

**With Waves in Their Wake:
Underwater Archaeological Investigations
from the 2013 Field Season**



**State Archaeology and Maritime Preservation Technical
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**WISCONSIN
HISTORICAL
SOCIETY**

**Tamara L. Thomsen, Paul Reckner, Mackenzie Stout,
and Chad Gulseth**

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The *Major Anderson*, *Floretta*, and *Lakeland* sites are listed on the State Register of Historic Places and pending listing on the National Register of Historic Places.

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CHAPTER ONE INTRODUCTION

Archaeological surveys conducted by the Wisconsin Historical Society are a joint effort of several organizations and many individuals. The surveys conducted in this report are the result of a cooperative effort between the Wisconsin Historical Society, the University of Wisconsin Sea Grant Institute, and the Wisconsin Department of Transportation. Project funding was provided by grants from the University of Wisconsin Sea Grant Institute and the Wisconsin Department of Transportation. The surveys were organized and staffed by the Society's Maritime Preservation and Archaeology program staff and volunteers and were conducted over the 2012 field season.

The Wisconsin Historical Society is the State of Wisconsin's principle historic preservation agency and charged under state statutes (44.02 and 44.30-44.31) with the research, protection, restoration, and rehabilitation of historic properties within Wisconsin. Under Wisconsin statute 44.47, the Society is also charged with the identification, evaluation, and preservation of Wisconsin's underwater archaeological resources, including submerged prehistoric sites, historic shipwrecks, and aircraft on state-owned bottomlands. Recognizing the multiple-use value of underwater archaeological sites to scientists, historians, and recreationalists, these underwater remnants of our past are broadly termed "submerged cultural resources". Submerged cultural resource management goes beyond the scope of traditional historic preservation programs, encountering diverse multiple-use concerns such as recreation and commercial salvage.

The State of Wisconsin has additional management responsibilities for submerged cultural resources under federal law, including the National Historic Preservation Act of 1966 and the Abandoned Shipwreck Act of 1987 (Public Law 100-298). State legislation (1991 Wisconsin Act 269) and modifications to state law in adherence with federal guidelines issued under the Abandoned Shipwreck Act has provided Wisconsin with a more formalized and rational framework for underwater archaeological resource management. This legislation also authorizes the Society and the Wisconsin Department of Natural Resources to designate underwater preserves for the preservation and recreational development of underwater archaeological sites.

Created in 1988, the Society's Maritime Preservation and Archaeology program works to survey, inventory, and evaluate Wisconsin's underwater archaeological resources, develop preservation strategies, administer field management practices, and enhance public appreciation and stewardship for Wisconsin's precious and fragile maritime heritage (Cooper 1992; 1993). The program is within the Society's Division of Historic Preservation – Public History, Office of State Archaeology and Maritime Preservation. To encourage preservation and visitation of these unique resources while fostering wider public appreciation for Wisconsin's maritime cultural heritage, the Society began the Wisconsin's Maritime Trails initiative in July 2001. Winding above and below the waves, the Maritime Trails encompass five stretches of Wisconsin's coastline and inland river ways and links shipwrecks, lighthouses, historic waterfronts, historic vessels, museums, shore-side historical markers, and attractions. When viewed as a metaphorical "trail", these resources illustrate the state's diverse maritime heritage and connect them within the overall

context of Wisconsin's, as well as the greater Great Lakes region's, maritime heritage (Green and Green 2004).

The Maritime Trails initiative has become the Society's strategic plan for managing the state's diverse submerged cultural heritage while encouraging preservation and promoting public awareness and visitation. Initiatives aimed at identifying, managing, and interpreting Wisconsin's coastal cultural resources must consider these resources at both a local and regional level. The sheer length (approximately 860 miles), as well as the geographical, social, and cultural diversity of Wisconsin's Great Lakes coastline makes this essential. The Maritime Trails initiative encourages both divers and non-divers to consider each unique maritime property within the broader context of Wisconsin's maritime history. Through websites, interpretive materials, and public presentations, the Maritime Trails initiative integrates archaeological research and public education to encourage visitors to responsibly visit maritime cultural heritage sites. Wisconsin's Maritime Trails' major elements include:

Archaeological Research. The documentation of Wisconsin's submerged cultural resources, primarily historic shipwrecks, is the foundation of the Maritime Trails initiative. Beyond academic and resource management applications, archaeological research results form the basis of interpretation and outreach projects.

Shipwreck Moorings. With volunteer assistance, the Society maintains permanent moorings on 28 historic shipwrecks statewide. These moorings facilitate recreational access, provide a means of interpreting the wreck sites to visitors, provide a safe point of ascent and descent for divers, and eliminate anchor damage from recreational boaters anchoring into the site.

Dive Guides. Designed with divers, boaters, and kayakers in mind, these rugged, waterproof guides place each vessel within its historical context and highlights unique site features that might otherwise go unnoticed. In partnership with the University of Wisconsin Sea Grant Institute, the Society has produced guides to 25 Wisconsin shipwreck sites.

Public Presentations. Given at a variety of venues throughout the state, public presentations provide a direct, personal connection between the Society and the general public. The Society's underwater archaeologists and volunteers have reached thousands of people via public presentations since the Maritime Trails' inception.

Interpretive Signage and Kiosks. As of January 2012, the Society has installed shore-side informational markers for 34 historic shipwrecks and waterfronts. Utilizing an identical template that unifies the signs as attractions and information points within the statewide Maritime Trails program, the markers emphasize the broader connection between Wisconsin's many coastal historic resources. Five interactive touch-screen kiosks that highlight Wisconsin's historic shipwrecks are installed at the Wisconsin Maritime Museum, the Kenosha Public Museum, the Door County Maritime Museum, the Society's Madeline Island Museum, and the History Museum at the Castle. The kiosks reach an estimated 368,000 museum visitors annually and

make archaeological research results available in a fun, interactive format while educating visitors on the importance of Wisconsin's coastal cultural resources.

Websites. Two websites dedicated to Wisconsin's historic shipwrecks, underwater archaeology, and maritime history ensure the general public has access to timely and useful information. The gateway to these sites is the Wisconsin's Maritime Trails website (www.maritimetrails.org), which serves as a unified "maritime resource" information point for Wisconsin's residents and visitors. Unveiled in 2003, this website features a statewide database of shore-side maritime-related resources and over 700 historic Wisconsin shipwrecks. A searchable database includes contact information, Web links, and maps for historical maritime venues, as well as location and historical data for shipwrecks. An updated version of the website debuted in the summer of 2011. Wisconsin's Great Lakes Shipwrecks (www.wisconsinshipwrecks.org) is a collaborative effort between the Society and the University of Wisconsin Sea Grant Institute that began in 1996. Making underwater archaeological research results accessible to the public, this site features detailed information on historically and recreationally significant shipwrecks in Wisconsin's Great Lakes waters. Each shipwreck profile includes information about the ship's archaeology, history, final voyage, sinking, and current condition.

Partnerships. The Maritime Trails program partners with federal, state, and local agencies, chambers of commerce, non-profit organizations, and individuals. With several core partners, dozens of volunteers, and a growing list of project-specific partners, this aspect of the initiative ensures that everyone with a stake in Wisconsin's maritime heritage shares in its management and interpretation.

Research Design and Methodology

Nineteenth-century Great Lakes wooden ship construction and operation is poorly understood. Little is known about how vessels were built and operated during the nineteenth century. As a result, much of what we know about Great Lakes merchant vessels has come from the archaeological record of vessels that now lie on the Great Lakes' bottomlands. The archaeological surveys within this report were designed to provide a better understanding of nineteenth-century Great Lakes merchant vessel construction and use.

Field survey methods included traditional baseline surveys aided by digital photo and video documentation. Archaeological documentation was conducted along guidelines established by the National Park Service for submerged cultural resource survey and evaluation in determining site eligibility for the National Register of Historic Places. Research designs were directed toward formulating site descriptions and archaeological assessments with a package of management questions, some specific to the site itself (i.e. location, environment, parameters, integrity, extant features, and artifacts), as well as more general questions that place the site within its broader historical context (i.e. historical significance, archaeological potential, recreational potential, and management requirements). Research objectives included:

1. Determine the site location, environment, and parameters through visual survey of extant elements, features, and artifacts.
2. Document and map exposed remains using trilaterated survey points and an onsite (submerged) datum.
3. Document the site using photographs, video, and measured sketches of those architectural and archaeological elements that are diagnostic of a) vessel type, b) vessel age, c) vessel construction style and method, d) vessel propulsion, e) vessel use, f) vessel identification, g) vessel cargo, and h) shipboard human activity broadly indicative of occupation, status, ethnicity, subsistence or other questions allied with the study of maritime anthropology and Great Lakes social and economic history.
4. Provide assessment of a site's environmental and cultural context for determining its historic significance and archaeological potential according to the National Register of Historic Places criteria, recreational potential, and management requirements.

Site evaluation and documentation was conducted using closed-circuit scuba technology. Documentation included digital photo mosaics, measured sketches, construction schematics, digital still and video imagery, and scaled site plans for National Register-level documentation. Analysis was conducted using comparative evidence obtained from archaeological surveys of similar sites, and augmented by historical documentation relating to individual sites and general Great Lakes maritime history. Where artifacts were encountered, material culture was interpreted in the context of its relevance to shipboard activities, shipboard hierarchy, shipboard activity/use areas, and other aspects of maritime anthropology.

This submerged cultural resource survey report serves as a source document for site description, analysis, interpretation, and management recommendations used in cultural resource management planning, recreational development, and public education. It also serves as the source document for eligibility determination and nomination for listing on the National Register of Historic Places. Inclusion of these sites on the National Register and state resources management plans is an important step in achieving long-term site preservation. Suggested plans for management include mooring buoys to facilitate recreational access (where appropriate) and alleviate damage caused by on-site boat anchoring. Other possibilities include site interpretation for visitors through self-guided site maps and Web-based pages. Site preservation ensures availability both as a future recreational resource and as an important and nonrenewable source of scientific data relating to Great Lakes underwater archaeology, maritime history, marine architecture, and maritime anthropology.

CHAPTER TWO

BARKENTINE MAJOR ANDERSON

Launched on 13 April 1861 in Cleveland, Ohio, and built by Ira Laffrinier for shipping merchant, Hezekiah J. Winslow of Cleveland, the 568 11/95 ton *Major Anderson* measured 153.87 feet long and 33.20 feet in breadth, with a 12.13-foot depth of hold. The vessel was built at a cost of \$22,000. The three-masted barkentine carried heavy spars and 2,800 yards of canvas. She had one deck, a square stern and a figurehead at her bow. Her first Master was Capt. William Jones, formerly of the schooner *William Case* of Cleveland. The U.S. Customs Office in Cleveland assigned the vessel the Official number 16326 (ADGNFPL; *Buffalo Commercial Advertiser* 1861a, 1861b, 1861c; Bureau of Navigation 1861; Williston 1861).



Figure 1. Drawing of Fort Sumter in Charleston Harbor, South Carolina. Library of Congress Collection.

Four other vessels launched on the Great Lakes between 1861 and 1864 carried the name *Major Anderson*. In addition to the barkentine *Major Anderson* described in this report, two schooners bearing the same name were also launched in 1861. One schooner *Major Anderson* was a 246-ton canaller, built at Blendon Landing, Michigan. She measured 112 x 26 x 9.6 feet, and was owned by A.C. Litchfield & Co. This vessel was similarly enrolled at both Detroit and Chicago throughout her service history, travelled similar routes and provided the most difficulty in discerning correct identity of which vessel was being described in contemporary news reports. However, her hull built as a canal schooner, allowed her to transit the Welland Canal and could provide service to ports on Lake Ontario whereas the vessel described in this report, being too long, wide and deep for the canal locks, could only service ports on Lake Erie and the upper lakes. Additionally in 1861, a 143-ton, 95-foot schooner *Major Anderson* was built at Oswego,

New York, constructed and owned by P. Lamoree. This ship was lost in 1863. Then, in 1864 yet another schooner *Major Anderson* was launched. Built at Detroit by A.D. Burden of Spring Wells, Michigan, she was enrolled five times at Detroit between 1864 and 1867. This vessel was considerably smaller with a tonnage capacity of 20-tons (ADGNFPL; Mansfield 1899a; *Marine Record* 1886). By comparing the long trail of arrivals and clearings posted in early newspapers with ownership changes, changes in Masters, and tonnage of cargoes delivered, it was possible to differentiate with a high degree of accuracy which vessel was which in historic documents, and only those believed to belong to the barkentine *Major Anderson*, sunk north of Two Rivers, Wisconsin, are included here.

The barkentine's namesake, Major Robert Anderson, was the commanding officer of sixty Union Army soldiers in Charleston, South Carolina, when the state was the first to secede from the Union in 1860. Without orders, Anderson moved his troops from Fort Moultrie to Fort Sumter in Charleston Harbor holding the fort under siege, with no reinforcements or provisions for months. On 12 April 1861, ten thousand Confederate soldiers and artillery forces lined up against them firing on Fort Sumter, marking the beginning of the Civil War. The fight lasted thirty-four hours, ending on 14 April when Anderson and his men agreed to evacuate the fort. In honor of his valiant fight, the barkentine *Major Anderson* carried a "well executed" painting of Fort Sumter adorning her entire stern (*Buffalo Commercial Advertiser* 1861c; Lawton 1911).

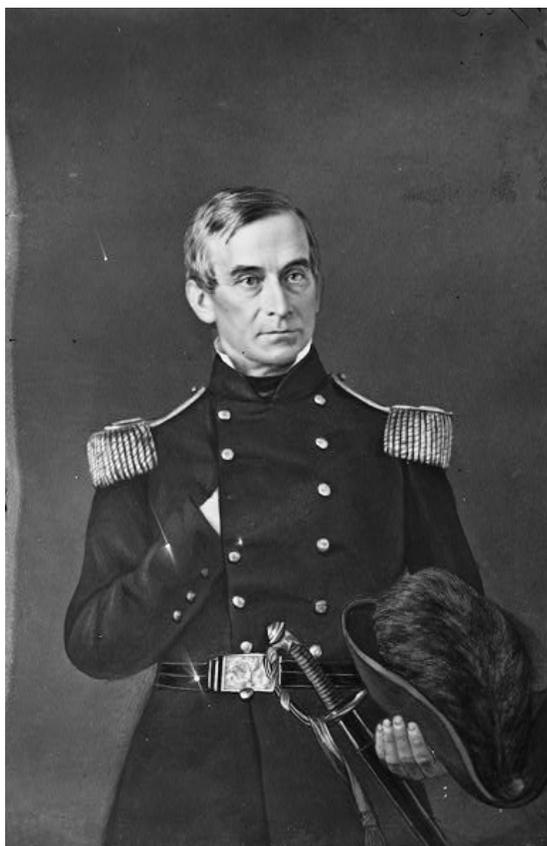


Figure 2. Major Robert Anderson, Union commander at Fort Sumter. Library of Congress Collection.

After her launch, the bark *Major Anderson* sailed for Milwaukee; the majestic looking vessel was noted passing Detroit on 29 April 1861 with an American ensign flying high from her mainmast. Upon her arrival at Milwaukee on 13 May a large reception with champagne and wine was held on board where the region's prominent merchants and produce men drank, made toasts and impromptu speeches (*Oswego Commercial Times* 1861a, 1861b).

She loaded her first cargo, 23,000 bushels of wheat bound for Buffalo, but her departure from Milwaukee was delayed several days. Her sailing capacities apparently were not remarkable. Her progress against the head wind was slowed considerably, and her steering gear broke 30 miles east of Point au Pelee, causing an additional 24-hour delay (*Buffalo Commercial Advertiser* 1861c). On 5 October 1861, while attempting to come into Buffalo Harbor against a strong outgoing current from the Buffalo River, she was carried against the Lake Erie breakwater and grounded. A portion of her cargo of corn had to be lightered and the tug *Relief* was contracted on 7 October to free the vessel (ADGNFPL; *Buffalo Commercial Advertiser* 1861d, 1862).

For her first trip of the 1862 shipping season the *Major Anderson* brought 25,000 bushels of wheat to Buffalo from Milwaukee arriving into that port on 28 May (*Buffalo Courier* 1862a). Monthly trips from the western ports of Chicago and Milwaukee to Lake Erie were made in mid-June, July, and August with corn bound for Buffalo (*Buffalo Courier* 1862b, 1862c, 1862d, 1862e; *Oswego Commercial Times* 1862a, 1862b). On the August trip, the *Major Anderson* was towed the distance from Chicago to Buffalo in consort with the bark *Standard* behind the steam screw *Prindiville*. They made the trip along with the steamer *McQueen* that had the bark *Sunshine* in tow. Each of the barks paid \$800 for the towing service; this was the first record of vessels being towed for that distance. She arrived at Buffalo on 15 August with 28,000 bushels of corn (*Buffalo Daily Courier* 1862f). No trips were reported for the month of September 1862. On 4 October, the *Major Anderson* passed upbound at Detroit for Chicago, arriving at that port on 14 October. She was quick to take on another cargo, departing Chicago on 16 October, and arriving in to Buffalo in the early morning hours of 25 October with 29,000 bushels of corn. On the afternoon of 25 October she was reported passing Detroit upbound. At Chicago the bark was chartered for 13.5 cents per bushel to take corn to Buffalo. She loaded and cleared Chicago on 6 November with 27,000 bushels of corn. The *Major Anderson* was chartered for one more corn haul for 1862, bringing her last load of the season to Buffalo at 15 cents per bushel in early December (*Buffalo Daily Courier* 1862g, 1862h, 1862i, 1862j, 1862k; *Oswego Commercial Times* 1862c, 1862d).

On 10 April 1863 W.M. Egan acting on behalf of Hezekiah J. Winslow as ship's husband, reenrolled the *Major Anderson* at the Port of Chicago. Her enrollment had expired while she was out of her home district so temporary papers were issued. The *Major Anderson's* new Master was listed as Captain L.W. Ingraham (Bureau of Navigation 1861, 1863). Little is known of the *Major Anderson's* early shipping season of 1863. On 3 September 1863, the bark, loaded with a cargo of lumber, sprung a leak and became waterlogged while anchored in the lee of Middle Island on Lake Huron. She was three days out from Saginaw, Michigan, bound for Chicago and waiting out a storm when she sank. The tug *Winslow* was dispatched from Detroit with a steam pump to dewater and raise the vessel. The leak was determined to be coming from one of the seams in her

centerboard trunk. Easily fixed, she proceeded to Chicago without further delay (ADGNFPL; *Buffalo Commercial Advertiser* 1864; *Buffalo Daily Courier* 1863a; *Detroit Advertiser & Tribune* 1863). Trips were reported from Milwaukee to Buffalo with 25,200 bushels of wheat in October 1863, and from Chicago to Buffalo with 33,768 bushels of oats in November 1863 (*Buffalo Daily Courier* 1863b, 1863c).

The 1864 shipping season began with a trip from Chicago to Buffalo with 22,376 bushels of wheat at the end of May (*Buffalo Daily Courier* 1864a). Upon arrival at Buffalo a new enrollment was entered for change in owners and homeport. Hezekiah Winslow sold a portion of the vessel to his brother, Henry C. Winslow, an attorney from Buffalo. Sometime during 1863 Hezekiah Winslow moved to New York City. Likely because of this move and his brother's involvement with the vessel, the *Major Anderson's* homeport was changed to Buffalo (Bureau of Navigation 1864). No trips in June were found in the historic record for the vessel. On 13 July the bark cleared Buffalo bound for St. Clair, Michigan. It is unknown what cargo she carried. Captain Ingraham remained at her helm for the first part of the season (*Buffalo Daily Courier* 1864b). No trips in August were recorded, but on 6 September 1864, the *Major Anderson* passed Detroit bound for an unknown destination on the upper lakes. No trips were found in the historic record for October, but on 4 November the *Major Anderson* cleared the port of Buffalo for Saginaw, Michigan. Captain Gunderson was at her helm. The change in Masters did not appear in her enrollment documents (*Buffalo Courier* 1864c; *Oswego Commercial Advertiser* 1864). Before the end of the 1864 season, another new captain was at her helm. Captain John W. Moore was hired as Master and C.G. Ennis was brought in as Mate (Mansfield 1899b).

Captain Moore stayed on as Master of the *Major Anderson* for the 1865, and the next several shipping seasons. On 13 May 1865, the *Major Anderson* was readmeasured under the allowances of the Act for Enrolling and Licensing Ships and Vessels of 6 May 1864. John C. Harrington was hired as surveyor. The bark's new measurements were 153.92 feet long, 32.64 feet in breadth, 11.71 feet depth, with a capacity of 434.22 gross tons (ADGNFPL; Bureau of Navigation 1865,1866). The vessel carried 37,000 bushels of oats for Judson & Avery from Chicago to Buffalo, arriving on 12 June for her first recorded trip for 1865 (*Buffalo Courier* 1865a). The *Major Anderson* cleared Buffalo on 10 July bound for Saginaw, Michigan, passing upbound at Detroit on 13 July (*Buffalo Courier* 1865b, 1865c). On 16 August, the bark arrived at the port of Buffalo with 28,033 bushels of corn consigned to J.F. Eddy & Co. For her September trip, the Winslow brothers secured a contract to haul wheat from Milwaukee to Buffalo at 8 cents per bushel. Another trip from Chicago was completed on 13 October with 36,384 bushels of oats for Griffin & Co. of Buffalo. She unloaded quickly and cleared Buffalo on the same day for a return to Chicago (*Buffalo Courier* 1865c, 1865f, 1865g).

The *Major Anderson* had an early start for the 1866-shipping season, noted as just the second vessel to arrive in to Buffalo that season. She came in at 4PM on 8 May only hours after the arrival of the bark *Champion* (*Buffalo Courier* 1866). As she was leaving Buffalo Harbor, the *Major Anderson* collided with the iron-hulled revenue cutter *U.S.S. Michigan*. The bark suffered only minor damage totaling \$50 in property loss (ADGNFPL; *Buffalo Commercial Advertiser* 1867). Her second Chicago to Buffalo trip arrived on 13 June with 27,000 bushels of corn consigned to Nims, Gibson & Lyon, and cleared the same day for Chicago. A third Chicago to

Buffalo trip arrived on 7 July with 26,600 bushels of corn for Marsh & Steinberg, and cleared the same day for Chicago. No trips were found for August, September, or October. On 10 November, the *Major Anderson* passed Detroit downbound for unknown ports on Lake Erie. No arrivals were found for this voyage (*Buffalo Courier* 1866b, 1866c, 1866d, 1866e).

On 15 May 1867, the *Major Anderson's* enrollment was surrendered at Cleveland as her licenses had expired. A temporary enrollment was entered and upon her return to Buffalo a new permanent enrollment was registered for the bark on 3 August 1867. Hezekiah Winslow bought out his brother and again was listed as sole owner of the vessel. Her homeport remained Buffalo, and Captain Peter Berg became her new Master (Bureau of Navigation 1863, 1867a, 1867b). Little is known about the *Major Anderson's* 1867 shipping season. Only three events were found in historic newsprint. On 7 August 1867, the *Major Anderson* cleared Buffalo for Saginaw, Michigan, and on 12 October she arrived into Buffalo from Milwaukee with 25,800 bushels of wheat consigned to J.R. Bentley & Co. (*Buffalo Courier* 1867a, 1867b). On the morning of 13 November 1867, the *Major Anderson* cleared Buffalo with a cargo of coal bound for Chicago. She was forced to put back into port after losing her centerboard. A new centerboard was installed and she was back in service with little delay (ADGNFPL; *Erie Daily Dispatch* 1867; *Toledo Blade* 1867).

The *Major Anderson's* enrollment was surrendered at the port of Chicago on 1 April 1868 due to a change in owners and districts and a new document was entered on the same day. John Prindiville, professional mariner and vessel owner, and Jesse Spalding, lumberman, both of Chicago purchased the vessel and became equal owners. Her homeport was changed to Chicago and her new Master was Captain John Downing (Bureau of Navigation 1867b, 1868a; Bailey and Edwards 1868). The *Major Anderson* arrived into Buffalo from Chicago on 20 May 1868, on board she carried 28,608 bushels of corn consigned to Barclay, Bruce & Co. (*Buffalo Courier* 1868a). Trips from Chicago to Buffalo for grain consigned to Barclay, Bruce & Co. were recorded in late June, in August with 31,183 bushels of oats, and in September with 28,000 bushels of corn (*Buffalo Courier* 1868b, 1868c, 1868d).

On 31 March 1869, a new enrollment was entered at the port of Chicago for a change in owners. Captain John Prindiville sold the schooner *Bay State* to Jesse Spalding and H.H. Porter, who partnered in the lumber manufacturing firm Spalding & Porter, for \$10,000. In exchange, Spalding & Porter transferred ownership of the *Major Anderson* to Captain Prindiville for \$24,000 (*Buffalo Courier* 1869a; Bureau of Navigation 1869a, 1869b). On 7 April 1869, another new enrollment was entered at the Chicago Customs House. John Prindiville sold one-sixth interest in the bark *Major Anderson* to her new Captain, John C. Sullivan for \$4,000 (Bureau of Navigation 1869b; *Buffalo Courier* 1869b).

Straight away in April, the *Major Anderson* was involved in a collision with the schooner *J.M. Hill* in Chicago harbor. The bark lost her mizzen-boom in the collision (ADGNFPL; Hall 1869). No sooner was the *Major Anderson* back in commission, in May she lost her anchor and anchor chain in Lake Michigan near Chicago (ADGNFPL; Hall 1869). In mid-June the vessel was chartered to bring wheat from Milwaukee to Buffalo at 9 cents per bushel (*Buffalo Courier* 1869c). Although no information has been located for trips in July, August, or September

specifically, one trip during the 1869 season made the record books for exceptionally fast sailing—a trip from Chicago to Escanaba and on to Cleveland with iron ore. The *Major Anderson* made the route in 7 days and 11 hours, including three days receiving cargoes (*Buffalo Courier* 1869e). On 1 November while the *Major Anderson* was enroute from Cleveland to Chicago to pick up a cargo of corn to be taken to Buffalo, which had been chartered at 10.5 cents per bushel, she ran aground off the North Light at Point au Pelee. While attempts to free the vessel continued to no avail, she remained pounding on the rocks for three days. The tug *Magnet* was summoned, and the bark was freed (ADGNFPL; *Buffalo Daily Courier* 1869d; Dept. of Marine & Fisheries; Hall 1869).

Her late season accident in 1869 kept the *Major Anderson* in drydock for repairs over the winter months and into the 1870 shipping season. Only one trip was found in contemporary newspapers for 1870. On 10 November 1870, the bark cleared Buffalo for Green Bay, Wisconsin, with 290 tons of coal and 2,662 barrels of salt (*Buffalo Courier* 1870).

An early spring cleared the ice and opened navigation by the first week of April 1871. On her first trip upbound with coal bound for Chicago, the *Major Anderson* collided with the *W.F. Allen* at Bar Point just south of the Detroit River outlet into Lake Erie. The *W.F. Allen* sustained significant damage. The *Major Anderson* continued upbound. When she was just east of the Straits of Mackinac in Lake Huron, she stranded on Graham Shoals. The crew was forced to jettison much of her cargo to lighten the vessel and free her. The accident caused \$1,600 in damage to the bark, and cost \$1,900 in loss of cargo (ADGNFPL; *Buffalo Daily Courier* 1871a; Hall 1871).

Damage to the vessel was repaired quickly and during her time at the shipyard, she also received a new deck. On 2 May 1871, the *Major Anderson* cleared Chicago for Buffalo with 28,758 bushels of corn consigned to G.S. Hazard & Co. She arrived at Buffalo on 13 May and cleared the same day for Chicago passing upbound at Detroit on 29 May (ADGNFPL; *Buffalo Courier* 1871b, 1871c, 1871d, 1871e). On 10 June the *Major Anderson* arrived into Buffalo with 28,000 bushels of corn for Clark & Co. from Chicago, discharged her cargo, and cleared the next day for Chicago (*Buffalo Courier* 1871f; *Buffalo Express* 1871). An undocumented trip occurred in late June or early July. On 7 July, the vessel was recorded as she departed Buffalo for Chicago, and as she passed upbound at Detroit on 15 July (*Buffalo Courier* 1871g, 1871h). At Chicago the bark took on 28,317 bushels of corn for Buffalo clearing on 27 July (*Buffalo Courier* 1871i). No documentation of charters was found for August 1871. Two trips were recorded for September 1871. On 4 September the *Major Anderson* cleared Buffalo with 550 tons of coal bound for Chicago, passing upbound at Detroit on 9 September (*Buffalo Courier* 1871j, 1871k, 1871l). At the end of September the *Major Anderson* was chartered to carry wheat from Chicago to Buffalo for the Chicago Gas Company at 13 cents per bushel, but the vessel was in Buffalo. On 28 September, she loaded with 500 tons of coal and cleared Buffalo for Chicago for the second time in September (*Buffalo Courier* 1871l; *Milwaukee Sentinel* 1871b). She passed upbound at Detroit on 3 October (*Buffalo Courier* 1871m).

In early October strong winds, extreme heat, and dry conditions, fueled several forest fires across the region. Large fires burned unabated for days. The most well-known fire that consumed large

sections of Chicago from 8 October through 12 October became known as the Great Chicago Fire, and the fire that burned through northern Wisconsin became known as the Pestico Fire. Many other forest fires burned days before, and other fires flared up after these famous events. As a result, dense smoke hung over Lake Michigan. Paired with heavy gale conditions at 2AM on 7 October 1871 Captain Sullivan became disoriented, made an error in navigation, and ran the *Major Anderson* ashore three miles north of Two Rivers, Wisconsin, near the mouth of Molash (Mahaska) Creek. Both of the vessel's small boats were damaged in the accident so when orders were given to abandon ship, the crew was forced to swim ashore. On 8 October, the tug *C.W. Wood* was sent from Chicago with a pump to render assistance, but the tug was unable to come close to the vessel as the storm raged on for several more days. The *Major Anderson* emerged after the storm severely broken; the vessel and her cargo were declared a total loss. Her hull was valued at \$10,000 and insured for \$6,000; her cargo valued at \$5,000 was insured for \$2,800. Besides the loss of the vessel, John Prindiville suffered additional property loss at his Chicago wharf in the Great Chicago Fire (*Buffalo Courier* 1871n, 1871o; *Manitowoc Pilot* 1871a; *Mansfield* 1899a, 1899b; *Milwaukee Sentinel* 1871a, 1871b).



Figure 3. Donkey boiler eroding out of the beach which may have been lost in the initial salvage attempt of the *Major Anderson*. Photo courtesy of Erin Dembski-Rodriguez.

On 2 November 1871, U.S. Marshall Hamilton sold salvage rights for the *Major Anderson* to Windiate & Richards of Chicago. The tugs *Kitty Smoke* and *Active* were dispatched to remove her rigging and deck machinery (*ADGNFPL Buffalo Express* 1871b, 1871c; *Buffalo Courier* 1871o; Hall 1871; *Manitowoc Pilot* 1871b; *Milwaukee Sentinel* 1875).

Site Description

Located 4 miles North of Two Rivers, Wisconsin, in Lake Michigan, the barkentine *Major Anderson* lies on the lakebed in 3 to 10 feet of water. Her bulwarks and rail are not extant. From

the deck down, her lower hull remains intact with an eight-degree list toward her port side. Her remains are well preserved, and buried under an estimated ten feet of filled sand. Her windlass, centerboard winch, bilge pumps, wheel, and much of her rigging were salvaged shortly after her grounding and are not extant on site.

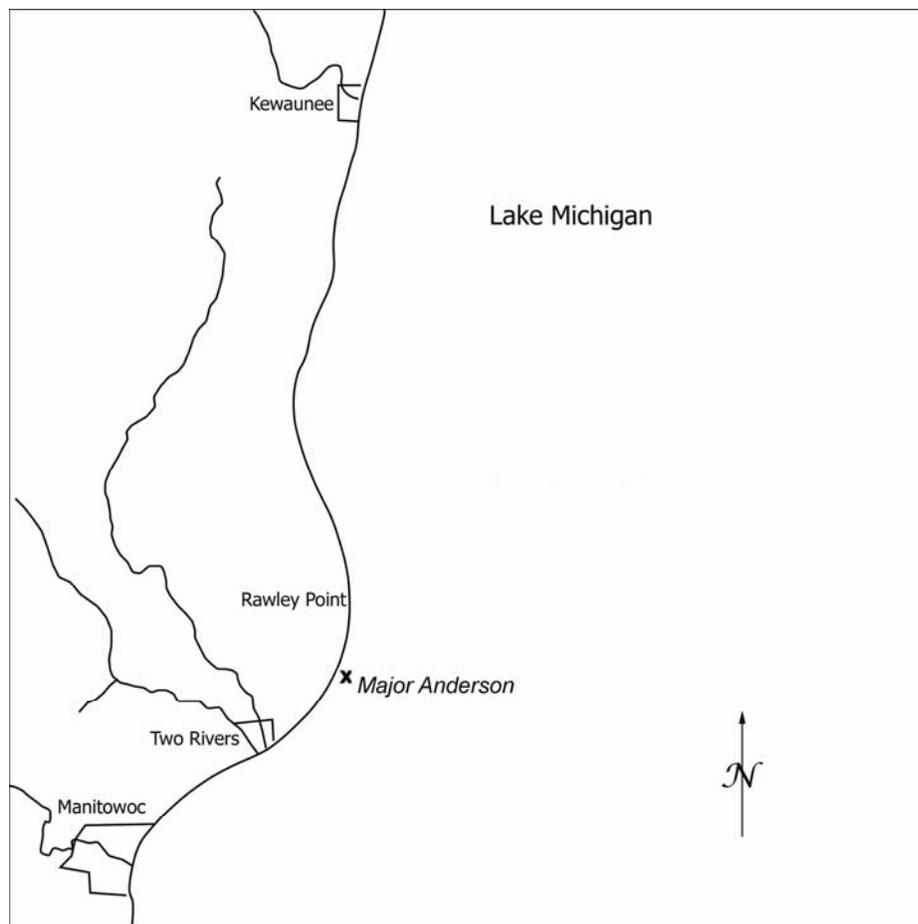


Figure 4. Location of the *Major Anderson* site.

A baseline was attached at the aft edge of the stempost and stretched 136 feet along the centerline of the vessel until the remaining portion of her stern disappeared into a sand bank. All measurements for the survey were taken from this baseline. Aerial images taken a month before the survey indicate the stern was fully uncovered in the spring of 2013 and the stern appears to be intact. An estimate based on the aerial photographs surmised that the vessel was greater than 150 feet in overall length. The vessel's beam, measured at her widest point was 32.4 feet. Given the wreck dimensions, location, and a comparison of vessel losses in the vicinity based on historic newspaper accounts, the vessel remains were determined to belong to the barkentine *Major Anderson*. Between her initial survey on 2 July 2013 and a follow up site visit on 11 August 2013, many new areas of the wreck were exposed while the shifting sand obscured previously uncovered areas. As the site rests in a dynamic environment, no invasive zebra or quagga mussels have colonized her hull allowing for detailed observations.

Major Anderson Shipwreck

Two Rivers, Manitowoc County, Wisconsin

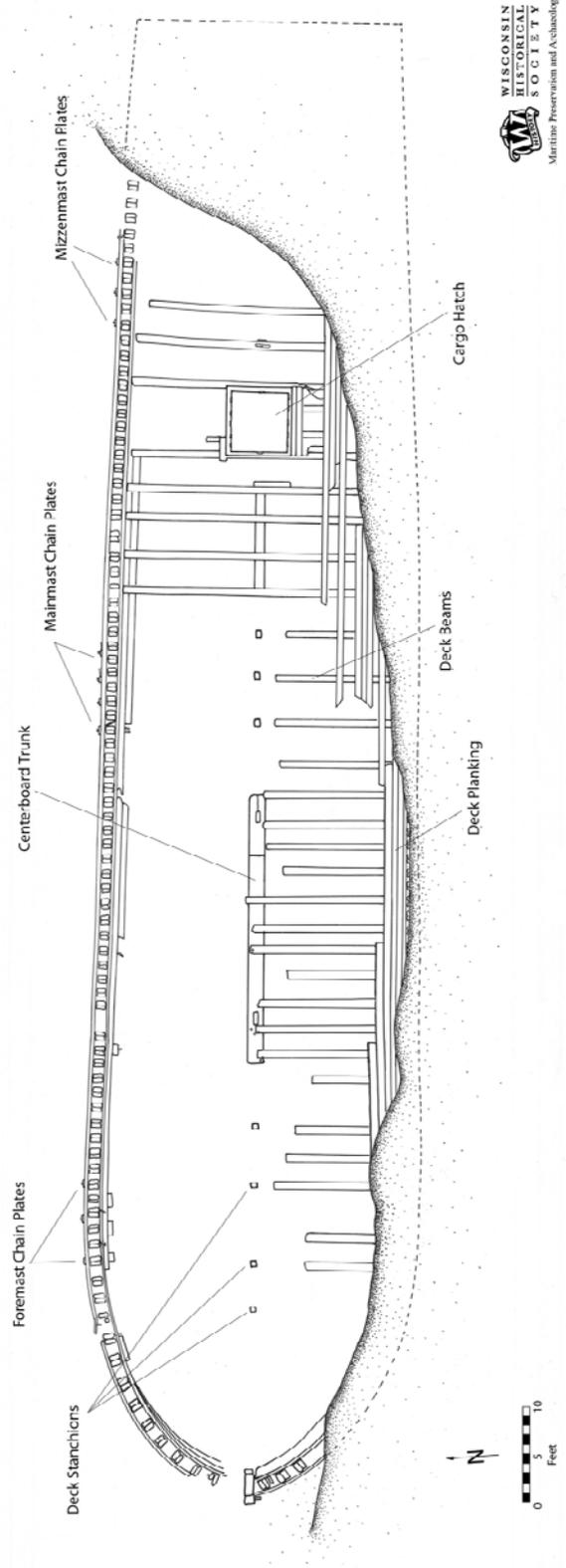


Figure 5. Major Anderson site plan.



