the profusion of seagoing peoples” found in northern Europe, such as the Dutch and the English, the middle sea produced mariners only “in small numbers and in certain regions.” The Mediterranean was agrarian, “overwhelmingly a world of peasants, of tenant farmers and landowners.” But the Italian city-states, notably Venice, looked beyond the land—for the greater challenges and rewards that only the sea offered.

Their maritime proclivities were crucial to the evolution of the West. “Without the economic underpinning and the artistic and intellectual stimuli arising” from seaborne trade, observed historian William H. McNeill, “the flowering of city-state culture in Italy which we call the Renaissance could not have occurred.”

Florence and Genoa pioneered in credit, insurance, and the creation of large business firms. Yet only Venice became a full-fledged thalassocracy. Why?

The Venetians tended to regard themselves as the new Romans. In fact, they were the new Athenians. Located on an archipelago of islets within a great coastal lagoon, their city was largely protected from landward intruders. Their huge war galleys policed the Adriatic Sea and in 1204 captured Constantinople. Thus the Byzantine Aegean came under Venetian jurisdiction.

Pepper, Cotton, Grain

Gradually, between the late 14th and the late 16th centuries, Venice wrested markets and colonies from Genoa, Pisa, and Florence. It became the complete commercial state. Its republican government rested upon a capitalist system. Unique in its time, it was run by patrician merchants from a group of 150 noble families. Though Venice, like Athens, was not democratic in the modern sense, its leading citizens—the Contarini and Tiepolo families, among others—did not abuse their power. They passed laws to protect all citizens and thereby enjoyed the tacit consent of the governed. Said a motion before the ruling council during the 15th century: “The principal foundation of our city and its singular ornament is justice.” Philippe de Commines, the French ambassador in 1494–95, hailed Venice as “the most triumphant city I have ever seen.” It “governs itself with the greatest wisdom.”

The trust and esteem Venice enjoyed stemmed from its union with the sea. Each Ascension Day the ruling *doge* (duke) tossed a gold ring into the crowded lagoon and proclaimed: “We wed you, o sea, as a sign of true and perpetual dominion.” This dominion, commercial rather than military, extended to England and Flanders in the

WHY THE EUROPEANS WERE FIRST

The Age of Discovery—of Columbus's ventures to the New World (1492–1504), Da Gama's voyage to India (1497–99), the circumnavigation begun in 1519 by Magellan—gave Western Europeans a preeminence in long-distance maritime conquest and commerce that endured for centuries. Historians have long pondered the causes and effects. There were many able mariners around. Why did the Europeans alone seek mastery of the seas?

Technology played a role. The caravel, the small (50 tons or so), three-masted sailing craft dating from about 1430 that enabled Portuguese captains to venture down Africa's coast and far into the Atlantic, combined the features of two European designs. From the ships of northern German traders came the centerline rudder, which allowed nimble maneuvering and precise course-steering. From the Mediterranean came the lateen rig; its triangular sail, first developed in India, could do what the square sail could not: propel a craft into the wind. Thus variously equipped, Europeans were able to utilize the patterns of winds and currents of the Atlantic and other oceans.

But Europeans were not the only sailors, as they saw when they reached China and Japan. Many theories were advanced as to why Oriental seamen seemed to stay close to home. A Spanish cleric concluded in 1577 that the Chinese were "afraid of the sea, being people not accustomed to take risks." An Englishman wrote that the capacious but squat, flat-bottomed junks suffered "the inconvenience of falling much to leeward with a side wind"—i.e. they could not sail across or into a breeze as well as deep-draft European craft.

In truth, non-Europeans accomplished striking feats. The Chinese had compasses by the 11th century, and by the 14th had junks with four decks and six masts. A 15th-century admiral, Cheng Huo, led seven long voyages, the last a two-year expedition to Hormuz in the Persian Gulf. Venetians told of an Arab ship that probed the "Sea of Darkness," as the Arabs called the Atlantic, sailing out 2,000 miles "between sea and sky" in 40 days. Japanese junks crossed to Acapulco, Mexico, three times during the 17th century.

Yet the Europeans, as historian Fernand Braudel noted, "remained alone in the race" to rule the seas. The reason, he suggests, was need. China and the Islamic world were self-sufficient and rich; they even had colonies. "The West, by comparison, was still 'proletarian.'" But after the 13th century, pressures for a better material life transformed the West's psychology:

"What historians have called the hunger for gold, the hunger to conquer the world or the hunger for spices was accompanied in the technological sphere by a constant search for new inventions and utilitarian applications—utilitarian in the sense that they would actually serve mankind, making human labor both less wearisome and more efficient. The accumulation of practical discoveries showing a conscious will to master the world and a growing interest in every source of energy was already shaping the true face of Europe and hinting at things to come, well before that success was actually achieved."

One major result, Braudel concludes, was "victory over the ocean."

Atlantic and inland via the Po Valley rivers to the Alps.

In 1423, when Venice's population was about 100,000, the city boasted nearly 3,500 merchant vessels, both galleys and sailing craft. Often these vessels were accompanied by armed galleys, whose oarsmen were drawn from a pool of free Venetians, all doing their citizen's duty. Those who built the ships at Venice's vaunted Arsenal, perhaps the largest industrial establishment anywhere in its time, were skilled freemen, not slaves.

For three centuries, Venetian ships carried the bulk of the cargo of the Mediterranean world. Ships not privately owned were leased out by the state. Later, as the need arose, the government granted construction and freight subsidies to patrician shippers. Cargo-laden galleys moved in annual convoys along prescribed routes; larger armed sailing cogs journeyed alone to markets of opportunity. The captains visited Venetian trading posts (e.g., Corfu, Crete, and other Aegean islands) and foreign ports. Even among the infidel Turks, their agents abroad enjoyed a privileged status.

Venice became an emporium. Venetian merchants did not necessarily have to travel to European markets, because other Europeans came to *them*. Germans, for instance, would deliver to Venetian traders bars of iron, textiles, and ever-increasing amounts of silver. In exchange, the Venetians would supply the Mediterranean commodities they controlled—pepper, spices, Syrian cotton, grain, wine, salt.* The German goods, in turn, were bartered through the Venetian trading network; in Tunis, silver was exchanged for African gold.

An Aversion to Risk

The Venetians invested their immense profits in inland trade, which brought Venice dominion over northern Italy. And they committed their earnings—"sparing no expense," boasted a government report—to gild their city. Palaces like the Contarini family's 15th-century Ca' d'Oro rose along the Grand Canal to complement opulent basilicas like the one in the Piazza San Marco. Rich patrons made Venice the center of Renaissance painting. Though devout Catholics, the Venetians kept their government secular. They could trade with the Turks, and even subjugate the Byzantine Christian empire, without qualms. Restless Venetians like Marco Polo (1254?-1324) journeyed as far as China in search of new trading opportunities.

This freest and most joyous of Italian city-states experienced a decline only after its resources were drained by wars against the Turks and by resistance to invasions of Italy by continental powers, beginning with Charles VIII's France in 1494. The plague took its toll

*A key food preservative in pre-refrigeration days. Venice's rulers controlled salt-marsh acreage on the Adriatic Sea and in Cyprus so vast that each year more than 40,000 horses were brought in from Hungary, Croatia, and Germany just to load salt aboard Venetian vessels.

of shipbuilders and crewmen. And, as time went on, it seemed that investments in property ashore required less work and risk than the sea trade; private commercial banks disappeared. After the 1570s, the ships and agents of merchants in northern European cities like Amsterdam opened new markets in the Far East and the Americas, geographically removed from the Mediterranean-based Venetians.

By 1610 Nicolò Donà, one of the leading patrician merchants, was wistfully recalling the days when "all was grandeur, utility, emolument, commodity, honor," when all Venetians were "interested in sea voyages, in business, in everything appertaining to the . . . greater good of the fatherland."

The Venetian thalassocracy had become a minor power. Even so, it never suffered a tyrant or a popular revolt. It never fell victim to conquest until 1797, and then only to Napoleon's armies.

The employment of Italian bankers and seafarers by the rising new continental power, Spain, contributed to one of the great accidents of historical timing. Located at the confluence of the Mediterranean and northern European sea routes, and without serious maritime competitors, Spain hired skilled foreigners, notably Christopher Columbus of Genoa, to explore new trade routes abroad. These great



Long after her great days of commerce and empire, Venice's wealth and physical splendor attracted artists. Canaletto's 18th-century painting Sta. Maria Della Salute and the Grand Canal hangs in the Louvre in Paris.

navigators found the New World, whose riches—gold, silver, spices—Spain's financial councillors placed in the royal coffers. Neighboring Portugal used its own modest maritime population to reach the Far East and to establish a trading monopoly—spices, tea, textiles—over the Indian Ocean.

But neither Spain nor Portugal developed a maritime commercial base. Typical 16th-century continental states, they encouraged no middle class of businessmen to invest the gains from their overseas domains in local trading or manufacturing enterprises. The gold and silver from the Americas and profits from the Eastern spice trade were variously squandered by the aristocracy, consumed by the Spanish army in continental campaigns, and spent on manufactured goods from northern Europe.

Gradually, Spain's Italian financial advisers, shippers, and sailors were replaced by Dutchmen. By the end of the 16th century, an Englishman, Sir Walter Raleigh, was noting just how much King Philip II depended upon the Netherlanders: "Were it not for them he were never able to make out such armies and navies by sea."

