Telescope

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GREAT LAKES
MARITIME
INSTITUTE

DOSSIN GREAT LAKES MUSEUM
Belle Isle, Detroit, Michigan 48207

MEMBERSHIP NOTES ●

The Institute will sponsor a model shipbuilding contest in October. Contest rules are available at the Museum and the deadline for accepting entry forms is October 1. The models will be brought to the Museum on October 22 and judging will take place on October 30.

The Welland Canal model is finished except for the model cases. Unfortunately they were destroyed in a fire (not at the museum) while under construction. Therefore the opening of the exhibit has been delayed until late July or August.

The tentative date for the 2nd Marine Flea Market is set for August 14, 1982 at the Museum. Please watch for final details in the July/August issue.

"Canal Days" will be held in Port Colborne on July 31 and August 1 on the block of property housing the museum and library at 280 King St. Those wishing further details should write to: Port Colborne Historical and Marine Museum 280 King St., Port Colborne, Ontario L3K 4H1.

MEETING NOTICES ●

The next entertainment meeting will be held on May 21, 1982. See meeting notice on page 83. Due to the Powerboat Association reception being held at the Museum, the June Board meeting will be held on June 18. Because of the ever-increasing number of Monday holidays, beginning in September, ALL MEETINGS WILL BE HELD ON THE 3RD FRIDAY OF THE MONTH. The August business meeting will be held on August 20 at 8 p.m. at Dossin.

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OUR COVER PICTURE. . .A tranquil morning for the *Thomas F. Patton* as she is unloading her cargo of coal at Port Washington, Wisconsin in August, 1979. . . the last season of service. This photo was taken by Paul Wiening, who wrote the lead article in this month's issue on the passing of the C-4 type vessels.

Telescope is produced with assistance from the Dossin Great Lakes Museum
an agency of the Historical Department of the City of Detroit.

SO LONG C-4!

by
PAUL WIENING

Born of necessity, war-built ships have always had their shortcomings. During the major conflagrations of this century, the Federal Government has needed cargo ships to provide transportation of vital goods, services, and troops. Since ships were vulnerable to all types of attack, they had to be both fast and readily available. In most instances, the Government ordered large numbers of standardized designs from many different yards.

Standardization has proven to be the answer. During the First World War, hundreds of canal-size "Lakers" were produced on the Great Lakes by all of the shipyards in the United States. Canadian shipyards also produced in large quantities in a minimum of time.

During World War II, standardization was again requested, and the familiar "Maritime" class of vessel was produced on the Great Lakes. For ocean service, the popular and numerous "Liberty" and "Victory" class ships emerged as a product of these conflicts. Along with them came other standardized types of vessels, such as the various T-class tankers, and C-class cargo ships.

Toward the end of the war came the large C-4 class of ships. These were built in various shipyards across the United States in numbers approaching one hundred. These ships of various designs were built between 1944 and 1946; were 522 feet in length; were functional and fast; and were relatively sparse as far as

Author's Photo

The first of the Lakes C-4's was the TOM M. GIRDLER. *Seen here when still operated by Republic Steel at the Soo in November, 1969.*

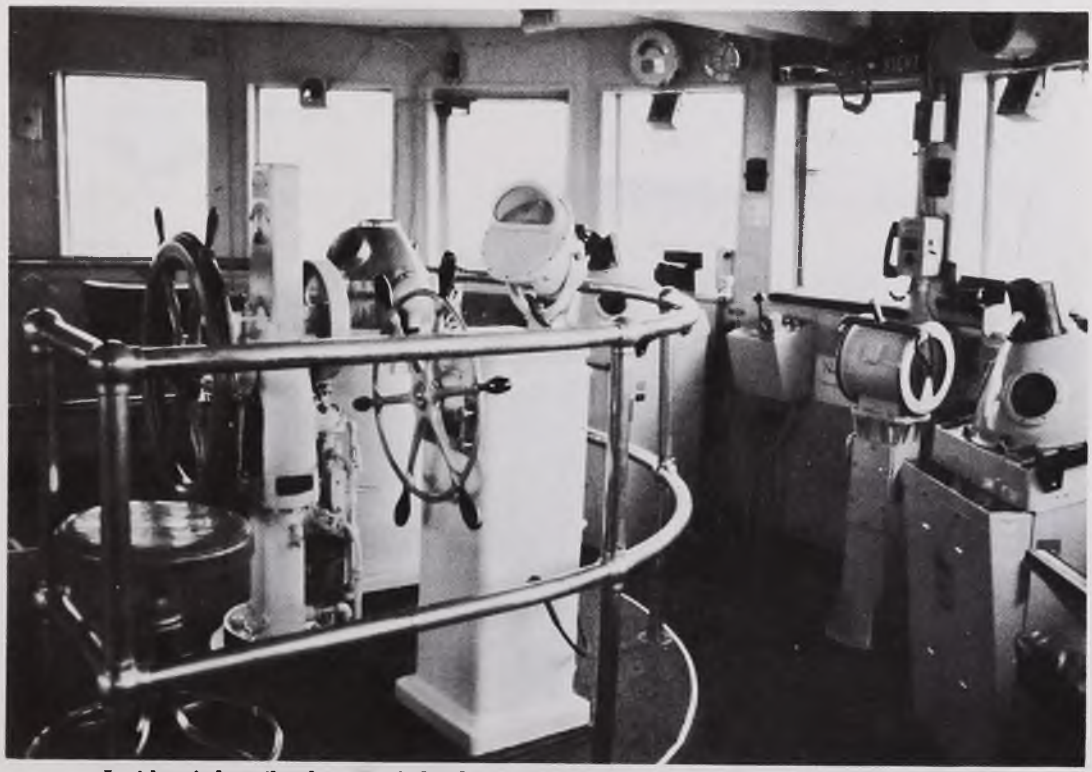
external appurtenances were concerned. But, beauty was never a consideration for war-built ships, and they needed to keep a relatively low profile. Some of these C-4's were built as cargo carriers, while others were modified for use as troop transports and hospital ships. Many of our fighting forces were brought "home" to the United States as the end of the hostilities on a C-4 troop ship. These large vessels were usually equipped with 9900 horsepower steam turbine engines that could deliver loaded speeds in excess of 18 knots, and were operated by private vessel operators on a "cost plus" basis to the government.

