The USS **Essex,** *1904, aground on a shoal at Toledo, Ohio*

The Wreck of the USS Essex

THE FABRIC OF HISTORY IS WOVEN WITH WORDS AND PLACES AND WITH ARTIFACTS. WHILE THE FORMER PROVIDE PATTERN, THE LATTER GIVE TEXTURE. OBJECTS THAT DIRECTLY LINK PEOPLE TO HISTORICAL EVENTS ALLOW US TO TOUCH THE PAST. SOME ARE VERY PERSONAL CONNECTIONS BETWEEN INDIVIDUALS AND THEIR ANCESTORS. OTHERS ARE THE TOUCHSTONES OF OUR COLLECTIVE MEMORY.

BURIED IN THE SAND OF LAKE SUPERIOR IS THE USS *ESSEX*, AN ARTIFACT OF THE NATION'S MARITIME PAST. A MID-NINETEENTH-CENTURY SLOOP OF WAR DESIGNED BY ONE OF AMERICA'S FOREMOST NAVAL ARCHITECTS, DONALD MCKAY, THE *ESSEX* TRAVELED AROUND THE WORLD AND ULTIMATELY CAME TO REST ON DULUTH'S MINNESOTA POINT, ABOUT AS FAR FROM THE OCEAN AS A VESSEL CAN GET. THE TIMBERS OF THE

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Wreck of the USS Essex *on Minnesota Point, Duluth, late 1980s*

wreck vibrate not only with the waves of the lake, but with the distant voices of Abraham Lincoln, Donald McKay, and a host of forgotten sailors to whom it once was home.

Gazing upon the wreck of the *Essex,* curious observers cannot help wondering what secrets the shattered remnant holds. Some can be discovered in the library in the ship-builder's biography, histories of the navy, and newspaper articles about the vessel's career. But some secrets about its life and death can only be revealed through underwater archaeology. Careful analysis of the *Essex*'s remains reveals how it was constructed and altered during its career. In turn, these details can tell us about both the ship's builder and fundamental changes in the United States Navy during the late-nineteenth century.

Minnesota was one of the first states where the techniques of underwater archaeology were developed. In 1960 Edward Davis, a retired university professor, hired divers to look for fur trade-era artifacts in a river rapids in the northern part of the state. The divers recovered a set of 17 nested brass kettles dating to about 1800, which Davis donated to the Minnesota Historical Society (MHS), thus beginning a 15-year program of underwater archaeology along the Canadian border. The Quetico-Superior Underwater Research Project, a joint venture of MHS and the Royal Ontario Museum, found many previously unrecorded archaeological sites and well-preserved artifacts that provided new information about fur-trade routes and lifestyles.[1]

More recently MHS's State Historic Preservation Office (SHPO) has utilized the techniques of underwater archaeology to investigate wrecked vessels—ranging from canoes to ore carriers—that have moved people and goods across Lake Superior for more than 100 centuries. Mistakes, storms, and mechanical failure have sent numerous craft to the lake's bottom. Others, like the *Essex,* were burned and sunk when no longer useful. Archaeological studies of the ships' remains tell us much about their designers, owners, sailors, and function, as well as the state of naval technology at the time.

ESSEX DESIGNER AND BUILDER Donald McKay, born in 1810 in Nova Scotia, arrived in the United States in 1826 as an indentured apprentice to Isaac Webb, a respected New York ship builder. At age 21 McKay became a full-fledged shipwright. After working for several New York shipbuilding firms, he set up his own shipyards in Newburyport, Massachusetts, in 1840 and in East Boston in 1844.[2]

McKay first gained fame for building packet ships—vessels with one or two decks carrying passengers and modest cargo—for the transatlantic trade. He launched his first vessel, the bark *Mary Broughton,* in 1841. Although steam-powered packets with sidewheels first appeared in the 1830s, they did not seriously challenge sailing vessels until the 1850s.[3]

The inventory of Lake Superior shipwrecks and the investigation of the remains of the *Essex* were funded by the Minnesota legislature through a grant from the Legislative Commission on Minnesota Resources (LCMR). The project was carried out by underwater archaeologists and maritime historians working with MHS's State Historic Preservation Office (SHPO). Detailed reports, drawings, videotapes, and photographs are filed at SHPO, MHS, St. Paul.