Less than a century after Columbus opened America to Spanish exploitation, the Renaissance reached the Netherlands and England. First Amsterdam and then London became the financial and trading centers of a new northern European capitalism, linked closely to the individualistic spirit of the Protestant revolt against Catholicism and Spain. Dutch and English warships and armed merchantmen repelled the Spanish Armada in 1588 and then attacked Spanish and Portuguese trading monopolies around the world.

Mare Liberum

The Dutch were foremost. To the seven tiny United Provinces of the northern Netherlands, especially Holland and its port of Amsterdam, belonged the commerce of the 17th century. The coastal republic's insularity was provided by the Rhine, Scheldt, and Meuse estuaries and rivers. The southern Netherlands (modern Belgium) and the port of Antwerp had been vulnerable to Spanish incursions. To the east lay the fragmented German duchies. The other potential threat, France, was inhibited by its own internal strife, and by an alliance prudently arranged by the Dutch.

The Dutch created an exuberant republic, then an empire, based entirely on overseas trade. They adopted certain Venetian banking practices. However, unlike Venice, the Netherlands was dominated by a genuine nonpatrician class of urban merchants—the first modern nation-state rooted in bourgeois capitalism. The merchants formed private joint-stock companies to branch out from the close-to-home Baltic trade and North Sea fisheries and fill the commercial vacuum left by Venice and Antwerp. The same genius that enabled

AMSTERDAM: THE ENTREPÔT SYSTEM

The Dutch sailed to maritime supremacy after 1600 with a fleet that in numbers equalled those of *all* of its European rivals, and channeled the bulk of Europe's trade in and out of a single port. Even as late as 1786, a total of 1,504 vessels—more than four a day—arrived at the busy quays of Amsterdam. The ships, all but 44 of them Dutch, bore commodities and finished goods from Prussia, Russia, Sweden, Denmark, northern Germany, Norway, Italy, Portugal, Spain, the Levant, the Barbary Coast, France, and the Americas.

The roomy, round-sided Dutch *fluyt* (flyboat) was simply built and needed only a small crew—thus lowering the costs of wages and food, the main expenses on long trips. A French study noted that while a 400-ton French ship could have 25 in crew, a Dutch craft that size might have 12. Dutch seamen made do with beer, rye-biscuit, and “a great deal of dried fish without seasoning, which costs far less than meat,” but French sailors required “bread, wine, biscuit made of pure wheatmeal,” fresh and salt meat, butter, peas, beans, eggs, cod, and herring (which had to “be well-seasoned, and even then they will only accept it on meatless days”). The “hotter” French had four meals a day; the Dutch with “a cooler temperament eat two or three.”

The well-managed Dutch fleet, observed Fernand Braudel, served a singular entrepôt system:

“In Amsterdam, everything was crammed together, concentrated: the ships in the harbour, wedged as tight as herrings in a case, the lighters plying up and down the canals, the merchants who thronged to the Bourse, and the goods which piled up in warehouses only to pour out of them. No sooner had a fleet arrived, relates a 17th-century eye-witness, ‘than through the good offices of the brokers, the entire quantity of merchandise is bought at the first meeting of merchants at the Bourse, the ships are unloaded within four or five days and ready to set sail on a new voyage.’ It would certainly take a little longer to find buyers. But the warehouses . . . could absorb and then disgorge any amount of goods. There was an extraordinary volume of property, materials, goods and services on the market, all available at a moment's notice. At a given command, the entire machine went into action. This was the means whereby Amsterdam maintained her superiority—an abundance of ever-ready goods and a great mass of money in constant circulation. . . .

“‘Since I have become particularly acquainted with Amsterdam,’ writes a contemporary in 1699, ‘I compare it to a fair where merchants from many parts bring their merchandise which is sure to find a customer; as in ordinary fairs the merchants one meets there do not use the things they sell, so the

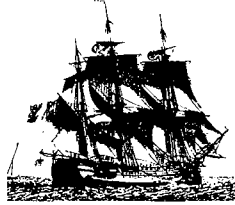
the Dutch to harness the north coast gales with windmills also produced small, unarmed, cheaply built cargo craft that sailed in escorted convoys. Larger “Indiamen” carried their own cannon to far seas, leading Dutch efforts that supplanted the Portuguese traders in South Asia and established a trading monopoly with Japan.

By 1650, the Dutch monopolized the shipping trade of most of

Dutch, who collect goods from every corner of Europe, keep for their own use only what is strictly necessary for life and sell to other nations the products they consider superfluous and which are always more expensive' . . .

"Storage and warehousing lay at the heart of Dutch commercial strategy. [When in 1665 there was talk of seeking a northern passage to the Indies,] the East India Company tried to block the proposal. Why? [If] the venture were successful, the trip would be reduced by six months and the Company would not have time, before the expedition returned, to dispose of the 10 million florins' worth of goods which piled up every year in its warehouses. . . .

"[The stockpiling of goods] was the solution to trading problems which all, or almost all, derived from the intermittent nature of arrivals and departures, from the delays and uncertainty of orders and information. [A Dutch merchant with a substantial and varied inventory was able to] react quickly to any opening on the market as soon as it appeared. And if Amsterdam called the tune for European prices, as all the documents tell us, it was because of the abundance of reserve stocks which the city's warehouses could at any moment release or hold back.



A Dutch flyboat

"The Amsterdam entrepôt trade verged on a monopoly. And if the Dutch really were 'The Carriers of the World,' . . . this was not, as [historian] Le Pottier de la Hestroy thought because 'all the other nations were willing to suffer it to be so,' but because they were unable to prevent it. The Dutch system was built on a network of commercial relations . . . which combined to produce a series of virtually obligatory channels for the circulation and redistribution of goods. It was a system that could only be maintained by constant vigilance, by a policy designed to thwart all competition, and by subordinating the whole of the Dutch economy to this essential objective. . . .

"[Amsterdam's role in] collecting, storing, selling and re-selling the goods of the universe [came to seem] pernicious. . . . In 1721, Charles King, in *The British Merchant*, expresses surprise that English goods bound for France should be embarked on Dutch vessels, unloaded at Amsterdam, and from there conveyed by the Meuse or the Rhine! They would have to pay duty on the way in and out of Holland, then the tolls on the Rhine or Meuse, and finally customs duties at the French frontier. [Finally it became] clear that the diversion via Amsterdam lengthened and complicated the circuit. When, in the 18th century, Amsterdam's power to attract and divert goods towards herself had waned, the direct dispatch of merchandise would eventually prevail."

Europe, including much of Spain's. By 1680, the United Netherlands had perhaps 55,000 men at sea, out of a population that never quite reached two million. Dutch merchant ships, numbering about 2,000, were protected by the world's best-trained battle fleet. Europe's monarchies were duly dazzled. As late as 1728, English novelist Daniel Defoe was moved to comment that "the Dutch must be under-

stood as they really are, the Middle Persons in Trade, the Factors and Brokers of Europe. . . . The Dutch *buy to sell again, take in to send out.*" They are "supply'd from All Parts of the World, that they may supply All the World again."

Thanks to their naval might, the Dutch were able to rewrite international law. The Iberians had closed distant seas to rival traders; the Dutch opened them. Their great jurist, Hugo Grotius (1583–1645), argued for *mare liberum*, the right of free men to trade across free seas. Dutch armed merchantmen, and English and French too, established colonies and trading stations in the Far East and the Western Hemisphere. The trade of the colonists, like that of Spanish and Portuguese colonials, was not free. Under an exclusive arrangement that became known as the "mercantile system," goods could only be traded with the mother country or other colonies under the same flag. But the colonials did not object, as long as they prospered.

Pax Britannica

Dutch political liberalism inspired the Western world. Amsterdam became Europe's most cosmopolitan city—"an inventory of the possible," said French philosopher René Descartes. A Dutch town, Leyden, was a refuge for many of the English Puritan Separatists and other Pilgrims who in 1620 sailed on the *Mayflower* to start at Plymouth, Massachusetts, the first New England colony. Wrote Sir William Temple of the Dutch at their peak in 1672: "Men live together like Citizens of the World, associated by the common ties of Humanity, and by the bonds of Peace, Under the impartial protection of indifferent Laws, With equal encouragement of all Art and Industry, and equal freedom of Speculation and Enquiry."

Decline came only when maritime England and continental France each overcame internal quarrels and mounted separate offensives against the Dutch. After two naval wars, England and the Netherlands locked horns again during the 1670s. This time, the French attacked the United Provinces. The Dutch opened the dikes to flood the land—which stopped the invaders, but devastated the economy. Thereafter, the Dutch could no longer compete with larger rivals. Like the Venetians in their waning years, Dutch businessmen found banking and local property investments far safer than the sea trades. After 1730 the Netherlands became a minor power.

During the 1680s and 1690s, England and France vied to be the maritime successors to the Dutch. But France's King Louis XIV soon succumbed to the geostrategic straitjacket of every continental power. The continuing defense of land frontiers drained off the money and talent in this most absolute of monarchies. The French navy, merchant marine, and colonies never matched England's. France's possessions—and her merchant vessels—became British

targets of opportunity in the many Anglo-French wars down to 1815.

France remained an autocratic state, with a regime that jailed Voltaire and drove Rousseau into exile. During the 17th century, maritime supremacy passed to the island race of England.