After the war was over, many of the C-4 carriers remained on use on the oceans of the world for several years, until they were no longer used for troop transports in the late 1940's. By the end of the decade, many of them were moth balled. They were sleek in appearance, although extremely wide for their length at 71 feet, 6 inches. Most of the vessels in the C-4 class were either named after generals, famous war-time persons, or had the "Marine" prefix as part of their name.

C-4 carriers were not on the Great Lakes until the 1950's, since their size made it impossible to get them to the Lakes through the old Welland Canal and St. Lawrence system. The first of these vessels were brought to the Lakes in 1951. All were products of the Kaiser Shipyard in Vancouver, Washington and were basic type "C4-S-A4" vessels.

Republic Steel Corporation purchased these three ships and had them taken to Baltimore. Meanwhile, new, higher capacity bow sections were being fabricated at Pascagoula, Mississippi, and were taken to the Baltimore shipyards, where they were assem bled to the salvaged stern sections of the C-4's. One by one all of them were taken to Chicago via the Mississippi River system, where they underwent their final assembly. Because of low clearances, none of them were transported with upper cabins in place.

The first of these carriers was christened *Tom M. Girdler*, and was followed by the *Troy H. Browning* and the *Charles M. White*. All of them came to be known as the "Girdler class". With the addition of their new bows, the vessels were lengthened over 80 feet,



Author's Photo

Inside of the pilot house of the GIRDLER. *The* GIRDLER *like the* CHARLES M. WHITE *was later equipped with bow thrusters.*

Author's Photo

Of all the C-4's, the THOMAS F. PATTON *was the only one equipped with a steam whistle. Her steam chime formerly belonged to the* J.E. UPSON.

and were designed to call at the various Repbulic Steel docks around the Great Lakes. They were first operated by the Nicholson Universal Steamship Company of Detroit.

The "Girdler class" C-4's presented quite a scene to behold when first seen, and were quite unlike any other ore carrier on the Lakes at the time. Fitted with a huge orange smokestack, large three-story gray and white pilothouse and cabins, and a white stripe running the length of its obviously ocean style hull, these first conversions were alternately praised for their uniqueness or scorned or their weird appearance - depending on the point of view of the observers.

The "Girdler class" C-4's were modified to fit the smaller docks of Republic Steel, notably those in Chicago, and had been built for Lakes service in smaller dimensions than the C-4's that would follow. This would ultimately result in their early demise. What these first three ships may have lacked in carrying capacity, they made up for in speed, capable of developing a speed of 21 m.p.h. when light, and 18 m.p.h. when fully loaded. The fact that they used large amounts of fuel was not especially important in those halcyon days before the OPEC and embargoes, and energy shortages.

One year later two more old C-4's were brought to the Lakes. The term "old" is used advisedly, since they were actually only about 7-8 years old at the time. The *McKee Sons* and *Joseph H. Thompson* were both products of the Sun Shipbuilding Company in Chester, Pennsylvania. In their Great Lakes reincarnation they were both longer and deeper than the "Girdler class" C-4's. However, both of these ships also received new bow sections, and retained a very large smokestack. The *McKee Sons* would also become the only one of these conversions to be rebuilt as a self-unloader. Even with all of its extra equipment, the *Mckee Sons* was still capable of a commendable top speed of 17½ m.p.h. when loaded. Most other Lake ships of the time were lucky to reach speeds of 12 m.p.h.

In 1955 the passenger steamer *Aquarama* made its appearance on the Lakes, and was the only of the the six C-4's to retain its original hull. It was rebuilt as the most luxurious liner on the Lakes, capable of carrying 2500 passengers and 165 automobiles at a top speed of 22 m.p.h. It did not have any sleeping quarters, but otherwise offered passengers the ultimate in dayboat service, including

a swimming pool.

Up through the ensuing years, the C-4's continued to operate in service on the Lakes but were never recognized as major design leaders. The *Thompson* was, for a time, among the longest vessels on the Lakes, and today only she remains in steady service. The *Aquarama* was the first to be tied to the docks because of the depressed nature of passenger business.

The powerful turbines that were so necessary for speed on the high seas during wartime were a detriment in the later years because of fuel economy. . .or rather, the lack of it. The thirsty oil burners proved to be the undoing of the C-4's.

The three Republic boats remained in the Nicholson Universal fleet for a time, and then were managed by Wilson Marine Transit Company; until that fleet ceased operation in 1971. Republic called a halt to their own fleet as that time, and the *Tom M. Girdler, Charles M. White* and *Thomas F. Patton* (which had been renamed from the *Browning* in 1955) went under bareboat charter along with the iron ore contract to Cleveland Cliffs Steamship Company. The colors were then changed to the familiar combination of black hull, and pea-green cabins with white trim. Gone was the distinctively bright orange smokestack, and in its place a black stack with a very immense red "C".

As long as Cliffs had the Republic ore contract, the C-4's were fairly secure. The three sisters usually traded between Escanaba and Chicago, with other trips to other Republic docks. Coal runs to Port Washington, Wisconsin were common from 1975 on, and were perhaps among the reasons that they were able to remain in service as long as they did.

All three of the sisters of the "Girdler class" remained in operation throught 1979. The *Girdler* and *White* operated for a short while in 1980. Crews reported in the spring to fitout the *Patton*, but the economy fell much short of expectations, and the ship never sailed again. The *Girdler* and *White* were both in their final layups before the season was much over two months old.

Cliffs had the Republic ore contract through 1980, and hauls to Chicago and other smaller docks were completed with other carriers in their fleet that were more economical to operate.

As the Republic Steel hauling contract was transferred to another carrier in 1981,

Author's Photo

The famous C-4 stern and large smokestack can easily be seen here in this view of the WHITE, *shown inbound at Port Washington in June, 1979.*

Author's Photo

The MCKEE SONS *was the only one of the C-4's to be converted to a self-unloader. She is shown here at the Reiss Coal Dock at Sheboygan, Wisconsin.*

Author's Photo

Only the JOSEPH H. THOMPSON *remains competitive in today's ore service. She was the largest of the C-4's to be converted for lakes service.*

early expectations concerning the fate of the sisters turned to anxiety. The new carrier didn't want the C-4's, and instead converted several of their own vessels to self-unloaders to handle the contract. Interlake Steamship Company, the awardee of the contract, would theoretically have taken over the operation of the three Republic vessels. This never materilized since the economies of operation in the 1980's dictated more fuel consciousness and capacity. the C-4's could simply not compete profitably.