The author thanks Patrick Labadie of the Duluth Ship Canal Museum for his invaluable advice. The Panamerican Consultants, Inc., crew that examined the *Essex* included Stephen R. James Jr., James Duff, and Steve Hack.

[1] See Robert C. Wheeler, Walter A. Kenyon, Alan R. Woolworth, and Douglas Birk, *Voices from the Rapids* (St. Paul: Minnesota Historical Society, 1975).

[2] Alexander Laing, *American Ships* (New York: American Heritage Press, 1971), 258; Richard C. McKay, *Some Famous Sailing Ships and Their Builder, Donald McKay* (New York: G.P. Putnam's Sons, 1928), 4–25.

[3] Here and below, Laing, *American Ships,* 196.

• GREAT LAKES SHIPWRECKS •

MUCH OF THE romance of the Great Lakes is built around danger and shipwrecks. The lakes contain 20 percent of the world's fresh water, much of it in Lake Superior, which has the largest area of any lake in the world. Superior is dangerous, and the Minnesota portion is especially so. Even in late summer, the water is very cold, and anyone who falls in could die of exposure in only a few hours. The rocky Minnesota shore quickly plunges to more than 800 feet and has few beaches and fewer harbors, so ships or sailors in peril have a difficult time reaching safety. In the late-nineteenth and early-twentieth centuries, the North Shore was so sparsely settled that even if a sailor made it to land, food and warmth were often distant.

Fall and spring storms are the lake's greatest hazard. Half of the shipwrecks in Minnesota waters have been due to quick-developing storms spawned by the change-of-seasons clash of warm and cold air. Northeast winds can create waves as high as 30 feet and hammer vessels against the unforgiving coast. Plunging temperatures make equipment difficult to operate; ice on vessels' decks and rigging makes them top-heavy. The 95,000 square miles of water in the Great Lakes creates "the lake effect": cold air meeting warmed surface waters to produce strong updrafts, dense fog, and heavy snowfall.

People have been traveling across Lake Superior's waters for 10,000 years. Ancestors of modern Native Americans used dugouts and birch-bark canoes. Beginning in the early 1600s, Europeans used a succession of vessels, from canoes and small wooden vessels such as bateaux to double-ended York boats, Mackinaw boats outfitted with sails, and small schooners.

In 1855 locks at Sault Ste. Marie linked Lake Superior to the rest of the Great Lakes. A century later, with the completion of the St. Lawrence Seaway, modern, ocean-going vessels gained access to the innermost lake.

As many as 10,000 ships may lie on the bottom of the Great Lakes. Although Superior is the most treacherous, it has relatively few, perhaps only 350, and about 60 in Minnesota waters. The earliest documented Superior shipwreck is the schooner *Invincible,* sunk off Whitefish Point in 1816; the earliest in Minnesota waters is the schooner *Madeline,* which sank off Knife River in 1837.

Minnesota wrecks peaked during the first decade of the twentieth century. The infamous storm of 1905 claimed almost 30 vessels and some 36 lives—11 vessels and 15 lives in Minnesota. The storm's namesake, the steamer *Mataafa,* went down near the Duluth ship canal, where the city watched 9 of its 24-man crew perish.

The wreck of the 729-foot ore carrier *Edmund Fitzgerald* in November 1975 tragically demonstrates the dangers of Lake Superior even to modern vessels. Forty miles from Sault Ste. Marie, the *Fitzgerald* and its 29 crew members succumbed to a fierce storm of blinding snow, 90-mile-per-hour winds, and 30-foot waves. Sailors and landlubbers alike still hold the "gales of November" in awe.