Figure 6. Aerial photographs of the *Major Anderson*. Photo courtesy of Suzze Johnson.

The *Major Anderson*'s stempost measures 0.8 feet by 0.8 feet square with only 1.4 feet exposed above the sand. A break in the ship is evident on the starboard side where the hull has separated 2.2 feet from the stempost. One piece of outer hull planking has sprung eight frames back on the starboard side. Otherwise, the integrity of the vessel's lower hull remains intact. Outer hull planking measures 0.5 feet wide by 0.15 feet thick. Ceiling planking measures 1.2 feet wide by 0.15 thick. One hundred and thirty-seven feet of the starboard side including 84 frame sets were exposed above the sand; only 12.3 feet of the port side and 3 frame sets were uncovered and visible at the time of the survey. The vessel is double framed. Individual futtocks measure 0.4 feet wide by 0.6 feet thick with 0.9 foot spacing between frame sets. Ceiling planking, futtocks, and outer hull planking are fastened together with iron drift pins, roved atop the ceiling planking and

peened on the outside of the vessel. Drift pins measure 0.05 feet diameter and roves measure 0.15 feet in diameter. Flecks of green paint and oakum in her seams was observed on the outer hull.

Although much of her rigging was recovered, evidence of *Major Anderson's* three masts is extant. Three of four iron chainplates that supported the foremast remain on her starboard side. Chainplates measure 0.3 feet wide by 0.7 feet long by 0.15 feet thick and are bolted through the outer hull planking, frames and ceiling planking and secured inside and out with square nuts. The forward most chain plate is 5.5 feet forward of the aft two chain plates with an outline of the missing chainplate evident. The aft two individual plates of the foremast are spaced 3 feet on center. By the position of the chainplates and extant deck stanchions, the foremast's position is estimated at 26 feet aft of the stempost. Although the step remains obscured by sand, this would indicate that the masts were not raked.

All four of four mainmast chainplates are extant on the starboard side hull. These measure 0.3 feet wide by 0.7 feet long by 0.15 feet thick and are spaced 3.0 feet, 2.9 feet and 3.2 feet on center forward to aft. By the position of these chainplates and extant deck stanchions, the position of the mainmast is estimated at 76 feet aft of the stempost, and 3 feet aft of the centerboard trunk. The mainmast step remains obscured by sand, and no remnants of mast hole through the deck or mast partners are evident.

Three mizzenmast chainplates were visible before the starboard hull disappears into the sand bank. It is uncertain if other chainplates remain attached to the hull but are covered by sand. The chains measure 0.3 feet wide by 0.7 feet long by 0.15 feet thick and were spaced 3.2 feet and 2.9 feet on center. A remnant of the broken mizzenmast is located 130 feet aft of the stempost. The mizzenmast stub measures 1.5 feet in diameter and would have protruded through the cabin roof.

Along the starboard hull, 1.5 feet aft of the foremast chains and 1.5 feet aft of the mainmast chains are lumberports, which allowed dimensional lumber to be passed through the hull below the bulwark and directly into the hold. The lumberports are 3.0 feet wide by 1.0 foot tall, measured on the inside of the vessel. To insure watertightness, an iron cover wider than the port opening was fitted to outside of the vessel and measured 3.4 feet wide by 1.4 feet tall. The top of the cover is hinged, and the outsides of the doors are adorned with a two diamond decoration which served not only as adornments, but backed the dogging pins which are attached to the inside of the doors. These pins have an eye on the end attached to the door and measure 1.1 foot in overall length. It is uncertain if any additional lumberports are located near the stern quarter of the vessel or if lumberports are on her port side as both areas are heavily sanded.

The deck shelf is a longitudinal beam fastened to the ceiling planking, measuring 1.1 feet wide by 0.4 feet thick and is supported by hanging knees located under the deck shelf at each deck beam. The deck shelf is rabbeted 0.10 feet to accommodate deck beams. The hanging knees that support the deck shelf are 2.6 feet tall, 2.4 feet across the supporting edge that runs under the deck beams, 0.8 feet across the neck and 0.3 feet thick. A secondary longitudinal beam inside of the deck shelf measures 1.1 feet wide by 0.4 feet thick. It is also rabbeted and fills the remaining space atop the knee and under the deck beams. Two sections of this stringer remain extant along the inside

starboard edge of the vessel. Deck beams are spaced 3.6 feet on center and measure 0.85 feet wide by 0.4 feet thick. Eight deck beams remain extant on the starboard side, and portions of twenty-nine deck beams are exposed on the port side. Large sections of deck planking remain extant on the port side of the vessel. This deck planking varies 0.4 feet to 0.5 feet wide by 0.10 feet thick.



Figure 7. Starboard side lumber port aft of foremast chain plates, looking forward.

Deck stanchions protrude 1.7 feet above the sand and vary 0.4 feet to 0.5 feet wide by 0.5 feet thick. Four stations are extant forward of the centerboard trunk and seven are extant between the centerboard trunk and the cargo hatch.

The centerboard trunk is located 46 feet aft of the stempost and measures 28.5 feet long and protrudes 2.4 feet above the sand. The trunk is on an eight-degree list to port. The list is the same as the overall list of the vessel suggesting that the trunk may remain attached to the keelson beneath the sand. Four boards of the trunk were exposed above the sand at the time of the survey and measure 0.6 feet wide and 0.4 feet thick. A covering board on the top of the trunk is 1.4 feet wide and 0.3 feet thick. A raised cap, forward of the aft lifting hole on the trunk is 4.3 feet long, 1.4 feet wide and 0.6 feet thick and is beveled athwartships along its length. Lifting holes for the centerboard are located 2.8 feet from either end of the trunk and measure 1.2 feet long by 0.4 feet wide. Filled with sand, it is impossible to determine if the centerboard remains housed within the trunk, if it is broken or deployed. Vertical iron reinforcing tie rods flank both sides of the centerboard trunk piercing every other deck beam along the length of the trunk.



Figure 8. Aft end of the centerboard trunk with port side deck beams, looking aft.

An iron cargo hatch combing is fastened atop deck beams 108.7 feet aft of the stempost. The hatch opening measures 6.9 feet long and 6.8 feet wide. The combing stands 1.2 feet tall above the deck beams and is 0.25 feet thick. On port and starboard sides of the combing are four inset index keys to received boards that would have laid across the top of the hatch and to which the hatchcovers would have been set down into place. These keys measure 0.13 feet long, 0.3 feet wide and 0.3 feet deep. Rings to dog down the hatchcovers are extant on the outside of the combing centered fore and aft. Lodging knees, two on either side, reinforced the cargo hatch. Of these, only knees on the port side are extant and measure 2.1 feet long, 1.9 feet wide, 0.8 feet across the neck and 0.3 feet thick. A very small remnant of the forward lodging knee on the starboard side remains.

Atop the deck beam aft of the hatch, an iron bar is fastened at the centerline of the vessel. The bar is 1.2 feet wide, stands 0.6 feet off of the deck beam and is 0.12 feet thick. Aft of the hatch and 123.1 feet aft of the stempost are remnants of the cabin frame. The small combing remnant sits on top of a deck beam and is 1.2 feet tall and 0.25 feet thick. The remnants indicate that the cabin was situated to the portside with a walkway along the starboard side of the vessel.

An auxiliary longitudinal support beam was added along the central line atop the stanchions and under the deck beams forward of the cargo hatch. Stanchions are stepped into the bottom of the beam and the top is rabbeted to accept deck beams. Another longitudinal beam was added under the deck beams aft of the hatch. These central beams measure 0.6 feet wide by 0.45 feet thick.

CHAPTER THREE CANALLER FLORETTA

Discussion of Wisconsin's maritime economy often requires the inclusion of the eastern Great Lakes of Huron, Erie, and Ontario. Many of Wisconsin's commodities were shipped beyond Lakes Michigan and Superior to eastern Great Lakes ports such as Buffalo, New York, and Kingston, Ontario. These distant ports returned goods, supplies, and immigrants to Wisconsin, creating a diverse regional economic universe. Separating Wisconsin from the eastern Great Lakes frequently results in a fragmented understanding of Wisconsin's maritime heritage as a whole.

Wisconsin's first encounter with a European sailing vessel occurred in 1679 when LaSalle's ill-fated *Le Griffon* landed on the Door County peninsula. LaSalle continued southward to explore the Mississippi valley. *Le Griffon*, loaded with furs bound for the European market, departed Washington Island on 18 September 1679, never to be seen again. Following *Le Griffon*, it was nearly 100 years before a sailing vessel again entered Lake Michigan. It is probable that ventures onto Lake Michigan were made by King George's Royal Navy in the 1760s, but the next confirmed sailing ship to enter the lake was John Askin's *Archange* in 1778, which sailed to Chicago and Green Bay in search of corn to supply Canadian fur traders (Quaife 1944). From the *Archange* to 1815, most sailing vessels on Lake Michigan supported military outposts such as Fort St. Joseph and Fort Dearborn (present day Chicago). In 1818, the *Walk-in-the-Water* was the first steamer constructed on the upper lakes. It entered Lake Michigan one year later to sail to Green Bay (Mansfield 1899a; Mills 1910).

By 1836, regularly scheduled steamship lines connected western Lake Michigan with eastern cities, and steam vessels were under construction at Milwaukee (Quaife 1944; *Milwaukee Advertiser* 1836). These steamers quickly pulled passenger traffic and high-dollar cargo from the schooners. On 21 May 1853 the Michigan Central Railway made the first rail connection with Chicago, and in 1855 the first all-rail connection between Buffalo and Chicago was established (Quaife 1944; Mills 1910). These railroads quickly stole the steamers' passenger and high-dollar cargo trade, resulting in even stiffer competition for sailing vessels. Unlike lake vessels, the rail lines could provide regularly scheduled shipments that were unaffected by weather, as well as year-round transportation unaffected by ice-covered water. Despite increasing competition, however, lake sail did not die easily. Sail's advantages were lower construction and operation costs, adaptability to many different trades, and the fact that sail technology was already at its zenith, having benefited from centuries of technological development. Sail required less capital investment, its propulsion cost nothing, and the smaller crews were inexpensive relative to steamers.

A unique vessel type developed on the Great Lakes designed to transit the Welland Canal locks while carrying the largest possible amount of cargo; these box-shaped vessels were called canallers. Designed to carry the maximum amount of cargo through the canal locks with only inches to spare, canallers had bluff bows, flat bottoms and sterns, short bowsprits, and highly-

canted jibbooms. Some canallers were rigged with a hinged or shortened jib boom that could be folded, removed, or de-rigged for passage through the locks. The mainmast (on two-masters) and mizzenmast (on three-masters) booms were typically shortened so they would not overhang the stern. Due to their boxy shape, there were claims that canallers were notoriously poor sailers in heavy weather, a claim supported by the fact that one particularly violent storm in October 1873 sent six Oswego canallers to the bottom with all hands (Karamanski 2000; *Oswego Daily Palladium* 1873).

The Welland Canal opened on 30 November 1829. The first vessel through the canal was the British schooner *Ann and Jane* on a two-day up-bound transit from Port Dalhousie on Lake Ontario to Port Colburne on Lake Erie. The original Welland Canal (1829-1845) limited vessels to 110 feet in length, 22 feet in beam, and 8 feet in depth. It followed many natural water routes, beginning with Twelve Mile Creek from Port Dalhousie to Merritton, where vessels travelled through 40 locks over the Niagara Escarpment. The canal then followed the Welland River from Merritton to Port Robinson to avoid the Niagara Falls.



Figure 9. Welland Canal opening advertisement. Welland Public Library Collection.

With increases in grain traffic and vessel size, the small canal locks were soon obsolete. The Canadian government purchased the Welland Canal Company and expanded the canal in 1846, reducing the number of locks to 27 and cutting a more direct route. The new locks were expanded to allow vessels of 150 feet in length, 26.5 feet in beam, and 9 feet in depth. The

canal's original wooden locks became control weirs for the new canal, reducing the physical labor of towing ships from lock to lock (Aitken 1997; Mansfield 1899a; St. Lawrence Seaway Management Corporation 2003).



Figure 10. Schooner *St. Louis* at Lock 4 in the Third Welland Canal in tow of the tug *A.D. Cross*. Welland Public Library Collection.

The large number of immigrants that arrived on Lake Michigan's western shore during the early nineteenth century soon began moving from the lakeshore to populate the rich Midwestern prairie lands. Under the industrious settlers' hands, the fertile Midwestern soil soon began producing a large surplus of grain that made its way to Lake Michigan's port cities for transport to eastern markets via the Great Lakes. The inland lake route greatly facilitated the grain trade's growth by providing cheap and ready transportation.

The brig *John Kenzie* carried the first Lake Michigan grain shipment from Grand River, Michigan, to Buffalo, New York, in 1836. Chicago followed suit two years later, sending 39 bags of wheat to Buffalo aboard the *Great Western* in 1838. In 1839 the brig *Osceola* carried Chicago's first bulk shipment of wheat, carrying 1,678 bushels from Chicago to Black Rock (Buffalo), New York (Mansfield 1899a).

It was not until the 1840s, however, that the Great Lake grain trade began in earnest. Chicago grain exports between 1834 and 1840 totaled 13,765 bushels (Mills 1910). The year 1841 alone saw 40,000 bushels exported from Chicago. By 1847, Chicago was shipping more than two million bushels yearly. Milwaukee achieved an equal volume by 1853, and surpassed Chicago in grain exports by 1862 (Karamanski 2000). Due to a lack of adequate harbor facilities and grain elevators elsewhere on Lake Michigan, Milwaukee and Chicago were the dominant grain ports.

Freight rates for grain were subject to supply and demand, dropping during summer months and peaking during the fall harvest time. Freight rates for the 1837-1838 seasons were eight cents a bushel, with an additional two cents per bushel surcharge for elevator service. During the 1850s, rates from Chicago to Buffalo remained steady between 10 and 15 cents per bushel, with steamers earning a fraction of cent more than steamers. During the 1860s, rates dropped to between 4 and 7 cents per bushel. From 1874 onward, rates began a constant decline, reaching 1.53 cents per bushel by 1898 (Cooper 1988; Mansfield 1899a; Mills 1910).

The Lake Michigan grain trade consisted of mostly wheat until 1848, when corn began shipping in increasing quantities. Oats, barley, and rye were also shipped in small quantities (Cooper 1988). Buffalo and Oswego were early rivals for Lake Michigan grain, with Buffalo capturing a larger share of the trade during the early years. Oswego's disadvantage was that to reach Oswego from Lake Michigan, vessels were required to transit the Welland Canal and were charged a toll of six dollars per thousand bushels, a toll not required to reach Buffalo. By the 1870s, however, canal tolls from Buffalo to Syracuse equaled or exceeded the Welland Canal tolls, and with a shorter route from Oswego to eastern sea ports, Oswego's grain traffic swelled (*Oswego Daily Palladium* 1897). Vessels returning to Lake Michigan were often loaded with coal from ports on Lakes Erie and Ontario, used for heating Midwestern cities and powering steam-powered factories. Coal tonnage grew with transportation improvements between the mines to eastern lake shipping ports (Mansfield 1899a).

Grain schooners made the Oswego-Chicago round trip in thirty to thirty-five days, and six to seven trips were completed seasonally (*Oswego Daily Palladium* 1897). The heyday of the canallers and the grain trade was short lived. By the late 1870s, the railroad was gaining ever-larger shares of Lake Michigan grain, and in 1880 rail tonnage finally exceeded lake tonnage (Mansfield 1899a).

Service History

The *Floretta* was launched in November of 1867 from the shipyard of Master Builder, John Stupinsky in Detroit, Michigan. Built for \$30,090, the new launch was described as having one deck, two-masts, schooner-rigged with a plain head and square stern cabin. Built to fit the dimensions of the Welland Canal locks, a canal-schooner or canaller, she measured 134 feet in length, 26 feet in breadth with an 11-foot depth of hold. Her original enrollment on 4 May 1868 indicated her capacity at 320.18 gross tons, of which 303.03 tons was under the tonnage deck and 17.15 tons accounted for the enclosures on the upper deck. Her homeport was listed as Detroit

and Stupinsky served as sole owner and Master (Board of Marine Inspectors 1871; Bureau of Navigation 1868b; *Oswego Daily Times* 1885b).

The *Floretta*'s first trip to the upper lakes was 9 June 1868 marked as she passed Detroit upbound. Additional trips for the 1868 season were noted by the *Buffalo Courier* in mid-August, mid-September and mid-October where she departed Buffalo bound for Chicago with Captain James McAuley at the helm (ADGNFPL; *Buffalo Courier & Republic* 1868a; 1868b; 1868c). This change in Masters was not noted in her official documents until her reenrollment at Detroit on 5 May 1869 (Bureau of Navigation 1869). During this reenrollment a clerical error was discovered and corrected in casting the vessel's tonnage. Her documents were adjusted to 295.99 gross tons, with 278.84 tons under the tonnage deck and 17.15 tons of enclosures on the upper deck. Captain James McAuley was listed as her Master, her homeport remained Detroit and John Stupinsky her sole owner. An official number, 9688, was assigned to the *Floretta* (Bureau of Navigation 1869c).

The *Floretta* got underway for the 1869 shipping season in late June heading to Chicago with coal and returning east on 20 July from Milwaukee bound to Oswego, New York, with 19,500 bushels of wheat (*Buffalo Courier & Republic* 1869a, 1869b). During this return trip to the lower lakes, she collided with another vessel in Lake Michigan and sustained damage (ADGNFPL; Hall 1870). Little else is known of this accident. The damage must have been minor as the *Floretta* maintained regular routes and was reported passing upbound at Detroit on 6 August 1869. On 20 August 1869 she took on a cargo of 19,000 bushels of wheat at Chicago consigned to Barclay, Bruce & Co. bound for Buffalo, arriving at that port on 9 September (*Buffalo Courier & Republic* 1869c; 1869d; 1869e). On 13 October 1869, the *Floretta* departed Buffalo with coal bound for Chicago passing Detroit on 15 October. Having discharged her cargo, the ship took on 20,295 bushels of wheat consigned to Robinson & Co. of Buffalo. Enroute to Buffalo on 17 October, an error in navigation put her ashore at Point Abino on Lake Erie just short of her destination. The grain aboard the *Floretta* was lightered off in an attempt to refloat the vessel. The schooners *Marie Shaw* and *J Pugsley* took the lightered wheat to Buffalo of which some 2,000 bushels was wet from the incident. The tugs *Perew* and *Nims* were hired to release the *Floretta* and although initially reported as "leaking a little". Damage to the vessel was ultimately assessed as "immaterial" (ADGNFPL; *Buffalo Commercial Advertiser* 1869a, 1869b; *Buffalo Courier & Republic* 1869e; 1869f; Hall 1870).

A slow start for the grain trade in the spring of 1870 was noted in many of the regional newspapers. The *Floretta*'s owner, John Stupinsky decided to venture into hauling lumber. The *Floretta* arrived into Buffalo with her first cargo, 20,000 board feet of lumber from Bay City, Michigan, consigned to Noyes & Reed on 14 May 1870. Captain Alex Ruelle was at the helm; this change in Master was not noted on her enrollment documents (*Buffalo Courier & Republic* 1870a). Her next two cargos were also Bay City lumber taken to Milwaukee in June and Chicago in July. By the end of July the lumber market had quieted and rates were falling flat so Stupinsky expanded the cargo range of his vessel further (*Buffalo Courier & Republic* 1870b; 1870c; 1870d). In August 1870 the *Floretta* brought 425 tons of railroad iron from Toledo, Ohio, to Oswego, New York (*Oswego Daily Press* 1870a). By October, the *Floretta* was back on the

grain haul bringing wheat and rye from Detroit to Oswego (*Oswego Daily Press* 1870b; 1870c). Evidently the leak caused during the grounding on Point Abino the previous season was not repaired properly. A small leak would not have mattered while hauling lumber or iron, but going back to shipping grain, any amount of moisture in the cargo was not permitted. About thirty bushels of the rye taken to Oswego had become wet during shipment and was refused at the elevator. Several days later M. Johnson & Son contracted to ship a cargo of extra white wheat consigned to Penfield & Lyons of Oswego. Not wanting to take a loss, Captain Ruelle had his sailors move the wet rye to the aft hatch on the starboard side in hopes of an unsuspecting elevator operator offloading it with the new cargo. Three of *Floretta's* sailors disputed the action and were discharged. They informed Mr. Johnson, and he in turn informed the consignees. While unloading the vessel the wet rye was discovered, as described. The incident was investigated, but no action was taken (*Buffalo Courier & Republic* 1870e; *Detroit Free Press* 1870; *Oswego Daily Press* 1870c). The *Floretta* took on salt at Oswego for the tanneries at Toledo, Ohio, for her final cargo of the 1870 shipping season (*Oswego Daily Press* 1870b).

With repairs conducted over the winter months, the Board of Marine Inspectors granted the *Floretta* an A1 Insurance rating, the highest rating and rating required for vessels participating in the grain trade. Her value was estimated at \$18,000 (Board of Marine Inspectors 1871). On 9 March 1871, the *Floretta* was chartered to come out of winter quarters at Detroit and sail to Toledo to load wheat for Oswego or Ogdensburg at the shipper's option. As she was being outfitted for service at the Hoffner & Mayes Sail Loft in Detroit, her sails and outfit caught fire and burned. It was not until 30 March that she was finally fitted out, taken under tow of the tug *Clara*, and brought down to the mouth of the Detroit River so she could get underway. Loading both corn and wheat at Toledo, she passed through the Welland Canal on 6 April bound for Oswego (ADGNFPL; *Buffalo Courier & Republic* 1871a; *Detroit Free Press* 1871; Hall 1871; *Oswego Palladium* 1871). The *Floretta's* travels are undocumented for the remainder of April and May 1871. On 2 June the *Floretta* cleared Chicago bound for Oswego with 20,656 bushels of corn. After discharging her cargo, she sailed for Buffalo arriving at that port on 19 June and took on a cargo of moulding sand, departing the same day for Detroit (*Buffalo Courier & Republic* 1871b; 1871c). The *Floretta* was reported taking on corn at Chicago on 8 July, bound for ports on the eastern lakes (*Buffalo Courier & Republic* 1871d; 1871e). On 13 September 1871, the *Floretta* arrived into Kingston, Ontario, with a cargo of wheat. She offloaded quickly and two days later she was logged passing upbound at Detroit for a return to the western lakes. The last arrival noted for the *Floretta* for the 1871 season was into Buffalo on 1 November from Chicago with corn (*Buffalo Courier & Republic* 1871f; 1871g; 1871h).

On 16 May 1872, the *Floretta* cleared Milwaukee for Buffalo with 19,600 bushels of wheat. Six days later, she arrived into Buffalo. Only taking part of one day to discharge her wheat and part of a second day to load 550 tons of coal, the *Floretta* cleared Buffalo on 23 May bound for Chicago (*Buffalo Courier & Republic* 17 May 1872a; 1872b; 1872c). Trips were made between Chicago and Oswego with corn westbound and coal eastbound in June and July (*Buffalo Courier & Republic* 1872d; 1872e). On 3 August the *Floretta* departed Kingston, Ontario, with a cargo of bark, for an unknown destination, passed upbound through the Welland Canal and returned 20 days later from the western lakes with wheat (*Buffalo Courier & Republic* 1872f; *Daily News*

1872a; 1872b). A trip was recorded in September, departing Chicago with corn on 9 September and arriving into Buffalo on 19 September (*Buffalo Courier & Republic* 1872g; 1872h).

The *Floretta* cleared Chicago on 14 October 1872 with 20,005 bushels of corn bound for Buffalo. While making her way north against a strong headwind and off Waukegan, Illinois, she encountered a lifeboat and took aboard victims from the steamer *Lac La Belle* that had foundered 25 miles off of Racine, Wisconsin. The *Lac La Belle* left Milwaukee at 9PM on 14 October. Around midnight, the steamer sprung a leak. The crew worked to try to prevent the vessel from sinking but the water came in so rapidly that the ship could not keep headway and foundered at about 6AM on 15 October. All but one of nineteen passengers, two children, and all but five of the thirty-two crewmembers took to the five lifeboats and survived. Besides the boat that was picked up by the *Floretta*, two of the lifeboats made Racine, one arrived at Kenosha, and one landed at Calumet. J.E. Dowe, agent for the Englemann Transportation Co., owner of the *Lac La Belle*, was one of twelve aboard the boat picked up by the *Floretta*, and was dropped off at Milwaukee following the disaster (*Buffalo Courier & Republic* 1872i; *Brooklyn Daily Eagle* 1872; *Port Huron Times* 1872; *World: New York* 1872). The *Floretta* continued down bound passing Detroit on 20 October and arrived into Buffalo on 22 October (*Buffalo Courier & Republic* 1872j). She unloaded and returned light to the western lakes. On 14 November, while entering Milwaukee harbor, the *Floretta* was run into by the propeller *Ironsides* and sunk. She had no cargo onboard, and she was easily pumped out and raised (ADGNFPL; *Buffalo Courier & Republic* 1872k; *Detroit Free Press* 1872).

On 3 May 1873, John Stupinsky sold the *Floretta* for \$29,000 to the partnership of Joel V. Taylor of Evanston, Illinois, and Wallace Bullen of Chicago, Illinois. Both of the men owned equal shares in the vessel, her homeport was changed to Chicago and Joel Taylor became her new Master (Bureau of Navigation 1873; *Detroit Free Press* 1873, 1874). Captain Taylor remained at the helm only long enough to sail the vessel from Buffalo to her new home, arriving in Chicago on 27 May, Captain Alex Ruelle regained command, but for the first time it was officially listed in the *Floretta*'s documents (*Buffalo Courier & Republic* 1873a; Bureau of Navigation 1873). By 11 June 1873, *Floretta* had returned to the eastern lakes passing through the Welland Canal bound for the Montreal Transportation Company's wharf at Kingston, Ontario, with 19,500 bushels of wheat (*Daily News* 1873a; 1873b; 1873c). *Floretta* was unloaded and sailed to Milwaukee to pick up 18,340 bushels of wheat for Oswego. She passed through the canal again on 24 June (*Buffalo Courier & Republic* 1873b; *Daily News* 1873d, 1873e). No record of her activity has been located for July or August 1873. The *Floretta* passed through the Welland Canal again on 5 September from Chicago with 19,500 bushels of wheat bound for the Montreal Transportation Company's wharf at Kingston (*Daily News* 1873f, 1873g, 1873h).

Before the opening of the 1874 shipping season, on 5 March the *Floretta* was sold to Captain John Long of Chicago. Her homeport remained Chicago and Captain William Briggs became her new Master (Bureau of Navigation 1874). The *Floretta* departed Chicago on 27 April bound to Port Colborne, Ontario, with corn (*Buffalo Courier & Republic* 1874a). On 15 May the schooner departed Port Colborne light for Cleveland (*Buffalo Courier & Republic* 1874b; *Daily News* 1874b). She loaded coal at Cleveland and returned to the western lakes, picking up corn at

Chicago, passing Detroit on 16 June and discharging her cargo at the elevator at Port Colborne on 17 June (*Buffalo Courier & Republic* 1874c; *Daily News* 1874c).

After June 1874, the *Floretta* lay idle for the remainder of 1874 and all of 1875 season (*Buffalo Courier & Republic* 1877). The *Floretta* finally came out of mothballs in June 1876. She was chartered to haul 23,300 bushels of oats consigned to G.M. Millar & Co. from Chicago to Kingston passing through the Welland Canal 26 June and arriving at the elevator 28 June (*Daily News* 1876a; *Oswego Daily Times* 1876). The *Floretta* and her crew spent the Fourth of July holiday in the harbor at Port Colborne waiting on another cargo (*Daily News* 1876b). On 9 July the *Floretta* passed Detroit up bound for the western lakes. No other charters were had for the 1876 season (*Buffalo Courier & Republic* 1876). During the layoff time in October 1876, Steven Murphy, mate on the *Floretta*, was fined \$30 in Bay City, Michigan, for beating and maiming a sailor. Murphy, of Oswego, was hired on to the *Floretta* in the spring of 1875 (Mansfield 1899b; *Oswego Palladium* 1876).

With no charters or cargos available rumors that the *Floretta* would be fitting out for ocean service began to circulate (*Buffalo Courier & Republic* 1877). Still idle, in July 1877, the *Floretta* was chartered by the City of Chicago to serve as a floating hospital, giving free passage to poor mothers and their children. She remained in this service through August 1877 (ADGNFPL; *Oswego Daily Times* 1877). On 29 August the vessel was sold to William D. Hitchcock of Evanston, Illinois. The *Floretta*'s homeport remained Chicago and Captain N. Becker became her new Master (Bureau of Navigation 1877). On 1 September, the *Floretta* cleared Chicago for her only trip of the season with a load of corn bound for Kingston, Ontario, passing through the Welland Canal on 5 September (*Daily News* 1877).

On 18 April 1878, the *Floretta* cleared Chicago with a corn cargo bound for Buffalo. This turned out to be her only trip on the Great Lakes for the season (*Oswego Palladium* 1878a). By end of July, the *Floretta* had been chartered by Thornton, Bruce & Co., of Chicago, to transport lumber products from Grand Haven, Michigan, to Europe at \$18 per 1,000 feet. The *Floretta* was moved to Detroit where she was outfitted for ocean service at the Miller Brother's shipyard and fitted with new sails at Captain Henry Channon chandlery. The vessel was thoroughly overhauled throughout. She received a new fore-yard, topsail-yard, mainmast, maintop-mast, fore-gaff, main boom, mizzen-gaff, rigging, and bulwarks. Her spars were cut down for ocean use and her rig changed from a schooner to a barkantine (ADGNFPL; *Detroit Post & Tribune* 1878a, 1878b; *Detroit Free Press* 1878). On 22 August 1878, a new enrollment was entered at the Port of Chicago for the *Floretta* indicating that Joel V. Taylor bought back the *Floretta*, now becoming her sole owner. Her homeport remained Chicago but her rig change was clarified from two masts to three, her service was changed to foreign, and Captain William J. Gamble became her new Master (Bureau of Navigation 1878). Fully outfitted for ocean service, the *Floretta* departed Detroit on 29 August for Grand Haven, where she took on a cargo of 600,000 feet of lumber, consigned to Glasgow, Scotland (*Chicago Inter Ocean* 1878a, *Detroit Post & Tribune* 1878b).

At the same time the *Floretta* was being outfitted, another canaller *Winona* was going through the transformation for ocean service. Both departed Grand Haven together with lumber and square

timber aboard, came through the Welland Canal and arrived in Kingston, Ontario, on 25 September. The *Floretta* holed in her hull planking while passing through the canal, and needed repair at the drydock in Montreal before heading for the Atlantic (*Chicago Inter Ocean* 1878b; *Oswego Palladium* 1878b; *Chicago Inter Ocean* 1878c). The *Floretta* arrived at Glasgow, Scotland, on 26 November – taking forty-two days enroute to make the trip from Lake Michigan. The *Winona* arrived a few days later (*Chicago Inter Ocean* 1878c; *Oswego Morning Herald* 1878; *Oswego Palladium* 1878c).

The *Floretta* sailed between Glasgow and A Coruña, Spain, in February 1879. From Glasgow she took on a load of coal and sailed to Demerara, British Guiana, in early March 1879. There is no record of her arrival at that port. The *Floretta* arrived into the Port of Barbados on 8 May having cleared Berbice (New Amsterdam, Guyana). On 29 May the *Floretta* finally cleared Barbados for a return to Montreal, arriving into that port on 11 July 1879 (*Detroit Post & Tribune* 1879a; *New York Herald* 1879a, 1879b, 1879c; 1879d, *Oswego Morning Herald* 1879).

Stephen Murphy rejoined the *Floretta* as mate upon her arrival in Montreal. The *Floretta* unloaded at Montreal and the balance of her cargo at Hamilton, Ontario, before carrying on to Buffalo for coal to transport to Chicago (*Oswego Morning Herald* 1879; *Oswego Palladium* 1879a; *Oswego Palladium* 1879b). With her impending return to lake service, Joel V. Taylor surrendered her certificate of enrollment and reregistered the vessel at Chicago on 21 August 1879 (Bureau of Navigation Enrollment 1879). Before the *Floretta* could return to Lake Michigan, Captain Gamble collected \$1,400 in freight money at Buffalo and on 25 October he disappeared. Much speculation around the mystery of his whereabouts circulated between whether he ran off to see his wife, went off with a lover, or if he was simply a “wicked, cruel and thieving man” (*Carthage Republican and Northern New Yorker (The)* 1879; *Kingston Daily Freeman (The)* 1879; *Oswego Daily Times* 1879). It is uncertain if or when Captain Gamble and/or the money was located, but *Floretta* was listed among the 376 vessels laid up at Chicago for the 1879-1880 winter (*Detroit Post & Tribune* 1879b).

As the *Floretta* came out of winter quarters, Steven Maitland Murphy was appointed Master of the vessel, although her official documents did not reflect the change in command. The *Floretta* departed Chicago during the first week in May 1880 bound for Collingwood, Ontario. While passing a quarter of a mile south of Great Duck Island on Lake Huron on 10 May, a large three-masted vessel carrying a square yard was spotted by the *Floretta*'s crew, sunken with her decks about fifteen feet underwater. Although unable to get close enough to determine the identity of the vessel as there was a fresh gale blowing as they passed, it was likely the vessel was the Canadian bark *Jennie Graham* lost 16 April 1880 after striking a large boulder (now known as Jennie Graham Rock) (*Buffalo Courier & Republic* 1880a; *Lockport Daily Journal* 1880). The *Floretta* made trips between Chicago and Buffalo in both June and August (*Buffalo Courier & Republic* 1880b, 1880c). On 19 September while passing downbound for Chicago about 4 miles south of Ahnapee, Wisconsin, and four miles offshore, the *Floretta*'s crew spotted the white painted masts of a fore-and-aft rigged schooner projecting above the water about six feet (*Buffalo Courier & Republic* 1880d). It is uncertain which vessel was sighted.

The sightings of so many sunken vessels foreshadowed the *Floretta*'s late season woes. On the evening of 15 October 1880 a horrific storm arose over northern Lake Michigan with blinding snow and wind. The *Floretta* loaded with lumber sought shelter in North Bay, Door County, Wisconsin, and came to anchor. Soon afterwards, the schooner *Louisa McDonald* also sailed into the bay. She set her anchor, but it dragged and she collided with the *Floretta* at her stern, sinking her. Following the storm, in North Bay alone besides the damage to the *Floretta* and the *Louisa McDonald*, the schooner *Pfister* of Milwaukee loaded with corn, lay on the beach full of water; the Canadian schooner *Two Friends* with grain was on the beach full of water; the schooner *Lem Ellsworth* was also on the beach, light, but sustained no damage; the schooner *T.W. Avery* lost her foresail; the *Naiad* lost her anchor and rudder; the schooner *Montauk* lost her bowsprit, jibboom and her quarter was damaged when she fouled with the schooner *George Murray*; and the schooner *David Van Valkenburg* was dismasted. The storm became known as the "Great Alpena Blow" because of the loss of the Goodrich sidewheel steamer *Alpena* that capsized in the middle of Lake Michigan killing all eighty people aboard. But damage and loss from the storm was universal and devastating across all of the Great Lakes (ADGNFPL; *Buffalo Courier* 1880e; *British Whig* 1880; *New York Herald* 1880; *Door County Advocate* 1880a, 1880b). The *Floretta* was raised and towed to Milwaukee by the tug *Hackley* on 4 November for repair at the shipyard at that port. While entering Milwaukee harbor the *Floretta* collided with the piers causing even more damage to the vessel; her jibboom and bowsprit were carried away. The *Louisa McDonald* also made Milwaukee for repairs where she was put into drydock (*Door County Advocate* 1880b).

The *Floretta* was repaired over the 1880-1881 winter. On 2 April 1881, the *Floretta* was chartered to take 20,000 bushels of corn to Kingston, Ontario, at 11 cents per bushel, which was said to be the highest shipping rate in two seasons. It was not until 12 April when navigation opened and the ice cleared between Port Hope, Charlotte and Oswego, and the official opening of Kingston Harbor, that the *Floretta* was able to fulfill her contract. Captain Murphy wasted no time and the *Floretta* loaded at the elevator at Chicago on 14 April. Another trip was made to Kingston in May 1881, delivering 19,895 bushels of corn. Each time the vessel returned to Chicago light (ADGNFPL; *Buffalo Courier & Republic* 1881; *British Whig* 1881a, 1881b, 1881c, 1881d; *Oswego Palladium* 1881). Little is known of the rest of *Floretta*'s season. On 19 November 1881, the *Floretta* was stripped for winter quarters at Chicago and Captain Murphy departed for his home in Oswego (*Oswego Morning Express* 1881).