British activities at sea had slowly grown over the centuries, but were limited by the peculiar contradiction of a monarch ruling over and regulating a trading society. This was finally resolved by the Glorious Revolution of 1688, when the prodemocratic Whig Party transformed England into a constitutional monarchy and significant power passed to Parliament. The landed aristocracy then joined the once-reviled merchant class in joint-stock trading and colonial enterprises. After 1707, when England united with Scotland to become Great Britain, the trade-oriented Whigs led what quickly became the ultimate thalassocracy, a bastion of both democracy and capitalism.

As an island nation, Britain had only to maintain her fleet to insure survival, and beginning about 1650, the Royal Navy gained dominance at sea.* By the 1720s, the port of London, with more than 500,000 inhabitants, was the hub of a nation dominated by ocean commerce. Architects, artists, and literati, patronized and enjoyed by the wealthy and the humble alike, extolled the trading spirit—what poet Edward Young in 1728 called the *Universal Passion*:

While I survey the blessings of our isle,
Her arts triumphant in the royal smile,
Her public wounds bound up, her credit high,
Her commerce spreading sails in every sky . . .

The ports of Europe, colonies in India and America, and entrepôts around the globe fed the British carrying trade of the 18th century. Her merchant marine swelled—to 2,300 ships by the 1770s. And by then, the British had long since traded their belief in freedom of the seas for “mercantilism.” They sought and gained trade routes monopolized by British shippers—*mare clausum*. Even the successful revolt of her 13 North American colonies did not seriously diminish Britain’s commercial supremacy at sea.

That supremacy was not primarily maintained by technological prowess. The basic design of the European ocean ship had not much changed since the 15th-century appearance of the carrack, a three-masted vessel with a centerline rudder at the stern. Even at the end of the 18th century, the British Indiamen that sailed to East Asia were not much larger than 1,900 tons. That is, they were about the

*Largely by firepower. The problem of sailing warships, lack of punch, was first solved during the reign of King Henry VIII (1509–47), whose admirals advanced them in lines of battle so that their cannons could fire “broadside.” These ships-of-the-line grew steadily in both firing range—which reached 3,000 yards by 1800—and size. The 55-gun *Royal Prince*, built in 1610, displaced 1,330 tons; the 100-gun *Victory*, Admiral Horatio Nelson’s flagship at the 1805 battle of Trafalgar, where a French-Spanish defeat ended all dispute over the Royal Navy’s supremacy, was a 3,500-tonner.

size of their Dutch competitors and somewhat smaller than the giants of the 16th century, Portuguese carracks of up to 2,000 tons that carried 800 crew and passengers. (Not until about 1840 would iron frames permit larger hulls for merchant ships.)

But unlike their counterparts in Venice and the Netherlands, Britain's middle-class merchants were not simply traders. At home, they invested in the technology (e.g., the steam engine) and quantity-production techniques that launched the Industrial Revolution in the British Isles during the 1780s, decades before the embattled and bankrupted continental states could follow. After the duke of Wellington's defeat of Napoleon at Waterloo in 1815, Britain stood alone as a creditor nation.

By the mid-19th century, the British had colonies on every continent and island outposts in every ocean. Under the Pax Britannica, Britain maintained the peaceful balance of power needed to insure her own prosperity. Her instrument for deterring general war in Europe and for policing the sea-lanes remained the Royal Navy. Thanks to its strength, the British again adopted the principle of free trade, of open competition, at which they remained masters.

Windows into the Mind

It was happenstance that oceans covered 71 percent of the earth's surface. One result, as social geographer Ellen Churchill Semple observed in her *Influences of Geographic Environment* (1911), is that man's progress over the ages has been "attended by an advance from smaller to larger marine areas. . . . Every great epoch of history has had its own sea, and every succeeding epoch has enlarged its maritime field."

Typically, the agrarian and continental societies were closed off, tightly ruled by the kings and clergy who held power in them. One thread that linked all the *maritime* societies was the trait that Thucydides ascribed to Athens: They were "open to the world."

Semple suggested that "the distinctive value of the sea is that it promotes many-sided relations as opposed to the one-sided relation of the land," where people knew only those of their kind, living in similar ways. "Had the proportion of land and water been reversed," Semple argued, "the world would have been poorer." As British historian J. H. Plumb observed, science and philosophy were both stimulated by the great expansion of human knowledge wrought by the seafarers: "trans-ocean trade brought more than a profit; it made windows into the mind."

The people drawn to the emerging seacoast cities in Europe were rather special. Those best able to escape serfdom and other restrictions of feudal agrarian economies were craftsmen, traders, and sailors. These were, as historian G. Krogh-Jensen described

them, "free men, bold and wise, courageous and reliable, unimpressed and not without a sense of humour." In their drive to achieve independence, observed Frederic C. Lane, writing of Renaissance Italy, such cities spawned "new classes—merchant capitalists, shopkeepers, craftsmen, and day laborers." All shared immersion in a vigorous, rapidly changing "commercialized atmosphere" then unknown in other societies.

As ships became more seaworthy and trading ventures became more ambitious, that atmosphere became more common. The remarkably swift 17th-century colonization of the New World, as J. H. Elliott noted in *The Old World and the New* (1970), "gave Europeans more room for manoeuvre. Above all, it promoted movement—movement of wealth, movement of people, movement of ideas, . . . and a climate of thought which encouraged confidence in the possibilities of success."

Yet the Dutch maritime reign was brief. The French challenge was not sustained. (Nor was the German challenge that developed at the turn of the present century.) Blessed in its insularity, Britain, which gained thalassocratic status during the 17th century, would maintain that status well into the 20th—outdistancing the Athenians, the Venetians, and all other predecessors.

Why?

In *The Influence of Sea Power upon History* (1890), Alfred Thayer Mahan observed that the "many wants" of the British, "combined with their restless activity and other conditions that favored maritime enterprise, led her people abroad. . . . Their needs and genius made them merchants and colonists, then manufacturers and producers; and between products and colonies shipping is the inevitable link. So their sea power grew."

So much did it grow, in fact, that the Britons allowed a newcomer to compete freely under their strategic umbrella. The flag that the newcomer's ships carried was known as the Stars and Stripes.

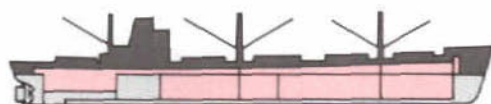


TRANSITION: DOWN TO THE SEA IN

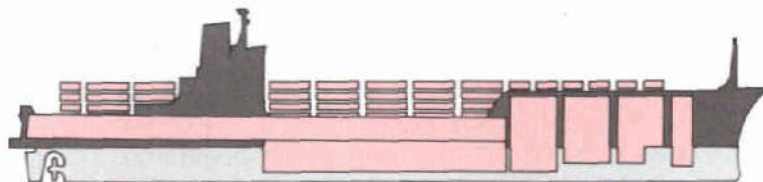
The drawings here show how, over 400 years, ship-builders have advanced the "more is more" principle. In ships, greater size means more cargo capacity and—often but not always—more speed. Sixteenth-century Portuguese caravels were slow and small. Clipper ships like *Cutty Sark*, an 1869 British adaptation of a U.S. design, were fast but short on cargo space. The 2,701 U.S.-built World War II Liberties were slow but commodious, as the cargo areas (pink-shaded) indicate. The modern ships below have carried the evolution further. Most are specialized, shuttling particular cargoes (e.g., "Roll-on/Roll-off" trailers) to designated ports. But tramps such as *Anax* remain ready, like their classic forebears, to take almost anything anywhere.



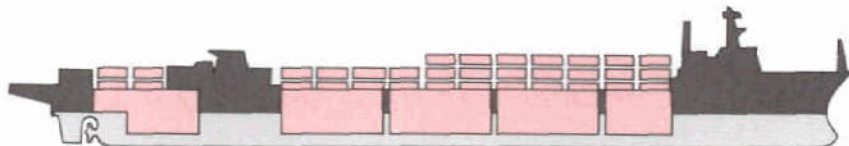
CARAVEL
Portugal



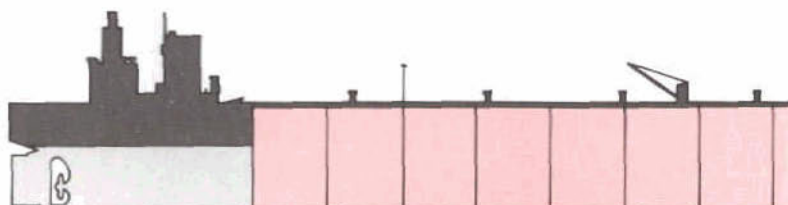
TRAMP *Anax* (Greece)
Capacity: 14,910 tons; 15 knots



ROLL-ON/ROLL-OFF-CONTAINERSHIP *Australian Emblem* (Austr.)
Capacity: 18,575 tons (vehicles, containers); 21 knots



BARGE CARRIER *Lash Italia* (U.S.)
Capacity: 29,820 tons (90 barges); 21 knots

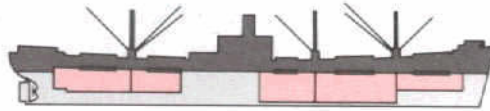


*Except where otherwise indicated, tonnage figures cited in these essays are deadweight tons, a measure of cargo capacity by weight (as opposed to, say, volume). Speed is in knots, or nautical miles per hour, a nautical mile being 6,076 feet. One knot is about 1.15 statute, or land, miles per hour.