For more information on Lake Superior shipwrecks, see Patrick Labadie, Brina Agranat, and Scott Anfinson, "Minnesota's Lake Superior Shipwrecks, A.D. 1650–1945," in *Archaeological and Historical Studies of Minnesota's Lake Superior Shipwrecks,* ed. Scott F. Anfinson (St. Paul: Minnesota State Historic Preservation Office, 1993), and J. F. Wolff Jr., *Lake Superior Shipwrecks* (1979; reprint, Duluth: Lake Superior Port Cities, 1990). Information is also available on the Internet from the Minnesota State Historic Preservation Office at http://www.mnhs.org.

While McKay designed and built small vessels throughout his career, it was clipper ships that gained him international recognition. Initially built for speed, not cargo capacity, clippers got their name from their long, sharp bow. They carried three or four masts that could spread more than 10,000 yards of canvas. An American builder introduced the first clipper, the *Rainbow,* in 1845.

Clippers found their best use on the long route between the East and West Coasts of the United States in the early 1850s, after the discovery of gold in California. Speed was at a premium on these runs, where clippers would leave New York or Boston with passengers and supplies for the gold fields, sail around Cape Horn to San Francisco, and return by way of the Orient with a cargo of tea or other goods.

McKay's first true clipper ship, the *Stag Hound,* went in the water in 1850, making its first run to San Francisco in the record time of 108 days. His most famous clippers—the *Flying Cloud, Sea Witch, Sovereign of the Seas, Flying Fish, Champion of the Seas, Romance of the Seas, Empress of the Seas, Lightning,* and *Great Republic*—were ships of legend built in the early 1850s, and most set speed records. Ten of the 14 sailing ships known to have traveled more than 400 miles in a single day were built by McKay. These vessels could average speeds of more than 21 knots or 24 miles per hour.[4]

Despite his prominent successes, McKay went bankrupt when the demand for passages to California declined and financial panic hit the country in 1857. Although McKay soon recovered financially, sailing vessels could no longer match the speed and cargo capacity of British-built iron steamers.[5]

For a few years McKay turned to designing and building small traders and fishing boats. At the end of the Civil War the navy commissioned four small vessels and McKay built his last major ship, *Glory of the Seas,* in 1869. In the early 1870s he received his final U.S. Navy contract—for the *Essex.* His last shipbuilding project—the refit of the yacht *America*—came in 1875, the year his East Boston shipyard closed. Five years later the 70-year-old naval architect died on his farm near Hamilton, Massachusetts. Only the *Glory of the Seas* and the *Essex* outlived him. The majority of his vessels were wrecked or burned in the South Pacific after being pulled off intercontinental trade routes and sold to developing countries like Australia. In 1923 salvagers in Puget Sound burned the *Glory of the Seas.* The *Essex* survived another eight years, outliving McKay by a half century.

Although McKay failed to modernize his approach as iron and steam replaced wood and sail, he remains a brilliant craftsman of sailing ships and one of America's preeminent ship designers. None of his vessels survives intact, but the wreck of the *Essex*—preserved in Lake Superior's cold waters—can help us appreciate his special genius.[6]

Donald McKay, age 54

THE USS *ESSEX* was one of several sister ships authorized by President Abraham Lincoln just before his assassination in 1865, but not until 1873 did Congress provide funding to construct eight war vessels. McKay successfully bid to build two, the sloops of war *Adams* and *Essex.*[7]

One of the country's last sail-powered, wooden fighting ships, the *Essex* was designed during a time labeled the navy's "dark ages" by naval historian Donald Canney. Between 1870 and 1885 the American navy was a cruising fleet, "an arm of the State Department and essential transportation for the Marines to various minor hot spots around the globe. There was no battle fleet and Congress was far from authorizing one." Criticisms of the cruising vessels, Canney continues, centered around "their construction, motive power, and armament. The continued use of wooden hulls, dependence on sail as the primary propulsion, and reliance on antiquated smoothbores [cannons] . . . were considered proofs of the navy's tattered, worn-out condition." In many ways the *Essex* exemplifies these accusations.[8]

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[4] Laing, *American Ships,* 255.