Republic sold all three to foreign shipbreakers in the fall of 1980, and they were quickly dispatched. Thus, the first three C-4 ships on the Great Lakes were also the first to depart. Although they were fairly new by most Lakes comparisons, they simply weren't competative. The "Girdler class" C-4's were not lengthened or deepened in the same manner as the *Thompson* and the *McKee Sons*, and thus didn't have as large a carrying capacity. Troublesome war-built engines that had a high cost of operation per ton were not justifiable. In the high scrap market of 1980, they were more valuable as junk.

Until the very end, rumors were rampant concerning the eventual fate of the three sisters. It was hard to realize that these relatively youthful beauties could be discarded so soon. . .but such was the case.

Meanwhile, times caught up to the other C-4's as well. The *McKee Sons* didn't fit out in 1980 or 1981 for much the same reasons. Her owners had several new ships built in the 1970's, and she actually was one of the oldest ships remaining in the fleet. Her future still remains in doubt as she continues in layup status.

The *Aquarama* has been idle for well over a decade in Muskegon, Michigan where she had been brought to eventually replace the *Milwaukee Clipper* in car and passenger service. This never materialized, and she remains tied to the pier.

Only the *Joseph H. Thompson* remained in service during 1980 and 1981. However, of all the converted C-4's she was the largest. How long she can remain in service is still in question.

When they were brought to the Lakes, the *Aquarama, McKee Sons,* and *Joseph H. Thompson* were all involved with the Sand Products Company of Muskegon. Sand Products operated the *Aquarama*, and in conjunction with the American Steamship and Hanna Mining Compnay formed the Amersand and Hansand Steamship Companies to operate the other two.

Although at the time the C-4's were not much for esthetics, their enormous cabins, cruiser sterns and large smokestacks now seem somewhat more beautiful when compared with the modern squared lines of the new breed of ore boat. So quickly they appeared on the scene. . .and so rapidly they departed. So Long, C-4. . .it has been an all-to-brief-visit! □

Name	Year built	Year Rebuilt	Dimensions			Original Name
Tom M. Girdler	1945	1951	600	71'6"	35	Louis McHenry Howe
Thomas F. Patton	1945	1951	600	71'6"	35	Scott E. Land
Charles M. White	1946	1951	600	71'6"	35	Mount Mansfield
McKee Sons	1945	1952	633	71'6"	39	Marine Angel
Aquarama	1945	1955	520	71'6"	26	Marine Star
Joseph H. Thompson	1944	1952	714	71'6"	39	Marine Robin

Name	Modifications	Where Built
Tom M. Girdler	Lengthened 80'	Kaiser Company Hull 513
Thomas F. Patton	Lengthened 80'	Kaiser Company Hull 520
Charles M. White	Lengthened 80'	Kaiser Company Hull 516
McKee Sons	Lengthened 123' converted to s.u.	Sun Shipbuilding Hull 354
Aquarama	Converted to pass/carferry	Sun Shipbuilding Hull 357
Joseph H. Thompson	Lengthened 199'3"	Sun Shipbuilding Hull 342
		Kaiser Company - Vancouver, Washington.
		Sun Shipbuilding - Chester, Pennsylvania.

THE ERIE BELLE REMEMBERED ONCE AGAIN

BY
T.S. DOYON

In the year 1862, a steam powered tug was launched at Cleveland, Ohio. She was given the name *Hector* and from there she would sail over the next 21 years to a lonely Lake Huron beach near the small Ontario town of Kincardine. No one knew it at the time of course, but this beach would one day be named in honour of this ship.

Her construction was financed by the Northwestern Insurance Company. The measurements of the vessel were as follows: 108 feet in length, 20 feet in width, 10.5 feet in depth and a gross tonnage of 214 tons. She originally carried no mast, had one deck and a rounded cruiser type stern.

On the 31st of October, 1865, after only three years with the Insurance Company, the *Hector* was sold to C.H. Carey of Detroit. She was operated here without incident until May of 1867 when she was down on the west side of Long Point, Lake Erie. While attempting to free a grounded schooner, the water level was allowed to drop too far and her boiler was damaged by overheating.

Then, on the 27th of November, 1873, the *Hector* struck a shoal north of Sugar Island in the Detroit River. She quickly filled with water and slipped to the bottom. The company she was insured with seemed to give up hope and wrote her off as a loss, however, it is on record that she was refloated, repaired and put back into service by the same owners.

The *Hector* was again sold in June of '78 to Nelson Whipple of Detroit but before a year had passed, he decided to sell the tug to a Canadian firm. She was purchased by Odette & Wherry of Windsor, Ontario in April of '79 and it was here that she was converted to a passenger ship and renamed the *Erie Belle*. She was presented with a second deck and scheduled to sail between Windsor and Leamington three times a week stopping at all intermediate ports.

It appears she sailed this route faithfully for one year without any recorded mishaps, until April of 1880 when her Master, Jacques Laframboise, was backing his ship, loaded with passengers and freight, out of Kingsville harbour when she struck the upright fluke of an anchor from the schooner *M.C. Upper*. If Laframboise was concerned at all he didn't show it as he ordered her to continue on her course. After only a few miles, the crew noticed her taking on water and when it was realized that the pumps couldn't keep up with the steady intake, the steamer was pointed towards shore and run aground. Everyone was able to make it to shore by lifeboats without any injuries or mishaps.

Over the next few days, the *Erie Belle*

Author's Photo

Remains of the boiler from the ERIE BELLE *situated off of Boiler Beach, Ontario.*

was severely damaged due to bad weather and unsuccessful attempts by various tugs to tow her off. After more than two weeks work she was finally re-floated and towed to a dry dock in Detroit. An article found in the May 21 edition of Windsor's *Essex Record* reads: 'Last week the tug *Erie Belle* went into Springwells dock to complete her repairs. With her after cabins removed and housed in, she makes as fine a tug as seen on the river. She was out for her trial run as a tug on Monday.'