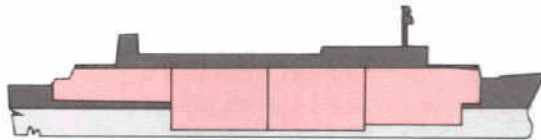
EVER BIGGER, MORE SPECIALIZED SHIPS



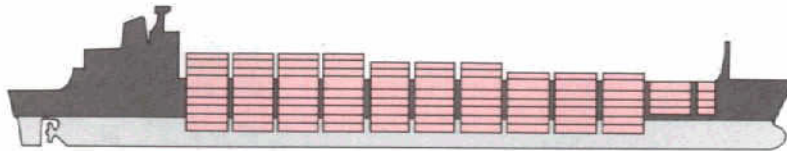
CLIPPER *Cutty Sark* (Brit.)
Cargo capacity: 650 tons (of tea);
maximum speed 17.5 knots*



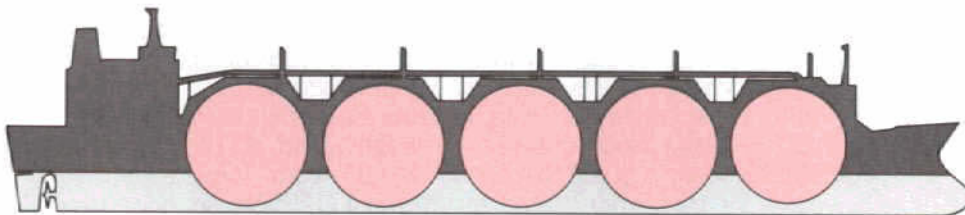
LIBERTY *John C. Fremont* (U.S.)
Capacity: 9,146 tons; 11 knots



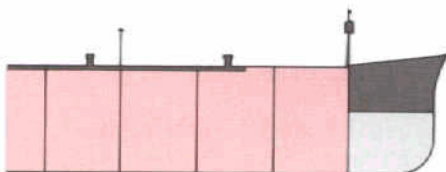
CAR CARRIER
Toyota Maru (Japan)
Capacity: 2,080 autos;
20 knots



CONTAINERSHIP *Dart Atlantic* (Brit.)
Capacity: 4,500 20-foot containers; 23 knots



LNG CARRIER *Hoegh Gandria* (Nor.)
Capacity: 128,000 cubic meters of liquefied natural gas; 20 knots



SUPERTANKER *U.S.T. Pacific* (U.S.)
Capacity: 372,000 tons of oil; 15.9 knots
This class of Ultra Large Crude Carriers (ULCC) can carry 550,000 tons or more, and are the largest ships afloat.

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.

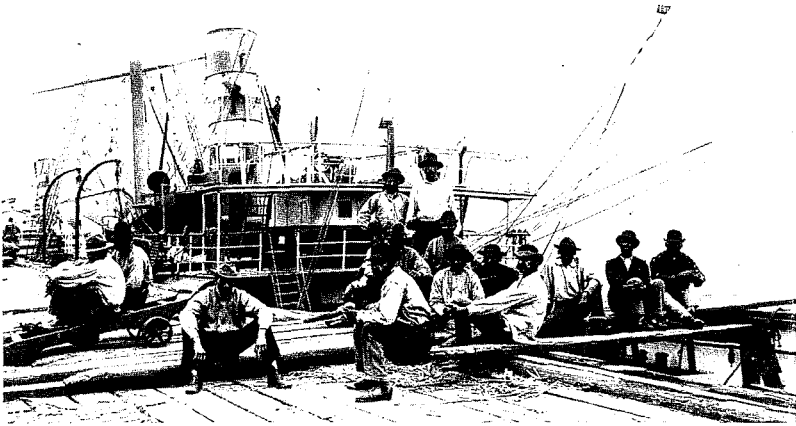
During the two decades before the Civil War, such designers and builders as Donald McKay in East Boston and John W. Griffiths in New York launched about 500 of these lean, heavily canvassed greyhounds. They helped win for the United States a dominance in ocean trade long held by British packets. At 265 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.

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 “bulkers” 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.

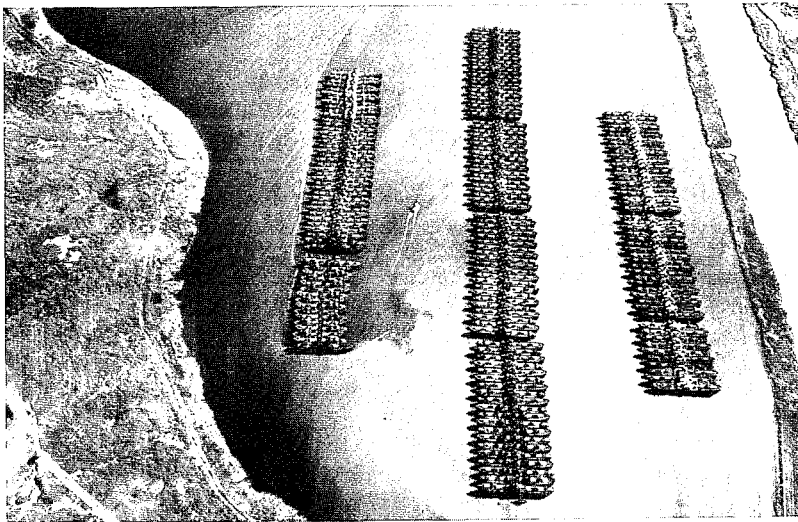
A Philadelphia-built ship, *Canton*, made the next trip. But the

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)

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.

*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

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.

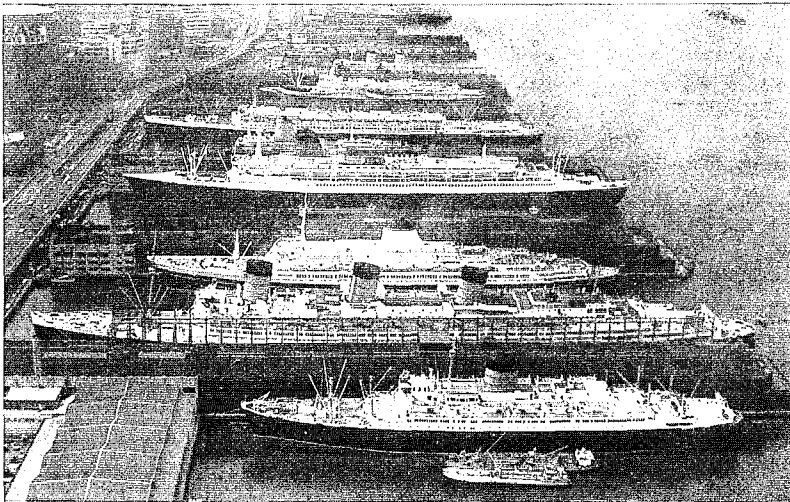
Congress responded with a number of subsidy schemes, and a cargo-preference law (1904) requiring military shipments to be transported in U.S. vessels. But all failed to modernize the merchant marine. America simply could not compete with British and other shippers who enjoyed better technology and lower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

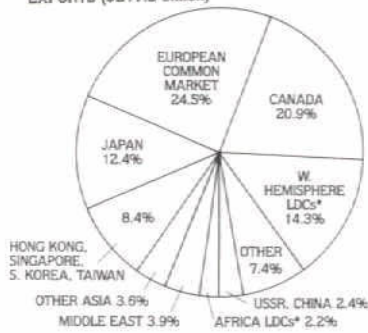
Still, the decline continued. And the competing Greeks were followed by low-cost operators in Norway and then in Taiwan, Hong Kong, and Japan. By 1969, U.S. ships were carrying only 4.6 percent of U.S. trade. Not enough cargo liners, bulk carriers, and tankers were being built to compete for a fair share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

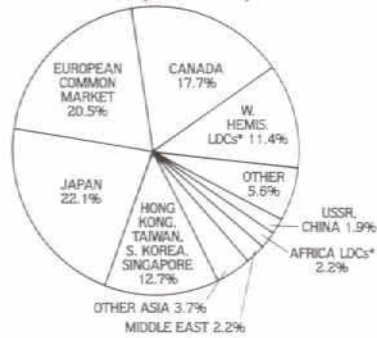
U.S. MERCHANDISE TRADE, 1986

* LDCs: Less Developed Countries

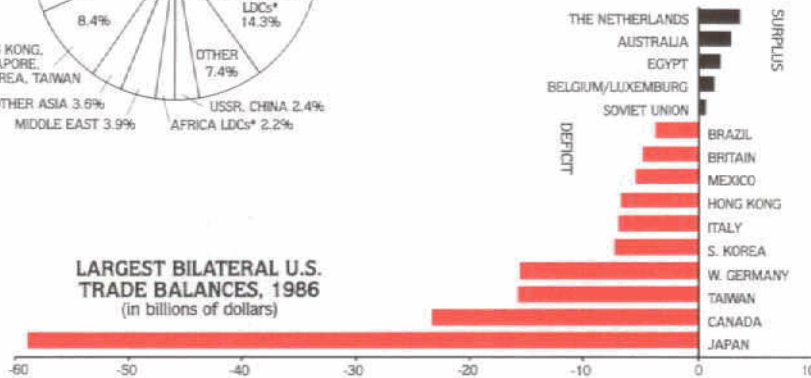
EXPORTS (\$217.3 billion)



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.