[5] Here and below, McKay, *Some Famous Sailing Ships,* 338–44; Laing, *American Ships,* 377–82.

[6] Laing, *American Ships,* 258.

[7] McKay, *Some Famous Sailing Ships,* 338–44. For more information on the navy of Donald McKay's time, see Frank M. Bennett, *The Steam Navy of the United States* (Westport, Conn.: Greenwood Press, 1972); Donald L. Canney, *Frigates, Sloops, and Gunboats, 1815–1885,* vol. 1 of *The Old Steam Navy* (Annapolis: Naval Institute Press, 1990), 154–56.

[8] Canney, *Frigates, Sloops, and Gunboats,* 164, 165.

A three-masted sloop, the *Essex* was 185 feet long with a 35-foot beam and a 14-foot draft displacing 1,375 tons of water. It had at least eight gun ports on each side of the gun deck (below the main deck) and carried one 11-inch gun, four 9-inch guns, and a 60-pound cannon. Large iron anchors hung at the bow, and the wooden hull must have had a copper-sheathed bottom as protection against marine organisms. On three masts and several attached booms, the *Essex* carried at least 15 separate sails when fully rigged. An auxiliary steam engine powered a single propeller. The very pointed bow carried a figurehead, and the stern was rounded.[9]

Launched in Boston on October 3, 1876, the *Essex* was put in and out of navy commission numerous times over the next 27 years. Small, built of wood, and powered by an odd combination of sail and steam, it was quickly outmoded as a warship. Sent around the world, temporarily filling in whenever a squadron needed a vessel, it was used for fleet communications, small rescue missions, and "showing the flag" in distant ports.

Assigned to the Atlantic and then the Pacific Station in the early 1880s, the *Essex* periodically returned to the United States by way of Singapore, East Africa, and the Cape of Good Hope or through the Suez Canal and the Mediterranean. It visited the Carolina Islands in 1886 to investigate a reported massacre of Spaniards and to provide protection to American missionaries. In 1890 the *Essex* took part in the Army of the Potomac reunion at Portland, Maine, and it was briefly stationed at Annapolis for training naval cadets.

In the early twentieth century the *Essex* left salt water to begin service on the Great Lakes.

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[9] Here and four paragraphs below, Stephen R. James Jr., "National Register Assessment of Four Great Lakes Shipwrecks: The *Essex, Hesper, Amboy* and *George Spencer,* Lake Superior, Minnesota," 7–12, in *Archaeological and Historical Studies of Minnesota's Lake Superior Shipwrecks,* ed. Scott F. Anfinson (St. Paul: Minnesota State Historic Preservation Office, 1993). For more information on the *Essex*'s career, see Jay C. Martin, "New Life For Toledo's Naval Militia: The Voyage of the USS *Essex* to Toledo from the East Coast," *Marine History Lines* (Western Lake Erie Historical Society), Summer 1989, n.p.; Edwin L. Johnson, "Between Wind and Water—Part 3," *Nautical Research Journal* 24 (1978): 23–28; *Toledo Blade,* July 15, 1904, clipping in SHPO file.

The USS Essex *(left) and the USS* Paducah *at the Naval Reserve dock in Duluth, about 1922*

Loaned in 1904 to the Naval Militia of Ohio, the *Essex* moved into the Great Lakes via the St. Lawrence River, operating under sail because its engine was in such poor condition.