From then on she was used in the wrecking and salvage end of the companies business. Working once again as a tug, she suffered some damage in July of 1880 while trying to tie up to a schooner in trouble off Port Burwell. Her towline snapped and tore away a considerable amount of her fantail. Again she was laid up for a short time while undergoing the necessary repairs.

Over the next year or so the *Erie Belle*, under the new command of Captain Sunderland was kept busy with all the common duties of a steam tug. One of her more acclaimed accomplishments was the raising of the *Isaac May*. She also took part in the freeing of the only five-masted schooner ever built on the Lakes, the famous *David Dows* which had struck on Avon Reef.

From here we skip the routine year of '82 and flip the calendar to the stormy month of November in the year 1883. It's the 20th of the month and we find the *Erie Belle* tied up alongside the tug *John Martin* in Kincardine harbour. The *Belle* under the command of Captain John E. Tobin, was sent here to free the schooner *J.N. Carter* which went aground two miles south of town with a heavy load of squared timbers.

On the morning of Wednesday, November 21 with the weather somewhat less violent than the days previous to this, the tug pulled out of Kincardine harbour and headed for the *Carter*. The schooner was found lying broadside so the tug's crew began the job of pulling the schooner into deeper water. A story in the *Kincardine News* tells what happened later that day.

"About 3:30 this afternoon a loud report like the discharge of a 20-pounder cannon was heard in town and while conjecturing the cause, word was received that the tug *Erie Belle*, owned by Odette & Wherry of Windsor, which had arrived in port on Tuesday morning to take the schooner *Carter* off the beach had

blown up and all hands were lost. On going to the scene of the disaster it was found that the boiler of the tug had exploded and though the vessel herself was lost, fortunately the lives of the eight of the twelve crewmen had been saved. What caused the accident will never be known. It is supposed the pump which supplied the boiler had become choked in some manner and that the trouble was not noticed by the chief engineer who was in charge. The water got low and when the pumps did force some water into the boiler it had the same effect as sparks on gun powder."

As previously mentioned, four of the crew were killed in the blast. It seems certain that the First and Second Engineers; William Osgood and Frank Eikenhurst, and a fireman, William Johnson, all lost their lives in the accident. However, the identity of the fourth casualty remains a mystery. Records can't agree whether it was a second fireman, a deckhand or a cook. Another article from the local newspaper telling more of the plight is quoted: "The captain floated helplessly, his arms paralyzed by the blast. The wheelsman, Frank Conroy, noted his plight and shoved the Captain onto a piece of floating wreckage and started pushing it shorewards. Kincardine's volunteer boat crew came quickly to the rescue. William Pocock (who lived to be the last surviving member of the tugs' crew) clambered through a porthole, dragging behind him James Gardener of Kincardine, who had been visiting him. Dan Finlayson, also saved by Pocock, was blinded by the explosion."

As for the tug, the owners were advised that she was a total loss and had to settle for the insured amount of $7,000 even though the ship was valued at $10,000.

For some unknown reason, there are no records stating when and how the *Carter* was pulled off the beach. Although it is known that she eventually was freed and sailed again under Captain Tom Welbanks.

Today, close to a century later, the rusting and jagged remains of the boiler can still be viewed resting in a few feet of water directly off of what is known as Boiler Beach. In 1965 a cairn was erected on the beach near the boiler to remind all, not only of this disaster, but of al the brave sailors on Lake Huron. □

Author's Photo

The cairn erected in 1965 at Boiler Beach.

TIGHT CORNERS!

by
HARRY BENFORD

Harry Benford is a Professor of Naval Architecture and Marine Engineering at the University of Michigan. He wrote this article for Seaway Review *magazine last fall and we appreciate their permission in allowing us to reprint it in* Telescope. *Those interested in a year's subscription to* Seaway Review *should send $14.00 American or $17.00 Canadian to Seaway Review, Circulation Manager 8715 Parmater Road, Elmira, Mich. 49730. (616) 546-3806.*

Paul Bunyan, so the story goes, once described a certain river that was rather useless for navigation. For half its length it was a mile wide but only a foot deep. Then suddenly changed and was a mile deep but only a foot

Photo Courtesy of American Steamship Company

The AMERICAN REPUBLIC, *634 x 68 x 40, is powered by twin screws so the engine room could overlap the cargo hold and save space.*

wide. Cleveland's contribution to navigable waters, the Cuyahoga, is not much better. It is a turbid, twisting, narrow, bridge-infested creek fit only for navigation by small canoes or large intertubes. Whoever attached "River" to its name was suffering from delusions of grandeur.

This meandering obstacle to maritime transport is also the umbilical cord of numerous steel mills that line its convolutions some four to five miles upstream. The mills were built in the days when ore carriers were around 300 feet long. As ship lengths increased to around 600 feet the ultimate limit of the stream was reached - and that only by dint of continual dredging.

Thus, when the MacArthur Lock was opened in the 1940's, the mills were denied the service of the 730-foot ships that followed. The Cleveland mills suffered in competition with those that could be reached by the larger ships. Then in 1972 the new Poe Lock led to the thousand-footers that dominate the Lakes today; and the Cleveland mills found themselves at an even more serious disadvantage.

The way to save the Cleveland steel industry was obvious: use thousand-footers to carry the iron ore to the lake front and then move it the final few miles by truck, rail, barge, or conveyor belt. A special self-propelled shuttle barge was decided upon. Unfortunately local politics denied the use of the Cleveland waterfront.

One of the steel companies, Republic, therefore chose to modify the plan and developed a transshipping dock at Lorain, some thirty miles up the Lake. That was a reasonable compromise, but required a ship suitable for open lake as well as river navigation - a beast more expensive to build and operate than the shuttle barge originally envisioned.

The American Steamship Company won the long-term contract to carry the iron ore pellets from the Lorain terminal to the Republic mill five miles up the Cuyahoga. The design and operating method of the ship developed for that service provide the subject of this article. The ship was given the name *American Republic*, not in a burst of patriotism, but simply in recognition of the two parties to the contract.

Some of the design requirements are obvious. The ship should carry as much cargo as possible within the dimensional constraints imposed by the Cuyahoga's twists, shoals, and bridges. It has to be highly maneuverable and to load and unload rapidly so as to complete each round trip in a hurry without benefit of tugs.