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

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

NEW YORK: A CHANGING 'CITY OF SHIPS'

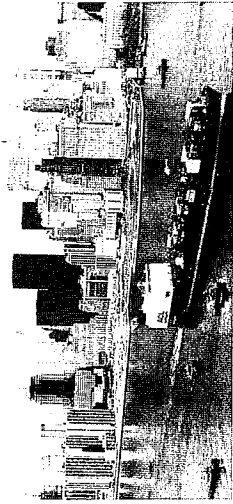
New York Harbor, 4 A.M., Wednesday, March 4, 1987.

While most of the metropolitan area's 17.5 million residents slept, crews were busy on many of the 39 ships shown on our map of the Port of New York (which encompasses parts of New Jersey—and Albany, N.Y.). Of these ships, whose particulars are listed on the back of the map, seven were arriving, steaming in or approaching the Ambrose Channel; captains try to pick up pilots at Ambrose Light before dawn, so that their ships can berth before 8 A.M., when longshoremen start work. The cold months are the most active; gas, shipped by pipeline, has won much of the heating-fuel market, but oil tanker traffic is still heavy, although gasoline was the dominant cargo on this day.

The port remains the nation's biggest in terms of cargo value (\$49.9 billion in 1986); it also claims to lead in cargo weight (close to 55 million tons), although Los Angeles—Long Beach and Houston are close. But 40 years ago, half the nation's foreign trade passed through New York; now 10 percent does. During 1947, 10,806 ships called; this year, 6,000 will. And while ships are now larger, they are less visible. Transatlantic liners no longer loom proudly over the docks on Manhattan's West Side. The old slips and yards on the Hudson's New Jersey

explorer Giovanni da Verrazano, anchored near the Narrows in 1524. When the city was the U.S. capital (1789-90), President George Washington angled in the harbor for fish called "spots." Alexander Hamilton wrote the first *Federalist* paper aboard a Hudson River sloop. As early as 1820, the metropolis, with 150,000 people, was America's largest. In an 1865 poem, Walt Whitman called it a "City of Ships." Irish-born William Grace, New York's first immigrant mayor (1881-86), was a shipowner. Playwright Eugene O'Neill shipped out as a seaman from New York; boxers James J. Braddock and Gene Tunney worked on the docks.

But if New Yorkers were once "men fixed in ocean reveries," as Herman Melville, a customs inspector in Manhattan, observed in *Moby Dick* (1851), that seems less true now. The port is number one in *import* traffic, but export traffic, partly due to the decline of manufacturing in the U.S. Northeast, is a fading enterprise. One sign of that is the stacks of emptied containers that pile up around the port. More than 1,000,000 boxes are brought to New York annually. To avoid sending many of them on still empty, ships use them to send scrap metal, rags, and such to Taiwan and other countries for recycling. Today, New York's top-volume export item is, of all things, wastepaper.



shore are being razed for offices and apartments. The harbor's center of activity has moved to the 2,100-acre Port Newark-Elizabeth complex in New Jersey. Begun during the 1960s, and now the world's largest container terminal, it handles 70 percent of the port's cargo.

One casualty has been the longshoreman. In 1960, the port had 32,000 dockworkers; today the International Longshoremen's Association (ILA) has 6,500 men on its rolls, and at any given time only 4,500 actually work for their pay (\$17 an hour). Under a deal struck in 1964 to win ILA acceptance of containers, those who are not working are paid anyway, at an annual cost to shippers of nearly \$70 million.

The first European to visit the area, Italian



NEW JERSEY

THE BRONX

LAGUARDIA AIRPORT

QUEENS

NEW YORK

Newark

Union City

Hoboken

Jersey City

PORT NEWARK

PORT ELIZABETH

Elizabeth

STAPLETON

STATEN ISLAND

Perth Amboy

NEW JERSEY

(ALBANY)

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Western Trias
D. Fortunee

MANHATTAN

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Jersey City

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PORT ELIZABETH

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NEW YORK

Newark

A GUIDE TO THE SHIPS



The ships shown on our chart of New York Harbor—officially, the Port of New York & New Jersey—are listed here according to their approximate location at 4 a.m. on March 4, 1987. Not shown are U.S. Navy warships and auxiliaries, and idled private cargo ships in lay-up (11 in all, at Hudson River piers and at Brooklyn docks).



HARBOR APPROACHES

(Lower New York Bay/Ambrose Light vicinity)

Inbound (shown schematically):

Robert E. Lee (flag: U.S.). LASH barge carrier, 40,921 tons. Waterman-Isthmian Line. Arriving from New Orleans to load barges containing machinery, manufactured goods, and chemicals for delivery to Pakistan, India, Jordan, the Sudan, and Bangladesh.

George C (Greece). General cargo, 15,050 tons. Constellation Navigation line. From Izmir, Turkey, and other Mediterranean ports. Delivering 27 containers—apple juice concentrate, cotton cloth, chick peas, dried apricots—at Port Elizabeth. Next stops: Morehead City, N.C., and Richmond, Va., to unload 4,000 tons of tobacco from Turkey, Yugoslavia, and Lebanon.

Hilco Sprinter (Norway). Refrigerator ship, 12,475 tons. Ecuadorian Line. From Puerto Bolívar to unload 204,305 boxes (43 lbs. each) of bananas at Port Newark.

CCNI Austral (West Germany). Containership, 7,780 tons. Compañía Chilena de Navegación Interoceánica. From Santiago, via other South American ports, to discharge and load containers in Albany.

Borinquen (U.S.). Containership, 16,977 tons. Navieras de Puerto Rico liner. From San Juan, Puerto Rico, to discharge and load containers at Port Elizabeth. Next stops: Miami, San Juan.

World Prodigy (Greece). Tanker, 30,200 tons. Owned by Stavros Niarchos. From Immingham, England, with 240,085 bbls. of unleaded gasoline.

Ming Moon (Taiwan). Containership, 31,000 tons. Yang Ming Line. From Taiwan, Hong Kong, and ports in South Korea and Japan, via Los Angeles, Houston, and Savannah. Next stops: Wilmington (Del.), Baltimore.

Outbound (shown schematically):

Exxon Boston (U.S.). Tanker, 172,800 tons. Departing with fuel oil loaded at Marcus Hook, Pa., and at Exxon terminal in New Jersey from Wilmington, N.C.

Spirit of Liberty (U.S.). Tanker, 38,200 tons. Returning to a U.S. Gulf of Mexico port, having delivered 283,955 bbls. of unleaded gasoline at Citgo terminal, Linden, N.J.

PERTH AMBOY TO ELIZABETH, N.J.

(Arthur Kill oil terminal area)

Golden Crown (Greece). Bulk carrier, 21,700 tons. At Outerbridge Terminal, Perth Amboy, N.J., delivering salt from Chile.

I.T.B. Baltimore (U.S.). Tug/barge tanker, 47,247 tons. At Hess terminal, Port Reading, N.J., delivering gasoline, diesel fuel, and jet fuel.

Cielo di Salerno (Italy). Tanker, 29,400 tons. At GATX terminal, Carteret, N.J., delivering 217,186 bbls. of unleaded gasoline from Santos, Brazil.

Paula Maersk (Denmark). Tanker, 47,000 tons. At Northville Industries terminal, Lindenhurst, N.J., delivering 330,696 bbls. of leaded and unleaded gasoline from Amsterdam.

Exxon San Francisco (U.S.). Tanker, 75,600 tons. At Exxon terminal, Bayway, N.J., delivering some 500,000 bbls. of Alaskan crude from Chiriquí Grande, a

port on Panama's Caribbean coast. The oil had been brought from Valdez, Alaska, to Panama's Pacific coast by other tankers too large to use the Panama Canal, and moved to Chiriquí Grande by pipeline.

PORT NEWARK/PORT ELIZABETH

Atlantic Saga (Sweden). Roll-on/Roll-off-container-ship, 16,005 tons. Atlantic Container Lines. Last port: Bremerhaven. Delivering excavators, farm tractors, and a 42-ton crawler used in mining.

Export Patriot (U.S.). Containership, 16,345 tons. Farrell Lines. From Mediterranean ports with assorted goods—Egyptian cotton, flax, and basil; Israeli wines, spirits, chemicals, and steel plate; Turkish glassware and clothing; Greek olives, olive oil, dried fruit, wine, and paint; Italian clothing, plastics, furniture, shoes, and food products; Spanish olives, vegetables, wine, and furniture. Next stops: Baltimore, Norfolk, Charleston.

Bonde (Singapore). Bulk carrier, 37,519 tons. Service between New York and Turkey.

Ocean Wind (Greece). Bulk carrier, 36,700 tons. Westwind Shipping Corporation. Service between New York and Venezuela.

Asian Express (Liberia). Car carrier, 30,744 tons. Manager: Orient Overseas Management & Finance Ltd., Hong Kong. Delivering Nissan autos from Yokohama.

Ascanius (Liberia). Bulk carrier, 37,600 tons. Steel products from Antwerp.