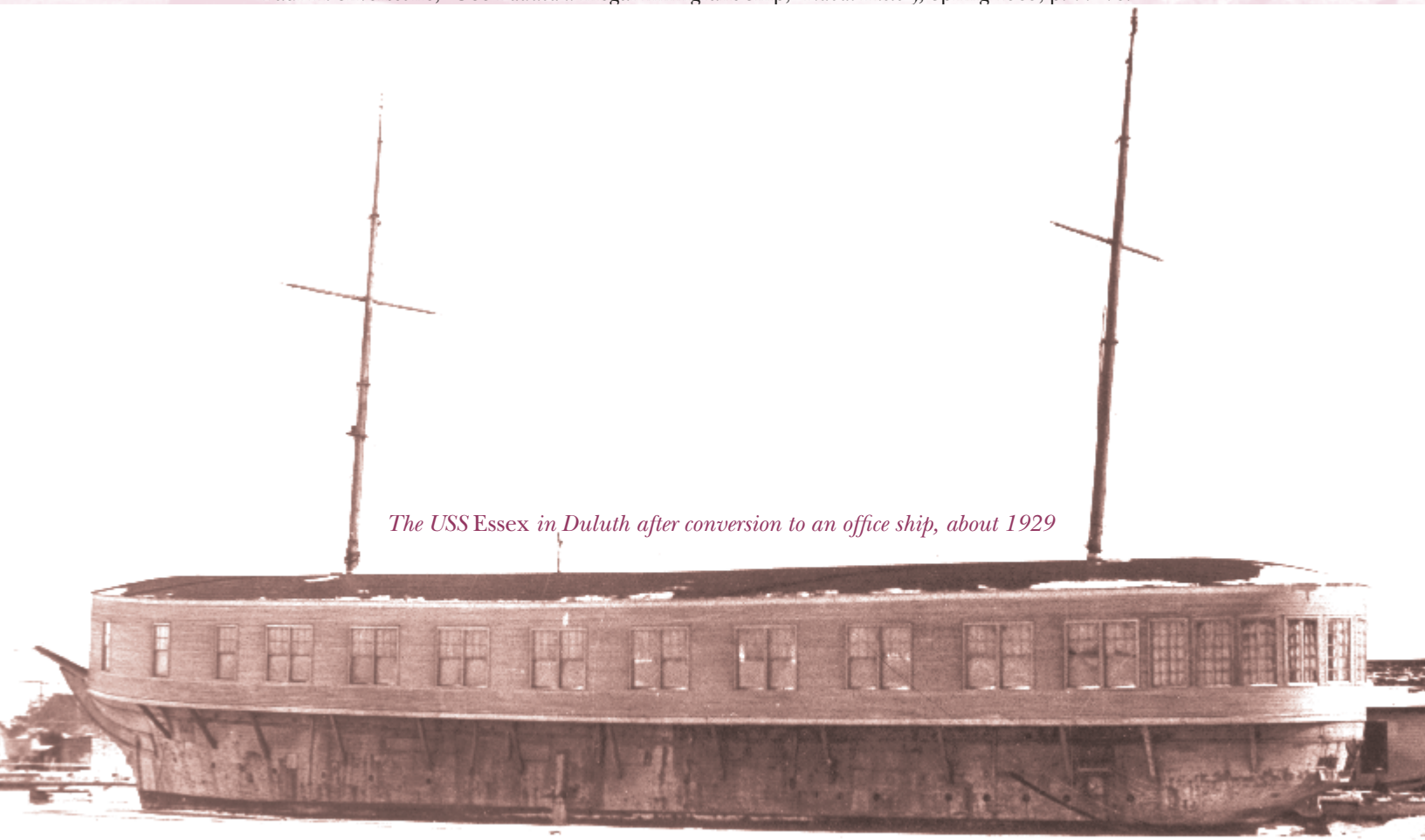
The *Essex* appeared to resist transfer to fresh water. Heading up the St. Lawrence River, it almost collided with an ocean liner in dense night fog. About 100 miles from Quebec it ran aground near the mouth of the Saguenay River where the channel was only 12 feet deep. The tide and a tug managed to free it.