Other requirements are less obvious. For example, the bascule bridges, when raised, overhang the river at a slight angle. Dechhouses and bridge wings must therefore be stepped back to provide clearance. Ships at the more remote docks have to backtrack a mile to find a turning basin. The ship must accordingly be well suited to astern operations. Finally, in recognition of the unpredictable future, the ship should be versatile and so able to carry other kinds of cargo on other routes.

Design features. Credit for the conceptual design of the ship goes to Joseph P. Fischer, whom I am proud to claim as one of my former students. Joe is now Vice President of Operations of American Steamship; he was Vice President of Engineering at the time the design was conceived.

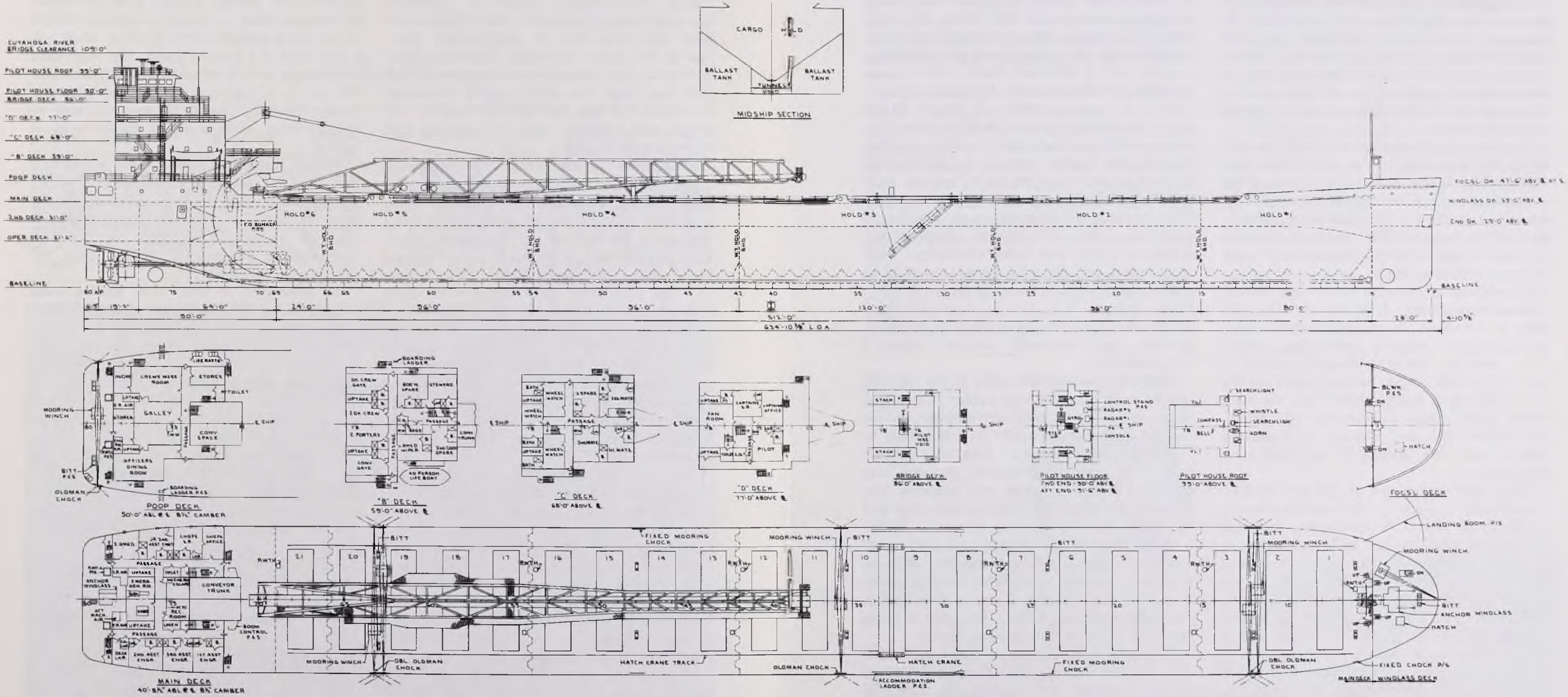
As explained to me, twin screws were chosen rather than single screw so the engine room could overlap the cargo hold, thereby eliminating the need for a dark hold - a wasted empty space near the bow. This maximized the cargo hold volume, a desirable feature when carrying coal or grain. Twin screws can also help in maneuvering, and the design exploits both advantages.

A major disadvantage of twin propellers is their susceptibility to damage, especially when dodging around river banks. The answer was to protect them inside stout structural shrouds (Kort nozzles) that add to propulsive efficiency at low speeds.

In order to give the ship good carrying capacity, the hull form (i.e. block coefficient) was made as full as was considered prudent. This was done by substituting short twin rudders in place of the normal single rudder abaft each propeller. That allowed the propellers to be placed farther aft than normal and so fill out the afterbody. Additional displacement was obtained by deeper-than-usual transom immersion, requiring modest tunnels over the smaller, twin propellers.

The cumulative effect of these measures was to give the ship the ability to carry about a thousand tons more cargo than is possible in other ships of comparable overall size and speed.

To enhance the ship's turning ability, 1000-


CARGO HOLD
BALLAST TANK
BALLAST TANK
TUNNEL
MIDSHIP SECTION
CUYAHOGA RIVER BRIDGE CLEARANCE 105'-0"
PILOT HOUSE ROOF 95'-0"
POOP DECK
MAIN DECK
BASELINE
HOLD #6
HOLD #5
HOLD #4
HOLD #3
HOLD #2
HOLD #1
634'-10 3/4" L O A
GALLEY
POOP DECK
"B" DECK
55'-0" ABOVE ℄
"C" DECK
68'-0" ABOVE ℄
"D" DECK
77'-0" ABOVE ℄
BRIDGE DECK
PILOT HOUSE FLOOR
PILOT HOUSE ROOF
FOCS'L DECK
MOORING WINCH
FIXED MOORING CHOCK
HATCH CRANE TRACK
HATCH CRANE
LANDING BOOM P/S
ANCHOR WINDLASS
MAIN DECK

horsepower thrusters are located in two tunnels, one at each end of the ship. If that doesn't impress you, let me point out that the 2000 horsepower available in the thrusters is comparable to the horsepower of the main engine of a typical old 600-footer of years gone by.