Rio Esmeraldas (Ecuador). Refrigerator ship, 9,300 tons. Ecuadorian Line. Delivering some 150,000 boxes of bananas and plantains from Puerto Bolívar and Guayaquil, Ecuador.

BAYONNE

Delaware Trader (U.S.). Tanker, 50,057 tons. At Belcher Oil Company terminal delivering 40,000 tons of heating oil from Houston.

OMI Champion (U.S.). Tanker, 37,900 tons. At I.M.T.T. terminal loading 225,000 bbls. of heating oil for Providence, R.I., and Boston.

Stolt Jade (Liberia). Chemical tanker, 38,000 tons. Stolt Tankers International. Delivering diisobutylene, fatty alcohol, food-grade phosphoric acid, methoxy ethoxy ketone, and diisopropoxy ether at Powell Duffryn Terminals Inc.

Neptune Garnet (Singapore). Containership, 43,403 tons. Neptune Orient Lines. At Global Terminal discharging and loading containers. Round-the-world liner sailing east from Singapore, Hong Kong, and ports in Taiwan, South Korea, and Japan, to Long Beach, Calif., Charleston, Norfolk, New York, and Halifax. Ship returns to Singapore via Suez Canal.

Dart Britain (Britain). Containership, 18,643 tons. Dart Containerline. At Global Terminal, delivering some of 1,160 containers (assorted cargo) loaded in Britain, Belgium, West Germany, and France. Last port: Le Havre. Other U.S. stops: Baltimore, Norfolk, Charleston.

STATEN ISLAND

(Stapleton quarantine anchorage)

Nora Maersk (Denmark). Tanker, 68,800 tons. Heating oil from Argentina for Castle Coal & Oil Company, Astoria, Queens.

Nicopolis (Liberia). Tanker, 60,525 tons. Bound for a Port Reading oil terminal.

RED HOOK/BROOKLYN

Pytheus (Greece). Cement carrier, 41,400 tons. Anchored at Bay Ridge Flats, south of Governors Island; from Le Havre to deliver bulk dry cement to American International Cement Corporation plant.

General Vargas (Philippines). Bulk carrier, 11,900 tons. At Bay Ridge Flats; from La Romana, Dominican Republic, to deliver 6,000 tons of raw sugar for refineries in Brooklyn (Amstar, the Domino brand distributor) and Yonkers (Refined Sugars Inc., which sells to supermarket chains and other customers).

Sirius (West Germany). General cargo (tonnage unavailable). Arrived from St. John, New Brunswick, Canada. At Red Hook loading containers for Buenos Aires.

General A. F. Cebesoy (Turkey). General cargo, 12,477 tons. Turkish Cargo Line. At Red Hook; carrying various goods from Turkish ports to U.S. East Coast cities.

Twin Drill (Panama; U.S.-owned). Dive-support ship, 453 tons. International Underwater Contractors, Inc. Twin-hulled base for commercial/scientific submarine and diving operations; recently employed for work on cooling-water discharge system at Long Island nuclear power plant. At Red Hook awaiting next job.

EAST RIVER

Peggy Dow (Netherlands). Refrigerator ship, 10,572 tons. Unloading bananas from Guayaquil, Ecuador, and La Ceiba, Honduras.

Balao (Liberia, Norwegian-owned.) Bulk carrier, 26,700 tons. At National Concrete plant, delivering 21,422 tons of cement from Alicante and Valencia, Spain. Next stop: New Orleans, to load grain for Belfast, Northern Ireland.

ALBANY, N.Y.

(124 nautical miles, or 142.5 statute miles, up Hudson River from southern tip of Manhattan; ships are shown schematically.)

Potomac (Belgium). Refrigerator ship, 9,852 tons. Delivering 176,583 boxes of bananas loaded in Turbo, Colombia, and Puerto Limón, Costa Rica.

Potomac Trader (U.S.). Tanker, 50,100 tons. Delivering 306,377 bbls. of fuel oil from St. Rose, La., to Albany's Glen Mont Power Station. Next port: Pajaritos, Mexico, to load crude for the U.S. Strategic Petroleum Reserve.

Western Trias (Greece). Bulk carrier (tonnage unavailable). Delivering "clinkers," a cement byproduct, from Mexico.

D. Fortune (Cyprus). Bulk carrier, 37,609 tons. Loading Midwestern grain brought to Albany by land (truck or train). Destination: Portugal.

Research: Joyce McIlroy, The Maritime Association of the Port of New York / New Jersey



The bulker Zakarpat at Duluth in 1973, after the Nixon administration opened 40 U.S. ports to Soviet merchantmen. Since 1981, such visits have required prior clearance, a rule meant to show U.S. pique over repression in Poland. Soviet ships still arrive to pick up what Lenin called "the currency of currencies" (grain) and to compete for other U.S. trade.

counterparts, Soviet officials view a merchant marine and shipbuilding base as vital to national well-being, and their policies are formulated accordingly. For example, East Bloc shippers, like some of their Western counterparts, are encouraged to form closed "conferences" (associations of shippers) on trading routes, for the purpose of excluding competitors, setting rates, coordinating schedules, and reserving sizable amounts of East Bloc trade for East Bloc ships.*

Maritime matters have faded from U.S. public consciousness. The earliest U.S. newspapers were devoted to shipping and trade; now only one daily, the *Journal of Commerce*, covers the field in detail. A 1986 strike by East Coast and Gulf Coast dockworkers, the first such walkout in 15 years, got modest coverage in the mainstream press. Yet shipping, if not the U.S. industry itself, remains vital to the U.S. economy. Directly or indirectly, some five million nonfarm workers depend on foreign trade for their livelihood; 80 percent of new manufacturing jobs created today are linked to exports. The products of one of three acres planted by American farmers are sent abroad. Most of such vital commodities as bauxite, nickel, zinc, tin, cobalt, manganese, and chromium come from overseas. Does it matter what flags fly on the ships that move all this?

*Besides subsidies in various forms, foreign shippers benefit from the freedom to form rate- and schedule-setting conferences. U.S. antitrust laws going back to 1916 allowed American participation in such conferences, but that freedom has been weakened by court decisions. By law, U.S. shippers may not merge, consolidate, or pool their efforts, as their foreign competitors can and often do.

That is difficult to say. The cost to the U.S. economy of reliance on foreign-flag shipping—in terms of lost jobs and tax revenues—defies accurate calculation. But the gains, in terms of reduced transportation costs, are probably as great or greater than those losses. Though President Ronald Reagan took office promising to renew the merchant marine, an administration “working group” has produced no results. Indeed, apparently in a spirit of ending the “throwing of good money after bad,” the administration has requested no construction subsidy funds since 1981. It has also prepared legislation that would allow subsidized U.S.-flag operators to use foreign-built ships in foreign trade, and end the tax penalty that such shipowners must pay for repair work in overseas yards.

Various congressmen have been pressing plans to aid the industry. Two bills, sponsored by Representatives Walter B. Jones (D.-N.C.) and Mario Biaggi (D.-N.Y.), would have the government spend \$850 million to build new vessels for charter—a measure that would give temporary respite to perhaps six to eight hard-pressed major yards. Others have urged laws requiring U.S.-flag carriage of imported Japanese autos, and the negotiation of cargo-sharing agreements with trading partners that would put more U.S.-flag ships to work. But even if the United States were to make the merchant marine a truly favored industry, as most other countries do, there is no guarantee that its fundamental problem of high costs can be solved. World seaborne trade has increased by about 32 percent since 1970, but the amount of shipping chasing all that cargo has expanded by more than 100 percent.

Adam Smith's Attitude

In military terms, the need for a sizable U.S.-flag merchant marine is less ambiguous. When a U.S. Army mechanized division is moved overseas, it requires 100,000 tons of “sealift” to make the move and 1,000 tons of cargo per day to sustain itself. A conflict in the Indian Ocean on the scale of the Korean or Vietnam wars would require support from at least 350 cargo ships. By the Navy's reckoning, about 300 U.S. government- and civilian-owned ships are available for military support duty on short notice. But the Navy also counts on being able to employ other ships whose actual availability is rather questionable—such as 364 U.S.-owned flag-of-convenience ships, whose nominal countries of ownership have agreements with the United States to hand over the vessels in time of national emergency, and 400 NATO-ally vessels.

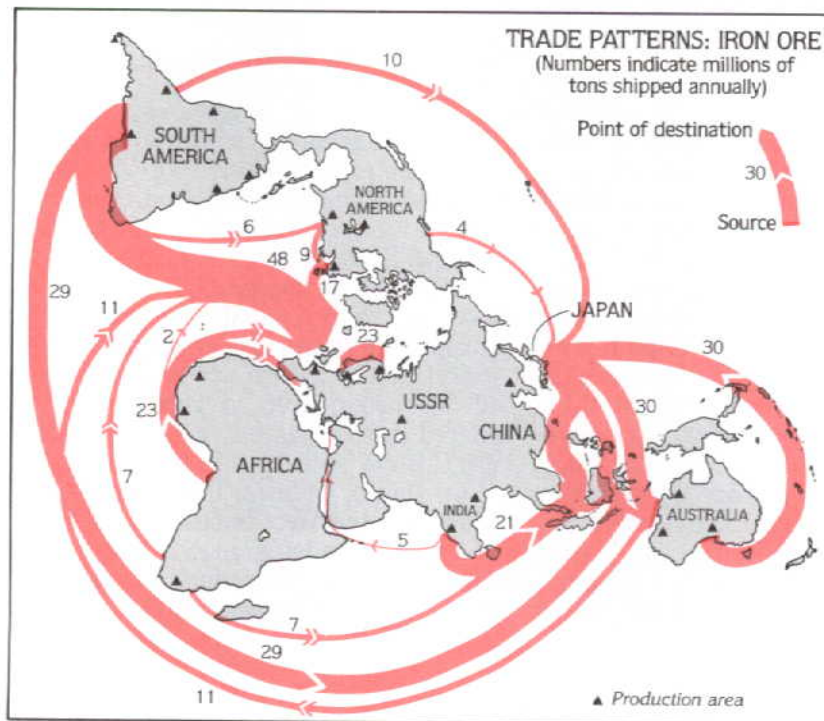
Tellingly, the Navy has begun buying or chartering more ships on its own, among them large, fast container and LASH ships converted to Ro/Ro vessels. No one has a firm answer to another question: If 75 percent or more of the U.S.-owned commercial fleet is

supporting a war effort overseas, how will oil and other essential supplies be brought to America?