For the next 12 years the *Essex* served the Toledo reserves, hosting annual summer training cruises. During the First World War, the navy reactivated the vessel as part of the Ninth Naval District. In 1917 it was based at Duluth but occasionally served at the Great Lakes Training Center in Chicago. After the war, the *Essex* joined the USS *Gopher,* a two-masted, steam-powered gunboat that had been the first vessel assigned to the Minnesota Naval Militia in 1906. For the next few years the *Essex* cruised the upper Great Lakes as far as the Manitou Islands in Lake Michigan. In 1922 it was joined by the gunboat USS *Paducah,* which took over most training duties. At this time the *Essex* appears to have been using steam power exclusively. Photographs taken in Duluth's harbor and at the Naval Reserve docks inside Minnesota Point show it without its main mast and most of the spars from the two remaining masts.[10]

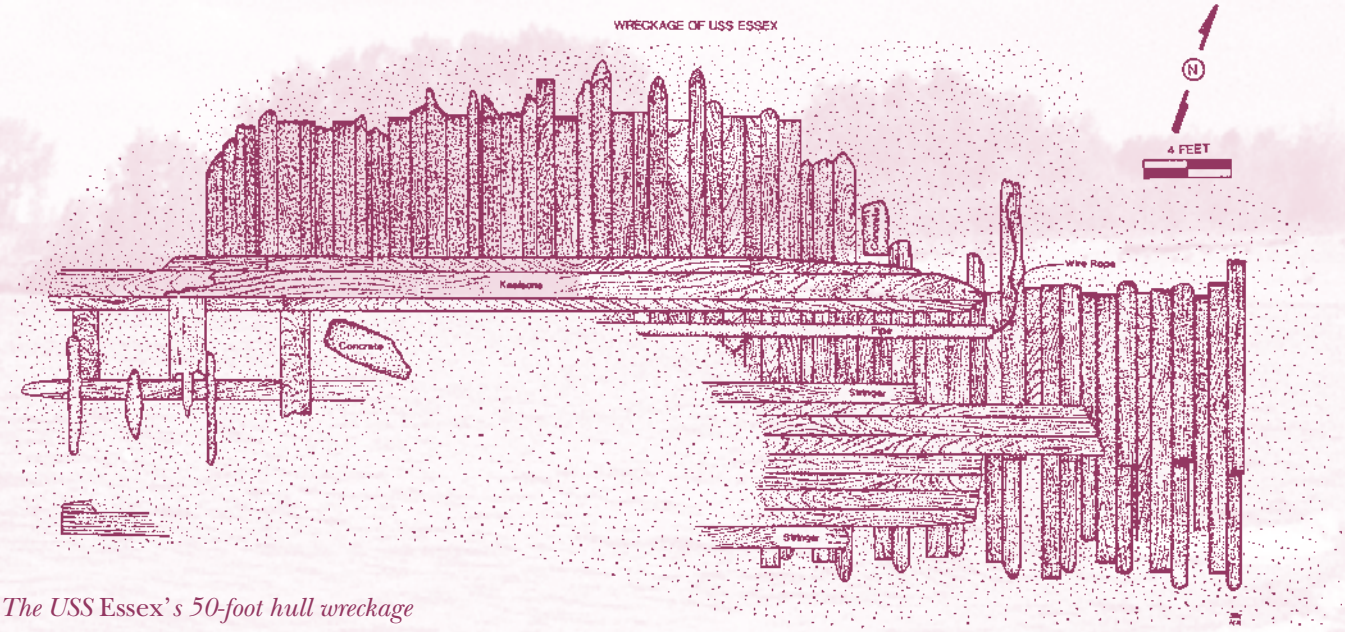
Transferred to the Minnesota Naval Reserve in 1927, this proud product of one of the nation's greatest naval architects had a wooden cabin built over its decks and its engine removed. Anchored permanently in Duluth's inner harbor, it served as an office for the U.S. Naval Reserve and the State Naval Militia. The worst was yet to come.