During backing operations the main rudders are out of the slip stream and are of little use. American Steamship therefore specified that two small flanking rudders be located forward of each propeller. When turning to their extreme position, two of these rudders fit up against the Kort nozzles and so provide maximum effect.

Control. As is the convention in bulk carriers today, the accomodations and pilot house are stacked high at the extreme after end. What is unusual is that the profile shows a step formation at the forward, rather than after, part of the houses. This was done in order to give the captain the best possible view over the stern while backing.

The officer in the pilot house has several alternative methods of control. In the open lake, for example, he can leave the steering to a wheelsman, while he controls the engines. (The ship has controllable-pitch propellers and the blade angle setting automatically harmonizes with engine power.) On the other hand, during tight maneuvering operations, the officer can use a more sophisticated system that was developed specifically for this ship.

This involves the use of any one of four identical control boxes, each about a foot on a side and placed in convenient locations within the pilot house. Left and right on each box are wheels that control combined engine speed and propeller pitch (hence direction and amount of thrust). Front and back are levers that control the bow and stern thrusters. On top is a flat lever, made to look like the ship, that controls the rudders.

The beautiful thing about the controls boxes occurs when the officer puts a propeller into reverse. That action automatically brings the corresponding main rudders back to neutral position and liks the flanking rudders to the steering lever. When the propeller is shifted back to the ahead condition, the reverse procedure occurs in the rudders and their controls. Thus, a single lever controls all rudders automatically.

Eliminating the wheelsman, especially during close maneuvers, is a wise step that our friends on the rivers learned generations ago. It has taken us a long time to catch on here on the Lakes. But, like the river operators, we can now maneuver the ship with just two men, namely the officer at any of the control boxes and a mate at the bow to call out distances over a telephone or walkie-talkie.

To move the ship through the water, each propeller is geared to a 20-cylinder, 900 rpm, 3600 bhp engine. To move the cargo out of the hold the ship has a single-belt self-unloading system and a 250-foot boom with power to off-load 6000 long tons of pellets per hour.

With a cargo capacity of nearly 20,000 tons, the ship can unload itself in about 3.5 hours. Loading takes nearly twice as long because the Lorain terminal's loading belt is fixed and the ship has to be warped back and forth during the process.

Two captains. After some more months of operation, when the officers have gained confidence, and after some mechanical bugs are worked out, the ship should be able to make a round trip in about 22 hours, barring traffic delays. With that sort of schedule, special attention has to be given to manning practice, and especially to the captain's responsibility.

Standard practice demands of the captain that he be in control on the bridge at all times when operating in confined waters. Asking that of any captain would be unrealistic in this particular service. Stealing another page from river practice, the decision was therefore made to place two captains (the second one called the pilot) on the ship and let them alternate periods of responsibilty.

In addition to the captain and pilot there are three mates, five engineering officers, a steward, and nineteen others, making a total complement of thirty. Thw work schedule for those other than captain and pilot is much the same as that in the rest of the fleet.

Currently in transition, the plan in 1983 will find the licensed officers working 60 days on, 30 days off. The unlicensed crew will work 90 days on, 30 days off. Full straight-time pay will of course be received during times ashore.

Human problems. This brings up the ever-present and, seemingly, ever-acute problem of human factors in ship management. In a recent trip I made on the *American Republic* I observed that the captain and the pilot were reluctant to use the integrated control system. Both preferred to leave the steering

to the wheelsman. Their hesitence to exploit the new and better system, coupled with their naturally cautious natures, resulted in average river speeds of little more than one mile per hour - less than half that of an ox cart. With its twin controllable pitch propellers, bow and stern thrusters, and eight rudders, the ship is surely capable of a much better performance in the river. Management's task is to induce the officers to exploit the versatile devices with which the ship is equipped.

A potential problem is that of the mates' morale. During river operations, when the mates really ought to be educating themselves in the pilot house, they are currently assigned to the remote reaches of the bow. There each stands a lonely watch, exposed to the weather in four-hour stretches. Their duty there of calling out distances is a task that any lesser trained crew member could easily do.

While the mate is exposed on the focsle deck, the wheelsman is taking his ease in the comfort of the pilot house. It is small wonder that wheelsmen feel little incentive to try for a mate's license, and so block the progress of younger, more ambitious seafarers.

All this has led me to suggest that the mate and wheelsman on the *American Republic* swap locations during river operations. The mate would be discouraged from touching the wheel except in emergencies (a policy no doubt involving union strictures). The captain and pilot would thereby be induced to exploit the full potential of the integrated control system. Meanwhile, the wheelsman, huddling up forward in the freezing rain, would surely be laying plans for taking his mate's exam before Christmas.

The lesson to be learned from the *American Republic* is that if technical innovation is to succeed it must be complemented by human innovation. Francis Bacon once avowed that a perverse retention of custom was a turbulent a thing as innovation. The challenge, it seems to me, is to make the captian and pilot feel some gently escalating turbulance until they bring themselves to take full advantage of the innovative tools placed at their disposal. Then the *American Republic* will be acclaimed Queen of the Cuyahoga. □

Photo by Greg Rudnick

The pilot house has a step formation at the forward rather than after part to give the captain the best view over the stern while backing.

GREAT LAKES & SEAWAY NEWS

Editor: FREDERIC E. WEBER
11400 Balfour Road, Detroit, Michigan 48224

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Members who contributed to the news in this issue are:

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Jan. 1. . .*Saba* wins the gold cane at Montreal as the first vessel of the season.

. . .The Cyprus flag vessel *Mighty Pearl*, ex-*Sea Pearl*, departed from Baie Verte, P.Q. for Caribbean ports at 9:30 a.m. At 11:30 p.m. she developed thrust bearing trouble in her main engine. After cleaning the filters on the thrust bearing, she proceeded to St. John, N.B. at a slow speed.

Jan. 3. . .The tanker *Amoco Wisconsin* closed the navigation season at Sault Ste. Marie when she departed after delivering a cargo of oil.

Photo by Paul Jagenow

The CASON CALLAWAY *with her new unloading boom at Fraser Shipyard in Superior, Wisconsin.*

MASSMAN PHOTO/Dossin Museum

Canada Steamship Lines has ended their package freight business and have placed their package freighters up for sale.