When *Floretta* arrival into Oswego on her first trip of the 1882 season on 15 April, Captain Murphy was removed from the vessel afflicted with a communicable disease and sent to the municipal "pest house". The crew was vaccinated and quarantined for twenty-four hours before being allowed to depart for Elk Rapids, Michigan (*Oswego Morning Express* 1882a). It is unknown what type of disease was contracted. The *Floretta* returned to Chicago on 19 April (*Oswego Palladium* 1882a). Her sailing schedule is unknown for May and June 1882. On 2 July, Captain Murphy telegraphed Buffalo from Dunkirk, New York, requesting the tug *Bryant* be sent to release his schooner that was aground there, but by the time the tug arrived the crew had worked the vessel free (*Oswego Morning Express* 1882b). The *Floretta* passed Detroit upbound on 17 July on her way back to the upper lakes (*Buffalo Courier & Republic* 1882). Upon her return to Chicago, Joel V. Taylor had his vessel readmeasured and agreed to a deduction of 14.79

tons under Section 4153 Revised Statutes, as amended by Act of August 5, 1882 and admeasurement of 281.20 Net Tonnage. Her gross tonnage remained at 295.99 tons. These new calculations were noted on her enrollment (Bureau of Navigation 1879). The *Floretta* made for Sandusky, Ohio, to collect a cargo of coal. Shortly after clearing Sandusky on 14 August the crew mutinied a mile out into the lake, refusing to obey orders. Captain Murphy's short fuse was lit and he attacked them with a pump brake or handspike, knocking two of them down. One sailor, originally reported to be killed, was so severely injured he had to be put ashore. The Captain's action brought the men under complete subjection and the mutiny was quelled. They carried on to Chicago (*Buffalo Express* 1882a; Hall 1882; *Oswego Morning Express* 1882c; *Oswego Palladium* 1882b, 1882c).

Upon entering the harbor at Chicago at 10AM on 19 August, the *Floretta* collided with the schooner *R.B. King* incurring \$1,200 in damages. The *King*, which was outbound and light, hit the *Floretta* stem on, ramming the vessel on her starboard side amidships. The accident carried away the *Floretta*'s mainmast and rigging, thirty feet of her bulwarks and rail, sprung the mizzenmast, which tore through her deck, and carried away her canvas. About twenty stations were torn out. The *King* lost her jibboom and bowsprit, stove in her starboard bow, and damaged her windlass; about \$300 in damage. The crews of both vessels narrowly escaped with no serious injuries. J.C. Dunbar, Master of the *King* claimed the tug *Union*, which was towing the *Floretta*, was in the wrong when she tried to cross the *King*'s bow. The officers of the *Union* and of the *Floretta* claimed that the *King* was in the wrong, making erratic changes in navigation and did not appear, although the accident occurred in broad daylight, to have seen their vessels (ADGNFPL; Hall 1882; *Marine Record* 1884; *Oswego Morning Express* 1882c; *Oswego Palladium* 1882c, 1882d). The accident dispute went to arbitration where no agreement could be reached. The case was finally heard in the Northern District Court of Illinois in early 1884. The decision of the judge was that Joel V. Taylor, owner of the *Floretta* was responsible for her own damages because of the actions of Captain Murphy, for giving four different orders. The court freed the owners of the tug *Union* from all responsibility. Additionally the court held the owners of the schooner *R.B. King* responsible for her own damage for not keeping a proper lookout. All parties were required to pay their court costs and expenses of their witnesses (*Buffalo Express* 1882b; *Marine Record* 1884). As a result of the decision and having to foot the bill of several hundred dollars in damages and court expenses, the *R.B. King* came into Chicago harbor under sail on 1 July 1884 to avoid a \$4 towing fee, and ran into the stem of the tug *Moore*, which was towing the canaller *Norman*. The *Norman* sustained minor damaged and the *King* lost her jibboom, headgear, and damaged her rail and bulwarks (Hall 1884).

The *Floretta* was repaired and back in service by early September 1882. On 11 September, she was chartered along with the canaller *Sligo* to bring rye wheat from Chicago to Kingston, Ontario, at 5.5 cents per bushel. While attempting to clear Chicago on 13 September with 21,000 bushels of rye, officials discovered that the *Floretta* was behind on immunization logs into the ship's hospital book and was fined \$30 for each name not entered. The *Floretta* passed Detroit down bound on 16 September arriving at the elevator at Kingston on 23 September (*Buffalo Express* 1882c; *British Whig* 1882a, 1882b; *Oswego Morning Express* 1882e, 1882f). When the *Floretta* arrived at Oswego on 26 September, when questioned about the hospital book fines,

Captain Murphy denied receiving them (*Oswego Morning Express* 1882g). Her next charter was 15 October 1882, bringing coal and cement from Buffalo to Green Bay at 35 cents per ton (*Oswego Palladium* 1882e).

At about 6AM on 2 December 1882 as the *Floretta* approached Chicago harbor during a northeast snowstorm, the outer light on the end of the new breakwater was out. Mistaking the light at the breakwater's center for the one on the end, the *Floretta* sailed over the outer cribs, catching some of them with her keel. Just before she crashed into the breakwater, Captain Murphy ordered an anchor to be dropped. All eight men jumped overboard and climbed onto the nearest crib. With freezing lake water washing over them, they sheltered in the lee of the small tool shed. An hour later, Captain George McDonald in charge of the tug *Carpenter* of the Vessel Owner's Towing Line came out of the harbor in search of his tow and heard the cries of the *Floretta*'s crew. Captain McDonald was able to get all aboard the *Carpenter* and took them to the Lifesaving Station to be rewarmed. After rewarming, Captain St. Peter of the Chicago Lifesaving Station and six of his crew took the men aboard their surfboat and attempted to put them back aboard the *Floretta*. After many attempts to no avail, the tug *Hackley* with the best intentions, and thinking that the surfboat wanted to be picked up, maneuvered close to the surfboat nearly swamping it. The sailors and lifesavers in the surfboat begged him to keep away and not drown them but he continued to circle around the little craft with a line hanging over the tug's bluff bow. It was not until someone in the surfboat pointed a revolver at the captain and threatened to shoot that he desisted. Unable to get the men aboard the *Floretta* from the surfboat, they returned to the Lifesaving Station. After being rewarmed again, Captain McDonald volunteered to try to put the crew aboard from the *Carpenter*. Once more they maneuvered along the lee side of *Floretta* and in an instant the men quickly clambered aboard. The *Floretta*'s anchor was raised, a line was passed to the *Carpenter*, and the *Floretta* was soon at the wharf. The *Floretta*'s damage, initially thought to serious, was repaired in quick fashion and she laid up at Chicago for the 1882-1883 winter on 15 December (Hall 1882; *Oswego Palladium* 1882f; *Oswego Morning Post* 1882).

In early April 1883, the *Floretta* came out of winter quarters and she secured a charter to take corn from Chicago to Kingston for 6.5 cents per bushel, clearing Chicago on 26 April with 21,000 bushels onboard (*British Whig* 1883a; *Oswego Palladium* 1883a). A trip upbound to the upper lakes was recorded in late May when the *Floretta*, along with the schooners *Higgie*, *Blake*, *Gleniffer* and *St. Louis*, was towed from Port Colborne through the Detroit River by the tug *Quale* (*Oswego Daily Times* 1883). In June she took corn from Chicago to Sarnia, Ontario, and in August from Milwaukee to Kingston (*British Whig* 1883b; *Oswego Palladium* 1883b). On 20 November the *Floretta* put in to Escanaba, Michigan. While carrying a load of iron ore, she began leaking to such an extent it was determined that she "was unfit to take a cargo", and the tug *Delta* was hired to tow the vessel to the drydock in Chicago for repairs (ADGNFPL; *Door County Advocate* 1883; *Marine Record* 1883).

On 3 April 1884, Captain Murphy left Oswego for Chicago to fit out the *Floretta* for the shipping season, arriving in Chicago on 10 April (*Buffalo Courier & Republic* 1884a; *Oswego Daily Times* 1884a). Her first cargo for the season was oats taken from Chicago to Sarnia, Ontario, on 2 May. In June she carried corn from Chicago to Midland, Ontario, and in July she hauled corn from

Chicago to Kingston (*Buffalo Courier & Republic* 1884b, 1884c, 1884d, 1884e; *Oswego Palladium* 1884a).

The *Floretta* was seen flying a Cleveland & Hendricks, Democratic Party flag from her masthead in support of the U.S. Presidential ticket of Grover Cleveland and Thomas Hendricks as she entered the harbor at Oswego on 2 August. The tugs in the harbor fired up their whistles in support as she sailed passed. She collected coal at Oswego and locked through the Welland Canal on 8 August bound for Chicago (*Oswego Daily Times* 1884b; *Oswego Palladium* 1884b). On 23 August the *Floretta* secured a charter for corn to Port Huron, Michigan, at 1.625 cents per bushel. She returned to Chicago with coal from Oswego and in early September, the *Floretta* took wheat to Detroit (*Buffalo Courier & Republic* 1884f, 1884g, 1884h).

At 2AM on 7 October under a fresh gale, while enroute from Oswego to Chicago with coal, Captain Murphy spotted a two-masted schooner adrift near Death's Door Passage in northern Lake Michigan. No lights were observed aboard the vessel. Suspicious that something was wrong, he piloted the *Floretta* close to try to attract attention and hail the vessel. It was noticed that her yawl was missing and concluded that the vessel was abandoned. The name of the vessel remains unknown. A storm blew up on 8 October causing the *Floretta* to lose a part of her bulwarks and a gaff-topsail, before she arrived at Chicago on 10 October. The *Floretta* went into winter quarters at Chicago on 2 December 1884 (*Buffalo Courier* 1884i, 1884j; *Oswego Palladium* 1884c).

The *Floretta* came out of winter lay up in early May 1885, passing Detroit downbound on 16 May enroute to Maumee Valley (Toledo), Ohio, on her first trip of the season (*Buffalo Daily Courier* 1885). In June, the *Floretta* was chartered to haul iron ore from Escanaba, Michigan, to Chicago. During a trip on 15 June with iron ore on board, just after passing Racine, Wisconsin, water began pouring into the hold, leaking so badly that the entire crew abandoned their ordinary duties to man the pumps to keep her afloat. As she arrived into the Chicago the next morning, she summoned a tug to tow her in. At the dock, the leaking increased and the Captain hired an additional twenty men to work the pumps all day while she was unloaded at the Joliet Steel Company's wharf (*Marine Record* 1885; *Oswego Daily Times* 1885a). It is assumed that repairs were made to the vessel, although no record of this has been found in contemporary newspapers. It appears that she went back to service in the iron ore trade following the near disaster.

On 17 September 1887, the *Floretta* loaded 550 tons of iron ore at Escanaba, Michigan, bound for the Joliet Steel Works in Chicago. Captain Samuel Marshall was at her helm. Marshall's service as Master aboard the *Floretta* was not documented on her enrollments, and it is not known when, during the 1885 season, he replaced Captain Murphy. The *Floretta* sailed that day and into the next under a heavy southwest gale and through big seas. Early on the morning of 18 September 1885, the schooner sprung a leak again and the water poured in beyond control of her pumps and men. She settled quickly at her bow leaving the crew only minutes to fetch their belongings and escape in the yawl. The crew rowed not more than a half a mile away, before hearing a loud explosion. Air pressure that built up in the schooner's hull shot her cabin into the air, and broke her masts "like pipestems". At 9AM, the *Floretta* sunk beneath the waves, fifteen

miles off Manitowoc, Wisconsin, in 180 feet of water. The crew consisting of Captain Marshall, and seven men reached Manitowoc that evening and departed for Chicago on a Goodrich steamer the morning of 19 September. The *Floretta* had an A2 insurance rating and was valued by Inland Lloyds at \$9,690, and insured for \$6,000 in the Phoenix. Her iron ore, consigned to Joliet Steel Works was insured for its full value in the St. Paul Fire and Marine, and her freight list, in the Continental. A copy of the *Floretta*'s final enrollment was surrendered at the Port of Chicago on 29 September 1885 affirming the vessel's loss in Lake Michigan (Bureau of Navigation 1879, 1885; *Detroit Free Press* 1885a, 1885b; *Door County Advocate* 1885; Mansfield 1899b; *Milwaukee Sentinel* 1885; *Oswego Daily Times* 1885b, 1885c; *Weekly Expositor Independent* 1885).

Site Description

Detailed video of the *Floretta* shipwreck site was collected and a photo mosaic was produced by Woods Hole Oceanographic Institution's Advanced Imaging and Visualization Laboratory in 2009. In July of 2013, a Phase II archaeological survey of the site was conducted.

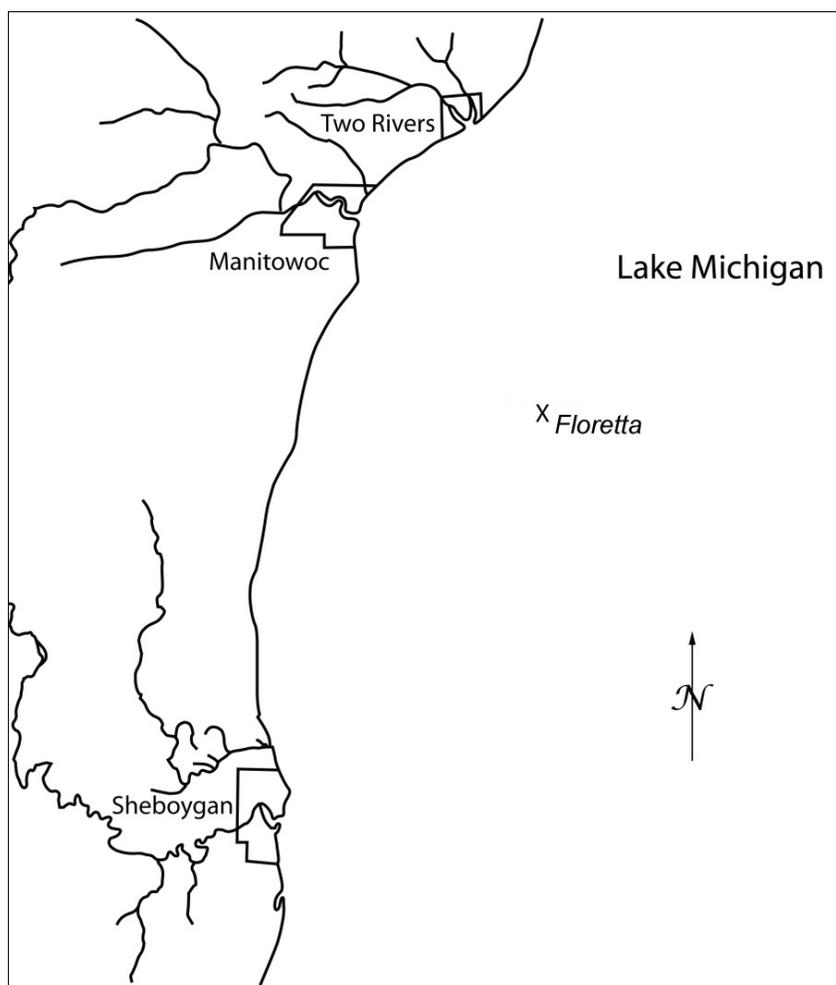


Figure 11. Location of the *Floretta* site.

When the *Floretta* hit the bottom of Lake Michigan, the lower portion of her hull, filled with iron ore stayed in place, breaking at the turn of the bilge. The transom fell backwards and the upper portions of the hull, deck structure, masts, and rigging broke away from the bilge and fell to the



Figure 12. Photo mosaic of the *Floretta* site.

port side. Because of the formation of the *Floretta* wreck site, two baselines were put into place for referencing the locations of artifacts and ship features. Both baseline A (BLA) and baseline B (BLB) had the same zero point and were attached to the aft edge of the stem post on the bow of ship at a depth of 165'. BLA ran at 65° the length of the starboard side of the hull, which is now facing upward as the upper portions of the vessel lays on the port side. The overall length of the starboard side of the hull is 139.65 feet and is intact. The overall length of *Floretta* before sinking was 134 feet, suggesting she flatten out more than 5.0 feet while on the lakebed. BLB ran at 20° down the center of the bilge structure along the port side of the centerboard trunk. Attached to the

rudderpost in 172 feet of water, this line made a 4 foot declination over the 145 feet of its length. Based on the direction that the bow of the *Floretta* is facing, it is unlikely that the crew made any attempt to come about for Manitowoc. Instead they likely had no time to come about or set an anchor, but only had time to save themselves. The *Floretta* wreck site is on a 200° heading.

The wreck site of the *Floretta* is broken into two main sections. The western section includes the remains of the bilge, the iron ore cargo, the centerboard assembly, and the transom. The eastern section of the wreck contains the upper hull structure, decking, spars, and rigging. This arrangement of wreckage suggests that when the *Floretta* hit the lakebed, the bottom of the ship was held in place by the massive cargo load of iron ore and the upper hull structure broke away at the turn of the bilge and fell over to the port side. The transom fell backwards. This caused the three masts and the bowsprit of the *Floretta* to become dislodged from their steps and the tension of the rigging threw the spars into the disarticulated position they lay in today.

The keel of the *Floretta* is buried under her iron ore cargo and the bilge section of the vessel so that no portions of her floor timbers are accessible for measurement. The stem post, however, is located at 0.0 on both BLA and BLB. It stands upright 15.0 feet tall and is a 1.1 feet square. The framing that protrudes out from the bilge section of the wreck is paired floor and first futtock timbers. Each frame pair consists of one futtock timber that is 0.4 feet and one that is 0.5 feet molded and both are 0.6 feet sided. The spacing between these 0.9 foot frames is 1.1 feet. In the upper hull section of the starboard side, the frame pairs total 0.7 feet molded, 0.55 feet sided and are spaced 2.9 feet.



Figure 13. Lumber port with remnants of green paint visible. Photo courtesy of Pete Nawrocky.

The outer hull is planked with timbers that are 0.6-0.65 feet molded and 0.2 feet sided. There are two wale strakes that run the length of the starboard side of the hull. The top of the upper wale is 4.4 feet below the top of the cap rail. It has a molded dimension of 0.53 feet and protrudes out from the hull planking 0.03 feet, giving a sided dimension of 0.58 feet. The second wale is 2.35 feet down from the first and has the same dimensions. Just below the shear strake, are lumber ports with decorative horseshoe-shaped hinges. The leading edge of the first lumber port is at 15.5 feet on BLA and the second leading edge is at 50.8 feet. Lumber port one is 2.4 feet long and 1.15 feet tall and lumber port two is 3.2 feet long and 0.85 feet tall. The hinges are the same on both. Oakum remains in the cracks of these lumber port timbers. Other lumber ports may be obscured by the thick covering of quagga mussels on the site.

The keelson, as well as the mast steps, is covered by the iron ore cargo and therefore no observations of these features have been recorded. However, the ceiling planking is exposed in some areas and it measures 0.45 feet molded and 0.12 feet sided.



Figure 14. Rudder box and transom of the *Floretta* fallen aft and covered by fishing nets. Photo courtesy of Pete Nawrocky.

The bulwarks, is supported by a series of stanchions along the inside of the hull. These stanchions are 2.6 feet tall and 0.65 feet x 0.5 feet wide. They are spaced 3.0 feet apart and mortised 0.2 feet into the 1.2 foot wide deck shelf. A piece of planking, 0.4 feet wide and 0.15 feet thick, connects the stanchions together for additional support. In the bow and stern, the top of the bulwarks are capped with a monkey rail. The monkey rail extends from the bow to 22.0 feet on BLA and then

begins again at 101.0 feet on BLA and continues aft. The rounded monkey rails are 0.65 feet wide and 0.15 feet thick and sit on top of 0.8 feet tall stanchions that are 0.65 feet wide.

The transom is located at 144.0 feet on BLB and has fallen over backwards, exposing the inside of the hull. The transom is 23.0 feet across and there are 12 counter timbers, fashioned upright to frame the transom. The two counter timbers on each end are 0.5 feet square and the 10 timbers in between the ends are 0.4 feet square and spaced 2.0 feet on center. The camber of the transom is 1.3 feet. On the taffrail, in the center, is a single sheave block that measures 0.8 feet x 0.6 feet x 0.3 feet. There are two cleats, each 2.0 feet from the edges of the transom on the taffrail. These cleats measure 0.9 feet in length, 0.3 feet in width and 0.3 feet tall and are spaced 0.2 feet. The rudderpost remains standing upright in the center of the transom. Located at 143.4 feet on BLB, the rudderpost is 0.8 feet in diameter and angled 2° to starboard and 14° aft, it protrudes 2.3 feet above the top of the rudder post box. The rudderpost box sits 4.4 feet above the bottom transom piece and measures 2.0 feet long, 1.5 feet wide and 0.3 feet thick.

The crew of the *Floretta* all made it off safely into the yawl when she sank. But the last piece of the ship to be touched by any of the crew would have been the davits. Davits are support pieces from which the yawl of a vessel would have been suspended. On the *Floretta*, the davits extend aft on either side of the transom corners. The davits are fixed to the top and do not hinge or pivot as seen on many canallers. The davits are 0.25 feet square and curved 6.0 feet along their length and stand 2.5 feet off the top of the transom.

The centerboard assembly is located along the centerline of the bilge section of the hull. The leading edge of the 55.6 foot long centerboard trunk is located at 11.6 feet and the trailing edge is at 67.2 feet on BLB. There are nine boards 1.0 feet wide and 0.5 feet thick that make up the 9.20 feet tall centerboard trunk with a cap board 0.2 feet thick. A covering board on the aft half of the trunk measures 1.7 feet wide and 0.4 feet tall, with a beveled top. A pivot pin is 7.0 feet aft of the trunk's leading edge is 0.7 feet up from the bottom of the trunk, where it has separated from the keelson. Roved on both sides, the pin is 0.15 feet in diameter and the roves are 0.5 feet across. On the aft end of the centerboard trunk, a hole 0.5 feet wide and 0.9 feet long has a chain running through it and out into the sand. This chain, called a pendant, was used to lift the centerboard up and down. A deck beam remains attached perpendicular to the trunk, forward of the hole in the centerboard trunk. Broken on both ends, the beam is 7.3 feet long, 0.8 feet tall and 0.5 feet thick. Fused to the top of this wooden beam is a metal I-beam and it is 7.3 feet long, 0.8 feet tall and 0.25 feet thick. The I-beam, likely added to provide stability for the centerboard winch, is flush on both ends.

The centerboard has pushed up through the trunk and protrudes out 2.3 feet, likely meaning the centerboard was deployed when the ship foundered and was pushed back up through the trunk when the ship hit the bottom. The piece of centerboard protruding from the trunk has an iron hoop attached to its top that would have connected to a lifting chain. The hoop is 0.3 feet above the centerboard and 0.1 feet thick.

The centerboard winch is broken and only partially preserved. Located next to the hole in the centerboard trunk on the starboard side in the sand, 13 wraps of chain remain wound around an 8.0 foot long, 1.5 foot tall and 0.5 foot thick square bar. The supports for the winch are not extant.

The single deck of the *Floretta* was supported by a number of upright stanchions running down the centerline of the vessel. Three of these stanchions are extant, located at 94.4 feet, 98.7 feet, and 101.6 feet on BLB. They measure 7.3 feet tall, and 0.5 feet square, with 3.0 feet of spacing between them. The deck beams that run athwartship are 0.9 feet by 0.55 feet wide and are spaced 2.1 feet apart. These beams were curved to give the deck the necessary camber to allow water to run off. The beams were attached to the deck shelves on either side of the ship and supported in the center by the stanchions. The hanging knees that connect the beams to the frames, on the *Floretta* are made of iron. The arm of the knee, which connects to the beam, is 1.6 feet long; and the body of the knee, which connects to the frames, is 2.4 feet long. The deck planks themselves are 0.4 feet wide and 0.2 feet thick. Water that washed over the deck was drained overboard through scupper pipes. Two scuppers at the bow are 1.0 feet long and 0.3 feet in diameter. Several others are located along the entire length of the hull. A pair of bitts on the bow of the ship is located 3.1 feet aft of the stem. These bitts have a paired width of 1.5 feet, the forward bitt being 0.5 feet in diameter and the aft bitt 0.6 feet, with a space in between them of 0.2 feet. They stand 0.4 feet above the rail. On the aft end of the upper hull structure, a portion of the portside bulwarks and deck structure, with a partial hatch, lies outside to starboard. The starboard side of the upper hull structure fell over the port side.

The spars of the *Floretta* are disarticulated and several of them are broken. During the recording process 19 spars, or portions of these spars, were measured. Because of the jumbled nature of the spars on the *Floretta* wreck site, identification of the individual pieces was based primarily on spar dimensions and context of the spars in reference to the wreck site and one another. The bowsprit and jibboom are extant. The three masts are extant, made up of a mast, a top mast, a boom, and a gaff. Booms and gaff are identified by a U-shaped opening on one end called the jaws. The jaws of a boom or a gaff fit around the mast and a sail was suspended from the gaff. Hoops connected the sail to the mast and then it was attached at the bottom to the boom, creating a fore and aft sail.

The bowsprit is a 1.3 feet square timber that is 25.5 feet long, which rests on top of the wreckage at a depth of 168 feet and angles down into the sand in 175 feet of water. The aft end of the bowsprit has an angled tenon on the end that is 1.3 feet tall, 0.4 feet wide and 0.5 feet deep. This tenon stepped the bowsprit into the sampson post and was beveled so the bowsprit could pivot at this point to be raised up while sailing through canal locks. Eight feet forward of the tenon is a 1.3 feet wide section of railing, pinned into place on either side by iron rods. These rods are 2.1 feet long, 0.3 feet wide, and 0.12 feet thick. On top of the rail piece, 1.8 feet above the deck, is a large eye-bolt, 0.9 feet in diameter and 0.15 feet thick. A line would have been attached to this eye-bolt and it would have run up to the masthead on the fore mast to raise and lower the bowsprit. The sampson post has been unstepped from the deck and now lies underneath the starboard deck rail. It is a 1.3 feet square timber and it has a beveled mortis 2.3 feet down from

The mainmast is located at 33.0 feet on BLA, and is lying at an angle of 80° to the baseline. Broken at the end nearest the baseline, it is 52.30 feet long with a 0.7 feet wide tenon on the far end. It looks as though the mainmast was ejected from the maststep while the ship foundered and then flipped over and broken off at the top. The mast is 1.4 feet in diameter on the broken end and 1.8 feet on the bottom where it was stepped. The upper section of the mainmast that is broken off is fitted with cheeks or hounds, and a trestletree. It is located at 71.0 feet on BLA. The total length of the mainmast would have been 66.3 feet long. The length of this top section of the mainmast is 14.0 feet, with a diameter of 1.2 feet at the top. The cheeks measure 5.1 feet long, 1.7 feet on the top and 0.3 feet on the bottom and they are 0.3 feet thick. The cheeks were attached to the side of the mainmast to support the trestletrees. The topmast is fitted into the trestletrees and held in place by the masthead, creating an overlap of the mainmast and topmast. This doubling portion of the topmast is still attached to the trestletrees and masthead but then broken off. The main-topmast is located at 56.0 feet on BLA, and has an overall length of 44.0 feet. The diameter is 1.1 feet on the bottom end and 0.2 feet on the top. The mainmast boom is located at 60.0 feet on BLA. Roughly 5.0 feet of the end of this spar extends underneath the hull of the wreck, so a precise measurement was not possible. Therefore the estimated length of this spar is 38.0 feet. The jaws on the end of the boom have an outer measurement of 3.2 feet and an inner measurement of 2.3 feet. The tapper for the jaws length is 12.0 feet. The mainmast gaff is located at 96.0 feet on BLA and has a total length of 27.0 feet. The jaws have an outer measurement of 3.0 feet and an inner measurement of 2.5 feet.

The mizzenmast is located at 71.0 feet on BLA and is 14.7 feet in length and broken on both ends. Located at 96.0 feet on BLA, is another portion of the mizzenmast with the mast table. It is broken at both end with a length of 15.7 feet and it has a diameter of 1.2 feet. A block is attached to the far end. The mizzen-topmast is located at 70.0 feet on BLA. The overlap of the mizzenmast with both the masthead and trestletrees are still attached. The broken section of the mizzenmast is 9.0 feet long and broken at the lower end. The trestletrees are 3.8 feet long, 1.6 feet tall and 1.0 feet thick. The masthead is 2.4 feet long, 0.3 feet tall and 1.5 feet thick. The topmast is 54.0 feet long, 0.9 feet square on the bottom, and 0.4 feet in diameter at the top, with a rigging block still attached. The mizzenmast-boom is located at 75.0 feet on BLA, and overhangs the side of the hull. The 38.0 feet long boom has an outer jaw width of 2.75 feet and an inner width of 2.05 feet, and the depth of the jaw is 1.1 feet. The jaw tapper length is 11.1 feet. A block remains attached to the far end. The mizzenmast-gaff is located at 96.0 feet on BLA, lying underneath the mainmast-gaff, it has an overall length of 27.0 feet. A wooden shim is attached to the inside of the jaws that is 1.5 feet in length, 0.8 feet in width and 0.35 feet in thickness. Likely a sign that this was a replacement spar and a wooden shim was attached so that the jaw fit around the mast better.

Wire rope was used for *Floretta's* standing rig. Though it is not known if she was initially rigged with wire rope during her construction, wire rigging had been on Great Lakes ships since the 1830's. The wire rigging was used for the fore and aft stays on the masts and the mast shrouds. There are several wooden dead-eyes extent in the three sets of chainplates along the starboard side. Many of these dead-eyes are cleaned regularly by visiting divers. There are 7 chainplates for

the foremast. Two smaller dead-eyes are 0.45 feet in diameter and five larger that are 0.75 feet and all are 0.25 feet thick. They are located on BLA at 18.8 feet, 19.9 feet, 20.6 feet, 22.6 feet, 24.1 feet, 26.9 feet, and 28.5 feet. The bottoms of all the chainplates are nailed to the first wale. There are four mainmast chainplates at 63.9 feet, 65.6 feet, 68.6 feet, and 71.2 feet on BLA. There are three chainplates for the mizzenmast, but they are pulled outward away from the hull and located at 102.9 feet, 104.0 feet, and 107.9 feet on BLA. As the *Floretta* sank, the air pocket in the cabin ripped the cabin from the deck. The cabin shot off and broke many of the spars as it rocketed through the shrouds of the mizzenmast and other rigging, causing the mizzenmast chainplates to be pulled out away from the hull and causing the vessel to list to port and the upper hull structure to fall to port when the vessel hit the bottom of Lake Michigan.

Several blocks from the running rigging are intact and many are attached to the spars. None of the organic rope that would have used for her running rigging was observed in this survey and has likely since deteriorated. One of the belaying pin racks is still intact, located just under the rail on the starboard side; it extends from the bow all the way back to the first set of chainplates. The rack itself is 0.4 feet wide and 0.2 feet thick. There are two belaying pins extant in the rack, measuring 1.0 feet long and 0.2 feet in diameter.

Lying on its side with the wooden base still attached, the capstan of *Floretta* is located at 53.20 feet on BLB, 25.20 feet to starboard of the centerboard trunk. Connected to the framing with iron bolts, the capstan would have stood 3.6 feet above the deck, with a base diameter of 3.2 feet, this feature can be easily overlooked as it lies away from the main concentration of wreckage and is deeply buried in the sand.

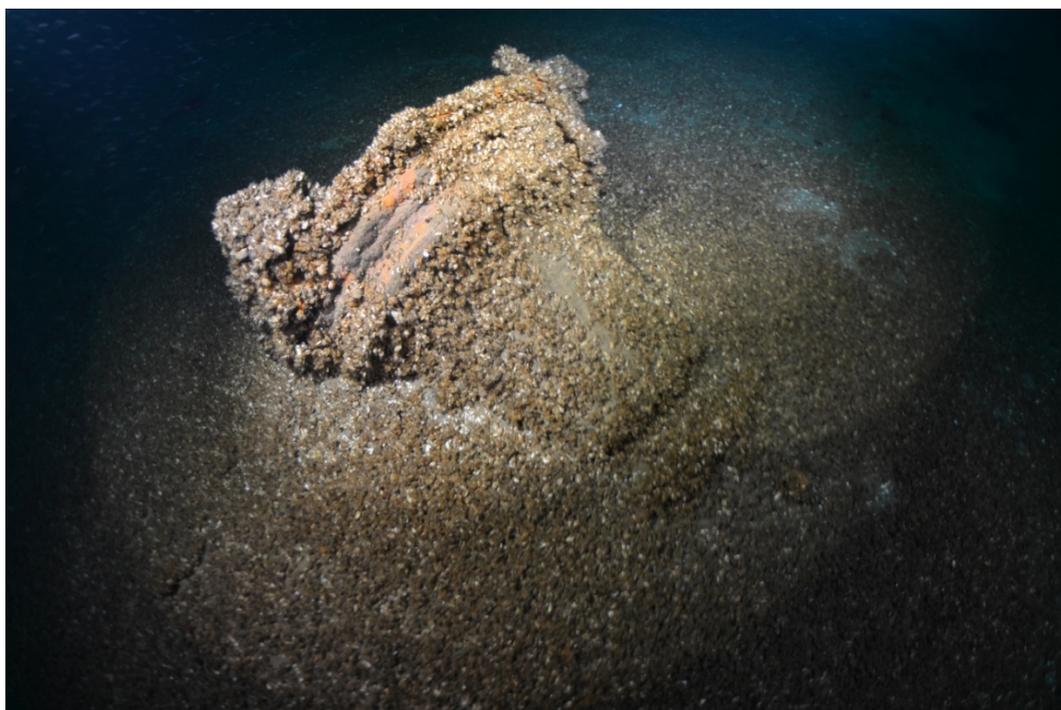


Figure 16. Capstan of the *Floretta* located away from the main concentration of wreckage.

The windlass is located at 17.0 feet on BLA, inside the hull structure and covered by the starboard hull wreckage. The windlass has collapsed to starboard 13°, the opposite direction of the upper hull structure. The windlass operates on a ratchet principal where rocker arms are worked up and down by the sailors to slowly turn the barrel and hoist or lower chain, cable, or rope. The barrel is 8.0 feet in length overall. The gypsy heads on either end are 1.9 feet in length and 1.3 feet in diameter. The inner barrel ratchet is 0.4 feet wide and has metal teeth that protrude out from the barrel 0.3 feet, where the pawl catches the teeth allowing the windlass to move in one direction without slipping backwards. The wooden inner barrel is 4.0 feet long and has metal bands around which chain is wrapped. The windlass is fastened to the deck by supporting knees that are 3.2 feet across the bottom and 2.3 feet tall. Just aft of the windlass is a 15.0 feet tall post that is 1.0 feet square. It shows no signs of wear but would have passed through the deck.

Lying on the inside of port side hull at 14.5 feet on BLA is the port side anchor. The wooden stock of the anchor is 9.3 feet long and it tappers from a diameter of 1.1 feet at the shank to 0.7 feet on the end. From the bottom of the stock to the crown it is 6.0 feet. The outermost palm is broken off, but the remaining palm is 1.5 feet tall and 1.1 feet wide. The anchor chain ran through a 0.5 feet hole in the bow of the ship, called a hawse pipe and down into the chain locker. The line used to lift the anchor back on to the ship was run through the end of a cathead.



Figure 17. Port side anchor of the *Floretta*. Photo courtesy of Pete Nawrocky.

The cathead helped support the weight of the anchor and kept it out away from the hull of the ship. There are two catheads, one on either side of the bow. A cathead is large timber that normally angle out over the hull of a ship, but on the *Floretta* the catheads are facing inboard. It

is possible that the *Floretta* was fitted with folding style catheads. The catheads are 6.0 feet aft of the bow and they overlap into the ship 1.6 feet from the ceiling planks. They are 0.7 feet wide and 0.5 feet thick. There is a notch in the rail above the catheads. The notch is 0.9 feet square and the same height as the rail. The starboard side anchor was not located among the wreckage of the *Floretta*. The starboard side anchor chain runs out of the hawse pipe and out into the sand, indicating the deployment of that anchor, before the foundering occurred. Because *Floretta* did not carry enough chain to make a proper anchorage at this depth, the starboard side anchor was likely deployed as a sea anchor, in order to stabilize the vessel while the crew deployed the yawl off the stern.

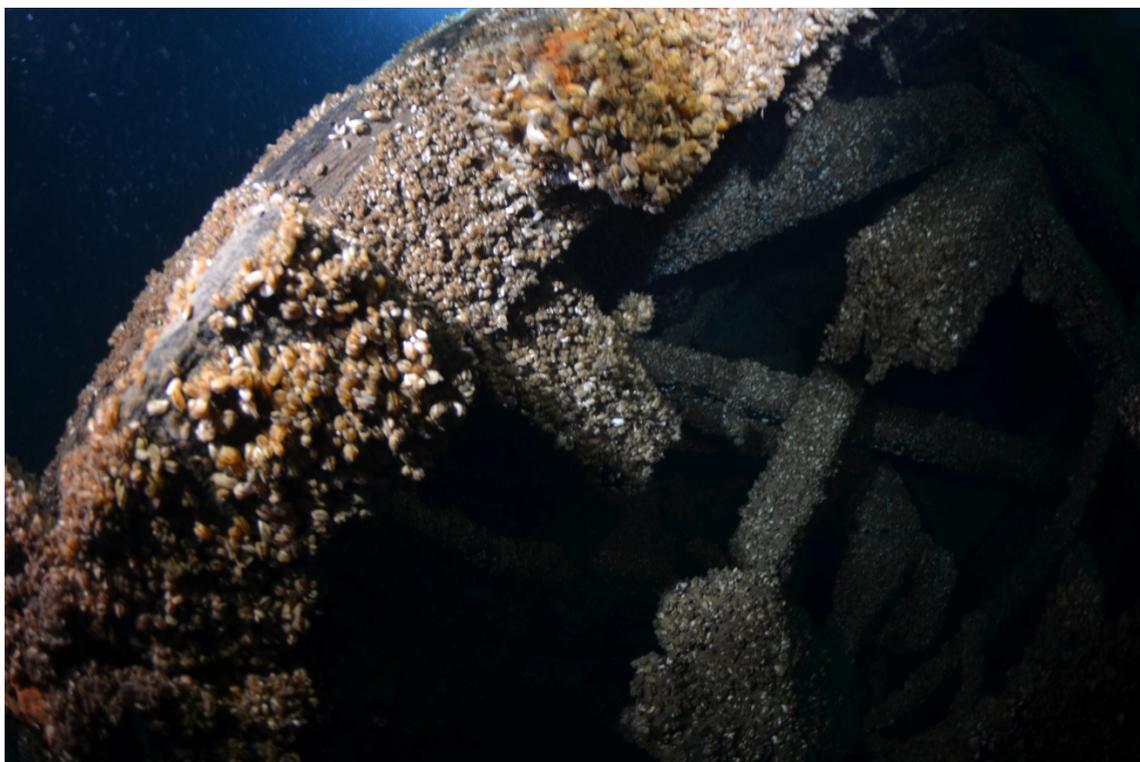


Figure 18. Folding cathead on the *Floretta*.