Three years later, the *Essex* was stricken from the navy list. It had outlived the five vessels of its class and all of McKay's other vessels. While Minnesotans hardly noticed, much less protested the decision, the *Detroit Free Press* lamented the loss of the oldest wind- and steam-powered vessel in the navy but stated it would be sold "to

[10] *Superior Evening Telegram,* Feb. 28, 1985, clipping in SHPO file. The *Gopher* started as the USS *Tern,* an Atlantic lighthouse tender. It was converted to a gunboat and transferred to Minnesota as the state's first naval training vessel in 1906, and it returned to the Atlantic during World War I. The *Paducah* was recalled to active service in late 1940. Decommissioned at the end of World War II, it was used to carry Jewish immigrants to Palestine; Paul H. Silverstone, "USS *Paducah*: Illegal Immigrant Ship," *Naval History,* Spring 1989, p. 77–78.



The USS Essex *in Duluth after conversion to an office ship, about 1929*



The USS Essex*'s 50-foot hull wreckage*

the highest bidder adjudged capable of treating her kindly in her old age."[11]

Listed for sale in late December 1930, the *Essex* was sold to the Klatzky Iron and Metal Company of Duluth for $400. There it was dismantled and parts sent as souvenirs to former officers and enlisted men around the country. The city of Toledo, the ship's first Great Lakes home, received the capstan and anchor. Duluth apparently asked for nothing from the vessel.[12]

On October 13, 1931, tugs towed the *Essex* to Minnesota Point, where two heavy steel cables were attached. The following day salvagers doused the ship with 200 gallons of kerosene and oil and set it on fire. The next morning, after it burned to the waterline, they winched it to shore, where the fire continued to burn. When the blaze subsided and the wreck cooled, salvagers removed loose metal pieces and abandoned the remains of McKay's sloop of war to the wind and waves of Lake Superior.[13]

IN MAY 1992 archaeologists working for the Minnesota Historical Society located the beached and partially submerged remains of the *Essex* about one-third mile northwest of the harbor-entrance jetties. The wreckage consisted of a 50-foot partially submerged hull section extending into four feet of water. The amount of timber exposed varies after every storm; at times it is difficult to find the *Essex,* and at other times it is highly visible. In early 1996, the remains could not be seen easily.

Perhaps the most significant portion of the wreck is what appears to be a machinery mount on the end closest to the shore. There, McKay's tight framing and strong construction can be documented. His fastening methods are seen to include copper-alloy bolts and tenonlike ironwood plugs. Experienced shipwreck archaeologists claim never to have seen a better constructed wooden vessel.

Because the wreck of the *Essex* demonstrates the construction methods of midnineteenth-century naval vessels, it was accepted on the National Register of Historic Places in 1994. The fact that Donald McKay designed and built the vessel makes it all the more significant.

The *Essex*'s remains, however, pose a major preservation dilemma. Wave action, wind, and ice will eventually destroy the wreckage, but chain saws, axes, and pry bars in the hands of relic and firewood collectors pose an even greater threat. Occasional military amphibious-landing exercises with armored vehicles may do further damage.[14]

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[11] *Detroit Free Press,* Nov. 22, 1930, clipping in SHPO file.

[12] *Duluth Herald,* Oct. 14, 1931, p. 14. The National Archives and Records Center has nine *Essex* log books, dating from 1876 to 1919.

[13] *Duluth Herald,* Oct. 14, 1931, p. 14; *Superior Evening Telegram,* Nov. 2, 1984, clipping in SHPO file.

[14] *Lake Superior Magazine,* June–July, 1989, p. 7.

UNDERWATER ARCHAEOLOGY IN LAKE SUPERIOR

Diver in Lake Superior exploring the wreck George Spencer *near Schroeder, Minnesota*

DIVING ALONG Lake Superior's North Shore is not for the faint hearted or the inexperienced. The water quickly drops below 40 degrees Fahrenheit only a few feet beneath the surface, even in late summer. Minimally protected hands and feet become numb in about 20 minutes. Instead of wearing wet suits, many North Shore divers wear warmer but cumbersome dry suits.