. . .The burned out tanker *Hudson Transport* was towed into Montreal by tug *Captain Ioannis S.* and her tanks will be cleaned out.

Jan. 4. . .Canada Steamship Lines announced the end of their Great lakes package trade. Their package vessels *Fort Henry, Fort York, Fort Chambly, Fort St. Louis,* and *Fort William* are for sale.

Jan. 5. . .*Mighty Pearl* arrived at St. John where repairs will be made.

. . .From Chatham, Ontario comes a report that the Lower Thames Valley Conservation Authority will rent the Canadian tug *Glenada* this winter. She will break ice jams in the Thames River.

. . .Former lakes visitor *Ocean Sprinter* bound for Syria with potatoes, had problems at Summerside, P.E.I. Six crew member left as claiming she was unsafe, leaking and cramped quarters. Later: six crewmen were flown home and the *Ocean Sprinter* was set to clear the port.

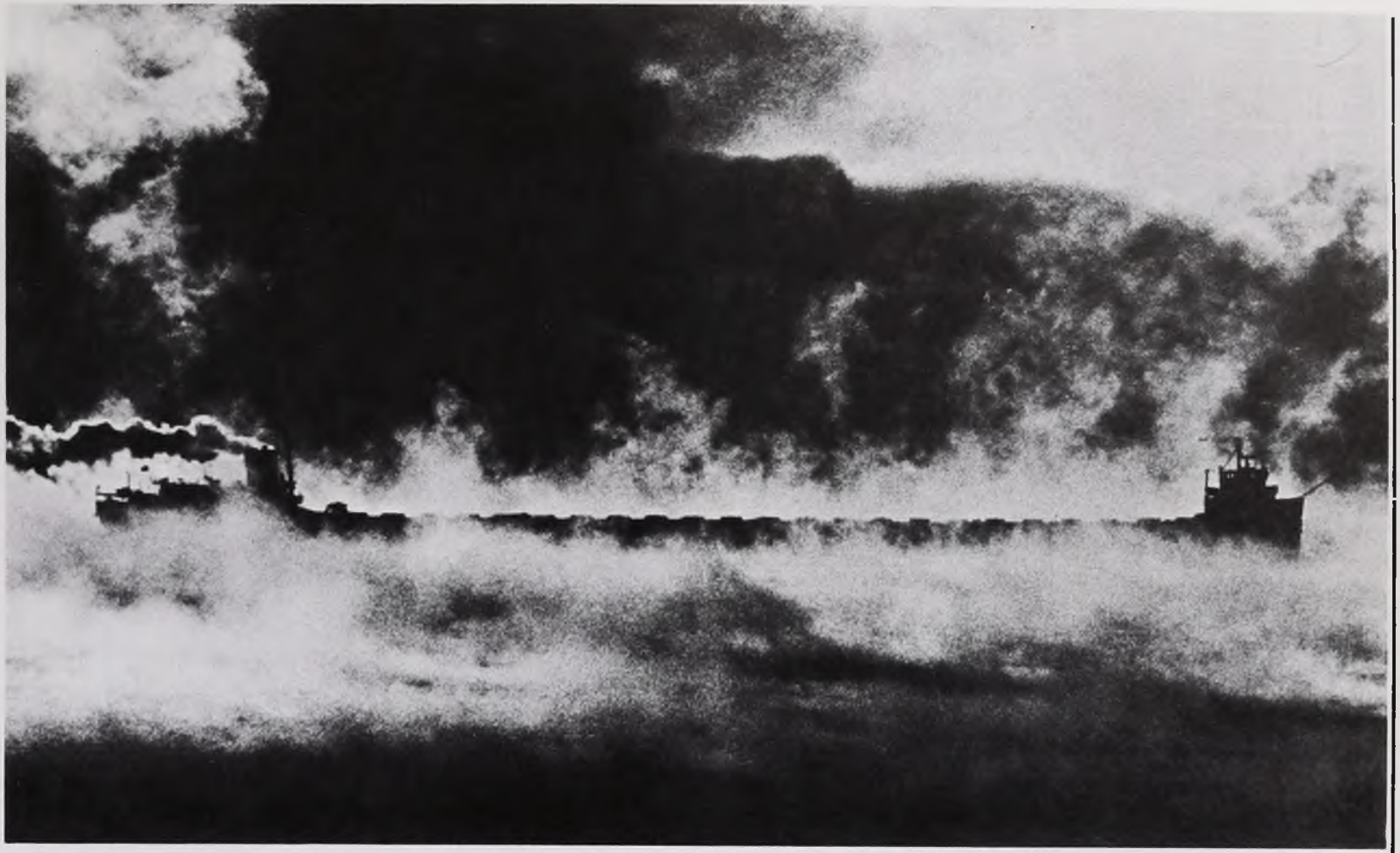
Jan. 6. . .Cleveland-Cliffs Iron Company announced plans to resume operations at its Empire Mine in Palmer, near Marquette, Michigan. Operations at the mine were shut down last November because of reduced demand for iron ore.

Jan. 7. . .From London comes a report that the Stag Line has sold its bulk carrier *Ixia.* She was built in 1964 and had been a Seaway visitor for a number of years.

. . .The rail carferry *Chief Wawatam* will tie up to an improved dock in Mackinaw City some time this year. The State Administrative Board has approved spending $400,000 to repair the dock.

Jan. 8. . .Another chapter of the Lake Michigan history ended today when the C&O carferry *Badger* sailed from Manitowoc, Wisconsin for the last time. With the closing of the Manitowoc-Ludington route, only the Kewaunee-Ludington route remains.

. . .The Eagle Harbor Lighthouse officially became a museum today. Michigan's Keweenaw County Historical Society will operate the 135 year old light station.



Shrouded in vapor clouds rising from 40-degree Lake Superior waters into four-degrees below zero air, the WILLIAM CLAY FORD *chugged toward Duluth on her final trip of the 1982 season. This photo is reprinted with the permission of the* Duluth-News Tribune.

Jan. 9. . .The Canadian tanker *Arthur Simard* has been renamed *Cedre I* at Montreal during a minor refit.