The *Floretta* was fitted with at least two different bilge pumps. The forward most pump is located at 28.9 feet on BLB, alongside the starboard hull wreckage. This double acting bilge pump measures 1.9 feet wide at the base, 2.1 feet tall, and 0.8 feet thick. The handles to this pump were not located. A second bilge pump, a two-cylinder force pump with a central holding chamber, is just aft of the centerboard trunk at 73.7 feet on BLB. The 7.3 feet long tubes are attached, and the pump measures 2.4 feet wide, 0.9 feet thick and would have stood 2.4 feet above the deck. A 0.2 foot thick pump handle extends 1.4 feet from the pump body and makes a 60° angle and then extends another 2.0 feet, and could have been operated by one man.



Figure 19. Bilge pump from the *Floretta* wreckage. Photo courtesy of Pete Nawrocky.



Figure 20. Ceramic jar previously hidden by divers.

Many smaller artifacts on the *Floretta* shipwreck site are buried in the sand or obscured by silt and quagga mussels. Some known artifacts have been hidden on the site by divers to prevent their removal amongst which include a ceramic jar and a masthead light. However, a frying pan sits out in the open next to the two-cylinder force pump, just aft of the centerboard trunk. The potential for the *Floretta* to produce a significant number of small artifacts is very high.

CHAPTER FOUR

STEAMER *LAKELAND* (A.K.A. *CAMBRIA*)

Located five miles east of Sturgeon Bay, Wisconsin, the *Lakeland* wreck site (47-DR-212) lies in 205 feet of water on the bottom of Lake Michigan. The site was relocated in the 1960s and documented by the Wisconsin Historical Society in 2013. The *Lakeland* (aka *Cambria*) is one of the most storied wrecks on the Great Lakes and has retained this mystique down to the present day.

She was built in 1886-87 by a historically significant Great Lakes ship builder, the Globe Iron Works (GIW) company of Cleveland, Ohio. In her first incarnation as the *Cambria*, she was only the second GIW freighter built with steel hull plates, and was the first vessel on the Great Lakes powered by a triple expansion steam engine. Both technologies became standard equipment on the generation of bulk freighters that followed in her wake. The *Cambria* briefly held the record as the longest bulk freight vessel on the Lakes, and during her first years of service she set new speed and cargo tonnage records. Aesthetically, the ship was also unusually well-appointed for a working vessel, with hardwood details, brass cabin fittings, and stained glass windows in the crew's dining room.

Much of the *Lakeland's* enduring fame stems from the circumstances of her sinking, the novel investigation of the wreck, and the lengthy court case that followed. The 1924 "*Lakeland* disaster" as some newspapers dubbed it, was one of the earliest Great Lakes losses to actually be photographed in the process of going down. The *Lakeland* became the subject of the first forensic investigation of a deep water wreck site on the Great Lakes, and served as a testing site for experimental diving technologies developed by the U.S. Navy and Bureau of Mines. These well-documented tests involved the first field use of helium in divers' breathing mixtures, and associated decompression timetables. The experiments were not entirely successful, however, and perhaps because of these mixed results they have been consistently overlooked in published historical narratives of the development of deep-sea diving. Importantly, the methods pioneered on the *Lakeland* investigation have since become mainstays of modern deep diving. The wreck of the *Lakeland* serves as a tangible reminder of this early chapter in diving history, and of the research and development of diving technology carried on in the Great Lakes region generally, and Milwaukee, Wisconsin in particular. As an important post-script to the *Lakeland* investigation, several members of the dive team were later called to work on the 1925 rescue and salvage effort following the tragic sinking of the U.S. submarine S-51.

The two year legal battle over the *Lakeland* that ran from 1925-1927 was the most prominent Great Lakes "scuttling" trial of the early-twentieth century. In part because of this court case, the ship's history has been richly documented. The wreck of the *Lakeland* continues to fascinate Great Lakes historians and recreational divers alike, and its cargo of (now rare and antique) automobiles still inspires new propositions for salvaging the wreck.

Vessel History: Building a First Generation Steel-Hulled Great Lakes Freighter

The vessel eventually known as the *Lakeland* began as Hull Number 12 in the shipyards of the Globe Iron Works (GIW) Company of Cleveland, Ohio. GIW traces its origins back to 1869 when Henry Coffinberry, Robert Wallace, and John Pankhurst purchased the Sanderson and Company foundry, itself dating back to 1853. In 1880, the three partners started a new shipyard to build steel ships, and this company was originally named the Globe Shipbuilding Company. Later, the firm was renamed the GIW. The GIW launched its first iron-hulled bulk freighter, the *Onoko*, in 1882 (Lake Carriers' Assoc. 1911:109). The *Onoko* was also the first of its kind built on the Great Lakes (Lake Carriers' Assoc. 1911:109). Four years later, in 1886, GIW launched the first steel-hulled bulk freighter to ply the Great Lakes, the *Spokane* (Lake Carriers' Assoc. 1911:109). The company grew rapidly, building eight vessels (including the *Onoko* and *Spokane*) between 1880 and 1886 (Anon. 2010). By the close of the century, GIW was recognized as one of the foremost shipyards on the Great Lakes:

In amount of high class tonnage already turned out the Globe Iron Works of Cleveland undoubtedly leads all the lake shipyards. Among the first class steel vessels turned out by this company are the six boats of the Menominee Transit Company, the three boats of the Mutual Transportation Company [including the *Cambria*], the six boats of the Northern Steamship Company, the five new steel steamers of the Lehigh Valley Transportation Company, four large freighters for the Minnesota Steamship Company, and the \$300,000 twin screw passenger steamer Virginia owned by the Goodrich Transportation Company. During 1890 the Globe Company turned out a first class steel freighter every month and their aggregate value was \$2,500,000.

(U.S. Congress 1892:49)

Hull Number 12 was the first of several bulk freighters ordered from GIW by the Mutual Transportation Company (MTC), of Rockport, Ohio. The MTC was established in 1886 with a capital stock of \$1,000,000.00, and with prominent Cleveland businessman L.C. Hanna as company president, and Captain George McKay serving as manager (*Plain Dealer* 1887a; MDMJ 1887a; *Marine Record* 1887a; OSS 1887:153). The new firm was associated with M.A. Hanna and Company, of Cleveland, Ohio, which owned a variety of interests in the mining and shipping sectors, including a substantial ownership share of GIW (*Plain Dealer* 1887a; Van der Linden 1979:64). This latter company's owner, Marcus Alonzo Hanna, was extremely wealthy and wielded a great deal of political influence in his home state of Ohio as well as in national circles. He served as President William McKinley's campaign manager, and was later appointed (with considerable controversy) to represent Ohio in the U.S. Senate when McKinley tapped one of the state's sitting senators for his administration (Anon. 2013).

GIW began work on Hull Number 12, only the second bulk freighter built by the company using steel hull plates, on 1 September 1886 (*Plain Dealer* 1887a). Only the lower portion of the hull was actually steel, however, while the upper strakes (horizontal rows of hull plates) were composed of iron (*Marine Record* 1887a:5). The partially completed vessel, christened the

Cambria, was officially launched on 1 February 1887 (*Plain Dealer* 1887a; MDMJ 1887a; *Marine Record* 1887a). John Smith, shipyard superintendent for GIW, was credited with overseeing the project (*Plain Dealer* 1887a). The ship was described as the “best as yet turned out by the Globe company” (MDMJ 1887a), and on the eve of the launch the *Plain Dealer* (1887a) went so far as to opine that “a finer piece of vessel property never sailed fresh water”. The launch was a major social event, with a crowd of 2,000 people attending despite the frigid weather (*Plain Dealer* 1887b; *Marine Record* 1887a). Two hundred attendees were actually aboard the hull when it was launched (*Plain Dealer* 1887b). MTC spared no expense to “have her provided with the latest and most approved appliances of the modern ship” (*Marine Record* 1887a). Significantly, it was to be the first Great Lakes vessel to be powered by a triple expansion steam engine (*Plain Dealer* 1887a; MDMJ 1887a; *Marine Record* 1878a). Newspaper reports provided a wealth of detail on the construction and outfitting of the new vessel. The *Marine Record* (1887a) reported on the launching of the massive hull as follows:

Notwithstanding the keen, frosty wind on Tuesday afternoon, quite two thousand people assembled to witness the launch of the steel steamship CAMBRIA, built for the Mutual Transportation Company by the Globe Iron Works Company. No accidents of any nature marred the event, and the symmetrical hull glided into the waters of the river on time. This is one of four steel steamers to be built for the same line by the Globe Company, and, although the CAMBRIA is beyond reproach, new features will be added to the others. They will be twelve feet longer. It is the intention to make the next steamer, which will be laid down during the summer, the standard of the line. The material entering into the construction of the CAMBRIA is all of Cleveland production, Otis furnished the iron and steel plates and the Cleveland Rolling Mill Company the forging.

Length of keel 280 feet and 5 inches; over all 297 feet; breadth of beam, 39 feet; depth of hold, 24 feet; between the spar deck and the main deck, 8 feet; and the lower hold about 13 feet. The plate on the bottom and up to the second strake above the turn of the bilge is steel. There are five strakes of iron on her sides, her sheer strakes being double, 44 inches wide and of 11.16 and a half inch steel width through and through. The plating on the boat is all 11.62 and a half inch thick. Half-inch iron is the lightest on the boat, and she carries this thickness throughout, although it might be lessened on one-third of her length. All steel frames, 24 inch centers, run to the luff of the bow. Then they begin to narrow up at 22 and 20 inches, and from the collision bulkheads to the stem they are 13 inch centers. The depth of the water bottom is 3 feet 4 inches, and is divided into six compartments, three on each side, with five bulkheads in the lower hold. The collision bulkhead runs to the spar deck. The others run to the main deck, with the exception of the boiler room bulkhead extending to the spar deck and terminating in an iron boiler house. In case of a collision the boat is provided with three iron decks in the fore side of the collision bulkhead and four tiers of keelsons on each side. Another very heavy stringer, 18 inches wide, runs parallel 8 feet from the main deck. The space between the stringer and the top of the

water bottom is divided, and another 9 inch deck beam is put in as a side stringer. A wooden deck extends the width of the hatches, being encircled by a 6 foot 6 inch plate of half-inch steel. Iron bulwarks extend 70 feet aft from the stem, and the same is the case from the stern to the fore side of the boilers. The remaining bulwarks are of wood, with iron stanchions. There are no stanchions aft or headgear forward. The CAMBRIA will have three spars, with standing gaffs, to be used as derricks in handling cargo, but will carry no canvass. Her fitout will be furnished by Grover & Son although the American Ship Windlass Company will furnish her with the favorite Providence steam windlass, new style, and capstans...The engine is a triple expansion 24, and 61 by 42. The three cranks are set at an angle of 120 degrees which makes almost a perfect rotary motion. The engine will have a working pressure of 150 pounds and develops 1500 horse power. The bed plate is of box pattern, and weighs about 17 tons. This is the first triple expansion on the lakes and the Globe Company have gone to the expense of making a boring bar that will bore all the journals at one time, by this means, making them perfectly true. The columns are of box pattern, two to each cylinder, with a large slide service and a water back to keep them cool. Another new feature is the bolting of all three cylinders in a line. In working the engine at the docks the steam reverse is such that it could be handled by a child.

The CAMBRIA will have two boilers, each 12 feet in diameter and fourteen feet long, with horizontal steam drums fourteen feet in diameter. The shells are of Otis steel, 1 and one eighth inch thick and are allowed 225 pounds pressure. Each boiler has three Aetna shaking grate furnaces.

The CAMBRIA has a Globe sectional wheel, and when her machinery and boiler are in place, the boiler house and cabin built, and the outfit aboard, will draw about 7 feet 6 inches aft and 5 feet forward, light, and carry 2680 tons on fifteen and a half feet draft. The wheel is 13 feet diameter with 16 feet lead.

The cost of the CAMBRIA will be about \$160,000 and she will be commanded by Captain William Cummings, last season master of the propeller SPARTA, and H.F.McGinnis, Chief engineer of the line, will be engineer.

The ship was also equipped with seven hatches, permitting its bulk holds to be fully unloaded in a single day (MDMJ 1887b).

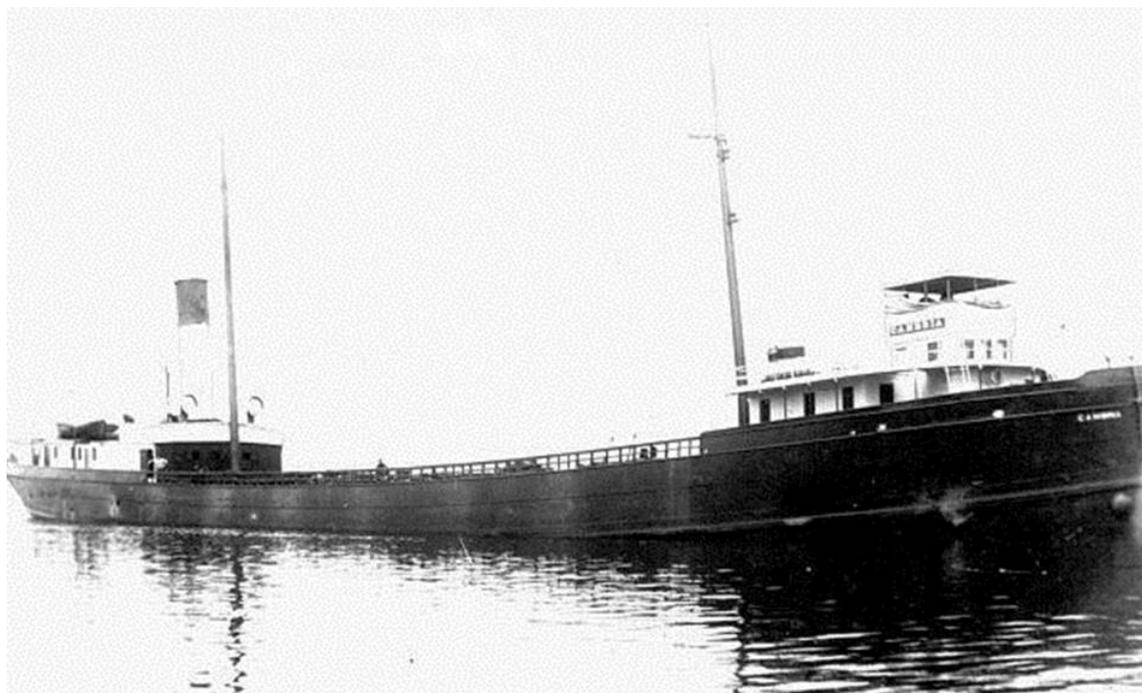


Figure 21: Steamer *Cambria*. Bowling Green State University-Historical Collections of the Great Lakes.

Details of the ship's interior appointments were provided by the *Marquette Daily Mining Journal* (MDMJ 1887b):

The cabins and quarters of the *Cambria* being made elegant, and everything about her is substantial and neat. Her forward cabin and all of the adjoining rooms are certainly not equaled in any other freight boat on the lakes. Everything is finished in hard wood and the diningroom, aft, is equally attractive. Stained glass windows, brass railings and brass door fixtures seldom go with the seaman's humble quarters, but they are all to be seen on the *Cambria*.

After launch, the hull was towed to a nearby location where the GIW-built engine and boilers would be installed, and portions of the wooden cabin were to be completed (*Plain Dealer* 1887a). The *Marquette Daily Mining Journal* reporter expected the vessel to be completed in "a few days", when it would begin making a weekly trip between Escanaba and various Ohio ports, hauling 2,300 to 2,490 tons of ore on each trip (MDMJ 1887b). The *Cambria* was to be captained by William Cumming, with First Mate Beach, Second Mate Ames, and engineer McGinnis (MDMJ 1887b; *Marine Record* 1887c). The *Cambria* was likely completed in May of 1887, and was enrolled at the Port of Cleveland on 1 June 1887 under the U.S. registry number 126420. At enrollment, she was described as a propeller with a plain bow and round stern, two decks and three masts (Bureau of Navigation 1887). Official measurements were as follows: Length 280 ft; Breadth 40 ft; Depth 20 ft. Her gross carrying capacity was rated at 1,878.1 tons, consisting of 1,773.61 tons "under deck" and 94.49 tons within cabin space on the upper deck. With a statutory deduction of 500.77 tons, her net tonnage was 1,377.33 tons. Cleveland was the

vessel's homeport. For a brief period of time, until the completion of the *Corsica* in 1888, the *Cambria* was considered the longest bulk freighter on the Great Lakes (Berry 2013). Just a few days after her enrollment, while still in the Port of Cleveland, she was rammed by a barge, ripping a sizable hole in her stern (*Plain Dealer* 1887c). The hole was hurriedly patched to allow the freighter to depart for Escanaba, Michigan, probably the vessel's maiden voyage, on 4 June 1887 (*Plain Dealer* 1887c).

The Bulk Carrier Years: From Record-Setting Flagship to Step-Child of the U.S. Steel Fleet

As early as mid-June of 1887, the *Cambria* appeared in listings of ships' passages for Lake Michigan ports. She cleared Astabula, Ohio, on 15 June 1887 bound for Escanaba, Michigan, with no cargo, and pass through the Port of Detroit, Michigan, on the following day (*Plain Dealer* 1887d, 1887e). The vessel departed Escanaba, Michigan, on 18 Jun 1887 to begin its return journey (*Plain Dealer* 1887f). It was on one of its Escanaba-to-Ashtabula-and-back runs that the *Cambria* set a new record, making the round trip in four days and 12 hours (*Plain Dealer* 1887g). She carried 2,387 tons of iron ore from Escanaba and completed unloading at Ashtabula in eleven hours. On the return leg of the trip, the *Cambria*, with empty holds, reportedly outpaced a passenger steamer, the *City of Alpena*, that was capable of running at 19 miles per hour (*Plain Dealer* 1887g). The description of this trip suggests that during this era the *Cambria* occasionally, perhaps regularly, carried no cargo on the upbound leg of its route from Astabula to Escanaba.

In her first year of service, on a run from Escanaba to Ashtabula carrying 2,334 tons of iron ore, the *Cambria* struck a submerged obstacle that tore a hole through the steel hull (*Marine Record* 1887b). The resulting slow leak was initially handled by the vessels' onboard pumps, but an auxiliary steam pump was also acquired from Detroit. She put in at Amherstburg, Ontario, where a portion of her cargo was off-loaded to another vessel, and was expected to complete the journey to Ashtabula. Within a week, the *Cambria* had returned to her homeport of Cleveland, apparently under her own power, where she underwent substantial hull repairs (*Marine Record* 1887d). The cost of repairs totaled \$3,500.00 (*Marine Record* 1887e).

The *Cambria* continued to ply the Escanaba route for several years with no major incidents. In 1890, however, the schooner *Verona* was pushed into the path of the *Cambria* by a powerful gale outside the Ashtabula, Ohio, harbor (*Buffalo Evening News* 1890). The *Cambria* struck the smaller vessel and the *Verona* sank, although no lives were lost in the collision. There was no report of damage to the *Cambria*. In 1892, the *Detroit Free Press* reported that the *Cambria* would be captained by John Dunn during the upcoming season, with Thomas Drysdale serving as engineer (*Detroit Free Press* 1892). In the same article, the *Cambria*'s former captain, William Cumming, was Master of the *Corsica*, another vessel in the Mutual Transportation Co.'s fleet. It is unclear whether or not this change of personnel was related to the incident with the *Verona* in 1890, and the MTC did not re-enroll the vessel under its new Master. It was during this period, however, that the *Cambria* made a list of record cargoes for 1890-1896, compiled by *Beeson's Marine Directory*, reportedly hauling 2,468 tons of iron ore with a draught of 14 ft., 9 in., and 71,193 bushels of wheat with a draught of 13 ft., 10 in. (Beeson 1896:105). The *Cambria* also

hailed coal during this era, running from Ashtabula to Chicago, Illinois, on at least one trip in 1896 (*Plain Dealer* 1896).

On 16 April 1897, the MTC filed for a new enrollment for the *Cambria* as a result of a change in both the ship's rigging and Master (Bureau of Navigation 1897). One spar/mast was removed from the ship for unspecified reasons, and the Master was listed as Captain Martin Johnson (Bureau of Navigation 1897). No other significant changes were noted on the new enrollment, but the 1897 document was the first to note that the vessel was constructed of steel. This notation was entered despite the fact that the hull was a composite of both iron and steel plates. Later that same year, the *Cambria* was bound from Escanaba, Michigan, to Fairport, Ohio, with a cargo of 3,000 tons of iron ore, and was driven into shallow water during a storm and grounded near Port Huron's Corsica Shoals (*Buffalo Evening News* 1897). Apparently, the ship was freed from the shoals, but no additional reports of this incident could be located.

During the 1890s, the pace of corporate expansion and consolidation in the steel, mining, and shipping industries accelerated rapidly. The *Cambria* and the other ships of the MTC fleet were caught up in this wave of mergers and take-overs, changing ownership several times (on paper) over the course of the decade. Due to the rapidity and complexity of the consolidations, the trail of ownership of the MTC fleet becomes murky at this point. The first of these deals that may have involved the MTC fleet occurred ca. 1897 when MTC was acquired by the Illinois Steel Company of Chicago, owned by Marshall Field, H.H. Porter, and Nathaniel Thayer (Miller 1999:16-17). There is some ambiguity in the secondary sources on this period in the MTC's history, however. Miller (1999:17) refers to the company acquired by Illinois Steel Co. as the "Mutual Steamship Company" (as opposed to the Mutual Transportation Co.), but goes on to specifically name the vessels involved in the transaction as the *Cambria*, *Coralia*, *Corona*, and *Corsica* (all ships of the Mutual Transportation Co. fleet). The confusion in the MTC fleet's ownership during this period arises from a claim by Miller (1999:25-26) that in 1898, the Illinois Steel Company merged with several other firms to create the Federal Steel Company, financed by J.P. Morgan and orchestrated by Elbert H. Gary. There is, however, clear primary documentation that in 1899 the holdings of the MTC, including its fleet of four bulk freighters, came under the control of a competitor of the Federal Steel Co., the National Steel Company of Chicago, Illinois (*Marine Review* 1899b). It is possible that the MTC was simply excluded from the previous Federal Steel Co. merger and was later acquired by the National Steel Co., but this is unclear from the available records. In any event, the new National Steel Co. also included properties of the Chapin Mining Company, Winthrop Iron Company, and the Menominee Transit Company. The latter firm operated five freighters – the *Grecian*, *Roman*, *German*, *Saxon*, and *Briton* – that also came under the ownership of National Steel Co. through this arrangement (*Marine Review* 1899b).

Despite these mergers and acquisitions, the *Cambria*'s enrollment records from this period do not indicate any change of ownership. This may reflect the claim that the management of the combined MTC and Menominee Transit Company fleets under the National Steel Co. umbrella continued to be overseen by the office of M.A. Hanna and Co., the previous operators of the MTC fleet (*Marine Review* 1899b). The deal also transferred MTC's partial interest in an ore

dock at the Port of Ashtabula, and the mining properties included in the purchase used Escanaba as their entrepot (Marine Review 1899b). Records of ships' passages from 1899 and 1900 suggest that the *Cambria* continued to ply the Escanaba-to-Ashtabula route following its acquisition by National Steel Co. (*Plain Dealer* 1899, 1900a, 1900b).

Just two years after the National Steel Co. acquisition, the *Cambria* changed hands again. In 1901, U.S. Steel was formed through a combination of several large firms, including both the Federal Steel Co. and National Steel Co. (Miller 1999:28). This vast new company was larger and more complex than any previous enterprise, and quickly became known as the "Steel Trust", reflecting its near-monopoly control of the industry. Through this merger, MTC's vessels became part of U.S. Steel's Pittsburgh Steamship Line (PSL), based in West Virginia (Bureau of Navigation 1901; Marshall 1913:323; Berry 2013). By the middle of 1901, the PSL controlled 69 freighters, 43 barges, and 19 support vessels such as tugs and fireboats (Miller 1999:29). At the time, it was the largest fleet in the United States, and was in fact larger than the U.S. Navy's combined fleets (Miller 1999:29).

A new enrollment was filed for the *Cambria* on 3 June 1901 at the Port of Duluth, recording the Pittsburgh Steamship Line as the vessel's new owner, with Duluth, Minnesota, as her homeport, and A.B. Wolvin serving as the new Master (Bureau of Navigation 1901). The ship's material was recorded as "iron" on this document, despite the fact that its hull was composed of both iron and steel plates.

In contrast to the continuity in the *Cambria's* operation under the Illinois and National Steel Companies, records show that the new management of the PSL imposed a number of changes. For the first time the *Cambria* cleared the ports of Mackinaw City, Port Huron, and Sault Sainte Marie towing a consort (on occasion a whaleback barge) during the 1901, 1902, and 1903 seasons (*Plain Dealer* 1901, 1902d, 1903a). She reportedly wintered over in the Port of Milwaukee after the close of the 1901 season (*Door County Advocate* 1901).

Because of its size and stature in the Great Lakes shipping industry, the PSL's annual appointment of ships' crews became a much-anticipated announcement. In 1902, Captain J.A. Walsh was appointed as Master of the *Cambria*, with William J. Story as First Mate (*Plain Dealer* 1902a). This change in Master was not reflected in enrollment records, however. Apparently, the new Master was also assigned a new route for the *Cambria*. In June of 1902, the vessel was reported arriving at the Port of Cleveland carrying a load of iron ore from Superior, Wisconsin (*Plain Dealer* 1902b). This suggests that under the PSL the *Cambria* had begun servicing Lake Superior ports as well as its former Lake Michigan entrepot of Escanaba. A month later, she departed the Lake Superior port of Duluth, Minnesota, with a load of iron ore that was probably downbound to one of the many steel-town ports on Lake Erie (*Plain Dealer* 1902c, 1902d, 1902e). The vessel made numerous trips to Lake Superior ports during the 1902 season, and transported at least one load of iron ore from Escanaba to Cleveland (*The Evening News* 1903a, 1903b; *Plain Dealer* 1903b, 1903c).

During the 1903 season, the American Association of Masters and Pilots, a labor union representing ships' captains, called a strike against PSL over the company's employment of non-union Mates (Hoagland and Debel 1917:58-60). The conflict continued into the 1904 season, with captains refusing to sign their 1904 season contracts with many Great Lakes shipping companies. Negotiations between the Lake Carriers' Association and the Masters and Pilots union took place in the early months of 1904, but failed to resolve the issue (Hoagland and Debel 1917:64-65). In mid-June of 1904, well into the regular shipping season, PSL management announced a "general shake up" in vessel assignments (*Plain Dealer* 1904a). PSL removed several long-serving captains from their posts, and the broad re-assignment of Masters was intended to discourage further job actions on the part of the captains (*Plain Dealer* 1904a; Hoagland and Debel 1917:58-60). H. Coulby, PSL's manager, publicly stated that he wanted the captains to "wipe the slate clean and forget about the recent trouble" and "gave the captains to understand that no sparring over the strike would be allowed" (*Plain Dealer* 1904a). Reflecting this "shake up", the *Cambria* was re-enrolled on 4 February 1904 with a new Master; L.W. Lowell (Bureau of Navigation 1904). The new enrollment did not list any other changes to the vessel, and Lowell did not keep his post for long. The *Cambria* was among those ships that received a new Master in the June 1904 "shake up"; Captain John Gemmel (*Plain Dealer* 1904a). It is likely that Lowell was one of those captains who refused to sign a contract with PSL and eventually had his assignment taken away. No new enrollment was filed reflecting this change in the wheelhouse, however.

The *Cambria* resumed service by at least mid-July 1904, and was reported arriving in Fairport, Ohio, hauling iron ore out of Ashland, Wisconsin (*Plain Dealer* 1904b). It also made at least one trip to Duluth, Minnesota, steaming "light" out of Ashland, Wisconsin (*Plain Dealer* 1904c). As late as 16 November of that same year it was reported heading upbound passed Sault Sainte Marie (*Plain Dealer* 1904d). The vessel was laid up in the Port of Milwaukee at the close of the 1904 season (*Door County Advocate* 1904). A sample of ships' passage reports suggest that the *Cambria* maintained a regular schedule hauling ore from Ashland to Fairport during the 1905 season, probably serving other Lake Superior and Lake Erie ports as well (Plain 1905a; *The Evening News* 1905; Plain Dealer 1905b, 1905c).

A new enrollment was filed for the *Cambria* in February 1906, listing Captain John H. McLean as Master (Bureau of Navigation 1906). It appeared on the list of arrivals for the Port of Cleveland in April 1906 carrying a load of iron ore from Duluth, and was listed leaving Marquette, Michigan, for Cleveland later that year (*Plain Dealer* 1906a, 1906b). A new Engineer, L.O. Wilcox, was appointed to the *Cambria* by PSL's Chief Engineer for the 1907 season (*The Evening News* 1907). Based on sample of ships' passage reports, she was still plying the Lake Superior to Lake Erie route in that same year (*Plain Dealer* 1907a; 1907b). No records of her activities during the 1908 and 1909 season could be located, but at the close of 1909 she was reported as being among a large number of vessels wintering over in the Port of Chicago (*Plain Dealer* 1909). The *Cambria's* captain at the close of the season was listed as F.H. Prince, but the ship was apparently never re-enrolled under the new captain's name (*Plain Dealer* 1909).

The Passenger and Package Freight Era: A New Lease on Life as the *Lakeland*

The year 1910 was momentous one for the aging *Cambria*, marking a major turning point in her history. The PSL sold both the *Cambria* and another bulk freighter, the *Wolvin*, to the Port Huron and Duluth Steamship Company (PHDSC), based in Port Huron, Michigan, and managed by C.O. Duncan (Beeson 1909:268; *News Tribune* 1910a). Early in the 1909 shipping season, the company announced that it was converting the two ships into passenger steamers that would also carry package freight (*News Tribune* 1910a; *Door County Advocate* 1910a). The PHDSC was associated with a large cement producer in Alpena, Michigan, and they intended to run the ships on a regular schedule hauling cement and passengers from Alpena to the Lake Superior ports of Sault Sainte Marie, Marquette, Houghton, Hancock, Port Arthur, and Duluth (*News Tribune* 1910a). The reconstruction of the *Cambria* was to take place at the south yards of the Milwaukee Dry Dock Company of Milwaukee, Wisconsin, and the ship was expected to be ready to resume service at the beginning of the 1910 season (*News Tribune* 1910a). The PHDSC filed a new enrollment for the *Cambria* on 14 February 1910, registering the company as the vessel's new owner, and establishing its homeport as Port Huron, Michigan (Bureau of Navigation 1910a). A new Ship's Master, Alex McGowan, took the helm of the *Cambria* (Bureau of Navigation 1910a). The PHDSC announced in March 1910 that the vessel's name would be changed to the *Lakeland*, and the same report claimed that the boat was in the process of being rebuilt by the Milwaukee Dry Dock Co. (*Plain Dealer* 1910a; also see *Inquirer* 1910 on name change).

Unexpectedly, in mid-April, the *Cambria* was towed out of the Port of Milwaukee by the tug *Favorite* (*Plain Dealer* 1910b). Two days later, the tug and its charge were reported arriving at the Port of Cleveland, where it was promptly transferred to an un-named shipyard (*Plain Dealer* 1910c). In mid-May the PHDSC announced that, much to the company's frustration, the Milwaukee Dry Dock Co. had not been able to complete the refit of the *Lakeland*, and they had been forced to tow the partially refurbished vessel to Cleveland to finish the conversion (*News Tribune* 1910b). The remaining work was expected to take at least an additional ten days (*News Tribune* 1910b). The next day, the PHDSC ran a "help wanted" advertisement seeking a "steward for freight and passenger steamer *Lakeland* trading between Port Huron and Duluth; capacity of steamer about 200 passengers" (*Plain Dealer* 1910d).

Note that this route is slightly different from that described by the company in its earlier announcement (*News Tribune* 1910a). On 24 May 1910 the *Cambria* was officially re-enrolled under the name *Lakeland* (Bureau of Navigation 1910b). The document also included a general description of the alterations made to convert it into a passenger vessel. The ship's gross tonnage increased by 651.89 tons to a total of 2425.0 tons, resulting from the addition of cabins on the spar deck (574.24 tons), cabins on the upper deck (49.09 tons), and coal bunkers on deck (28.56 tons) (Bureau of Navigation 1910b). Statutory deductions in tonnage totaled 612.85 tons, including 24.38 tons for a "china" (probably "chain") locker, resulting in a net vessel tonnage of 1813.0 tons (Bureau of Navigation 1910b). The document also noted that she had been rebuilt and re-measured at Cleveland, Ohio, in 1910 (Bureau of Navigation 1910b). It is also likely that side loading doors were added during this refit, but they are not specifically described in the enrollment (Van Harpen 2006:23). The new enrollment made no mention of the vessel's time at

the Milwaukee Dry Dock Co., and the name of the Cleveland company that completed the rebuilding project was also not recorded (Bureau of Navigation 1910b).

Work on the *Lakeland* continued until sometime between 6 June and 18 June 1910 (*News Tribune* 1910c, 1910d). No report of her departure from Cleveland on her “maiden” voyage could be located, but the *News Tribune* of Duluth, Minnesota, reported on 18 June that the boat was expected to arrive in that port on 20 or 21 June on her first trip following the refurbishment (*News Tribune* 1910d). Several days later, she was reported passing through Sault Sainte Marie on the downbound leg of her first voyage (*Plain Dealer* 1910e).

September of 1910 was a difficult one for the newly rebuilt *Lakeland*. Early in the month, she ran aground on Avery Reef at the mouth of the Thunder Bay River near Alpena, Michigan (*News Tribune* 1910e). The vessel was eased off of the obstruction by several tugboats with negligible damage to the hull, and it was able to resume its course for Duluth after a short delay (*News Tribune* 1910e). Towards the end of the month, she was involved a much more serious incident while passing through Sault Sainte Marie in a thick fog (*Evening News* 1910). She was rammed

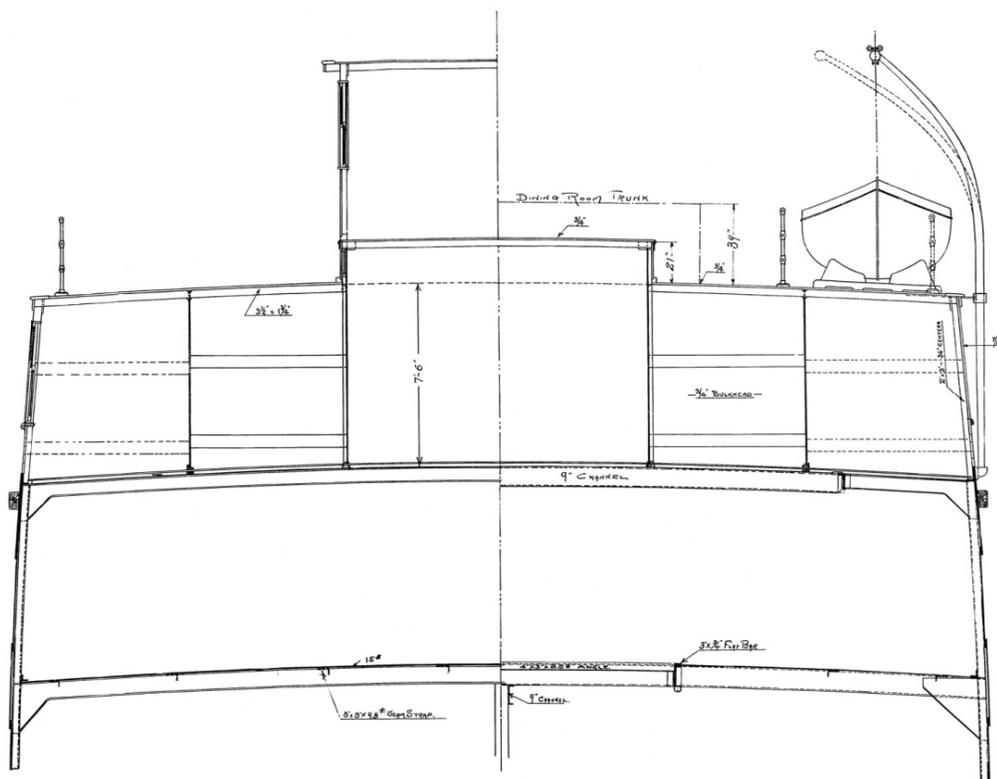


Figure 22. Cross section drawing of the steamer *Lakeland* circa 1910. Bowling Green State University- Historical Collections of the Great Lakes.