The great rise in international trade began about 1870, when the coupling of steam power with screw propellers pushed the cost of ocean transport down—a move toward efficiency that has continued. Indeed, some economists, among them Walter Isard, have argued that innovations in sea (and, later, air) transport have been *the* major stimulus to world trade. Ironically, it was around this time, the late 19th century, that the U.S. merchant marine first became the high-cost industry that it remains today.

But the merchant marine's ills, and the flickering federal interest in addressing them, reflect a larger phenomenon: Since the opening of the West, Americans as a whole have had scant interest in foreign trade.

Scalded by the "beggar thy neighbor" high-tariff policies that spread and deepened the Depression worldwide, since World War II the goal of "free trade" has been warmly embraced by policymakers



The leading dry bulk cargo in world trade, ahead of coal and grain, is iron ore. Its volume reflects steelmakers' needs. (Top importers: Japan and West Germany.) Oil, however, accounts for nearly half of all cargo tonnage.

in the United States and elsewhere. Indeed, the tariff reductions that have resulted from such initiatives as the Kennedy Round negotiations of the 1960s have led to a marked expansion in commerce among nations. But, oddly, for all the official U.S. interest in trade, Americans themselves have long seemed to view markets abroad with something of the offhandedness of the great Scottish classical economist Adam Smith (1723–90), who dismissed foreign trade as “a vent for surplus.”

To be sure, Americans remained successful in overseas markets far into the 20th century. Economist Sir Geoffrey Crowther was moved to remark in 1957, when the U.S. balance of payments was still well in the black: “There are so many American goods that the world wants, whatever they cost.” But the competition of innovative, lower-cost suppliers elsewhere took its toll. In 1971, for the first time since the 1890s, Americans imported more goods than they sold abroad, inaugurating today’s large trade deficits. Nonetheless, the nation still refuses to get excited about competing for overseas markets, as witness the pressure in Congress for protectionist measures, and the fact that the United States has yet to implement the metric system, as other trading nations (even the British) have.

The United States’ very size, otherwise economically advantageous, may be a disincentive. In general, the larger a country, the less it depends on others, either as markets or as sources of goods and raw materials. Thus, imports and exports account for only eight percent of the United States’ gross national product, and even less for the Soviet Union. The figures are much higher for smaller nations: the Netherlands, 89 percent; South Korea, 63; Denmark, 54; Sweden, 52; West Germany, 46; Britain, 38; Japan, 37; Australia, 24.

The modest importance of trade to the United States today is a dramatic change from the situation 200 years ago, when the nation was small and essentially spread out along one coast. Back then, historian Richard C. Parnell has noted, even in farming-minded Connecticut “men were convinced that the state’s wealth lay bound up in” shipping. During a single two-day period in 1787, for example, in just one Connecticut city, New Haven, no fewer than 10 ships set sail to take horses and other items to the West Indies.

Today, few Americans see the sea trades as much more than a “stepchild,” as Admiral Land said—in a way, the nation’s first smoke-stack industry to fall behind in the competitive world arena.



MONEY AND SAILORS

by Timothy M. James

On the oil route from Valdez, Alaska, to the Lower 48, the captain of one U.S. 120,000-ton tanker, in his early 30s, annually earns pay and benefits totaling more than \$80,000—and for every two-and-a-half months at sea gets two months off. With overtime, an able-bodied seaman can earn \$45,000.

High pay is one reason why the total cost of a typical unionized crew (39 men) on a U.S.-flag ship is about \$8,000 a day, twice that of a Japanese crew and six times that of a Chinese crew. Another factor is union-set manning levels. A U.S. general-cargo ship has 34 to 36 crewmen; a similar West German vessel has 22. All this boosts the average yearly payroll for a U.S. ship to some \$3 million. The total for, say, a Norwegian ship: \$1.3 million.

Moreover, U.S. ship-construction costs are almost triple those elsewhere. A U.S.-built 40,000-ton containership would cost about \$90 million; a Far Eastern yard would charge \$33 million. To help U.S. shipowners keep the Stars and Stripes at sea in the face of foreign competition, the U.S. government manages subsidy programs that last year, despite Reagan cuts, disbursed \$288 million.

Of all merchant marine subsidy programs, the U.S. system is the most open and comprehensive. Other countries provide direct and indirect aid in many forms. For instance, low-cost financing for 80 percent of construction costs is common. U.S. shipowners get similar financing aid, plus other help that is rare elsewhere, notably cash to offset their foreign rivals' lower building and operating costs. Shipping earns needed foreign currency for such nations as Denmark, Norway, and Sweden, but they give no operating subsidies to ocean shippers. Shipowners must pare expenses to make profits.

The Merchant Marine Act of 1936 helped to lift U.S. expenses. President Franklin D. Roosevelt assured Congress that a subsidy "honestly" called "by its right name" would "maintain a reasonably adequate merchant marine." What it did was invite cost increases.

The law's offer of aid to help U.S. owners meet foreign competition while paying "fair and reasonable" wages to U.S. crews intrigued the maritime unions that emerged during the 1930s. Some leaders, such as Paul Hall of the Seafarers International Union, came to oppose subsidies, preferring cargo-preference laws to increase jobs. But, especially after World War II, other powers, notably Joseph Curran's National Maritime Union, viewed the 1936 law as a lever

for higher wages. Subsidized owners did not resist.

The prewar earnings of U.S. seamen were about 50 percent above those of Europeans, but under those of the average U.S. factory worker. By the mid-1960s, the earnings of a working able seaman were about twice the average U.S. manufacturing wage and three to five times the pay of a European sailor.*

Today, nearly 90 percent of the operating-subsidy money paid to five federally aided liner firms [U.S. Lines (S.A.), American President, Waterman, Farrell, and Lykes] offsets high wages. The payments average \$35,000 per crewman. As early as 1966, a Brookings economist, Samuel A. Lawrence, noted the subsidy's "tendency to create costs," despite Washington's "hopeful expectations."

Compared to other federal handouts, notably agricultural subsidies (\$25.8 billion in fiscal 1986), the maritime aid program is miniscule. Support for it is fragmented. Testifying in Congress during the early 1960s, Defense Secretary Robert S. McNamara refused to "overstate" military transport needs, so as not to provide "an umbrella under which a huge ship construction program" might be launched. Today, farm lobbyists oppose the 1954 law reserving 50 percent of federally financed shipments (e.g., foreign-aid grain) for costly U.S.-flag vessels. And the maritime "industry" is divided. Shipowners favor, and shipbuilders oppose, the Reagan proposal to end the penalty for repairing U.S.-flag ships abroad.

For defense reasons, at least, few policymakers argue that the United States should emulate Canada, which after World War II chose to do without a blue-ocean fleet and now relies on competition among foreigners to keep shipping costs down. But the U.S. merchant marine's parlous condition, despite subsidies, is all too plain, and not just in the dwindling numbers of ships and jobs. The age of U.S.-flag vessels is higher—17 years for those in private hands and 33 in the government-owned fleet—than the world average of 14 years. At present, half of the eight surviving U.S.-flag liner firms do not earn enough money to invest in the construction of new ships. So much for Washington's prime goal since 1936: renewing and sustaining a U.S. merchant marine.



*A Maritime Administration report shows that in 1981 able seamen on U.S.-flag ships earned a monthly base wage averaging \$1,204 (not including overtime) and employer-provided fringes (such as pension contributions) worth \$1,599. Officers fared even better, particularly in the fringe department: Chief mates got a monthly base wage of \$3,058 and fringes worth \$5,292; for captains, the figures were \$5,634 and \$9,795. Overall, U.S. crew costs now exceed those of other nations with relatively high living standards by margins as high as 3 to 1.

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BACKGROUND BOOKS

THE MARITIME WORLD

Men first went down to the sea not in ships, or even boats. They used whatever expedients they could find to get themselves across deep water.

Some of these expedients are still in use, historian Lionel Casson notes in **Ships and Seamanship in the Ancient World** (Princeton, 1986). "A New Zealand aborigine today paddles over lakes astride a bundle of reeds, an Iraqi herdsman crosses streams on an inflated goatskin, a Tamil native does his fishing drifting with a log under his arms while a Sindhi does his lying prone over an openmouthed pot."