Some wrecks along the North Shore are in deep water because the bottom drops steeply immediately off the shoreline. One portion of a vessel may rest in 50 feet of water, while another in more than 100 feet. Water deeper than 100 feet requires divers to make decompression stops to avoid the "bends" or excess nitrogen in the blood.

Diving in Lake Superior has some advantages. Visibility is often more than 20 feet. The cold, fresh water helps preserve ships, especially those more than 50 feet down and unaffected by storms.

The Lake Superior shipwreck study, begun in 1990 by the Minnesota State Historic Preservation Office (SHPO), has resulted in a comprehensive inventory of vessels in Minnesota waters. Seven of the 11 surveyed wreck sites—the *Essex, Hesper, Onoko, Thomas Wilson, Madeira, George Spencer/Amboy,* and *Niagara*—have been placed on the National Register of Historic Places. SHPO's goals are to protect wrecks from harm, interpret their history for the public, and assist in making them accessible to the sport-diving community.

Removing the *Essex* from Minnesota Point would not only raise major logistical and conservation problems but would sever the vessel from a setting that is part of its history. Even if the *Essex* could remain on the National Register as an object rather than a site, many years and much money would be required to chemically treat its wood against continued deterioration.

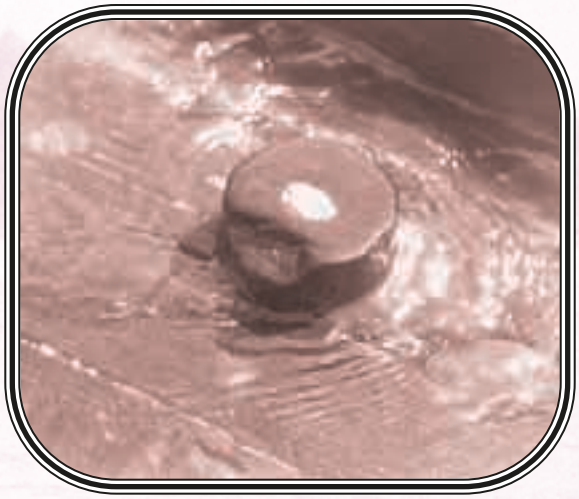
Some preservationists argue that the remains do not belong on Minnesota Point where the ship was so poorly treated six decades ago. Instead, the wreck would make a fine centerpiece for a museum where its construction methods could be properly interpreted and its builder celebrated. For now, however, it will remain where it rests.

Hike out on the point and look for the bones. Walking in the soft sand is difficult, but

well worth the effort. The wreck is not striking at first, just a heap of timbers obscured by the cold water and sand. If you look closely, however, you can see the ends of copper bolts like a scattering of pennies. A portion of an engine mount still documents the schizophrenic navy of the ship's birth.

Sit down near the wreck and think of those pieces of wood being shaped by craftsmen in a Boston shipyard under the watchful eyes of a master shipbuilder. Think of that hull in warm Oriental waters or passing through the Suez Canal. Think of its captain in his cabin pondering the navy's anguished transition from sail and wood to steam and iron. Think of the sailors that walked its deck and called it home. Think of the ship's ignoble end by salvager's fire.

Walk out and touch the *Essex*. Touch an artifact of history like no other in Minnesota. It is our only naval vessel, the last example of Donald McKay's genius still in American waters. Handle it with care, for the wood remembers.



McKay's fastening methods included tenonlike ironwood plugs, three inches in diameter, with 1/2-inch copper-alloy bolts in their centers.

The photo on p. 94–95 is courtesy C. Patrick Labadie, Duluth; on p. 96, Elmer Engman, Duluth; on p. 99, Canal Park Marine Museum, Duluth; and on p. 100, Northeast Minnesota Historical Center, Duluth. McKay's portrait is from McKay, Some Famous Sailing Ships. *The images on p. 101–103 are from the State Historic Preservation Office, Minnesota Historical Society.*