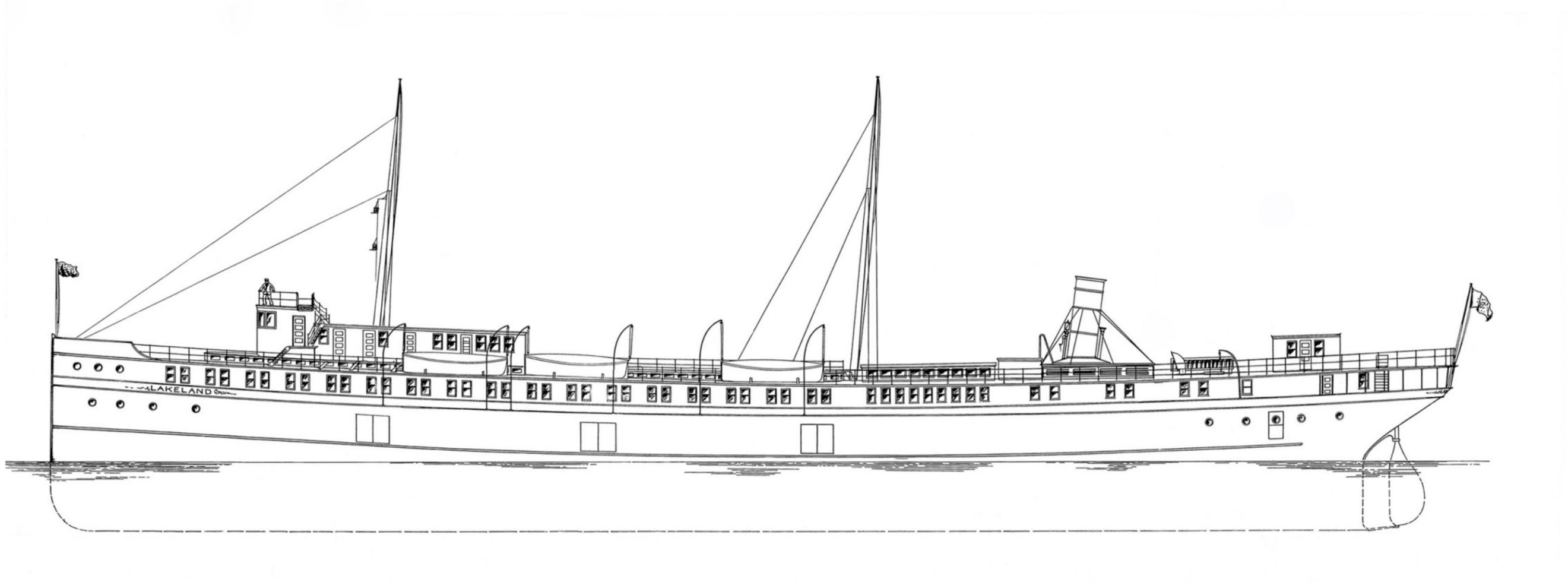


Figure 23. Outboard profile of the refitted steamer *Lakeland* circa 1910. Bowling Green State University- Historical Collections of the Great Lakes.

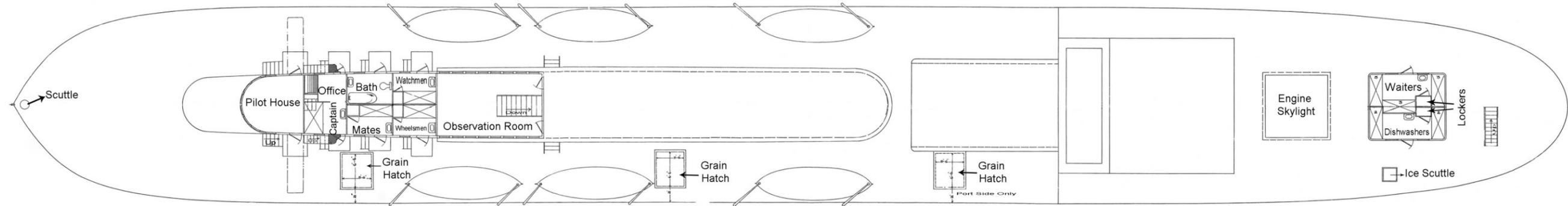


Figure 24. Drawing of the boat deck of the reconstructed steamer *Lakeland* circa 1910. Bowling Green State University- Historical Collections of the Great Lakes.

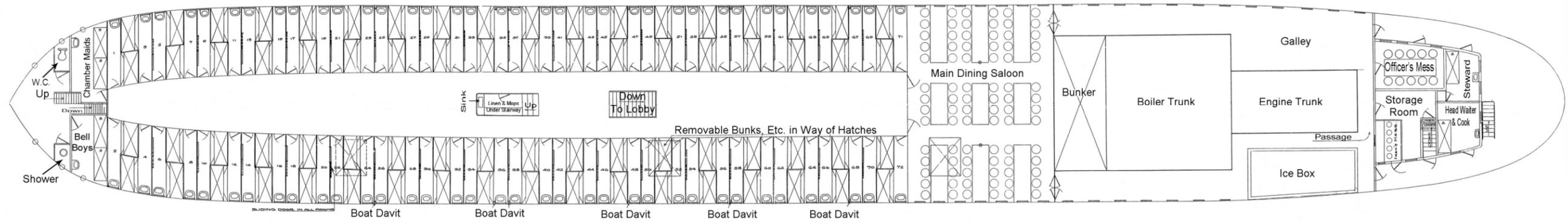


Figure 25. Drawing of the cabin accommodations of the reconstructed steamer *Lakeland* circa 1910. Bowling Green State University- Historical Collections of the Great Lakes.

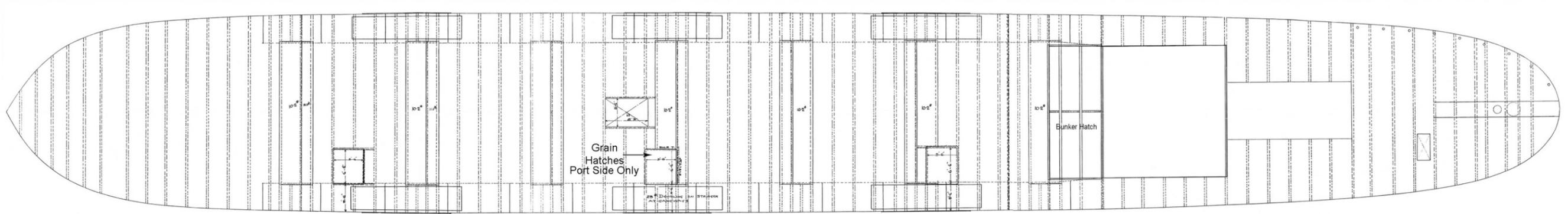


Figure 26. Drawing of the spar deck of the reconstructed steamer *Lakeland* circa 1910. Bowling Green State University- Historical Collections of the Great Lakes.

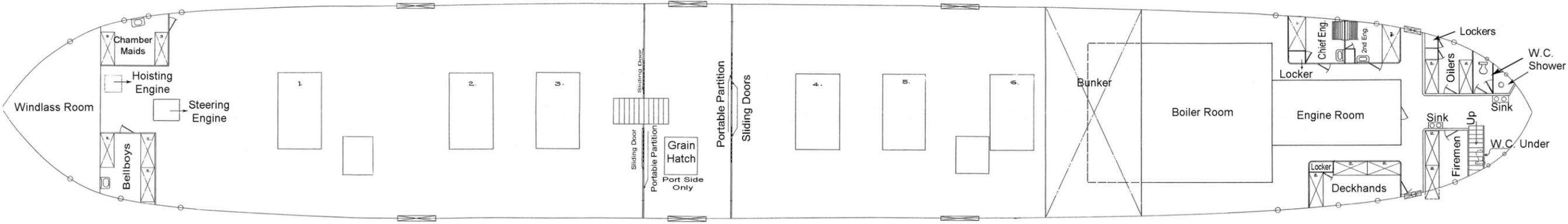


Figure 27. Drawing of the main deck of the reconstructed steamer *Lakeland* circa 1910. Bowling Green State University- Historical Collections of the Great Lakes.

by a barge operated by her former owners, the PSL, “cutting a hole six feet wide from below the water line to the upper deck” (*Evening News* 1910; *Sheboygan Press* 1910; *Door County Advocate* 1910b). The *Lakeland* was immediately beached as result of the crash, but no reports of the extent of her lay-up, or the cost for repairs could be located (*Sheboygan Press* 1910).

Fortunately, 1911 seems to have been a relatively routine season for the *Lakeland*. No incident reports were located for this period, and she presumably maintained a regular schedule on her route from Alpena to Duluth. The vessel appeared in the 1911 list of merchant vessels registered in the U.S. with a reported crew of 30 and operating under passenger service (USDC 1911). The remainder of the vessel description was consistent with previous enrollment records. The PHDSC’s Port Huron-to-Duluth route was apparently profitable because the company announced that it would add a second package freight and passenger vessel (the *Lakewood*, formerly the *Syracuse*), as well as another dedicated package freighter (the *Lakemere*, formerly the *Boston*) during the 1912 season (*News Tribune* 1912). The report also stated that the company intended to convert the *Lakemere* for passenger service for the 1913 season (*News Tribune* 1912). The *Lakeland* was re-enrolled early in 1913 due to a change in company officers at the PHDSC. Frank D. Jenks was listed on the document as the company president (Bureau of Navigation 1913). This was also the first enrollment that included a one-year license for operating on the “coasting and foreign trade” (Bureau of Navigation 1913).

A timetable for the PHDSC’s passenger lines was published in 1915 showing the summer scheduled for the company’s two vessels, the *Lakeland* and *Lakewood*, Running between Port Huron and Duluth with stops at Sault Sainte Marie and Houghton (Green 1915). The line offered service for “freight and passengers, local and thru”, and a “vacation trip on a freight steamer” for a \$30.00 round-trip fee, including meals and berth (Green 1915). The *Lakeland* was scheduled to make one trip upbound and back in late-June, five round-trips in July, four in August, and one in September (Green 1915). The *Lakewood’s* schedule was identical in terms of ports, but it somewhat less frequently (Green 1915). The timetable also noted that the steamer *Lakeport*, also made round trips to the same ports on an approximately eight-day cycle (Green 1915). No mention of the *Lakemere*, which the company had earlier planned to rebuild to accommodate passengers, appears on the 1915 timetable (Green 1915). The company’s officers were listed as: F.D. Jenks, president, Port Huron; J.W. McLean, western agent, Duluth; and W.S. Jenks and G.F. & P.A., Port Huron (Green 1915). The company apparently advertised its services aggressively during this period. An even more elaborate advertisement, featuring a photograph of the *Lakeland*, appeared in the *Republican News* published out of Hamilton, Ohio, a small town near Cincinnati (*Republican News* 1915). It is worth noting that Hamilton is just over 300 miles from the PHDSC’s southernmost port of Port Huron. This advertisement offered passengers the “finest fresh water cruise in the world” and assured them that “the steamers of this line are steel package freighters, and carry only the cleanest cargoes” (*Republican News* 1915). The *Lakeland’s* season was interrupted when she snapped her crank shaft just after departing Port Huron on the upbound leg of her journey (*Marine Review* 1916). Repairs were reportedly made at Detroit, but it is unclear how long the vessel was laid up and how costly the repairs were. She resumed service at some point in the season, and reportedly continued her regular route well after the close of the

scheduled passenger season. The *Lakeland* was reported departing the Duluth-Superior Harbor in November hauling “merchandise” (*News Tribune* 1915).

Despite the *Lakeland*'s mechanical troubles, the 1915 season must have been a fairly successful one for the PHDSC. In 1916 they added a regular passenger schedule for the *Lakeport* as well as an additional late-season trip for the *Lakeland* (Green 1916:333). No changes were made in their ports of call, but the 1916 timetable does indicate several changes amongst company officers. The firm's Duluth agency was staffed by H.W. Cross, general agent, and a “general western agent”, W.J. Buchanan, operating out of Minneapolis, Minnesota (Green 1916:333).

Bankruptcy: The First Legal Battle over the *Lakeland*

Following the 1916 season, however, the *Lakeland* entered another period of rapidly shifting ownership. Early in the 1917 season the PHDSC sold the *Lakeland* to the Northwestern Steamship Company (NSC) of Port Huron, Michigan (Berry 2013). It was re-enrolled under ownership of the NSC on 8 March 1917 with the number of crew listed as 20 (Bureau of Navigation 1917). Other data in the document conformed to previous enrollments. No references to the ship's activities could be located for 1917, and the NSC apparently went bankrupt sometime in 1918 (Berry 2013). The Minnesota Loan and Trust Company [MLTC] was appointed as the financial receiver for the company's remaining assets, and the *Lakeland* briefly became the property of the MLTC (Berry 2013). The MLTC attempted to liquidate the NSC's assets, but was temporarily blocked from selling the *Lakeland* by an injunction filed by Alexander McGowan, the captain of the *Lakeland* and a former stockholder in the NSC (MMFR 1919a). McGowan alleged financial mismanagement of NSC by Frank D. Jenks, who was (not coincidentally) also the former president of the *Lakeland*'s former owners, the PHDSC.

Interestingly, during the period when the NSC bankruptcy and liquidation was being contested by Captain McGowan, a ship named the *Lakeland* briefly appeared in the Port of New Orleans, Louisiana (*Times-Picayune* 1919a, 1919b, 1919c). While it is far from certain that this was in fact the same vessel whose fate was being litigated, it is entirely possible that Captain McGowan sailed his vessel out of the Great Lakes region in order to avoid having it seized. It is unclear how McGowan's case was decided, but a deal was finally announced in May of 1919 in which all three former PHDSC and NSC boats – the *Lakeland*, *Lakewood*, and *Lakeport* – were sold to “Cleveland operators” Frank J. Peterson and George A. Collinge (MMFR 1919b; Bureau of Navigation 1919). A report of the settlement stated that the vessels would be used for passenger and freight service between Cleveland, Montreal, Quebec, and other Canadian ports (MMFR 1919b). The *Lakeland* was re-enrolled on 28 June 1919 under the names of its new owners, with Buffalo, New York, as its new homeport. Remarkably, Captain McGowan, who had filed the injunction against the original MLTC liquidation of the ship, remained as Master (Bureau of Navigation 1919).

Shortly after the ship's purchase by Peterson and Collinge was resolved, the *Lakeland* was chartered by the Crosby Line out of Milwaukee, Wisconsin (*Milwaukee Journal* 1919; Hilton 2002:289). The Crosby Transportation Company [CTC] was founded in the 1890s by several

businessmen including Edward G. Crosby, who later perished in the 1912 sinking of the *Titanic*. After E.G. Crosby's death, his son, Fred Crosby, took over management of the company. One of Crosby's regular steamers, the *Holland*, had gone into dry dock for extensive repairs early in the 1919 season, so the company chartered the *Lakeland* for two months in order to complete the season (*Sheboygan Press* 1919b). Advertisements announced that the Crosby Line had "resumed service" commencing 11 July 1919, and the "big, new, steel steamer *Lakeland*" would make daily trips from Milwaukee to Muskegon, Michigan, "connecting for Grand Rapids, Detroit and all Michigan points" (*Milwaukee Journal* 1919; also see *Sheboygan Press* 1919a). The ship's route also included regular stops at Sheboygan, Wisconsin, and she made her last call at that port on 1 September (Labor Day) (*Sheboygan Press* 1919b). The *Lakeland* completed its final charter run to Milwaukee, and the next day sailed for Cleveland, no longer in the service of CTC (*Sheboygan Press* 1919b). In a newspaper article published mid-way through the 1919 season, the ship's owners claimed that she would be "going to the coast", possibly indicating that the *Lakeland* was slated to leave the Great Lakes after the close of the season to ply the Atlantic seaboard (*Daily Palladium* 1919). No other records could be found to document that the vessel actually engaged in the coasting trade in 1919-20, however. It is possible that the abrupt sale of the *Lakeland* in early-1920 altered her fate.

The Automobile Transport Era: The *Lakeland* and the Early Great Lakes Auto Industry Boom

On 5 February 1920, Peterson and Collinge filed a new enrollment for the vessel with Frank J. Peterson as the new Ship's Master and her homeport at Cleveland (Bureau of Navigation 1920). She was listed as operating freight service, and the document included the hand-written note "coal burner" (Bureau of Navigation 1920a). Two weeks later, however, she was re-enrolled under the ownership of the Tri-State Steamship Company, Mentor Special District, Lake County, Ohio (Bureau of Navigation 1920b). Captain W.R. Woodford was the new Master, and Fairport, Ohio, was listed as her homeport (Bureau of Navigation 1920b). The new enrollment also included passenger, in addition to freight, service (Bureau of Navigation 1920b). Relatively little is known about the Tri-State Steamship Co., but it was apparently established by Merwin S. Thompson and several partners in 1920 (USDC 1926:3; BGSU 2013).

In early-1920, after it was acquired by the Tri-State Steamship Co., the *Lakeland* underwent a conversion that allowed it to carry automobiles (*Daily Tribune* n.d. [1924]; USDC 1926:9). The passenger quarters on her spar deck were removed to make room for additional freight (USDC 1926:9). M.W. Thompson, the ship's owner, later claimed that two elevators were installed to allow vehicles to be moved from the spar deck to the lower decks (USDC 1926:9). Only one lift was observed during the 2012 survey of the wreck, however, so it is possible that he was mistaken in this detail. This refit was allegedly done at the Wolverine Dry Dock Company of Port Huron, and provided the ship with capacity for 250 cars (*Daily Tribune* n.d. [1924]; *Door County Advocate* 1924a). It is somewhat unusual that vessel enrollments from this period do not indicate any changes to the vessel, but conversions of the sort the *Lakeland* reportedly underwent were probably not uncommon during this period.

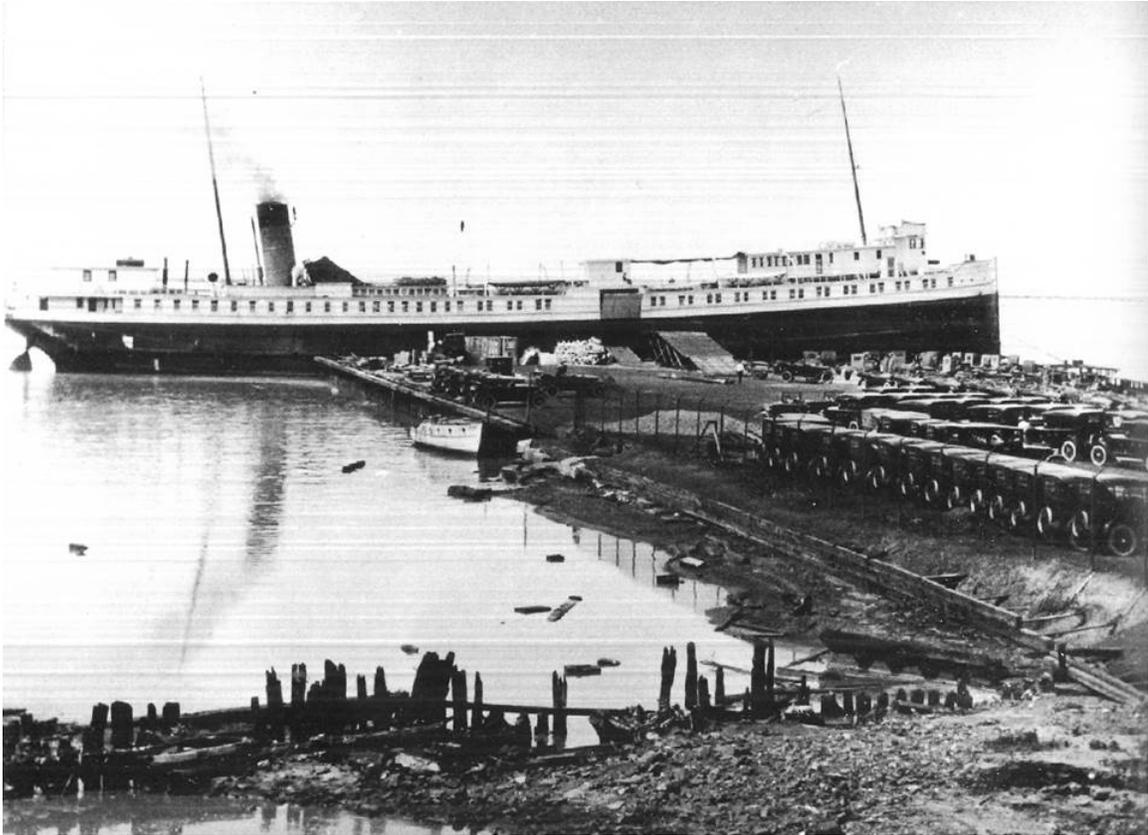


Figure 28. Cars being unloaded from the *Lakeland* in Cleveland. Bowling Green State University-Historical Collections of the Great Lakes.

By this point in time the Great Lakes region was home to a large and diverse automotive industry, producing personal and commercial vehicles on a massive scale. Detroit, Michigan, and many other industrial cities, were home to such well-known companies such as Ford, Buick, and General Motors, as well as a number of important early innovators like the Kissel Motor Car Company and Nash Motors Company (Quandt 1998). Many of the vehicles produced in the Great lakes region were transported by ship to domestic U.S. markets and as far away as Europe and beyond (Quandt 1998). Great Lakes vehicle builders experienced a major boom during World War I, providing ambulances, trucks, and other vehicles for the war effort (Quandt 1998). The rapid expansion of the consumer auto market following World War I provided freighter operators with a new, reliable source for cargo.

The *Lakeland's* movements during the 1920 and 1921 seasons were not well documented, but in mid-November of 1920 she was reported downbound for Buffalo, New York, hauling grain (*Plain Dealer* 1920). Her routine during this period was to carry bulk freight during the main part of the shipping season, and then switch to transporting automobiles in the latter portion of the year (USDC 1926). It was not uncommon that she would still be out on the lakes as late as December. As an aside, in August of 1921 the *Lakeland* was involved in the rescue of a couple who had been adrift off of Cleveland Harbor in their small powerboat for more than a day (*Grand Forks Herald* 1921).

During the 1922 and 1923 seasons the *Lakeland* was reported making several deliveries of automobiles to Cleveland and Chicago (*Plain Dealer* 1922; *Courier* 1923). A photograph dated to the early 1920's shows the *Lakeland* tied up at the Port of Cleveland after unloading a shipment of cars (Van Harpen 2006:24). She also serviced Detroit and Milwaukee during this period (*Door County Advocate* 1924a). Late in the 1922 she was forced to seek shelter from a storm in the Manitowoc, Wisconsin, harbor while enroute from Detroit to Chicago with "several hundred" Jewwett automobiles (*Door County Advocate* 1922b). The Jewwett automobile was manufactured between 1922 and 1926 by another small Great Lakes manufacturer, the Paige-Detroit Motor Car Company of Detroit, Michigan. The following year, she was again forced into Manitowoc Harbor by a late-season storm (*Door County Advocate* 1923). By the close of the 1923 season it was reported that the *Lakeland* and *Clifton* had jointly made 97 trips carrying a total of 23,000 automobiles (*Door County Advocate* 1923).

During the off season she underwent a major overhaul in the Port of Cleveland, totaling \$38,000.00 (USDC 1926:11, 27, 28). Her boiler room was moved to a lower deck, a watertight bulkhead was added between the new boiler room and the hold, and two brand new Scotch boilers were installed (USDC 1926:11, 27, 28). The old pilot house was also replaced during this period, and repairs were made to the ship's ballast pump (USDC 1926:11, 27, 28, 109). Inspectors with the U.S. Steamboat-Inspection Service made multiple visits to the ship during this refit, and as part of her annual inspection (USDC 1926:26-27). The hull inspector reported finding multiple cracked frames, which he ordered repaired or replaced, and he also found that a concrete floor had been over the old metal floor of the lower hold, directly above the ballast tanks (USDC 1926:26-27). Despite this welter of re-enrollments that followed during the 1924 season, none of these documents mentioned the structural changes and repairs made to the vessel at the beginning of the year.

In March of 1924, the *Lakeland* was once again enrolled under new ownership; the Thompson Transit Corporation, Mentor Special District, Lake County, Ohio (Bureau of Navigation 1924a). G.G. Moriarty was assigned as the new Master (Bureau of Navigation 1924a). The Thompson Transit Corporation was another corporate entity associated with Merwin S. Thompson, established in 1924 (USDC 1926:3). That same year, the Thompson Transit Corp. took over the assets of the Tri-State Transit Corp. and assumed a \$165,000 mortgage on the *Lakeland* (USDC 1926:3). One month later, she was re-enrolled for a "service change"; passenger service was removed from her papers (Bureau of Navigation 1924b). A series of four enrollment addenda were also made over the course of the 1924 season, each one updating the Ship's Master. On 25 April at the Port of Cleveland Captain John T. McNeely was listed as Master (Bureau of Navigation 1924b). On 4 October at Detroit, the Ship's Master was Captain Henry L. Laffrey (Bureau of Navigation 1924b). Three days later, at the Port of Chicago, Captain Frank A. Elleson was at the helm, and on 14 October Captain J.T. McNeely had returned as Master at Detroit (Bureau of Navigation 1924b).

At some point in the fall of 1924, the *Lakeland* went into drydock at Detroit to repair a twisted rudder stock, and inspections of the repaired rudder and the entire hull were conducted at this

time (USDC 1926:30). Although she had been profitable for several years, the 1924 shipping season had been a difficult one for the *Lakeland*; she reportedly operated at a net loss of over \$12,000 that year (USDC 1926:14). This loss may have reflected the cost of the refit and numerous repairs undertaken during 1924.

The Sinking of the *Lakeland*: First Accounts

The *Lakeland's* final voyage took place at the close of the 1924 season, in late-November and early-December. Initial reports of that journey and the vessel's final moments disagreed on significant points, and omitted important details, however. These and other contradictions in the crew's story of the *Lakeland's* last trip quickly took on greater significance in the aftermath of the vessel's sinking, as suspicions grew regarding the true cause of the incident. A series of investigations and trials followed in which the crews' accounts of the sinking were challenged, and the ship's insurers attempted to prove that the vessel had been intentionally scuttled by the financially unstable Thompson Transit Corporation. This section presents the initial, somewhat flawed, accounts of the incident. A later section provides corrections to these early reports based on testimony and evidence presented during the legal storm that raged on through 1927.

On the upbound leg of the *Lakeland's* last trip of the 1924 season, she hauled 120 automobiles from Detroit to Chicago (*Door County Advocate* 1924a). Before arriving in Chicago, however, she called at Milwaukee to unload part of her cargo and take on a few additional cars bound for Detroit (USDC 1926:31). At Chicago, she again delivered some of her load and picked up another shipment of cars and a "tractor engine" (possibly a stationary steam engine) for Detroit (USDC 1926:31, 63). Initial reports of her return journey are somewhat contradictory, however.

Her cargo on that last trip consisted of automobiles and a stationary steam engine, but the precise number of vehicles onboard remains unclear. One source states that after off-loading at Chicago she turned around with a "light load" of "40 Nash and Kissel cars" making for an unspecified winter port (*Door County Advocate* 1924a). Another report of the sinking claimed that the *Lakeland* had been carrying 50 automobiles (*New York Times* 1925a). A third article claimed that "her decks [were] full of new automobiles," but this was clearly an exaggeration (*Daily Tribune* n.d. [1924]). Other sources put the number of autos in the *Lakeland's* hold somewhere between 19 and 30 vehicles (USDC 1926:31, 63).

In any case, The Nash Motor Company was established when Charlie Nash, former president of General Motors, left that company and purchased the Jeffery Motor Company of Kenosha, Wisconsin (Quandt 1998:41). By 1924, the Nash Motor Co. maintained factories in both Kenosha and Milwaukee, Wisconsin, and later became the American Motors Corporation (Quandt 1998:41-49). The Kissel Motor Car Company was established in 1906 in Hartford, Wisconsin, but by 1924 the company was also producing vehicles at a plant in Milwaukee (Quandt 1990, 1998:84-108). The Kissel Co. was known for producing high-end personal cars such as the Kissel Speedster, affectionately named the "Gold Bug," that became the car of choice for period cultural icons such as Fatty Arbuckle and Amelia Earhart (Quandt 1990). The firm also produced many utility vehicles such as ambulances, funerary cars, and fire engines (1998:84-

108). The Kissel cars aboard the *Lakeland* were fitted out as “show cars” and it is possible that they were to be delivered to Detroit for the annual auto show that would open in January of 1915. The *Lakeland* was already scheduled to make a stop at Detroit during its return voyage to deliver the vehicles picked up at Milwaukee, and to load additional cars bound for her homeport of Cleveland (USDC 1926:14). None of the early reports mentioned the small number of Rollin automobiles that were later discovered in the hold of the *Lakeland*. These vehicles were built by Rollin White’s short-lived, Cleveland-based car company between 1923 and 1925.

The *Door County Advocate* (1924a) claimed that the vessel had been suffering from persistent but manageable leaks, and when rough seas threatened during the return trip the captain decided to bring her into the Sturgeon Bay Canal to wait out the storm (*Door County Advocate* 1924a). On the morning of 3 December, despite continued warnings of bad weather, the *Lakeland* steamed out of the canal. A second source, the *Daily Tribune* (n.d. [1924]) reported that the *Lakeland* had left Chicago on 2 December she encountered heavy seas on Lake Michigan north of Chicago and “some of the steel plates [of her hull] buckled” causing a leak (*Daily Tribune* n.d. [1924]). The ship’s pumps were able to keep up with the leak, but the Captain decided to seek shelter in the Sturgeon Bay Ship Canal to await calmer weather. Believing the storm had passed, the captain weighed anchor in the early morning of 3 December, but encountered “stiff northwest winds and seas” (*Daily Tribune* n.d. [1924]). According to both of the available primary newspaper reports, the minor leak worsened after the ship’s departure from the Sturgeon Bay canal (*Daily Tribune* n.d. [1924]; *Door County Advocate* 1924a). Her pumps could no longer keep pace with the leak, and one of the holds rapidly filled. Captain McNeely turned about and made for shallow water.

At 10:00 am, a lookout at the Sturgeon Bay Coast Guard station observed the *Lakeland* in apparent distress, although no actual distress signal had been received (Anderson 1924). The Coast Guard watchman also reported that two other vessels in the vicinity of the *Lakeland* were heading toward her location. Initial reports stated that the ship’s engine could no longer provide motive power and still meet the power demands of her pumps when it was approximately nine miles east of the Door Peninsula, but this was later corrected to a distance of less than five miles (*Daily Tribune* n.d. [1924]; *Door County Advocate* 1924a, 1924b). By that time, the weather had calmed and the captain ordered the majority of the crew to escape in the ship’s life boats, while he and four others remained on-board (*Daily Tribune* n.d. [1924]; *Door County Advocate* 1924a). Two private vessels, the *Ann Arbor No. 6* and the *Cygnus* (aka *Sygnus*), arrived on the scene shortly after deployment of the first life boats (*Daily Tribune* n.d. [1924]; *Door County Advocate* 1924a). A U.S. Coastguard cutter out of Sturgeon Bay Canal station reached the sinking vessel at 10:55 am, and they found one lifeboat in the water with five crewmembers aboard; Captain McNeely and the remaining four crew members. The other 22 crewmembers were already aboard the *Ann Arbor No. 6* (Anderson 1924).

After bringing aboard the last evacuees, Captain R. Anderson of the U.S. Coastguard discussed the possibility of towing the foundering vessel to shallow water with Captain McNeely and the captain of the *Cygnus*, who was willing to make the attempt (Anderson 1924). McNeely felt that the ship was already too far gone, however, and advised against it (Anderson 1924). Fifteen minutes later, at 11:30 am, the *Lakeland* abruptly went down (Anderson 1924). Observers

reported that her stern went under first, and both the *Door County Advocate* and Captain Anderson reported that the hull probably “telescoped” or broke in two (Anderson 1924; *Daily Tribune* n.d. [1924]; *Door County Advocate* 1924a). Portions of the upper cabins and several of the ship’s hatches were blown 40 feet in the air by the force of air pockets trapped in the hull as it went down (*Door County Advocate* 1924a). It was also believed that the ship’s boilers had exploded during her decent, further splintering the vessel (*Door County Advocate* 1924b). Remarkably, a crewman aboard the *Ann Arbor No. 6* named Elliot Jacobson managed to take a series of photographs of the *Lakeland* spanning the nearly two hours between the arrival of the *Ann Arbor No. 6* and the sinking of the *Lakeland* (USDC 1926:139-140). The *Lakeland* tragedy is thus one of the earliest Great Lakes losses to be photographed.



Figure 26. Photographs detailing the sinking of the steamer *Lakeland*.

The entire crew of the *Lakeland* escaped, but she took her cargo of automobiles to the bottom of the lake; a depth of approximately 200 feet. Very few intact items were found floating in the vicinity of the wreck, but some material later washed ashore near Algoma, Wisconsin (Anderson 1924; *Door County Advocate* 1924b).

A week after the sinking, attorney S.D. Foster arrived in Sturgeon Bay, Wisconsin, to investigate the incident on behalf of the insurance underwriters liable for covering the vessel’s loss (*Door County Advocate* 1924b). He allegedly told local reporters that “as far as he knew, there would be no disputing of claims for loss of ship and cargo” insured for \$350,000.00 (*Door County Advocate* 1924b; *New York Times* 1925a). The same newspaper also observed that “having sunk

in 210 feet of water, no attempt will be made to salvage any of the forty cars” (*Door County Advocate* 1924b).

Suspicious Circumstances: The First Field Tests of Helium Mixed-Gas Techniques for Deep-Sea Diving to Investigate the Wreck of the *Lakeland*

Several months after Foster’s initial investigation, reports surfaced that a consortium of parties with an interest in the *Lakeland* intended to investigate the wreck site, despite the great depth at which it lay (*Door County Advocate* 1925a; *New York Times* 1925a). Apparently, Foster had collected statements from local fishermen claiming that the *Lakeland* was running in circles immediately before sounding its distress whistle, and then sank in calm waters. These circumstances raised the insurers’ suspicions (*New York Times* 1925a). The consortium that backed the investigation included the National Association of Insurance Underwriters of New York, the Salvage Association of Cleveland, Ohio, and the New York-based maritime law firm of Bigham, Englar, and Jones (*Door County Advocate* 1925a; *New York Times* 1925a).

During the summer of 1925, numerous unsuccessful attempts were made to relocate the wreck site (Creviere 1997:273). Finally, a local fisherman, Albert Kalmbach, succeeded in snagging the sunken vessel using a drag device (Creviere 1997:273). Once the wreck had been relocated, the insurers’ consortium contracted with Overseas Salvors, Incorporated, of New York, to conduct the underwater operations. The company was willing to take on the proposed project, but only if they could secure the assistance of U.S. Navy diver Clarence L. Tibbals (Howell 1925:574). The company explained that because of the technical challenges and dangers posed by the extreme depth of the investigation, “it would be useless to undertake the operations unless the Navy department would give leave to Clarence Tibbals, who had a vast experience in deep sea diving” (Howell 1925:574).

When Tibbals was contacted by the salvage company, he was stationed at the Bureau of Mines Experimental Station in Pittsburgh, Pennsylvania. He had been assigned by the Navy to work on a joint research project with the Bureau of Mines involving the use of helium in underwater diving (*Door County Advocate* 1925a). Prior to the 1920s, divers relied exclusively on compressed air to sustain them underwater. The naturally occurring nitrogen in compressed air caused two major problems during deep dives, however. It caused decompression sickness – “the bends” – when divers ascended too quickly and nitrogen, formerly held in solution in the diver’s body by the increased pressures experienced underwater, came out of solution and formed damaging and potentially deadly gas bubbles in the blood stream and organs (Phillips 1998). Nitrogen was also identified as the source of the impaired perceptual and mental function experienced during deep dives, referred to as nitrogen narcosis (Phillips 1998:167-168).

The possibility of using helium as a component of a breathable mixed-gas medium had been proposed as early as 1919, but no published experiments had been conducted (Yant 1927:4; End 1937). Researchers at this time believed that replacing nitrogen with helium would reduce the problem of oxygen toxicity at great depths, as well as the amount of time divers would be required to spend in decompression after deep dives (Sayers et al. 1925). It was later discovered

that helium prevented the serious problem of nitrogen narcosis during deep dives, but it also introduced new challenges. The U.S. Navy became interested in experimenting with helium as military divers were called on to conduct work at ever greater depths, often as a result of maritime accidents involving submarines. The Navy approached the Bureau of Mines as partner in this research because the U.S. Bureau of Mines maintained near-monopoly control over the U.S. helium supply, considered a rare and strategic resource in this period (Phillips 1998:168). They also had active research programs in the development of self-contained breathing apparatus (for mine rescue work), and in bariatric science (related to pressurized work environments such as those used in underwater caisson and tunnel excavation). The joint project began in early-1924 at the Bureau of Mines Pittsburgh Experiment Station.