The movement of goods called for ingenuity. The 5th-century B.C. Greek historian Herodotus, Casson recounts, admired the portable river craft of Assyrian merchants. Made of hides sewn over a frame of willow branches, they carried donkeys as well as cargo. "After arriving at Babylon and disposing of the cargo, the frames of the boat . . . they auction off, load the hides on the donkeys, and walk back to Armenia."

The intertwined roots of commerce and seafaring are described in Fernand Braudel's magisterial two-volume **The Mediterranean and the Mediterranean World in the Age of Philip II** (Harper, rev. 2nd ed., 1977) and his three-volume **Civilization and Capitalism: 15th-18th Century** (Harper, 1985, 1986). Other broad-gauge works are John H. Parry's **Spanish Seaborne Empire** (Knopf, 1966); and C. R. Boxer's **Dutch Seaborne Empire: 1600-1800** (Knopf, 1965) and **The Portuguese Seaborne Empire: 1415-1825** (Knopf, 1970).

G. V. Scammell's **World Encompassed: The First European Maritime Empires, c. 800-1650** (Univ. of Calif., 1981) chronicles—in one volume—the sorties of Norsemen from the "womb of nations" (now Norway, Den-

mark, and Sweden) into what had been Roman Europe, beginning around 750 A.D., and the English triumphs over the Spanish and Portuguese empires. With Sir Francis Drake's 1577-80 global circumnavigation, Scammell observes, the Europeans "brought together for the first time in enduring association, and with enduring consequences, many of the peoples inhabiting the earth."

In **How the West Grew Rich: The Economic Transformation of the Industrial World** (Basic, 1986), Nathan Rosenberg and L. E. Birdzell, Jr., detail how "maritime trade was at once a major field of economic growth and a field intractably resistant to medieval principles of political control." There was no law at sea. But while many mariners were privateers and some buccaneers, one country's villain was another's hero. "Drake was a pirate to the Spaniards, but when he returned to England from his [circumnavigation], Queen Elizabeth knighted him" on his flagship, *The Golden Hind*. His voyage yielded "a profit of 4700 percent to the holders of shares in the joint stock company that financed his voyage." One was the queen.

The United States' maritime experience is woven into many broad histories, such as Samuel Eliot Morison's **Oxford History of the American People**, 3 vols. (New American Library, 1972) and D. W. Meinig's **Atlantic America, 1492-1800** (Yale, 1986).

Surveys include James M. Morris's **Our Maritime Heritage: Maritime Developments and Their Impact on American Life** (Univ. Press of America, 1979), and **New England and the Sea** (Mystic Seaport Museum, 1972) by Robert G. Albion, William A. Baker, and Benjamin W. Labaree. For other views, there are port histories, such as Robert G. Albion's **Rise of New York Port**

(Northeastern, 1984). Richard C. McKay's **Some Famous Sailing Ships and Their Builder, Donald McKay** (Putnam's, 1928; 7C's Press, 2nd rev. ed., 1969) profiles the clipper designer, as Alan Villiers's **Way of a Ship** (Scribner's, 1975) does life aboard the windjammers.

The functioning of marine transport, and of federal maritime policy, is dealt with in Clinton W. Whitehurst, Jr.'s **U.S. Merchant Marine: In Search of an Enduring Maritime Policy** (Naval Institute Press, 1983) and Lane C. Kendall's **Business of Shipping** (Cornell Maritime Press, 5th ed., 1986). Samuel A. Lawrence's **United States Merchant Shipping Policies and Politics** (Brookings, 1966) examines both the industry's weakness and ill-fated government remedies.

Though now tamed by adversity, maritime unions, as Lawrence recalls, evolved from advocates of seaman's needs during the 1930s into a factor in the industry's slide after the postwar glory days—when, for a time, 60 percent of all shipping tonnage flew the U.S. flag. As late as the mid-1960s, 28 unions were fighting for members and influence in the U.S. foreign-trade fleet, though it represented only 50,000 jobs.

A dozen major strikes over economic issues afflicted the fleet between 1947 and 1964. Then as now, Lawrence notes, shipping was vulnerable, being "the only important segment of U.S. industry which sells virtually its entire product in the international market."

As W. Elliott Brownlee points out in **Dynamics of Ascent: A History of the American Economy** (Knopf, 2nd ed., 1979), the Europeans and the Japanese have long been far more dependent than Americans on foreign trade. The "internal focus" of U.S. commerce was deeply rooted before World War I, when international trade accounted for only 11 percent of the nation's output.

In **Foreign Trade and the Na-**

tional Economy (Yale, 1968), Charles P. Kindleberger argues that the U.S. trade problem is, to an extent, a "question of horizon." Businessmen, he observes, are inclined to consider that "domestic trade is among 'us'; foreign trade is between 'us' and 'them.'" As communication improves in breadth and speed, the scope of 'us' expands. But 'they' will probably continue to exist." Of necessity, to merchants in smaller nations—Belgium or Japan, say—the commercial horizon is wider than it is for large-nation traders such as Americans.

Richard Rosecrance traces America's trade difficulties to other causes. In **Rise of the Trading State: Commerce and Conquest in the Modern World** (Basic, 1986), he argues that the Industrial Revolution broke "the link between territory and power," enabling nations "to gain economic strength without conquering new lands," i.e. via trade. But since 1945 the world has been poised between two approaches to international relations: "a territorial system which harkens back to the world of Louis XIV and which is presided over by the USSR and to some extent the United States, and an oceanic or trading system." The trading system, a legacy of maritime Britain, is today "organized around the Atlantic and Pacific basins."

The leaders of Japan and the Western European nations, seeing that "self-sufficiency is an illusion," emphasize trade. The Soviets, consumed by territorial concerns, are fated to decline, according to Rosecrance. With more flexibility, America may, if its leaders are wise, follow "the Japanese model."

In **Ships' Cargo/Cargo Ships** (MacGregor, 1979), an illustrated series of essays on the maritime scene edited by Henri Kummerman and Robert Jacquinet, Captain F. S. G. Frota, Brazil's leading private shipowner, fears for the "beautiful" freedom-of-the-seas prin-

cept. To build up their own fleets, many Third World governments have adopted cargo-preference rules, endorsed by the United Nations Conference on Trade and Development in 1974, limiting the trade moved by "third flag" ships.

Biographies also mirror the shifting fortunes of maritime enterprise. James Dugan's **American Viking** (Harper, 1963) notes how Danish-born Hans Isbrandtsen (1891–1953), a foe of federal meddling and champion of individual enterprise ("When the devil wanted nothing to happen, he appointed a committee"), ran Isbrandtsen Lines without subsidies but lost money only once in 38 years. Lawrence A. Clayton's **Grace** (Jameson, 1986) focuses on another rugged individualist, an Irish-born New Yorker, William R. Grace (1832–1904), who started as a Chandler in Peru.

Aristotle Onassis (Times Books, 1978) by Nicholas Fraser and other London *Timesmen*, and Jerry Shields's **Invisible Billionaire** (Houghton, 1986) tell how two later empire-builders, the Golden Greek and his reclusive U.S. rival, Daniel K. Ludwig, prospered by capitalizing on both U.S. maritime policy and flag-of-convenience ownership.

As it has in shipping company boardrooms, life at sea has changed. In **The Atlantic Crossing** (Time-Life Books, 1981), Melvin Maddocks recalls Herman Melville's tales of the terrors crewmen faced on 19th-century packets: Reefing sails aloft meant hovering "like a judgment angel between heaven and earth, both hands free, with one foot in the rigging and one somewhere behind you in the air." If such perils are history, so is much of the romance of seafaring.

Noël Mostert's **Supership** (Warner, 1978) tells of life aboard *Ardsheil*, a 214,000-ton British tanker that hardly quivers at sea, with a crew of 43—Brit-

ish deck and engineering officers, Indian, Pakistani, and Chinese seamen and stewards. The living quarters in the superstructure have a "sealed-in mood." On deck, "only at the few wooden rails aboard did one touch something of the old fabric of ships."

Romance of a sort surfaces in **Steaming to Bamboola: The World of a Tramp Freighter** (Congdon & Weed, 1983), which Christopher Buckley spun out of a classic experience: a young man's voyage on an old freighter.

As crotchety as *Ardshiel* is efficient, Buckley's *Columbianna* has sailed "more or less everywhere in the small world of tramps." A 523-foot converted World War II troopship, her "history was written into her hull, a patchwork of dings and cicatrices from 35 years of banging into things on the watery hither-and-yon." Buckley joined the crew of 37 in Charleston for a trip to Bremerhaven (not "Bamboola," which was a Chinese steward's name for Bermuda), with military supplies.

In 100-plus voyages "across the pond," *Columbianna's* captain had seen myriad cargoes—tanks, cannon, cork, coal, coke, laxatives ("in bottles which the crew mistook for booze, and drank"), tin ingots, flour, corn, locomotives, missiles. But for all its hard use, the ship "had a battered, queenly aspect missing in the new streamlined containerships, supertankers, and certainly the Liquefied Natural Gas (LNG) carriers."

Indeed, "surrounded by Portuguese men-of-war when she broke down and floated in mid-ocean, or coming up the Mississippi out of a fog bank, or nudged by Dutch tugs into a lock, she looked like what she was, an old tramp steamer, ready, as one of the crew said, to take on any port in the world, [even if] living on borrowed time."