Prior to the *Lakeland* dives, a decompression timetable for use with a helium-enriched breathing mixture had been developed by the researchers at the Bureau of Mines Pittsburgh Experiment Station. Decompression tables were critical because they were used to time divers' ascents from the depths in order to prevent the debilitating and potentially deadly problem of decompression sickness; "the bends". The experimental decompression tables developed by the Navy and Bureau of Mines was based solely on lab tests using guinea pigs and dogs, and it had not been field tested on humans (*Door County Advocate* 1925a; *Buffalo Evening News* 1925; Sayers et al. 1925; Sayers and Yant 1926; Creviere 1997:273; U.S. Navy 2000). There is one brief report of Navy diver Clarence Tibbals diving to a depth of 150 feet using a helium mixture in 1924, but it is unclear whether this was an actual open-water field test or a simulated "dive" conducted in a pressure chamber (Penzias and Goodman 1973:32).

When Tibbals received the invitation to participate in the investigation of the *Lakeland*, he saw the opportunity it offered and quickly requested leave to work on the project from his superiors in the Navy (U.S. Bureau of Mines 1925a). The salvage company had agreed to allow Tibbals to "try out any new data we see fit on their divers" (U.S. Bureau of Mines 1925a). He suggested to his colleagues at the Bureau of Mines that the *Lakeland* investigation would provide "a very good chance to try out some of the decompression data, also helium for treatment of bends" (U.S. Bureau of Mines 1925a). He emphasized the "advantages we will gain through giving our data a service trial", and argued that "we must get some of our data where it is correct for men and this is a good way to do it" (U.S. Bureau of Mines 1925a). Dr. R.R. Sayers, who had been leading the research project for the Bureau of Mines, agreed with Tibbals, that the project offered a timely opportunity (Bureau of Mines 1925b).

By mid-June, Tibbals had made arrangements for himself and two other Navy divers stationed at the Pittsburgh Experiment Station, G.F. Smith and Joseph Eiven (aka Eibon), to join the salvage company team. He also convinced William Yant, a chemist at the Pittsburgh Experiment Station and junior researcher on the project, to accompany the divers on the expedition. Finally, Tibbals was able to requisition medical supplies and "four bottles of helium, two gas masks (mine-rescue) and one oxygen breathing apparatus" (U.S. Bureau of Mines 1925c). In the same letter, Tibbals informed Dr. Sayers that "we will get oxygen on the job" (U.S. Bureau of Mines 1925c).

Tibbals, who had an immense amount of experience in deep sea diving and had established the Navy's diving school at Newport, Rhode Island, would lead the project's dive team. The team itself consisted of three employees of Overseas Salvors – Harry “Big Harry” Reinhartsen, H.A. Grove, and S.J. Drellishak (aka Drillishak) – and Tibbals' two Navy comrades – G.F. Smith and Joseph Eiven (*Door County Advocate* 1925a). Drellishak was himself a former Navy diver who had made a record-setting, compressed air dive to 306 feet during a 1915 effort to salvage the Navy's F-4 submarine from the bottom of Honolulu Harbor (*Door County Advocate* 1925a; Creviere 1997:273). The experienced dive team would be the first men to field test the new helium mixture and decompression tables developed by the Navy and Bureau of Mines (*Door County Advocate* 1925a; *Buffalo Evening News* 1925). Despite the fact that the Navy divers involved in the project were officially “on leave” and it was not a formal Navy mission, Navy and Bureau of Mines officials clearly saw the *Lakeland* investigation as an opportunity to field test and perhaps refine the new diving techniques (*Door County Advocate* 1925a; U.S. Navy 1925; Penzias and Goodman 1973:23).



Figure 30: Salvage barge *John W. Chittendon* at the Lakeland wreck site. National Archives and Records Administration Collection.

The salvage barge *John W. Chittendon* was called in to support the mission, and before leaving the Port of New York it was equipped with a diving platform, or stage, as well as a decompression chamber on loan from the Brooklyn Navy Yard (Howell 1925:574; USDC 1926:312, 331). If the untested decompression tables proved inaccurate, or other emergencies arose, the chamber would be a critical life saving device (*Door County Advocate* 1925a). The

team was also equipped with a new, high-intensity, electric underwater light developed by Westinghouse Electric Company (*Daily Star* 1925). The light was rated at 1,000 watts and allegedly lit the murky interior of the wreck “as bright as the average city living room...the men could even read the figures on the small gauges” (*Buffalo Evening News* 1925).

In mid-August, the *Chittendon* arrived from New York City, and several days were required to fully outfit it and anchor it in position at the wreck site (*Door County Advocate* 1925b; Creviere 1997:273). Over the next three weeks, from 20 August to 11 September, the dive team made multiple dives on the wreck to conduct their investigations (*Door County Advocate* 1925a, 1925b, 1925c). As the mission reached the stage of actually entering the broken hull of the *Lakeland*, each descent involved two divers; the first operated as lead diver and the second as an assistant or “tender” (*Door County Advocate* 1925a, 1925b, 1925c). The assistant diver remained outside of the wreck and ensured the safety of the lead diver, who penetrated the interior of the sunken vessel and risked having his supply lines tangled or damaged.

William Yant reported back to Dr. Sayers that as of 26 August, there had been no cases of “the bends” among the dive team (U.S. Bureau of Mines 1925e). In a letter dated 2 September, however, Yant stated that “we have had one slight case of cramps in the elbow which...was successfully treated” (U.S. Bureau of Mines 1925f). This probably refers to U.S. Navy diver Joseph Eiven who reportedly suffered a case of “the bends” and had to be placed in the *Chittendon*’s decompression chamber in order to alleviate his condition (*Door County Advocate* 1925b). Yant’s letter of 2 September also mentioned that “now and then a few cases of itch occur, but from what I can learn these go with the business” (U.S. Bureau of Mines 1925f). The “itch” Yant described was likely a skin rash associated with mild decompression sickness. By the final week of the investigation, all five divers had suffered from at least one bout of “the bends” (*Door County Advocate* 1925c). Newspaper reports claimed that none of these cases were serious, but their occurrence suggests that there were still problems with the decompression tables developed at the Pittsburgh Experimental Station. In spite of these difficulties, the first effort to investigate a Great Lakes wreck at such a great depth was deemed a success, and the salvage crew was treated to a farewell party and dance at Sturgeon Bay’s Grasshopper pavilion (*Door County Advocate* 1925c; *Buffalo Evening News* 1925). The total cost of the diving operation was estimated at \$60,000.00 (USDC 1926).

Despite the extensive documentation related to the project, it appears that no final report on the experimental portion of the *Lakeland* investigation was issued by the Bureau of Mines (U.S. Bureau of Mines 1927). In the absence of such a document, the precise application of helium by the *Lakeland* divers remains unclear. Available evidence points equally to three possibilities; mixed with compressed air to create a breathing medium used during dives, specifically for the decompression stage of the dives, or during top-side decompression in the *Chittendon*’s chamber. It is hoped that additional research will clarify the methods employed during these experimental dives, but what made the *Lakeland* investigations innovative was that they pioneered the use of helium in the context of actual working dives. All previous attempts to employ helium had been limited to laboratory “bench tests” involving animals, simulated dives in hyperbaric chambers, and perhaps controlled “wet test” dives at sea.

The investigators tried to maintain a degree of secrecy regarding their findings until 11 September 1925, when their attorney made an official announcement. William Day stated that the dive team had found evidence of barratry; they claimed the *Lakeland's* crew had intentionally opened certain valves in order to cause her to take on water and sink (*Sheboygan Press* 1925; *Manitowoc Herald-News* 1925; *Daily Star* 1925; *Buffalo Evening News* 1925). Diver “Big Harry” Reinhartsen was the first to reach the aft sea-cock valve that was allegedly left open (*Buffalo Evening News* 1925). This and other evidence contradicting the initial reports of the ship’s sinking was later presented in agonizing detail by the insurance companies’ lawyers to support their claim that the Thompson Transit Co.’s owners ordered the crew to scuttle the ship, and were thus not covered for the loss of their ship. The revelations of these court hearings are described below.

Before discussing the legal trials that came on the heels of the investigation, it is important to note a related watershed event in the development of American deep-sea diving that occurred just two weeks after the end of operations on the *Lakeland*, and further illustrates the significance of the underwater work conducted during the *Lakeland* investigation. On 25 September 1925, the U.S. Navy submarine U.S.S. S-51 was struck by a commercial vessel east of Block Island (lying between Long Island, New York, and Martha’s Vineyard, Massachusetts) and sank in 130 feet of water with 33 crewmen aboard (Ellsberg 1929). As the nation anxiously awaited word on the fate of the sub’s crew, a rescue and salvage team was rapidly assembled, including four of the five *Lakeland* divers (*New York Times* 1925b; USDC 1926:293, 313, 317, 324). The S-51 salvage team also included Clarence A. Tibbals of the *Lakeland* operation, and W.F. Loughman of the Bureau of Mines Experiment Station at Pittsburgh (*New York Times* 1925b). The Naval facility in New London, Connecticut, dispatched the submarine salvage vessel, the *U.S.S. Falcon*, to support the S-51 salvage operation. This vessel, previously under Clarence Tibbals’ command, had been outfitted with a helium unit designed at the Bureau of Mines Experiment Station for treating “the bends” (Bartholomew and Milwee 1990:38).

There is also indirect evidence that Lieutenant Harry Hartley, Commander of the *U.S.S. Falcon* during the S-51 salvage operation, made a formal request for permission to use the decompression timetables used for the *Lakeland* dives. A letter dated 24 October 1925 from Captain G.H. Rock, Assistant Chief of the Navy Bureau of Construction and Repair, to the Director of the Bureau of Mines stated that “several days ago the Bureau received from a Naval Vessel a request for permission to use, in certain diving operations, decompression tables stated to have been developed by the Bureau of Mines” (U.S. Navy 1925). The Navy’s Bureau of Construction and Repair had no record of these tables, and the letter went on to explain that:

It has since been learned from Dr. Sayers of the Bureau of Mines, that such tables have been developed in conjunction with the diving experiments with helium gas now being conducted at the Experiment Station, and were successfully used by the navy and civilian divers, who recently made an inspection of a sunken Great Lakes Steamer.

U.S. Navy 1925

Captain Rock requested any information on the decompression tables and a report on the *Lakeland* dives (U.S. Navy 1925). Given the date of Captain Rock's letter and his indirect references to "a request from a Naval Vessel" and "certain diving operations", it is almost certain that the query originated from the dive team assigned to the *U.S.S. Falcon* working on the S-51 rescue/salvage. Tibbals and Loughman probably discussed the experiments with the officers in charge of the S-51 mission, precipitating Rock's request to the Bureau of Mines. D.R. Lyon, Acting Director of the Bureau of Mines, responded that "the work at Pittsburgh has not progressed far enough to give a revised set of tables...and anything done with them would be in the nature of investigative work", but offered a brief explanation of the difference between the tables used by the *Lakeland* divers and the standard U.S. Navy decompression tables (U.S. Bureau of Mines 1925d). It remains unclear whether or not the S-51 dive team used the Bureau of Mines' experimental decompression tables.

The S-51 dive team discovered that all of the crewmen trapped on the sub had perished, but diver Harry Reinhartsen once again distinguished himself by recovering the first of many bodies from the sunken vessel (*New York Times* 1925b). After a long and dangerous effort, the salvage team eventually succeeded in the complex task of raising the wreck from the bottom (Ellsberg 1929). Diver Frank Smith, who also dove on the wreck of the *Lakeland*, recovered the S-51's bell and was allowed to take it back to Pittsburgh in recognition of his courageous work during the salvage phase of the project (Ellsberg 1933).

The results of the diving tests conducted during the *Lakeland* investigation were never formally published, but detailed newspaper reports, official records, and descriptions given by the divers in later court testimony make it clear that they had in fact tested the helium mixture researched by the Navy and Bureau of Mines (*Door County Advocate* 1925a; *Buffalo Evening News* 1925; U.S. Navy 1925; USDC 1926; End 1937:712). Relatively little additional research into the use of helium was conducted by the Navy after establishing its own Experimental Diving Unit in 1927 (Phillips 1998:169; although see Penzias and Goodman 1973:32 on a series of dives using helium by the Navy Experimental Diving Unit in 1929). The Navy's initial lack of enthusiasm for further helium-related experiments may have been informed by the apparent difficulties with "the bends" experienced by the *Lakeland* dive team in 1925.

A Milwaukee, Wisconsin, researcher was convinced of the usefulness of helium in deep diving, however, and continued to experiment with the technique (Phillips 1998:169). Dr. Edgar End was a physiologist at Marquette University, and an expert in hyperbaric medicine (Phillips 1998:169). Dr. End calculated a new set of helium-oxygen decompression tables based on the observation that helium required divers to begin their decompression stops at much greater depths than standard compressed air (Phillips 1998:169). After testing the new tables on himself, he assisted another diver, Max G. Nohl, in setting a new world's record for open water deep diving by descending to a depth of 420 feet in Lake Michigan on 1 December 1937 (Phillips 1998:169). Using Dr. End's tables to time his decompression stops during the ascent, Nohl suffered no ill effects during the record-setting dive (Phillips 1998:169). The previous record broken by the

End-Nohl dive was actually the one set in 1915 by Steven Drellishak (one of the *Lakeland* divers) when he worked on the U.S.S. F-4 salvage operation.

As a result of this record-shattering dive, “the diving world came to Milwaukee” to learn about Dr. End’s research and Nohl’s designs for deep-sea diving equipment, and the city has hosted an important diving research and equipment supply industry ever since (Boyd 2014:pers. comm.). The Navy’s Experimental Diving Unit also took a renewed interest in helium-oxygen following the End-Nohl dive. The Navy’s first high-profile use of the mixture took place in 1939, during rescue efforts on the sunken U.S.S. *Squalus* (Phillips 1998:170). The submarine had gone down in 240 feet of water off the coast of New Hampshire, and a diver using the helium-oxygen mixture was able to guide a rescue chamber to one of the sub’s hatches allowing 33 crewmen to escape. The U.S.S. *Squalus* dive team also immediately noticed the lack of impaired mental function, known as nitrogen narcosis, that typically affected deep-sea divers using standard compressed air (Phillips 1998:170). The so-called heliox mixture that was first field tested on the *Lakeland*, and the decompression calculations made by Milwaukee’s Dr. Edgar End, opened the doors to dives of much greater depths in the following decades, and the same principles and techniques are now in regular use by military, commercial, and recreational divers.

The *Lakeland* Goes to Court: Two Years of Legal Limbo

The *Lakeland* and her crew became entangled in a series of hearings and court cases that dragged on through 1927. A brief timeline and summary is offered here to clarify the sequence of events. The first official inquiry into the circumstances of the wreck was conducted by investigators working for the United States Steamboat-Inspection Service (USSIS) in January and February of 1925. Following the public announcement of the results of dives on the wreck of the *Lakeland*, the USSIS investigators threatened to seek indictments of three members of the crew on federal charges (*Manitowoc Herald-News* 1925). No other reports or actual records of such charges could be located, so it is unclear whether they were ever pursued. The first civil case involving the *Lakeland* took place in the U.S. District Court for the Northern District of Ohio, Eastern Division in October 1925. The issue in this first trial, and those that followed, was simply whether or not the owners of the *Lakeland* had ordered the crew to arrange to sink her, in which case the insurance companies were not required to pay out on the various policies that covered the vessel. Due to a deadlocked jury, the judge declared a mistrial and a retrial was held in February 1926 in the same court (*Door County Advocate* 1926a). The second civil trial led to a ruling in favor of the *Lakeland*’s owners, but the insurance companies filed an appeal to the U.S. Circuit Court of Appeals for the Sixth District (USCCA 1927). The appellate court agreed with the insurance companies and ordered yet another retrial to be held in the U.S. District Court for the Northern District of Ohio, Eastern Division (USCCA 1927). Neither newspaper reports nor official transcripts of this third trial could be located, however, leaving the outcome of the entire case unclear. It is possible that the parties reached an out-of-court settlement before the third trial took place, but it is surprising that, given the high profile nature of the case, such a settlement was not reported. In terms of its bearing on the wreck as a historic site, however, the final resolution of the case is much less useful than the details of the vessel and its final voyage that were revealed during testimony.

The first official investigation was conducted by the USSIS immediately after the sinking, and in January and February of 1925 the inspectors convened a “trial” (more of a hearing) which found Captain McNeely guilty of violations of Section 4429 Revised Statutes of the Marine Safety Code (USSIS 1925a, 1925b). As punishment, McNeely’s captain’s license was suspended for one year (USSIS 1925b; USDC 1926:18). The *Lakeland’s* Chief Engineer, James W. Hidden, also had his license suspended (USDC 1926:18). Interestingly, both men continued to be employed by the Thompson Transit Co. during the period of their suspensions, and despite not being allowed to work aboard ship they continued to receive their former salaries (USDC 1926:18).

In October of 1925, the *Lakeland* case (referred to in court records as Central National Bank Savings and Trust Co. et al, Plaintiffs, versus Automobile Insurance Company of Hartford, et al, Defendants) had its first hearing in the U.S. District Court for the Northern District of Ohio, Eastern Division (*Plain Dealer* 1925a, 1925b; *Door County Advocate* 1925e). The unusual nature of the trial, including the novel use of evidence collected by deep-sea divers, attracted international attention (*Plain Dealer* 1925a). The *Door County Advocate* (1926b) later noted that it was “one of the first ‘scuttling’ cases to appear in the courts along the Great Lakes since the 1870s.” An editorial in a Liverpool, United Kingdom, newspaper opined that the *Lakeland* case may have implications for two similar cases in the British courts (*Plain Dealer* 1925a).

The 15 insurance companies with liabilities in the case, including such well-known firms as Aetna Insurance Co. and Northwestern Fire and Marine Insurance Co., had agreed to consolidate their individual claims into a single case under the Automobile Insurance Company of Hartford. The Thompson Transit Corporation (TTC) had gone into financial receivership (essentially bankruptcy) shortly after the sinking of the *Lakeland* (USDC 1926:14). The troubled firm was thus being represented in the case by the Central National Savings and Trust Co. which was serving as the receiving institution for TTC’s assets and debts. The defendants argued that the owners of the TTC had directed the *Lakeland’s* crew to scuttle the vessel, and were thus not entitled to the pay-outs on their insurance policies totaling \$350,000 for both the ship itself and so-called “disbursement” coverage to protect the company from associated operating losses in the event of the total loss of a vessel (USDC 1926). Their primary evidence consisted of divers’ testimony regarding two sets of valves – the aft sea-cock valve and the port bilge valve – both of which were found to be open (*Plain Dealer* 1925a). The divers managed to take measurements of the valve stems in question using pieces of metal and wood to prove that the valves were in fact open, and these objects were submitted as evidence.

Initially, the plaintiffs claimed that the ship had been lost due to “perils of the sea” essentially consistent with the initial newspaper reports of the wreck. Following the release of the results of the divers’ examination of the wreck, they added to their statement that the owners of the TTC had “no knowledge as to said valves being open, but allege that if they were open...it was by reason of the negligence of the master mariner or engineer...which are among the perils and risks insured to” (USDC 1926:2e-2f).

Detailed records of this first trial could not be located, but newspaper reports and testimony from later trials indicates that both parties brought forward numerous witnesses testifying on a wide array of subjects; from eyewitnesses who were aboard the boats that responded to the *Lakeland's* distress whistles on the night of the sinking, to the Coast Guard commander who arrived at the scene just before the vessel went down, to experts on the condition of the Chicago Municipal Pier, the location of obstructions in the Sturgeon Bay Canal, and the construction materials and methods used in early steel-hulled freighters (USDC 1926). It is worth mentioning that several of the divers who examined the wreck were unavailable during this first trial because they were serving on the dive team attempting to rescue/salvage the S-51. Unfortunately, in the wake of the evidence and testimony, the jury became deadlocked and the judge declared a mistrial with no verdict reached in the case.

When the jury in the first trial could not reach a decision, the entire case was retried in the same court in February of 1926 (*Door County Advocate* 1926a; *Plain Dealer* 1926; *Door County Advocate* 1926b). Records from this trial, including transcripts of testimony, have been preserved at the National Archives and Records Administration (NARA) regional facility in Chicago, Illinois. The insurance companies' argument as defendants in this trial was substantially similar to their position in the original hearing. They claimed that the owners of the TTC had ordered the sinking of the *Lakeland* and were thus not entitled to the pay-outs of the insurance policies they had taken out on the vessel.

The insurance companies' lead lawyer, William Day, outlined the case in his opening remarks as follows: the Thompson Transit Corporation was in financial trouble in 1924, racking up an operating loss of approximately \$250,000 (USDC 1926:2a-2b). In fact, they were in arrears with their premium payments on the insurance policies covering the *Lakeland* for a period of time. The policies were actually cancelled and then reinstated after overdue balances were paid (USDC 1926:16). A man named Riley, who was involved in the management/ownership of the TTC, met with Captain McNeely of the *Lakeland* in September of 1924 (USDC 1926:2b). Shortly after this meeting, the vessel's Chief Engineer was reassigned and a new Chief Engineer, James W. Hidden, joined the *Lakeland* crew (USDC 1926:2b). Hidden had previously served with McNeely on other vessels (USDC 1926:2b). The insurance companies' dive team found a 10" sea-cock valve open in the stern of the *Lakeland*, and in such a state would have allowed water to enter the vessel more rapidly than the ship's pumps would be able to remove it (USDC 1926:2e). A U.S. government survey of the Sturgeon Bay Canal turning basin found no rocks where the *Lakeland* crew reported striking a hard obstruction when they attempted to shelter from rough seas on the night of 2 December 1924 (USDC 1926:2f). When the *Lakeland* left Chicago Harbor on 1 December 1924, they had allowed several feet of water into the vessel's lower hold because the ship needed additional ballast due to the very light load it was carrying (USDC 1926:2g). Before leaving the Sturgeon Bay Canal on the morning of 2 December 1924, the crew claims to have "sounded" the water levels in the ballast tanks and checked the water levels in the hold, and no evidence of leaks was observed (USDC 1926:2h). The crew reported that it noticed that the ship was listing approximately one hour after leaving Sturgeon Bay (USDC 1926:2h). The captain said he turned the boat back toward Door County, Wisconsin, and when the freighter *Cygnus* was spotted in the vicinity, the *Lakeland* sounded her whistle four times – a standard

distress signal (USDC 1926:2h). Despite having a wireless radio onboard the *Lakeland*, the captain never ordered a radio distress call to be sent (USDC 1926:2h). Importantly, the crew of the *Cygnus* reported that as they approached the *Lakeland* it was bearing away from land and into deeper water, and continued that course for some time (USDC 1926:2i). The captain of the *Cygnus* offered the *Lakeland* a tow into shallow water, but Captain McNeely refused and dropped one of his anchors (USDC 1926:2i-j). After this offer of a tow, another three hours passed before the distressed vessel actually sank (USDC 1926:2i-j). Later, McNeely also refused a tow from another vessel that arrived on the scene, the *Ann Arbor No. 6* (USDC 1926:2i-j). The crew of the *Lakeland* escaped to the *Ann Arbor No. 6* in lifeboats, and one crewman rowed a separate boat from the sinking vessel carrying only the crew's baggage (USDC 1926:2j). Captain McNeely also evacuated the *Lakeland* but remained in a lifeboat tied to her side (USDC 1926:2k). Based on maritime law, he was thus still technically in command of his vessel, and the captains of the other vessels on the scene could not intervene without McNeely's assent (USDC 1926:2k).

The location of the sinking, and the refusal to allow her to be towed from that spot were critical to the defense's case. The position where the *Lakeland* eventually went down was conveniently just east of a steep escarpment on the bottom of the lake, where the depth of water increased from less than 100 feet to over 200 feet. While Day did not address it directly in his opening remarks, the chief difficulty that the defendants had to surmount was that they had no material evidence that laid the responsibility for the sinking squarely in the laps of the owners of the TTC. This was precisely what the jury would have to be convinced of, however, in order for the insurance companies to be released from their liability. The defense's case was entirely circumstantial in nature.

As in the first trial, both parties called an extraordinary array of eye-witnesses and experts to testify (USDC 1926). Testimony and argument ran on for six days (USDC 1926:425). The most salient testimony is excerpted below, but it is important to note that during the trial there were very few definitive facts established. The jury was only tasked with making a judgment regarding the question of whether or not there was adequate evidence to prove that the company owners were involved in the sinking of the ship. Few "facts" and other claims testified to during the hearings were directly confirmed or challenged during cross-examination. Rather, individual claims, even where they contradicted other testimony, were generally left to stand on their own merits. As such, the findings in the trial do not clearly resolve many of the nagging questions surrounding the incident.

Captain McNeely testified that there were only 19 cars in the *Lakeland's* hold when she left Chicago for Detroit, although other members of the crew reported slightly different numbers (USDC 1926:31). Because of the light load, the ship's ballast tanks were filled to capacity before departing Chicago, and additional ballast water was pumped into the otherwise empty lower hold through two "man holes" in the floor of the lower hold that opened into the "water bottom" (lower ballast tank) (USDC 1926:31). According to the captain, this was not an unusual occurrence when the ship was traveling especially light. Heavy seas greeted them as the ship left Chicago on 30 November, however, and they quickly returned to the shelter of the port. They encountered trouble approaching the municipal pier in Chicago Harbor, however, and the hull

was repeatedly slammed against the side of the pier by a powerful surge (USDC 1926:33-25). Even after successfully tying up, the surge continued to drive the ship against the pier.

The weather abated somewhat and the *Lakeland* once again left Chicago on 1 December, and headed north along the western shore. Bad weather resumed and the captain headed for shelter in the Sturgeon Bay Canal (USDC 1926:36-37). He attempted to tie up in the canal's turning basin, but in the course of maneuvering got hung up amid-ship on an obstruction (USDC 1926:36-37). After an hour of additional maneuvering he was able to free the vessel. The captain claimed that, based on the sound of the hull grating on the obstruction, it was rocky in nature. In the midst of attempting to free the ship, however, the engineer reported that the sea-cocks had become plugged with mud and he had to temporarily divert power from the engines to flush them out (USDC 1926:36-37). In the captain's original report of the sinking, he stated that while he did not know the cause of the sinking for certain, he believed that it was related to this incident in the turning basin. As a result, this issue received considerable attention during the trial.

The weather had improved by the following morning, so the *Lakeland* steamed out of the Sturgeon Bay Canal and resumed her course. Before getting under weigh, however, the crew once again checked the ballast tanks and the additional ballast in the lower hold, noting no leaks (USDC 1926:36-37). About an hour out of the canal, the ship's Mate notified the captain that the ship was listing to port. Captain McNeely claimed that he ordered the chief engineer to level out the ship, and went to inspect the ballast tanks and the water level in the lower hold (USDC 1926:40). When he observed that the water in the hold looked higher, he conferred with the engineer and confirmed that all valves were properly adjusted (USDC 1926:40).

The captain decided to turn back towards Sturgeon Bay (USDC 1926:40). The steamer *Cygnus* came into view and the *Lakeland* sounded a distress call by blowing the whistle four times. Captain McNeely stated that the *Cygnus* did not immediately turn in response to the signal, so he turned the boat about again and followed the other vessel further out into the lake (USDC 1926:40). Another vessel, the *Ann Arbor No. 6*, was in the vicinity and heard the *Lakeland's* whistle, at which point it changed course to intercept. By this time the *Cygnus* had also turned and was closing in on the *Lakeland's* position. Captain McNeely ordered the crew off the boat, but her growing list to port and the prevailing swell was making it difficult to lower the lifeboats. He dropped an anchor in order to reorient her perpendicular to the roll of the swell, hoping that this would make it easier to release the lifeboats (USDC 1926:41).

Once the entire crew had gotten off the ship and were safely aboard the *Ann Arbor No. 6*, the chief engineer and two crewmen rowed back to the *Lakeland* to assist the captain. McNeely asserted that he refused the offer of a tow from the *Ann Arbor No. 6* because he thought that the *Lakeland* had already taken on too much water and there was no secure anchor point for a tow line (USDC 1926:42-43). He did not mention the earlier offer of a tow from the *Cygnus* during his testimony. The captain boarded the lifeboat that had returned with the chief engineer and held fast to the *Lakeland* by a "painter line" (a thin rope) for 15-20 minutes before releasing it and rowing to the recently-arrived Coast Guard boat (USDC 1926:43). Fifteen minutes after McNeely cut free of the *Lakeland*, it sank (USDC 1926:43).

Other *Lakeland* crewmen who testified during the second trial included Edward Starkey (First Mate), Walter E. Houser (Watchman), Elmer Schoup (Deckhand), George Nelson (Porter), William Flaherty (Watchman), James A. Hidden (Chief Engineer), Alfred Viola (Coal Passer), and Dennis Tobin (Coal Passer). Mr. Starkey recalled that there were “25-30” cars in the hold when they left Chicago (USDC 1926:63). Mr. Schoup did not recall experiencing a severe “jar” when the boat struck bottom while in the Sturgeon Bay Canal turning basin, but he did remember seeing a member of the crew rowing a lifeboat full of baggage from the *Lakeland* to the *Ann Arbor No. 6* (USDC 1926:83). Chief Engineer Hidden’s testimony generally agreed with that of McNeely, and he described the measures he took to try to right the ship once the listing problem became apparent (USDC 1926:91-94). Mr. Viola stated that he had gone off shift at 9:15 AM the morning of the sinking, but had noticed the list to port and was too worried to sleep while back in his cabin (USDC 1926:101).

Former *Lakeland* Chief Engineer, Clarence Diersen, who was replaced by James Hidden shortly before the incident, was also called to appear. He was hired by the insurance companies to advise the dive team during the investigation of the wreck, and during the trial he gave detailed testimony on the operation of the *Lakeland*’s various pumping and ballast systems (USDC 1926:218-226). Frank Rice, who captained the *Lakeland* when she was still operating as the *Cambria*, testified regarding the method of opening the man-hole covers in the floor of the lower hold to allow additional ballast water into that compartment (USDC 1926:105). Charles Menke, a ship-builder who helped build the *Lakeland* (then the *Cambria*) at Globe Iron Works, testified to the brittle nature of the Bessemer steel used in the *Cambria* and other early steel-hulled vessels built in Cleveland (USDC 1926:108). Patrick Gerrity, foreman of the Detroit Shipbuilding Company, also described the problems they encountered with the *Lakeland*’s brittle hull plates when she was drydocked at their facility for repairs in 1924 (USDC 1926:108-109).

Members of the crew of the *Ann Arbor No. 6* were also called to testify. The *Ann Arbor No. 6*’s wireless operator, Elliot Jacobson, confirmed that the *Lakeland* did not send a radio distress call (USDC 1926:139). He also managed to take a series of photographs of the *Lakeland* spanning the nearly two hours between the arrival of the *Ann Arbor No. 6* and the sinking of the *Lakeland* (USDC 1926:139-140). These images were admitted as evidence and were frequently referred to in the trial. Prints and negatives of the photographs are still held in the collections of the National Archives and Records Administration’s regional facility in Chicago, Illinois. The First Mate of the *Ann Arbor No. 6*, Axel Fredericksen, testified that the *Lakeland* sank at 11:25AM, and the *Ann Arbor No. 6* immediately left the scene to deliver the rescued crew to Sturgeon Bay (USDC 1926:155). They reached the entrance to the Sturgeon Bay Canal at 12:05PM, approximately 35 minutes after departing the location of the wreck (USDC 1926:155). He was adamant that in the nearly two hours that elapsed between his vessel’s arrival at the scene and the eventual sinking of the *Lakeland*, the *Ann Arbor No. 6* could have succeeded in towing the *Lakeland* into shallow water (USDC 1926:155).

Captain Larsen of the *Ann Arbor No. 6* confirmed that his vessel was standing by the *Lakeland* from 9:50AM until she sank at 11:25 am, a span of one hour and 35 minutes (USDC 1926:196).

He discussed at length his efforts to get Captain McNeely of the *Lakeland* to accept the tow line that had been made ready by the *Ann Arbor No. 6*'s crew as they approached the other vessel's position (USDC 1926:196). Captain Larsen reiterated that he was not permitted to intervene without McNeely's permission while the other captain remained in control of his boat, even after McNeely fled to a lifeboat that was still tied to the ship (USDC 1926:196). He also noted that the *Lakeland*'s starboard gangway was open during the entire incident, and denied reports that he maneuvered his own vessel to provide shelter from wind and waves for the escaping lifeboats (USDC 1926:196). Larsen clarified that there was in fact no need for this maneuver because the seas were not rough and the wind was light (USDC 1926:196).

The only crewman from the *Cygnus* who was available to testify at the second trial was the Second Mate, George Boyle. Mr. Boyle stated that the *Cygnus* was within sight of the *Lakeland* from 9:00AM until the latter vessel went down at 11:30AM, and confirmed that the *Lakeland* had turned eastward out into the lake and continued to run on that course for about a mile before it dropped its anchor (USDC 1926:204). Boyle claimed that, contrary to McNeely's earlier testimony, the *Cygnus* actually had to change its own course to pursue and eventually approach the *Lakeland* (USDC 1926:204). He also confirmed that Captain McNeely had in fact refused the offer of a tow line proffered by the captain of the *Cygnus* (USDC 1926:204). Like the members of the *Ann Arbor No. 6* who testified before him, Boyle was convinced that the *Cygnus*, a large and powerful bulk freighter, could have towed the foundering *Lakeland* into shoal waters had McNeely not prevented it (USDC 1926:204).

The results of a U.S. government-sponsored survey of the turning basin and other sections of the Sturgeon Bay Canal, conducted in late-1925, were presented in court in order to cast doubt on McNeely's and Hidden's claims that they struck a rock in the basin. McNeely was present for the sweep of the turning basin, and pointed out to the surveyors where he thought he had struck. According to O'Dee Skrukrud of the Army Corp of Engineers – Milwaukee District, no rock obstructions were located in the basin and the entire bottom was found to consist of deep silt and mud (USDC 1926:220-241).

Outside of the testimony given by the *Lakeland*'s crew and other eyewitnesses, the most extensive testimony in the entire trial was presented by members of the diving team that investigated the wreck in mid-1925. Clarence L. Tibbals was the first to testify. He was technically an employee of Overseas Salvors, Inc. during the investigation, as he was officially on leave from his post at the joint U.S. Navy – Bureau of Mines project based out of the Bureau's Pittsburgh Experiment Station (USDC 1926:266). His previous work in the Navy included establishing the Naval Diving School at Newport, Rhode Island (USDC 1926:266). He had also arranged leave time for the two other Navy divers who accompanied him on the project. He served as Divemaster for the entire mission and participated in at least one dive as well (USDC 1926:267). Once it was discovered that the aft sea-cock had been open when the vessel sank discussions took place among the investigators regarding the possibility of bringing the valve to the surface to submit as direct evidence in the trial (USDC 1926:269). The salvage barge had been equipped with an underwater cutting torch, but Tibbals testified that, due to the position of the valve in the wreck and the depth at which the work would take place, the valve could not have

been cut out of the hull without placing the divers' lives at serious risk (USDC 1926:269). He stated that the duration of a typical dive included only about 15 minutes on the wreck itself, and the rest of the time in the water consisted of descending to the site and ascending with scheduled decompression stops (USDC 1926:270).

Diver Stephen J. Drellishak was the next to testify. He was a former Navy diver (Naval Reserve at the time of the investigation) who had been an instructor at the Naval Diving School at Newport, Rhode Island (USDC 1926:276). In 1915, during his Navy days, he set a deep diving record while working on the U.S.S. F-4 salvage operation in Honolulu Harbor, Hawaii (USDC 1926:277). He descended to 306 feet using a standard compressed air system (USDC 1926:277). At the time of the *Lakeland* operation, however, he was working as a regular employee of Overseas Salvors, Inc. (USDC 1926:276). He reported that while diving on the *Lakeland* he suffered from three to five episodes of "the bends" (USDC 1926:277). He was also one of three divers to inspect the aft sea-cock valve that was found to be in the open position (USDC 1926:280, 288).

Harry Reinhartsen was another regular employee of the salvage company who served as lead diver on numerous descents to the *Lakeland* (USDC 1926:293). He was also the first diver to reach the *Lakeland's* engine room and confirm that the aft sea-cock had been left open when the ship went down (USDC 1926:295).



Figure 31. Wood stick and steel blank used to measure the open sea-cock valve on the *Lakeland*.

Hubert A. Groves was the last of the Overseas Salvors, Inc. divers to take the stand. He was also a former Navy diver, and had run the Navy's diving school in New York (USDC 1926:299). Groves descended into the *Lakeland's* engine room carrying a small piece of wood which he laid up against the threaded stem of the open sea-cock valve in order to record a measurement of the extent to which the stem extended above the casing of the valve (USDC 1926:305). The piece of wood was marked by a notch to indicate the distance between the valve wheel and valve casing, and this object was submitted as evidence during the trial (USDC 1926:305). Amazingly, it is still part of the *Lakeland* case records held at the National Archives and Records Administration (NARA) regional facility in Chicago, Illinois.

U.S. Navy (on leave) diver Francis G. Smith made numerous dives on the *Lakeland*, generally as an assistant or "tender" for another diver (USDC 1926:317). Smith had not been available to testify during the first trial because he was working on the S-51 salvage and the Navy refused to release him from that mission (USDC 1926:317). Smith was allowed to keep the salvaged bell from the S-51 in recognition of his exemplary service during the salvage operation.

Joseph Eiven, U.S. Navy diver on leave, was the last of the dive team to testify. During the first trial he was working on the S-51 salvage project and was not given leave to attend (USDC 1926:324). His statements during the second trial were thus the only ones he gave regarding his work on the *Lakeland*. He was responsible for removing and recovering a grate on the exterior of the *Lakeland* that allowed the divers to access portions of the wreck (USDC 1926:318). The grate was hoisted to the surface and was actually submitted as evidence during the trial. The whereabouts of this object are no longer known, however. Eiven also discovered that the *Lakeland's* port bilge suction valve had been open at the time she sank (USDC 1926:321).

The jury in the second trial found in favor of the plaintiffs, and awarded the entire insured amount to the *Lakeland's* owners, plus accrued interest (USDC 1926; *Plain Dealer* 1926; *Door County Advocate* 1926b). The strong circumstantial evidence in the case was not sufficient to prove that the owners of the TTC had ordered the *Lakeland's* crew to sink her, and were thus entitled to the full pay-out of the insurance policies they had taken out on the vessel. Note that the jury's verdict did not include any findings regarding the actual cause of the sinking or the parties responsible for the incident (USDC 1926). While these issues surely arose during the jury's deliberations, they were technically outside the scope of the civil trial.

In the wake of this decision, the insurance companies' lawyers filed an appeal. After reviewing the records of the second trial in June 1927, a judge for the U.S. Circuit Court of Appeals for the Sixth District agreed (USCCA 1927). The appellate court observed that, among other issues, the judge in the second trial had given improper instructions to the jury prior to their deliberations (USCCA 1927). The third civil trial was scheduled for the Fall 1928 session of the U.S. District Court for the Northern District of Ohio, Eastern Division (*Door County Advocate* 1927a, 1927b; *Buffalo Courier Express* 1927). These same newspaper articles also reported that a Milwaukee, Wisconsin, inventor named O.A. Tesch had developed a prototype of a remote-controlled, submersible camera system that he planned to use to photograph the *Lakeland* where it lay on the

bottom of Lake Michigan (*Door County Advocate* 1927a; *Buffalo Courier Express* 1927). One report implied that if the effort were successful, the photos would be used as evidence in the third trial (*Buffalo Courier Express* 1927).

Unfortunately, it is at this point in the story that the trail of evidence goes cold. No further reports or records related to the submersible camera experiment or the third trial could be located. The case does not appear in court dockets or annual reports of the U.S. District Court of Northern Ohio, Eastern Division, for 1927 or 1928. In the absence of a published, court-issued decision in the case, it is almost certain that the insurance companies reached an out-of-court settlement with the *Lakeland's* owners prior to the scheduled retrial in 1928. The terms of this settlement remain entirely unknown, however. It is surprising that the resolution of this long-running and high-profile case received no newspaper coverage, suggesting that the parties involved made an effort to keep the settlement quiet.

The outcome of O.A. Tesch's attempt to photograph the wreck of the *Lakeland* using his submersible camera also remains unknown. The fact that Tesch chose the *Lakeland* as the subject of his experiments, with the hope of demonstrating his invention's capabilities to commercial filmmakers, indicates the extent to which the wreck had attained "celebrity" status over the course of three years of ongoing newspaper coverage of the sinking and the legal battle that followed. The sordid story of the sinking of the *Lakeland* still holds a prominent place in the annals and stories of Great Lakes shipping history, and it remains one of the most talked-about incidents on the Lakes.

The *Lakeland* Rediscovered: Sport Divers and Salvagers Revisit the Wreck

The wreck of the *Lakeland* with its cargo of 1924 automobiles remained undisturbed for nearly half a century, but, as recreational diving grew in popularity and technical sophistication in the 1960s and 1970s, stories of the vessel drew both sport divers and avocational salvage efforts. The fact that the ship lies in 205 feet of water still presented significant challenges and dangers to would-be explorers, however.

The location of the wreck site was probably rediscovered by well-known Great Lakes diver Franny Felhofer ca. 1960 (Boyd 2014:pers. comm.). In September of 1979 an attempt was made to raise one of the cars still lying in the hold of the sunken vessel (*Door County Advocate* 1979a). The team, led by Captain Robert Aznoe and Kent Bellrichard, successfully attached a salvage line to one of the *Lakeland's* cars, but encountered problems in raising the vehicle to the surface. The line attaching the car to a flotation tank broke when the car was about halfway up to the surface, sending it tumbling back to the bottom of the lake (*Door County Advocate* 1979b). The line was reattached, but a leak in the flotation tank left the vehicle hanging too low in the water, and it was further damaged as it was brought into shallow water (*Door County Advocate* 1979b). The battered remnants of the car, consisting of a twisted frame with wheels, engine, one headlight, and one fender, were finally hoisted ashore at Sturgeon Bay, Wisconsin (*Door County Advocate* 1979c). The car was identified as a 1924 Rollin, much to the surprise of the salvage team who had expected to find one of the Nash or Kissel cars reportedly aboard the *Lakeland* when she sank

in 1924. The remains of the salvaged car were taken to a nearby garbage dump shortly after it was brought out of the water (Radovan 2013:pers. comm.).

The following year, Bellrichard returned to film parts of the wreck and to recover the ship's large, brass steam whistle (*Door County Advocate* 1980). The whistle was restored and is now part of the collection of the Door County Maritime Museum, on permanent loan to the Stone Harbor Resort and Conference Center in Sturgeon Bay, Wisconsin, where it is on display. Another attempt to salvage cars from the wreck site was proposed in the mid-1990s (*Post Crescent* 1994). The salvage plan did not meet the requirements of the State Historical Society of Wisconsin – Division of Historic Preservation, however, and the permit application was denied. Several years later, a sport diver was lost while diving on the wreck, up to this point the only death associated with the vessel (*Milwaukee Journal-Sentinel* 1999). His body was not recovered until 2012, when it was found lying on the bottom of the lake near the wreck site by another group of recreational divers who were also exploring the *Lakeland* (*Medical Daily* 2012). The *Lakeland* remains a popular location for sport diving, but its depth makes it a technically difficult and potentially dangerous destination.

Site Description

The *Lakeland* rests in 205 feet of water, broken nearly in half, aft of her cargo elevator. Both bow and stern sit upright, disarticulated, separated by 10.6 feet on the port side and 36.7 feet on

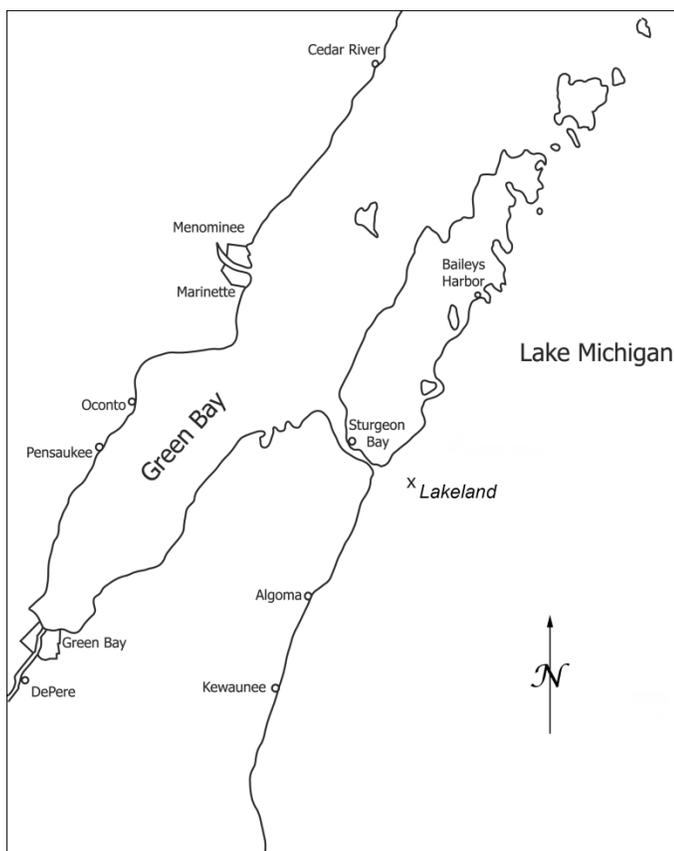


Figure 32. Location of the *Lakeland* site.

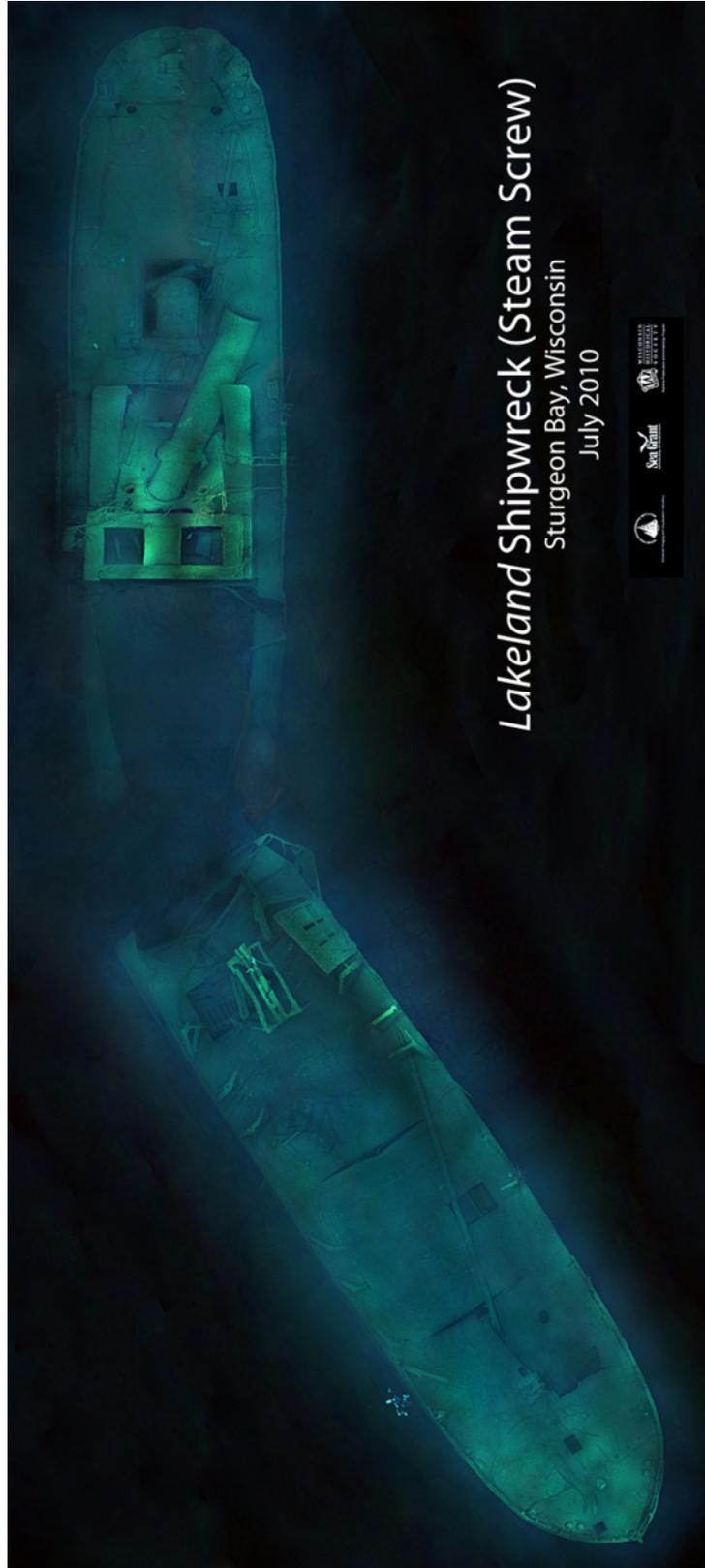


Figure 33. Photo mosaic of the steam screw *Lakeland*.

the starboard side. The two sections of wreckage are aligned but at a 36° degree angle. Two baselines were installed during the survey. The bow baseline (BLA) ran 184° from the forepeak of the bow, stretching 137 feet through the elevator structure to the break. The stern section was divided for survey purposes into two sections. The stern baseline (BLB) ran 220° from the bulkhead at the forward edge of the coalbunker hatch 95.3 feet along the centerline of the vessel to the top of the stern rail. The 47.7-foot area of wreckage and central debris field aft of BLA and forward of BLB was catalogued separately due to a depth difference of nearly 40 feet from the baseline heights, which were installed at 160 feet of water to this area including cargo, debris and some hull structure that lay directly on the lakebed. Given that the ship sank at the stern with the stern striking the bottom first and breaking the ship in two, it can be assumed that the stern would represent the course of the ship at the point of sinking (004°). The *Lakeland* was at anchor facing north away from the Sturgeon Bay Canal, when she sank.



Figure 34. Wooden composite hall along the boiler room.

As the ship went down air trapped in the upper deck structures blew the wooden deckhouses from the steel hull. These were thrown more than 40 feet into the air as the vessel sank stern first listing to port. Looking down upon the shipwreck, the cabin deck is exposed; pilothouse and cabins forward, dining saloon and officers' quarters aft are not extant. Several panels that comprised the wooden cabin walls above the deck remain astride of the cargo elevator in the bow section, and along the upper level of the boiler room on the stern section. One partially intact section of the cabin walls on the port side, adjacent to the crane has two windows and is constructed from wood over steel framing. There is overlapping metal on the base of this section that connects it to the hull, suggesting that this composite construction was pre-fabricated before installation.

The upright supports (frames) for these wooden panels are made of steel I-beams 7.3 feet high, 0.55 feet wide and 0.3 feet thick. Horizontal support beams that top the frames and are 2.3 feet in length with a hanging knee of sorts, an angle iron welded to support the frame at the boat deck junction. Also made of steel, the knee is 3.6 feet long by 1.1 feet tall. Many of these panels have fallen away from the wreck and lay on the lakebed outside of the vessel, this likely occurred after sinking or through improper anchoring of dive vessels. Seven frames for the composite panels remain extant on the starboard side of the bow section, and seven frames remain extant on the port side of the bow section.

The *Lakeland's* starboard side anchor chain exits the hawsepipe, crosses over the bow and runs off the port side of the vessel at 320°. The chain extends from bow 262 feet and ends in the sand. The anchor has been removed. The portside anchor chain runs out of the hawsepipe and under the keel. The chain exits the starboard side from under the vessel but disappears in the sand alongside the ship. The portside anchor was not located on the site and is either under the wreckage or was salvaged. Hawsepipes are extant on both port and starboard sides located 3.0 feet aft of the stem, and 16.8 feet below the rail. From top to bottom the outer dimensions of the hawsepipes measure 3.6 feet across and horizontally, 1.3 feet. The pipe thickness is 0.5 feet as it protrudes 0.3 feet from the hull.

The top of the bow railing is in 155 feet of water, rising fifty feet off the lakebed. Her stempost lists one degree to starboard and one degree aft. The stempost measures 35.6 feet tall, and 0.45 feet square, with 9.4 feet of sand scoured from below her bow leaving her keel exposed. The keel is 0.6 feet in width at the stempost and widens to 1.2 feet moving aft. At the time of the survey, 40 feet of the keel was exposed. Behind the stempost is a remnant of the ship's flagpole, although broken.

The bow section of wreckage contains several cracks in the cabin deck that allowed access to the main deck and cargo hold of the vessel. There are three main athwartship cracks in the cabin deck. Noted on BLA a small crack from the centerline of the ship to the portside is at 23.5 feet, two large cracks nearly across the entire vessel have formed along seams in the metal deck plates; these are located at 51.1 feet and 81 feet. Moving aft from stempost to the first crack, the deck remains relatively level. After the first crack, the deck pitches downward. A row of deck stanchions runs down the center of the vessel and continues to support the cabin deck as the deck is beginning to cave in on the outer edges, forming a pup tent shape. Steel I-beam deck stanchions measure 6.3 feet tall, 0.65 feet wide and 0.35 feet thick. The stanchion supporting the deck at the third crack is bent considerably; angled 14° forward and slightly twisted clockwise. Deck stanchions are regularly spaced 5.4 feet and support a longitudinal beam, or deck stringer, 0.7 feet wide and 0.3 feet thick. Athwartship deck beams are 0.8 feet wide by 0.3 feet thick and spaced 1.5 feet. At the break, at 137 feet on BLA, the decks are folded down on top of one another.

The bulwark on the bow is 5.0 feet tall, measured from the deck, and steps down to 4.0 feet tall 7.5 feet aft of the stempost. The bulwark extends aft 50 feet to the point where the upright frames for the wood and steel composite paneling for the cabins begin. Wooden bulwark stanchions are uniform in dimension but the first three do not touch the deck, and seem to be decorative in

nature, more than for support or reinforcement. Bulwark stanchions measure 0.25 feet in width, 0.3 feet thick and 4.0 feet tall. The distance from the stem to the first stanchion is 2.3 feet, and subsequent stanchions are spaced 1.9 feet. The bulwark is capped with a wooden rail 0.3 feet wide and 0.1 feet thick. Measuring from the rail down to the sheer rubbing strake (a thin piece of metal 0.1 feet tall and 0.2 feet thick) is 1.9 feet. From the sheer to the first wale strake is 1.9 feet, and from the wale strake to the deck-hull joint is 0.9 feet. The *Lakeland* carried two wale strakes over the length of the vessel.

Many of the hull and cabin deck features as well as extant pieces of machinery on the bow section of the wreckage were recorded as to their position on BLA. Pairs of deck bits are located 7.0 feet aft of the stem on both port and starboard. The individual bits are spaced 0.6 feet apart and stand 1.6 feet tall; they measure 1.0 feet across the top. The pairs are welded to a 0.3 feet thick base plate.

A combing for ladder access from the cabin deck to windlass room (on the main deck) is located along the starboard bulwarks, 5.0 feet aft of the bow. The combing measures 1.9 feet square, and rises 0.55 feet above the deck with a 0.6 feet interior height and 0.1 feet thickness. The ladder between decks is extant.



Figure 35. Scuttle through the boat deck looking into the windlass room.

The windlass room in the forepeak on the main deck was access by archaeologists through a central doorway in the bulkhead. Just inside the door, and along the bulkhead on the port side is a double acting bilge pump and two bilge pump handles. Above the bilge pump and along the joint

in the bulkhead is a mousetrap. In the center of the room is the ship's windlass. It is surrounded by a safety railing constructed of pipes at waist-level that form a perimeter around the windlass.

The machinery was painted green with yellow gypsy heads. A maker's plate was located, but the green paint obscured the embossed information. To the starboard side of the windlass and along the bulkhead is an open 55-gallon drum. Along the forward walls of the windlass room are two deck pipes, and two portholes with glass and frames extant, on both port and starboard sides. Coils of deck lines are hung from hooks on the wall. In the floor on the starboard side of the windlass is a scuttle, a ladder access to two decks below. A hawser lays partially over the opening. Archaeologists were not able to physically access the room below and chain locker, but were able to position a video camera to view into the room. Three valves associated with the seacocks were observed as well as a deck stanchion with the anchor chain oddly wrapped twice around it and the chain extending taut through the hawseholes.



Figure 36. Double acting bilge pump with handles, forward of the bulkhead in the windlass room. Photo courtesy of John Janzen.

On the cabin deck, a capstan is located 11.5 feet aft of the stem. No cover is extant. The capstan stands 3.6 feet above the deck with a 1.6 feet diameter at the top. Just aft of the capstan is a remnant of a cabin combing running from the portside of the ship to 2 feet to port of the capstan and longitudinally to 18.0 feet on BLA. This combing demarks what would have been the location of the Bell Boy's room. A small remnant of the cabin combing separating the Chambermaid's room from a forward water closet is opposite that on the starboard side.

A between-decks stairway opening is located 18.5 feet from the stem. The stairs are no longer extant. The opening measures 4.6 feet long by 2.7 feet wide with no combing. Located 33.1 feet on BLA is the leading edge of the steering engine. The machinery, winch and cable, sits on a 4.7 foot square platform and rises 3.6 feet above the deck. Sitting on the edge of a longitudinal crack

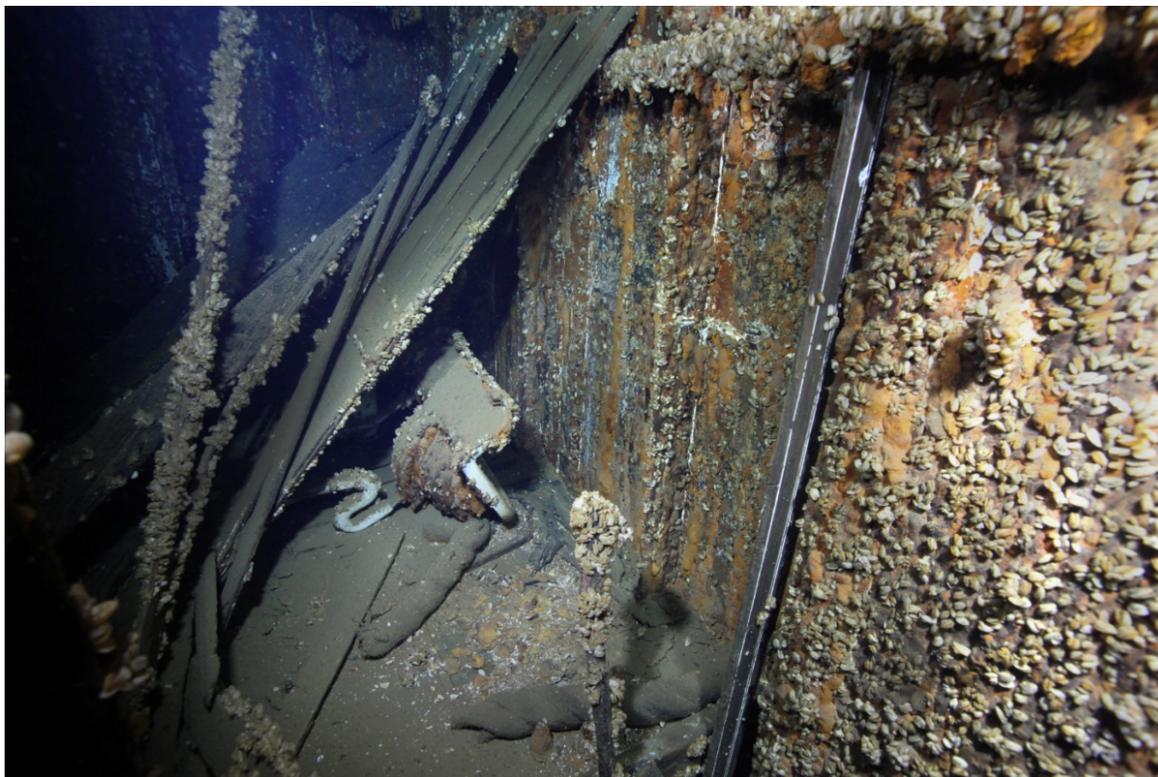


Figure 37. Sink in the head (water closet) just aft of the windlass room on the main deck. Photo courtesy of John Janzen.

in the cabin deck, the engine list 14° to the portside as the deck buckles under its weight. Forward of the steering engine on the main deck below, is the hoisting engine. Archaeologists entered the cabin deck crack at this location. Traveling forward along the main deck, on the port side of the vessel, are the remains of another Bell Boy's quarters, just aft of the windlass room bulkhead. A portion of the frame surrounding the head (water closet) remains extant as does a sink, and a lath-affronted bench that may have doubled as storage or supported a mattress. Also in this area are pieces of hawser and block and tackle, suggesting some gear storage occurred in this compartment. Around the hoisting engine and on the starboard side of the ship just aft of the windlass room bulkhead, is the main deck's Chambermaids' quarters. The cabin walls, a sash window to the interior of the ship, and the door remain extant. Inside the compartment amongst fallen debris is a 55-gallon drum and masthead light with a white lens and brass body.

On the cabin deck, the mast hole for the foremast is centered at 39.2 feet on BLA aft of the steering engine. The hole is 1.8 feet in diameter with a mast partner for reinforcement 0.15 feet thick that protrudes 0.55 feet above the deck. The foremast has toppled and lays angled to port on the cabin deck aft of the mast hole. The base of the 52.9 feet long foremast is located at 47.0 feet

on BLA. Its diameter is 1.3 feet at the base. A deck scuttle is located at 45.0 feet on BLA, 2.2 feet to the portside of center, measuring 1.9 feet in diameter.

Several pieces of the pilothouse and observation deck railing lay disarticulated on the cabin deck aft of the third crack and forward of the cargo elevator. Some pieces, additionally, were found on both port and starboard sides of the vessel on the lakebed. This railing, comprised of pipe (non-brass), with a diameter of 0.1 feet, would have stood 2.4 feet above deck at its top, with a middle rail up 1.3 feet. Uprights were spaced 4.4 feet on center.

Grain hatch #1 is located 62.5 feet on BLA and centered 2.2 feet to the port side of the baseline, measuring 6.5 feet long by 5.5 feet wide. A deck stringer divides the hatch, through which one of the Nash automobiles of *Lakeland's* cargo is visible. At this point, the deck has collapsed, rests atop and is supported by this vehicle. Grain hatch #2 is immediately to the portside of the larger opening for the cargo elevator and mostly covered with debris. The cabin deck that would have contained grain hatch #3 forward of the coalbunker bulkhead blew off during sinking and is not extant on the wreck site.



Figure 38. Cargo elevator on the cabin deck.

The cargo elevator added during the 1920 rebuild of *Lakeland* is centered over an opening in the cabin deck 10.0 feet long by 17.0 feet wide that is located 115 feet aft of the stem. The elevator crane straddles the opening oriented longitudinally (12 feet overall in length) and stands 13.0 feet above the deck. The crane structure leans 1.5° forward and 2° to port. The uprights are constructed of three I-beams forward, and three aft of the opening; each measuring 0.8 feet long

and 0.3 feet wide. Atop the elevator are two pulley wheels 2.5 feet in diameter; one is centered, the other is located aft. On the lift itself there are two more pulley wheels of the same dimensions, on either side of the lift car at the top. The platform on the lift car is 9.0 feet long, 16.0 feet wide, and has 14 beams that are spaced 1.6 feet on center. Planking on platform floor is 0.55 feet wide by 0.13 feet thick. The elevator was worked by two identical motors, one forward to lift the platform and one aft to lower it. Bases that measure 3.5 feet square, and 1.7 feet thick support the motors; motors on bases stand 3.5 feet above the deck.

There are four side-loading cargo doors, two on each side of the ship. One set is 62 feet aft of the bow and the other set is opposite the cargo elevator. Doors measure 7.0 feet wide by 6.5 feet tall and allowed access from a dock by ramp to the main deck of the vessel. By loading cars at the second set of cargo doors, vehicles could be moved between the main deck and cabin deck. The elevator could not be lowered beneath the main deck level to access the cargo hold. This suggests that in the 1920 rebuilt, adaption for carrying cars probably saw the removal of some of the passenger cabins and or the dining area to accommodate vehicles on the cabin deck.



Figure 39. Ceramic stoneware bowl within the cargo hold.

The Lakeland's cargo hold could be compartmentalized into two decks - an upper cargo hold and a lower. This could be achieved through removable deck beams that could be fitted onto a longitudinal deck shelf fastened to the central row of deck stanchions and to the deck shelf along the sides of the ship. Also removable was deck planking that could be placed as needed to create a deck once the beams were installed. Iron deck knees supported the main deck above, as well as the deck shelf for the cargo hold decks. Layers of green and white paint were evident on the

cargo hold walls. The ship was set up with two cargo decks installed from the second cargo hatch forward to the chain locker bulkhead, and one cargo deck with the hold fully open from the second cargo hatch to aft of the cargo elevator.



Figure 40. Handcarts within the cargo hold just aft of cargo hatch #1.

Lakeland carried no cargo in her cargo hold at the time of sinking. Archaeologists found two handcarts stacked next to deck stanchions aft of cargo hatch #1 and one other along the starboard hull. In the area where the cargo deck was not installed, silt covers the bottom of the wreck to a depth of 1.5 feet. Three square “manholes” through the floor of the ship’s lower hold were noted with no covers extant and open to the bilge as silt has fallen like sand through an hourglass through these openings exposing the features. The chain locker could not be accessed through the cargo hold forward bulkhead; there were no doors installed on this feature. Temporary deck planking has piled forward along the bulkhead. Other artifacts of note are within the cargo hold. Forward of cargo hatch #1 a ceramic stoneware bowl filled with silt sits upright atop several stacked boards of deck planking. There were six Pyrene-brand, brass, pump-style fire extinguishers fastened to deck stanchions or lying on the cargo deck throughout the cargo hold. A pile of automobile steering wheels is aft of cargo hatch #1 on the port side, and there are several intact light bulbs within brass overhead fixtures throughout the hold. Three of the deck stanchions before the hull break in the cargo hold are broken and twisted.

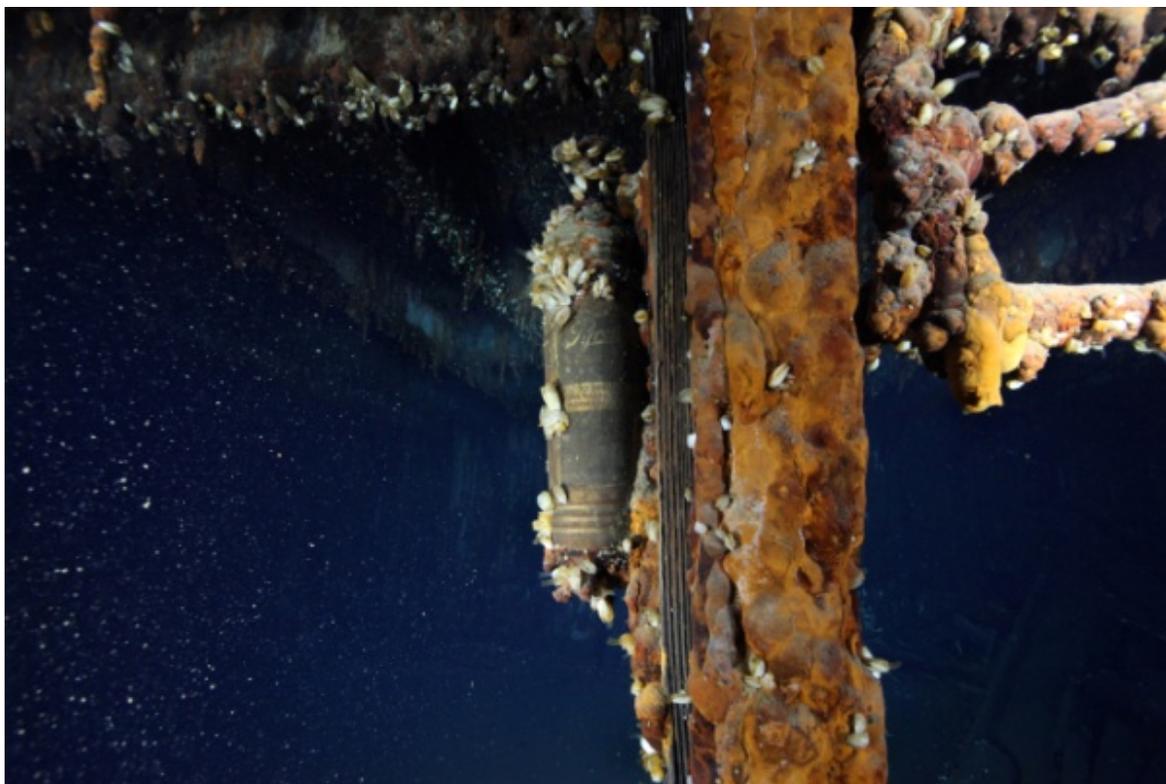


Figure 41. Fire extinguisher fastened to the deck stanchion within the cargo hold. Photo courtesy of John Anzen.

The *Lakeland* sank with at least twenty-two 1925 model-year vehicles aboard from Nash, Kissel, and Rollin Motor Companies. Twenty-one vehicles are extant on the wreck site. Recreational divers recovered one Rollin Motor car in 1979. Several of the vehicles are visible through the hatches and cracks in the deck or exposed where the overhead decks blew away during sinking. Archaeologists penetrated deep within the *Lakeland*'s hull to document many of the vehicles. To document and identify the historic automobiles, eleven of which are contained on the main deck of the bow section, two are stacked just aft of the bow break, one located in the sand off the starboard side of the vessel, and six lined up along the coal bunker bulkhead, archaeologists videotaped the cars on as many angles as were accessible and worked with experts from Wisconsin Automobile Museum, Western Reserve Historical Society (Cleveland, Ohio), and the Nash Automobile Club of America to identify them, in many cases, down to both the make and model. Each of the cars of *Lakeland*'s cargo is referenced by number in Figure 42.

Car #1 remains chained facing the stern of the ship along the starboard hull of the vessel forward of the heaved deck at the third crack on the main deck level. Its body sheet metal is in good condition. Evident is a louvered hood, disk wheels, drum headlights, and single cross members (front and back) to attach bumpers (the vehicle was shipped without bumpers, a practice typical of Nash). The front passenger side wheel is disarticulated suggesting the axle was broken during the wrecking process, and the passenger side headlight is askew. This vehicle is likely a 2-door Nash sedan.

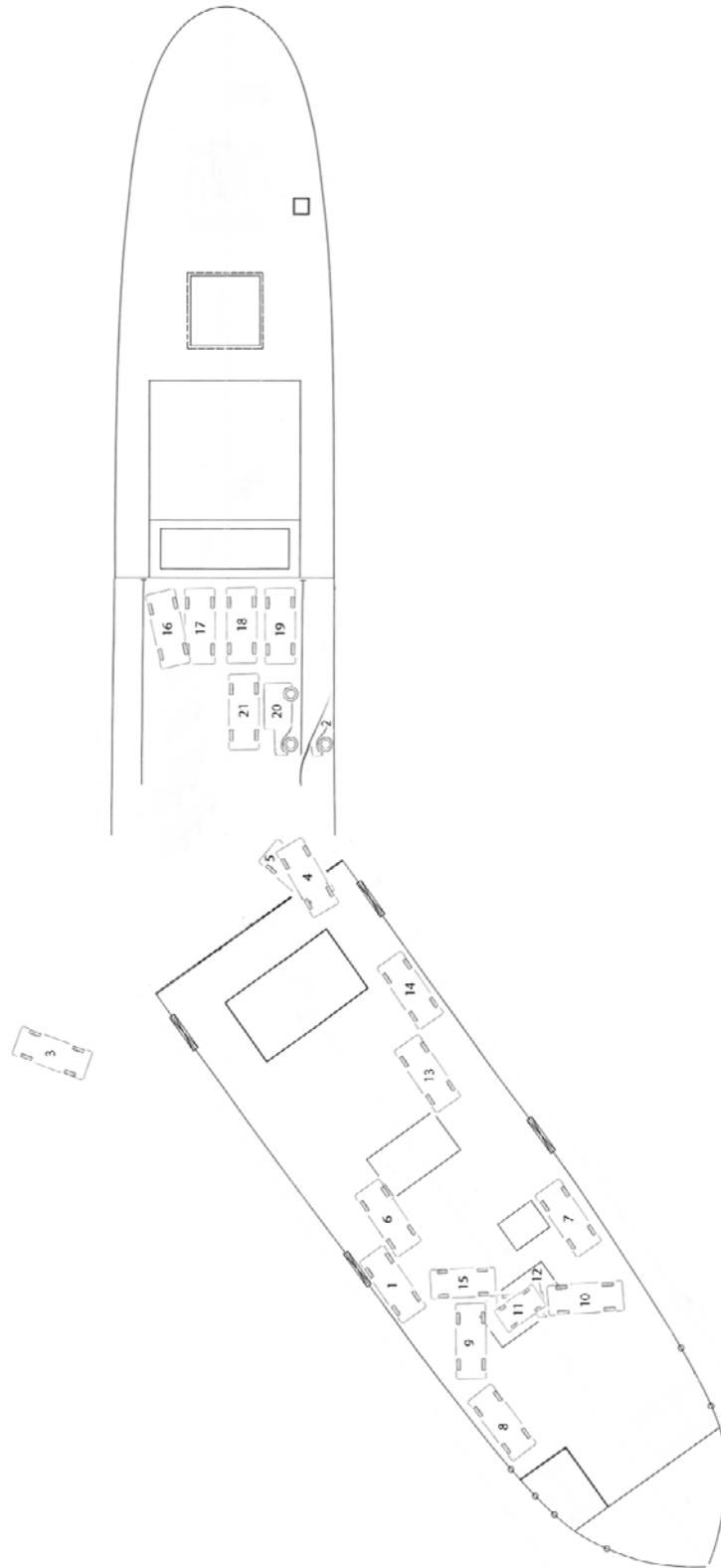


Figure 42. Sketch maps of the car locations on the *Lakeland*.



Figure 43. Car #1, a Nash, aft facing along the starboard wall at the heaved deck. Photo courtesy of John Janzen.

Car #2 is mostly covered by hull associated with the stern section of wreckage just aft of the break with the bow. Only the front driver's side fender area is visible but allows that the vehicle is facing the bow of the ship and now lying on its side. The vehicle has wooden-spoke wheels with whitewall tires. The observed forward cross member bar for the bumper, which is set back, the fender, the front spring are features of a Kissel vehicle.

Car #3 is located 43 feet off the starboard side of the ship, sitting upright on the lakebed near the break. Much of the upper body sheet metal has deteriorated away, exposing the 6-cylinder overhead valve engine. The vehicle has disk wheels. The grill is extant, as is one drum headlight, and a spare tire mount, rim only, which has fallen away from the frame, aft to the sand. Based on the shape of the grill, the rim spare tire mount, engine and wheel type, this vehicle is thought to be a Nash.

Car #4 and #5 are hanging from the aft end of the break on the bow section, with car #4 resting on top of car #5. Car #4 was a closed body vehicle, although much of the body sheet metal is not extant. The driver's side door has fallen outward and dangles from the wreckage. The vehicle is upright although the front end points downward toward the sand. The car has disk wheels with five lug nuts indicating a "Special Six" design. Drum taillights and a spare tire carrier with no rubber is mounted on the back of the vehicle. The steering wheel has aluminum spokes and rubber grip. The seat springs for the two individual front seats are extant. The front windscreen retains its glass. It is believed this is a 2-door Nash sedan.



Figure 44. Car #3, a Nash, along the starboard side in the sand looking back at the break.



Figure 45. Car #4, a 2-door Nash, spilling off the aft end of the bow break.

Car #5 is upside down on the lakebed under Car #4 just aft of the break on the bow section of wreckage. Much of the sheet metal on this car is no longer extant. This vehicle has disk wheels and a spare tire carrier with no rubber. The carrier has fallen aft of the vehicle and lies on the sand. As the undercarriage of the vehicle is exposed, a longitudinal rear axle spring indicates that this is a Nash vehicle. Two kick plates remain on the passenger side running board. This vehicle is thought to be a 4-door Nash sedan.

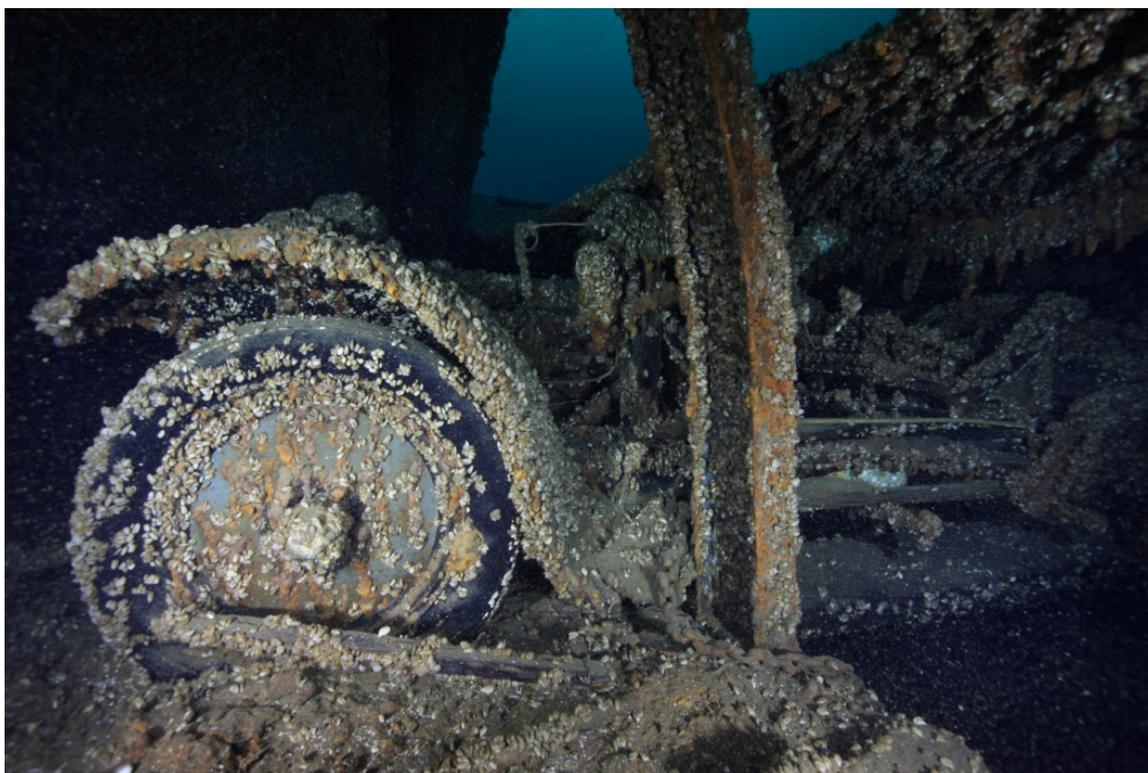


Figure 46. Car #6, a Nash Victoria coupe or 2-door sedan, with overhead valve engine and disk wheels. Photo courtesy of John Janzen.

Car #6 is forward facing under the cabin deck just aft of the heaved deck at the third crack. Its back end is aligned with the starboard side of hatch #2. The deck stanchion is the only thing preventing the deck from crushing the car. Much of the sheet metal remains intact, however the engine hood is missing exposing its 6-cylinder overhead valve engine. The vehicle is of closed body type with disk wheels with five lug nuts- a Nash "Special Six" design. The car was shipped without bumpers. There is a single kick plate along the driver's side running board. It is believed that this car is a Nash Victoria coup or a 2-door sedan.

Car #7 is visible through grain hatch #1. It is forward facing along the port hull. The car is a wooden frame, closed body type and the deck rests directly on the vehicle's roof. It has disk wheels and a spare tire carrier on the back with no rubber. The sheet metal is not extant over the motor exposing a 6-cylinder overhead valve engine. There is a single kick plate along the passenger side running board. It is believed that this vehicle is Nash 2-door sedan.



Figure 47. Car #4 (a 2-door Nash sedan, on top) and Car #5 (a 4-door Nash sedan, bottom) spilled out of the break at the aft end of the bow section.



Figure 48. Car #7 a Nash 2-door closed body design, as viewed through grain hatch #1.

Car #8 is forward facing along the starboard hull of the ship alongside cargo hatch #1. It is an open body type vehicle with disk wheels, and was not shipped with bumpers. All of the body sheet metal is extant and in good condition. It has a spare tire carrier on the back with no rubber. There is a single kick plate along the driver's side running board, suggesting that this vehicle is Nash Roadster.

Car #9 is forward facing along the starboard hull of the ship next to cargo hatch #1 and aft of car #8. The front axle remains chained down, but the rear axle broke free allowing the driver's side rear wheel to slip into cargo hatch #1. The vehicle has 12-spoke wooden wheels with whitewall tires. It is of closed body type and the deck rests directly on the vehicle's roof. The front of the car is obscured by car #8 and fallen debris. There is a double flat bar bumper at the back and taillights typical of a Kissel vehicle. Along the driver's side is evidence of four doors backed up by two kick plates on the running board. It is believed that this car is a Kissel 4-door sedan.

Car #10 is located forward of cargo hatch #1 with its rear wheels hanging into the hatchway. Not much of car #10 remains. It is little more than the frame, engine, wheels and battery box. The remains of the back seat, the spare tire carrier and both flat bar bumpers remain connected to the frame. The driver's side front fender and windshield are forward of the vehicle along the port side hull. The passenger side front fender is forward of hatch #1. The splash apron is disarticulated. The vehicle has wooden-spoke wheels and double, interior and exterior white wall tires. The drive shaft and battery box is exposed as is the flathead engine. These features are indicative of a Kissel.



Figure 49. Cars #8 (Nash Roadster, on left) and #9 (Kissel 4-door sedan, on right) at cargo hatch #1. Photo courtesy of John Janzen.

Car #11 and #12 have fallen into the cargo hold at hatch #1 and came to rest with car #11 resting on top of car #12. Much of the sheet metal is missing from Car #11, exposing the 6-cylinder overhead valve engine. The driver's side door, steering wheel and dashboard remain intact with two oval gauges for light switch and oil gauge, and the round speedometer in the center. Parts of the cowl, the cowl light, and ventilation door are extant. The car has disk wheels. It is believe that this is a Nash.

Car #12 is upside down under Car #11. This vehicle has disk wheels and a spare tires carrier with no rubber that has become caught and twisted on the hatch combing of the first level of the cargo hold. The gas tank and a longitudinal rear spring are visible on this vehicle's under carriage. These features are indicative of a Nash.

Car #13 remains chained facing the stern side of the ship along the port side of cargo hatch #2 forward of the cargo elevator. The deck has collapsed on top of it. The vehicle is of a closed body type with wooden spoke wheels, double flat bar bumpers, and a double spare tire carrier on the back. Sheet metal is intact on much of the car. The passenger side front door has fallen outward toward the portside hull exposing the oilcloth (imitation leather) on the door's interior. The dashboard was indicative of a Kissel. The car has the Kissel-specific continuous fender forward, sweeping into the running board that was outfitted with a toolbox on the driver's side. The vehicle has drum headlights connected by a headlight bar for stabilization. This car is a 4-door Kissel sedan.

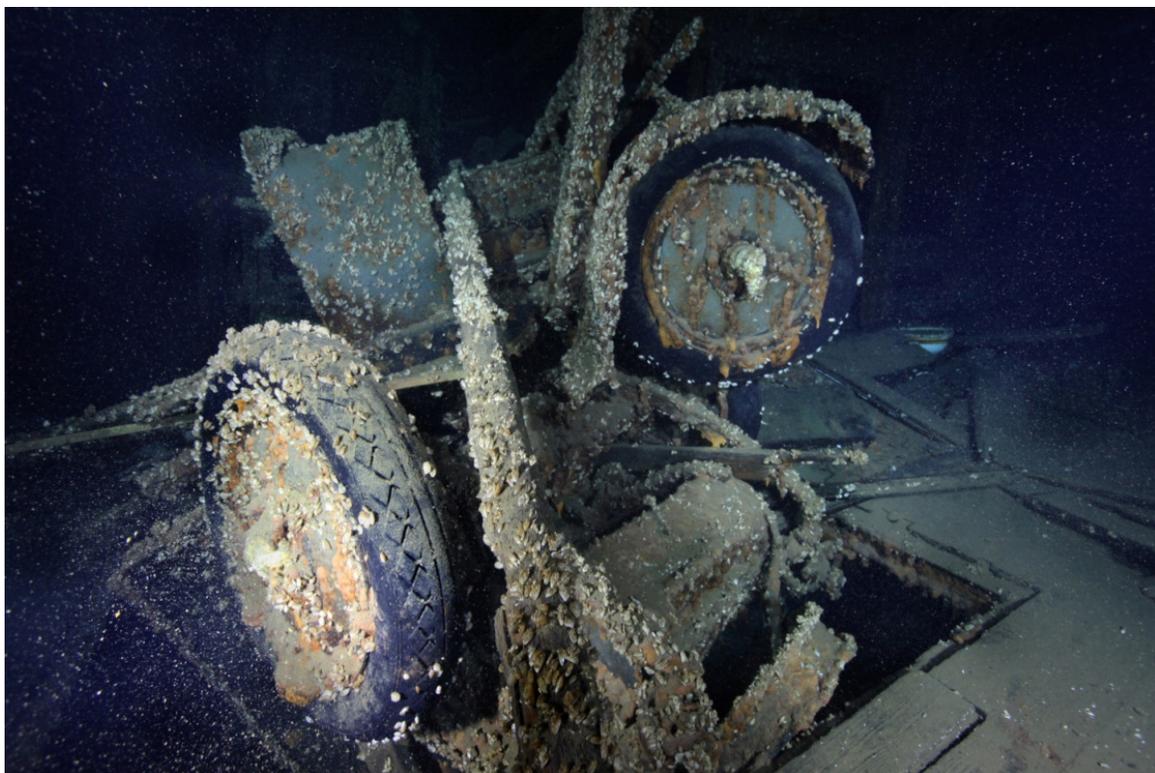


Figure 50. Cars #11 and #12, Nash automobiles, which crashed down from the main deck through cargo hatch #1. Photo courtesy of John Janzen.

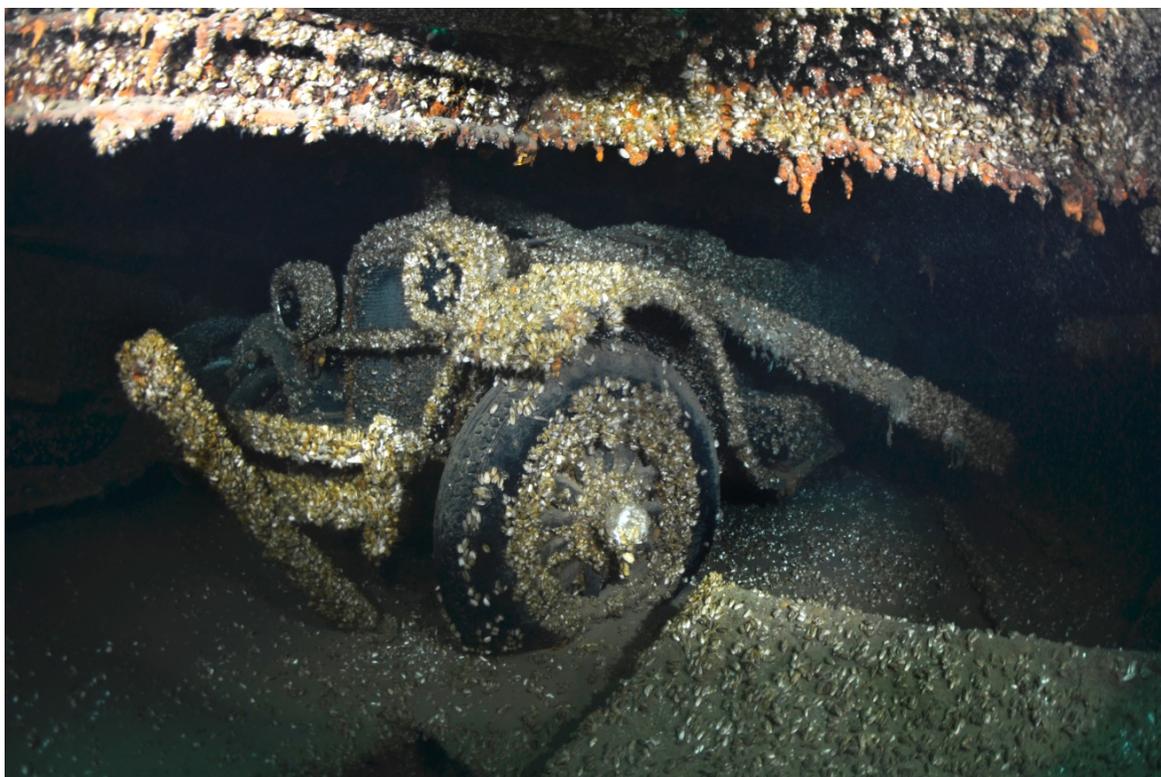


Figure 51. Car #13 a 4-door Kissel sedan on the starboard side of cargo hatch #1.

Car #14 remains chained along the portside hull alongside the cargo elevator facing the bow of the ship. The vehicle is a four door, open body type with the sheet metal intact. It has double flat bar bumpers, drum headlights, whitewall tires and wooden spoke wheels. The deck above has collapsed onto the vehicle folding the windshield back and into the car. The radiator shell possesses the indicative horse collar shape of a Kissel. This vehicle was identified to likely be a Kissel 4-door Phaeton.

Car #15 is forward facing in the line of cars aft of car #9, forward of car #1 along the starboard hull of the ship aft of cargo hatch #1. The rear axle remains chained down, but the front axle has broken free allowing the front end to swing inbound. The vehicle has a closed body and supports the deck, which has collapsed down upon it. The vehicle has disk wheels with five lug nuts identifying it as a Nash "Special six" design. One kick plate was observed along the running board, suggesting this is a 2-door vehicle. This car is likely a Nash Roadster.

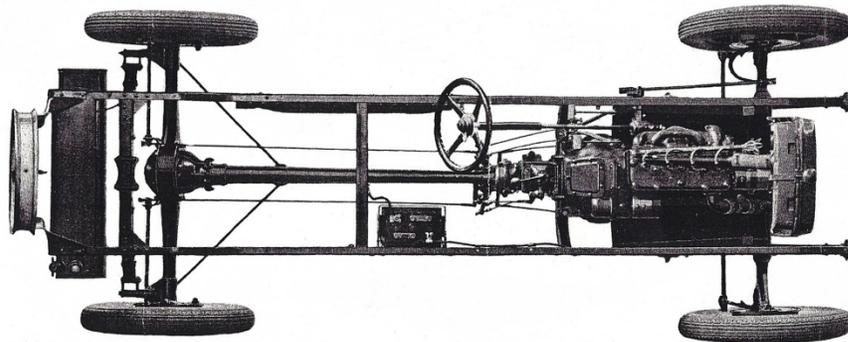


Figure 52. Rollin automobile schematic. Western Reserve Historical Society Collection.

Car #16, #17, #18 and #19 are lined up with their back ends against the coalbunker bulkhead. Car #16 has flipped upside down and rests along the port side hull. Little of the body sheet metal remains. This vehicle has disk wheels; front fenders and grill are extant. On the underside of the car, the shape of the oil pan, the location of the battery box, engine mounts, the brake actuating rod and transverse spring are exposed and match with those of cars manufactured by Rollin Motor Company of Cleveland, Ohio. Rollin Motors was one of the earliest American vehicles to use four-wheel brakes, which are seen on this vehicle. Rollin Motor Company was in operation from late 1923 to early 1925. Many of the company documents and ephemera are retained in the archives of the Western Reserve Historical Society and were used for comparison.

Car #17 sits upright in between car #16 and car #18. No sheet metal is extant. The vehicle has disk wheels, a spare tire carrier on the back of the car with no rubber. The axle radius rod and transverse spring are exposed and match with those of cars manufactured by Rollin Motor Company.

Car #18 sits upright in between car #17 and car #19. Little remaining sheet metal is extant. The vehicle has disk wheels and a spare tire carrier on the back of the car with no rubber. The axle

radius rod and transverse spring are exposed and match with those of cars manufactured by Rollin Motor Company.



Figure 53. Cars #16-19 (numbered left to right) are Rollin automobiles against the coalbunker bulkhead.

Car #19 sits upright next to car #18 and rests along the starboard side hull. Most of the body sheet metal is not extant. The vehicle has a unique flathead engine (Rollin Motors produced their own engine) that can be observed under hull debris, disk wheels with four-wheel brakes, and a spare tire carrier on the back end with no rubber.

Car #2, car #20 and car #21 are forward of the line of cars that back up against the coalbunker bulkhead (Cars 16-19). Car #20 faces forward between car #2 and car #21, is turned onto its passenger side, and covered with hull debris. Visible are the front fenders, running board and disk wheels on the driver's side. A bit of the grill is exposed. It is likely, though unconfirmed that this vehicle was also a Rollin Motor car.

Car #21 sits upright, forward facing and on the starboard side of car #20 covered with a good amount of debris. Evidence consists of three of the tires, disk wheels with fenders extant and a spare tire carrier (no rubber) on the back. This vehicle was of closed body style. The windshield and three body panels lay across the frame. Originally thought to be a Kissel bus, or funerary car as told to archaeologists by local divers, it is likely yet another Rollin vehicle. The recovered vehicle from 1979 was taken from the starboard side of this car and that was a Rollin Motor car as well.



Figure 54. Rollin automobiles in the hold. Car #21 in foreground, Car #20 on right, and Cars #16-19 in the background.

The ship's double bottom bilge can be studied at the break in the wreckage on both the bow and stern sections. The lakebed on either side of the break is littered with car parts, piece of the air scoops and their uprights, and ladders.

The *Lakeland's* coalbunker is 10.8 feet long and 30.0 feet wide; the tallest feature on the stern, it towers over the wreckage in 157 feet of water. The coalbunker is topped with a hatch combing 2.2 feet wide and divided at the center to create two coal chutes. Access through the coal chutes gives way to the boiler room below. Two Scotch boilers are 11.6 feet wide and spaced 3.4 feet apart and span the cargo and main deck in height. A catwalk runs around and between the boilers, 5 feet down from their top. Aft of the starboard boiler, three pail-style buckets with handles have fallen on the catwalk along with wood and other small bits of debris; between boilers is the frame of a chair.

Archaeologists attempted to access aft compartments on the main deck from the boiler room. Working aft along the passageway on the starboard side of the engine room, it was observed that the wall structures of the Chief and Second Engineer's cabins were standing, but wooden lath from the walls and ceiling had fallen away from the support structures. A ceramic basin was observed within the Chief Engineer's quarters. The passageway was too filled with debris to gain access aft of the engine room. Archaeologists then attempted the passageway on the port side of the engine room along the Deckhands' quarters. The cabin framing remains intact, the wall along the companionway is intact with a sash window opening to the interior of the ship, but the

forward wall has fallen inward in a pile of the lath that comprised it. Along this passageway is a drinking fountain that is labeled with a green sign with white painted letters reading, “Drinking Water Only”; the ceramic basin for the fountain lays on the deck just forward. This companionway proved impassable as well, so no observations were taken in the Firemen or Oiler’s quarters, which were aft of the engine room.



Figure 55. Toppled smoke stack looking forward.

Centered on the roof 18.8 feet aft of the coalbunker bulkhead over the boiler room is the double walled smokestack. The smokestack’s inner diameter is 5.5 feet. The metal composing each wall is 0.5 feet thick with a 0.2 feet space between the layers. A reinforcing, angular flange supported the stack where it entered the roof but was ripped free when the smokestack fell over backwards angling to port and collapsed the aft end of the boiler room roof. Seven and a half feet of the smokestack was pulled through the roof when it separated from the boiler’s airbox. The smokestack would have stood 25 feet above the *Lakeland*’s boiler room roof. Multiple guy wires remain attached to the smokestack.

Two pipes, one foot in diameter that supported the boiler room air scoops, are on either side of the smokestack 16.0 feet aft of the coalbunker bulkhead. The two air scoops that likely were atop these pipes lay in the sand; one on the starboard side and one on the port side of the vessel near the break. The air scoops measure 4.9 feet across the face and 5.8 feet tall.

A companionway runs on the cabin deck 36 feet along either side of the boiler trunk 5.0 feet wide and 7.2 feet tall, capped by remnants on both port and starboard side of the boat deck that would have formed its roof. Thirty-two feet aft, within the companionway on the port side along the hull



Figure 56. Pieces of the air scoop in the sand off the port side of the wreck.

is what is thought to be an early electric condenser-compressor, part of the refrigeration unit for the icebox that according to ships plans, would have been located aft of this machinery. The condenser stands 2.2 feet above the deck and measures 3.1 feet long by 1.7 feet wide. A series of three low temperature compressors, measure 2.2 feet tall, and 0.9 feet in diameter. Liquid tubes and wires connect them through the center top of the cylinders. The forward-most cylinder has fallen forward. The ice scuttle through the cabin deck is located at 74.0 feet on BLB and to the portside of center; this would indicate the aft edge of the icebox which would have stood on the cabin deck and served ice to the deck below.

The ship's oven is extant on the cabin deck's starboard side at 43.2 feet on BLB, an indication of the area that would have been the ship's galley. The oven stands 2.8 feet above the deck. Its top is 5.0 feet long by 3.0 feet wide, with an oven door on the front. There are two bar handles that are 0.2 feet thick on either side and also a handle on the front to open the door. The oven door opens to the stern of the ship. The front side of the oven is damaged and several bricks can be seen inside. Remnants of the combing delineating the galley space are extant. Additionally, combing remnants can be found aft of this area on this deck associated with the cabin structures that accommodated the Waiters and Dishwasher's cabins from her previous rebuild. The combings are all that remain as the cabin walls blew away during sinking.

The engine room skylight is not extant, but the combing surrounding the engine heads is. The leading edge of engine trunk combing is at 44.6 feet on BLB. The center of the forward, high-pressure cylinder is located at 45.7 feet on BLB. The cylinder head has a diameter of 3.8 feet.

There are steps forged into the front of the high-pressure cylinder presumably to access an oiler that was at one time located on top. The intermediate-pressure cylinder is located at 49.8 feet on



Figure 57. Oven located within the galley.

BLB with a diameter of 4.6 feet. The low-pressure cylinder is located at 54.9 feet on BLB with a diameter of 5.5 feet. The engine overall is 13.9 feet long and 5.2 feet wide with the exception of the low-pressure cylinder where it is slightly wider. There is a 3-foot wide catwalk around the engine cylinders, with a piece of grate missing on the starboard side of intermediate pressure cylinder. This grate had been removed and entry gained for seacock inspection by the salvage divers in 1925. Archaeologists wearing rebreathers, even stripped down of extraneous equipment were unable to squeeze into the engine room through this missing grate. During the 2013 survey, to peer into the room, a camera was lowered and turned to get a full view. Below deck, the engine's receiver pipes remain intact that connect the pressure cylinders. Two brass gauges remain on the low-pressure cylinder, two on the intermediate-pressure cylinder as well as the high-pressure cylinder. Two brass oilers remain on the low-pressure cylinder. The walls of the engine room retain white paint, and the engine legs and eccentric rods remain yellow. Eccentric sheaves and counter weights could not be viewed as the floor was heavily silted.

A 1.7-foot diameter steam pipe has fallen aft of the engine along the engine trunk bulkhead at 60.1 feet on BLB. An aft facing stairway is extant on the portside of the engine trunk descending from the cabin deck to the catwalk surrounding the cylinder heads. The stairway leads to a doorway through the engine room bulkhead into stern compartments comprised of the Crew's Mess, Officer's Mess, Storage, and the Head Waiter, Steward and Cook's rooms.

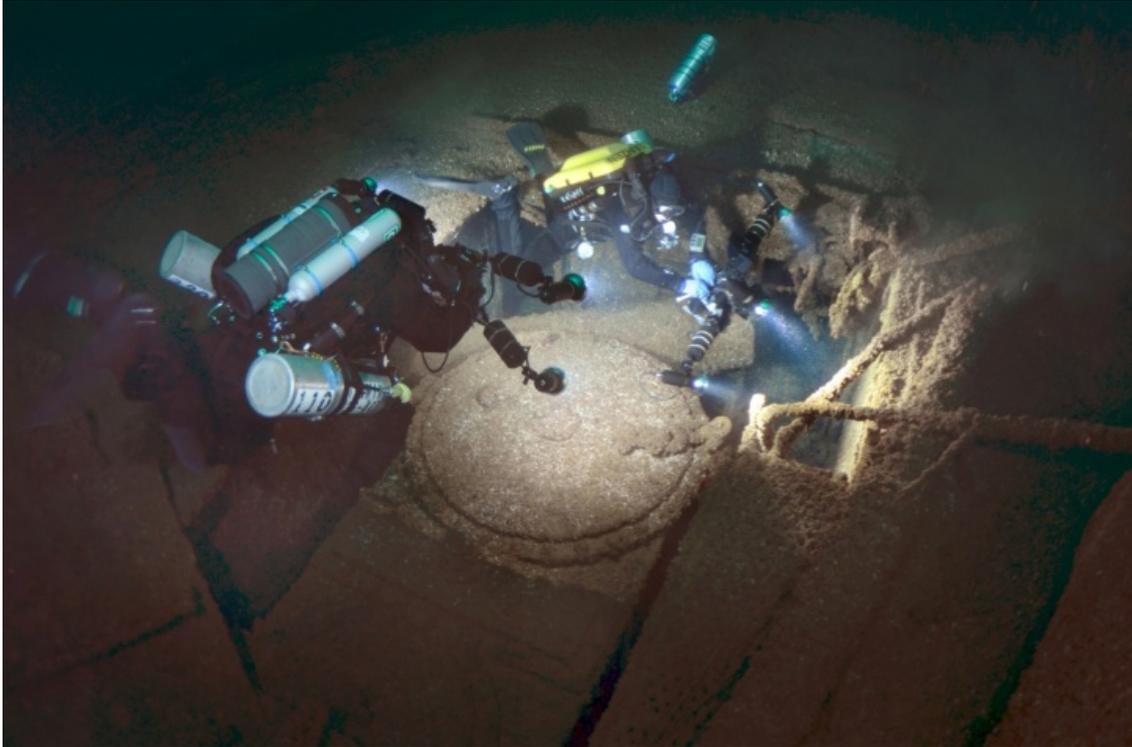


Figure 58. Divers prepare to enter the engine room at the top of the low pressure cylinder.

Archaeologists entered through the doorway to the aft compartments. Much of the wooden structures, uprights and walls have collapsed into a jumble making it difficult to discern the different individual rooms. Evidence of a stained glass window was found near what was the Crew's Mess. The four portholes along the port hull next to the Crew's Mess are extant and opened fully inward into the room. Wood lath adorned the walls likely to help with noise deadening so close to the engine. Stairs that would be joined the mess area with the galley on the deck above have fallen away from a hatch above. At the stern on this deck, a portion of the ship's steering quadrant is exposed as well as the rudder shaft. The starboard side compartments are in better condition, with many of the uprights intact and portions of the lath walls attached. Presumably a safety poster and frame remains attached to one wall. Alongside the Officer's Mess, all four portholes are extant and open to the interior of the cabin. Moving forward into a stores room, two metal drums one with green and one with red paint and unreadable lettering have fallen over. Shelving and remnants of chairs remain and overhead is an alarm bell that hangs from the ceiling in the companionway between the storage room and the engine trunk wall. Several intact light bulbs in brass fixtures remain hung along the starboard side hull in this area.

Through the bulwark on both port and starboard sides 78.4 feet on BLB are closed chocks measuring 1.5 feet wide, 0.7 feet tall and 0.6 feet up from the deck. The framing around the chocks measures 0.4 feet thick. Deck scuttles through cabin deck are located 83.0 feet on BLB. These scuttles are 7.3 feet to the port and starboard of the centerline of the vessel and measure 1.2 feet in diameter. The deck has buckled in the area of the scuttles due to impact with the bottom in sinking.



Figure 59. Open portholes in the starboard side alongside the Officer's Mess. Photo courtesy of John Janzen.

Double iron bits are located on the port and starboard side of the ship, with their leading edge at 84.0 feet on BLB. The portside bits are upright; the starboard side bits have fallen away toward the stern. The bits stand 2.0 feet above the deck. The top of each individual bit measures 1.0 feet wide and tapers down to 0.8 feet at the base. The sets are 2.3 feet inside of the bulwark and are welded atop an iron base 0.3 feet thick. A bilge pump remains upright on the deck at 85.8 feet on BLB just forward of the stern deck winch that is located 86.9 feet on BLB. The winch measures 4.0 feet long, 3.6 feet wide, and stands 4.8 feet above the deck nearly at the stern of the vessel. It has a gypsy head forward that is 1.1 feet long and 0.9 feet in diameter at its widest point.

A spare propeller blade rests along the bulwark aft of the deck winch. The single blade is 5.1 feet long by 3.4 feet wide. The diameter of the collar is 1.9 feet with a thickness of 0.4 feet. The propeller shaft is 27.0 feet down from the rail atop the bulwarks. The propeller shaft is bent upward at a 1.5° angle, likely caused by striking the bottom while sinking. The propeller is not extant, was likely removed by sport divers in the late 1970's but a salvage date could not be determined. A thrust bearing remains on the propeller shaft. The ship's rudder has also been salvaged, however a small fragment of the rudder shaft remains extant and measures 0.8 feet in diameter and 0.8 feet in length.

On the outside of the stern there is a large hole in the bottom of the hull just below where the propeller shaft is located. Society archaeologists entered the void in the hull and followed the

propeller shaft approximately twenty feet up to the bulkhead. The engine's jacking gear could be seen through damage to the bulkhead.



Figure 60. Spare propeller blade along the bulwark on the stern.

Aft of the stern in the sand, is a milk bucket, pots, and what appears to be other debris from the galley or stores. Because of sand scouring at the stern, the stern rail to sand measurement was 31.7 feet.

CONCLUSIONS AND RECOMMENDATIONS

This field report is a component of the ongoing research to document Wisconsin's collections of historic shipwreck sites. Combined with earlier fieldwork conducted by the Wisconsin Historical Society, this document adds to the ever-increasing body of knowledge on Wisconsin's historical Great Lakes vessels. Archaeological surveys of shipwreck sites conducted by the Wisconsin Historical Society are designed to document the sites according to the standards and guidelines established by the National Park Service for submerged cultural resources. A primary goal of the surveys is to evaluate a site to determine its eligibility for listing on the National Register of Historic Places. As a result, all three sites included in this report have been listed on the State Register of Historic Places, and at the time of publication all three sites are being evaluated for listing on the National Register of Historic Places.

The *Major Anderson* represents a unique site, as it is one of two known barkentine ships in Wisconsin waters. The *Major Anderson* survey was designed to document Great Lakes barkentine construction and to provide positive vessel identification through identifying marks or artifacts. The first objective was achieved, and the *Major Anderson* was listed on the State Register of Historic Places in February 2014. Its nomination has been forwarded to the National Park Service for consideration for listing on the National Register of Historic Places.

The second objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. A complete archaeological documentation of the *Major Anderson* site will be an ongoing process for years to come. Much of the *Major Anderson*'s remaining hull structure is deeply buried in sand. Due to the site's shallow nature, a large quantity of sand moves through the area with each passing storm. As the sand moves, there is a great potential for previously undocumented hull structure and artifacts to be uncovered and exposed. For this reason the site should be closely monitored and any newly exposed structure or artifacts should be documented and added to the site plan. The vessel's size, location and construction details, all support the identification as the *Major Anderson*.

The *Major Anderson* site is easily accessible via boat or kayak, and is located only a few hundred feet from the popular beach at Point Beach State Forest. Due to its shallow nature and outflow from Molash Creek, visibility at the site is oftentimes poor. The site is best explored during prolonged periods of calm weather. Because of the site's proximity to the Point Beach Ridges State Natural Area and the shallow and changing nature of the site, it is not recommended for a State-sponsored mooring buoy. Information gathered during the survey will be used to for website updates, and public outreach and educational materials for Point Beach State Forest and the surrounding community.

The *Floretta* survey was designed to answer two questions as part of an overall research design. The first objective was to document Great Lakes canaller construction; the second objective was to provide positive vessel identification through identifying marks or artifacts. The first objective, to document Great Lakes canaller construction, was achieved within the scope of this work. The site was listed on the State Register of Historic Places in November 2013. Its nomination has

been forwarded to the National Park Service for consideration for listing on the National Register of Historic Places.

Despite achieving the first objective, many opportunities remain for further research that could significantly add to our understanding of Great Lakes sailing vessels in general, and to canallers specifically. While it is common knowledge that canallers were boxy vessels compared to the sleeker clipper-type schooners, little comparative work has been conducted between the archaeological remains of the two vessel types to detail specific differences in hull shape and construction. Additionally, due to their boxy hull shape, it has been suggested that canallers were notoriously poor sailers in heavy weather; the fact that a single Great Lakes storm claimed six Oswego canallers and crew lends credibility to this claim (*Oswego Daily Palladium* 1873). With no historical documentation surviving that details canallers' hull lines, only archaeological research on sites like the *Floretta* can answer the question of whether or not the canaller was an inherently dangerous craft.

The *Floretta* is an excellent location to study and observe the construction techniques used to build nineteenth-century Great Lakes canallers. Although the hull is broken up, nearly all of the *Floretta*'s hull components and rigging are extant. To many divers, a broken hull such as the *Floretta* holds less appeal compared to more intact vessels - even vessels that are entirely stripped of rigging, gear, and artifacts. To an analytical eye, however, the *Floretta* site presents a prime opportunity to study and learn about wooden vessel construction. The advantage of broken hulls like the *Floretta*'s is that they offer a view of many construction details that are hidden in more intact vessels. For this reason the *Floretta* site is the best of both worlds - she is intact enough to have nearly all hull sections represented, but is opened up enough to allow a thorough examination of the many intricate details that would be hidden were the vessel completely intact.

The second objective, to provide positive vessel identification through identifying marks or artifacts, was not achieved. Although the *Floretta* site is not as heavily visited as other Wisconsin shipwreck sites, recreational divers following her discovery recovered many artifacts. Some cultural artifacts that were not removed from the site are now hidden/covered by invasive mussel colonization; other artifacts have been intentionally hidden by divers to prevent their theft and still some artifacts remain visible amidst the wreckage. Although no name board was located, the vessel's size, location, construction, and description of her loss all support the identification as the *Floretta*.

Since the *Floretta* is somewhat remote and lightly visited by divers, a State-sponsored mooring buoy is not planned for the site at this time. The site depth would prove challenging given the current shipwreck mooring system permitted by the Wisconsin DNR. If visitation by divers increases in future years, and there is sufficient support from the diving community, the need for a mooring buoy may be revisited. Information gathered during the survey will be used to for website updates, and public outreach and educational materials.

Like the *Major Anderson* and *Floretta*, the *Lakeland* survey was designed to document Great Lakes steel hulled steam screws. The wreck provides information about automobiles of the early

1920s as well as information about early triple expansion engines. This objective was achieved. The *Lakeland*'s nomination was submitted for inclusion on the State Register of Historic Places in March 2014, and will be forwarded on to the National Park Service for consideration for listing on the National Register of Historic Places.

The *Lakeland* is a unique site for several reasons. At the time of her launch, she was the largest ship on the Great Lakes and was the first vessel on the Great Lakes powered with a triple expansion engine. The shipwreck is largely intact with most of her automobile cargo remaining. Photographs taken by a crewmember of a nearby vessel document the *Lakeland*'s sinking. News of the *Lakeland* sinking and the novel dive investigations were of significant interest to communities along the Great Lakes. The United States Navy and Bureau of Mines were able to utilize the *Lakeland*'s sinking for forensic investigation of a deep-water shipwreck and to test their mixed gas technology and the accompanying decompression tables. The resulting court case was closely followed across the country.

Many of the automobiles extant on the *Lakeland* are intact enough to identify the make and model of the vehicles. A total of five Kissel, ten Nash, and six Rollin automobiles are currently on the *Lakeland* wreck site. Only one automobile, a Rollin car, has been removed from the shipwreck site in 1979.

The *Lakeland*'s close proximity to Sturgeon Bay and her cargo make the site popular with divers for technical dive training and for those technical divers who are gaining experience in diving to deeper depths. As well, the *Lakeland* generates interest and excitement among the vintage automobile enthusiast community. The *Lakeland* wreck site is too deep to be a good candidate for a state sponsored mooring buoy. Information gathered during the survey will be used for website updates, and public outreach and educational materials for Wisconsin Automobile Museum and the Door County Maritime Museum.

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