. . .Algoma's self-unloader *Algoport* passed downbound and proceeded to Reed's Stone Dock in Sarnia, Ontario for winter lay-up.

Jan. 12. . .Heavy ice on the Detroit River brought the railroad ferries to a halt. They started moving again when the U.S.C.G. *Bristol Bay*, N&W Railroad tugs *Cassidy* and *Johnson* broke the ice along with tugs from Gaelic Tugboat Company.

. . .Reports indicate that the *R.W. Holst* and *Erie*, two small sandsuckers. were broken up at Toledo and Fairport, Ohio last fall.

Jan. 13. . .U.S. Coast Guard tug/icebreaker *Katmi Bay* and *Biscayne Bay* were breaking ice for three tugs in the Straits area. The tugs are the *James A. Hannah, Mary E. Hannah* and *Mary Page Hannah* which were hauling fuel to various lake ports.

Jan. 14. . .Logistic Navigation donated the motor vessel *Fort Lennox* to the S.I.U. for a training ship at Morrisburg, Ontario. She had been idle at Sorel, P.Q.

Jan. 15. . .Two months ago the *Alfred,* ex-*Alfred Rehder*, was gutted by fire off Benghazi, Libya. It began in the engine room. *Marine News* reported that she will be scuttled.

Photo by Skip Gillham

The ALFRED *was gutted by fire in November, 1981 and she will be scuttled.*

● GREAT LAKES & SEAWAY NEWS

. . .Jan. 16. . .The Canadian motor vessel *Mathilda Desgagnes* has suffered ice damage at Chatham, New Brunswick.

. . .The Canadian m/v *Mothy*, ex-*Baie James* was holed by ice in the St. Lawrence River. She sent out a distress call and was assisted into Matane, P.Q.

Jan. 20. . .Testing of the U.S.C.G. hovercraft *Air Cushion Vehicle* were stopped on Lake St. Clair when the underskirting was torn by ice.

. . .Canada Steamship Lines now has 49% interest in Atlantic Freight Lines and will compete with Newfoundland Steamship on the Montreal-Newfoundland route.

Jan. 21. . .The arbitrator has ruled that Fraser Shipyards will reinstate 125 employees that were fired last October.

Jan. 25. . .The *Biscayne Bay* broke the ice which held the Drummond Islander at the dock for 24 hours.

Jan. 27. . .*Katmai Bay* sailed from the Soo to assist the *Drummond Islander*. The ferry was again stuck in the ice at the dock. Meanwhile the *Biscayne Bay* and the *Mackinaw* were breaking out the *Chief Wawatam* and two tugs that were stuck in the Straits. The tugs were the *Mary E. Hannah* and the *James A. Hannah* and the fuel barge that were bound for Sarnia, Ontario.

Jan. 26. . .Great Lakes shipping officials hope to forestall a U.S.C.G. budget-cutting move to decommission the *Mackinaw*.

Jan. 28. . .After being stuck in the ice in Lake Huron for 8 hours and drifting 3 miles off course, the tanker *Amoco Wisconsin* arrived at the Shell dock in Sarnia with assistance from the tug *Barbara Ann*. She loaded 2½ million gallons of xylene and toluene for Whiting, Indiana.

Jan. 29. . .The *Amoco Wisconsin* passed upbound at Port Huron, Michigan.

Feb. 1. . .The Canadian Coast Guard cutter *Griffon* cleared Sarnia for ice-breaking duty on Georgian Bay near Midland, Ontario.

Feb. 2. . .From Nassau comes a report that the m/v *Mighty Pearl* went aground 500 yards south of Inagua. No help was requested.

Feb. 4. . .The president of the Michigan Northern Railway Company said service from Petosky to Mackinaw City would stop today because the state planned to stop subsidizing the line. This will affect scheduling railroad cars for the *Chief Wawatam* because the line supplies the majority of her business.

. . .Repairs have been completed on the boilers on the *John O. McKeller. On April 11, 1981,* contaminated boiler feed water was used while in the St. Lawrence River estuary.

. . .*Mathilda Desgagnes* will sail Quebec City to Halifax for drydocking. Repairs will be made on her rudder stock.

. . .Repairs have been completed to the iron barge *Huron* and she returned to service on the Detroit River.

Feb. 5. . .The tug *Fairplay IX* proceeded to the aid of *Mighty Pearl* which was still aground.

GREAT LAKES & SEAWAY NEWS ●

. . .The Canadian tanker *James Transport* went aground in the St. Lawrence River near Grandines and tugs have left Quebec City to help her. She was freed later in the day with the aid of tug *Captain Oiannis S.*

. . .The Canadian vessel *A.C. Crosbie* has been renamed *Barken*. She sailed from St. John's for Sweden and conversion to a paper carrier.

Feb. 9. . .While the N&W tug *Johnson* was docking the barge *Roanoke* at the Canadian National slip in Windsor, a cut of cars broke loose. The cut stopped when the end of a boxcar went over the bow of the barge. the brake rigging was the only thing preventing the truck from falling into the river. The barge was brought back to Detroit where the rest of the cut of cars was winched back to the stern of the barge. A large crane was used to turn the barge at a right angle to shore and the errant boxcar was placed back on the barge. After inspection, the boxcar was sent on its way. The accident was blamed on cold weather and snow.

. . .The *James Transport* has been inspected and will go to Sorel, P.Q. for drydocking.

Feb. 10. . .The Canadian tanker *Texaco Brave* was pushed by thick ice and strong tide into the Quebec Bridge across the St. Lawrence River. Her mast was broken along with the radar and communications equipment. She continued on to Quebec City for survey.

Feb. 11. . .Four of the bay-series of the U.S.C.G. icebreakers are working in the Straits attempting to free two Hannah tug-barge combinations and the tanker *Amoco Wisconsin*. The tanker was headed for Mackinaw City and the tugs were headed for Traverse City. The icebreakers are: *Katmi Bay* from the Soo, *Biscayne Bay* from St. Ignace, *Bristol Bay* from Detroit and *Neah Bay* from Cleveland. The *Mackinaw* was awaiting orders at her Cheboygan berth.

Dossin Museum Collection

The AMOCO WISCONSIN *became trapped in the ice in the Straits of Mackinac.*

● GREAT LAKES & SEAWAY NEWS

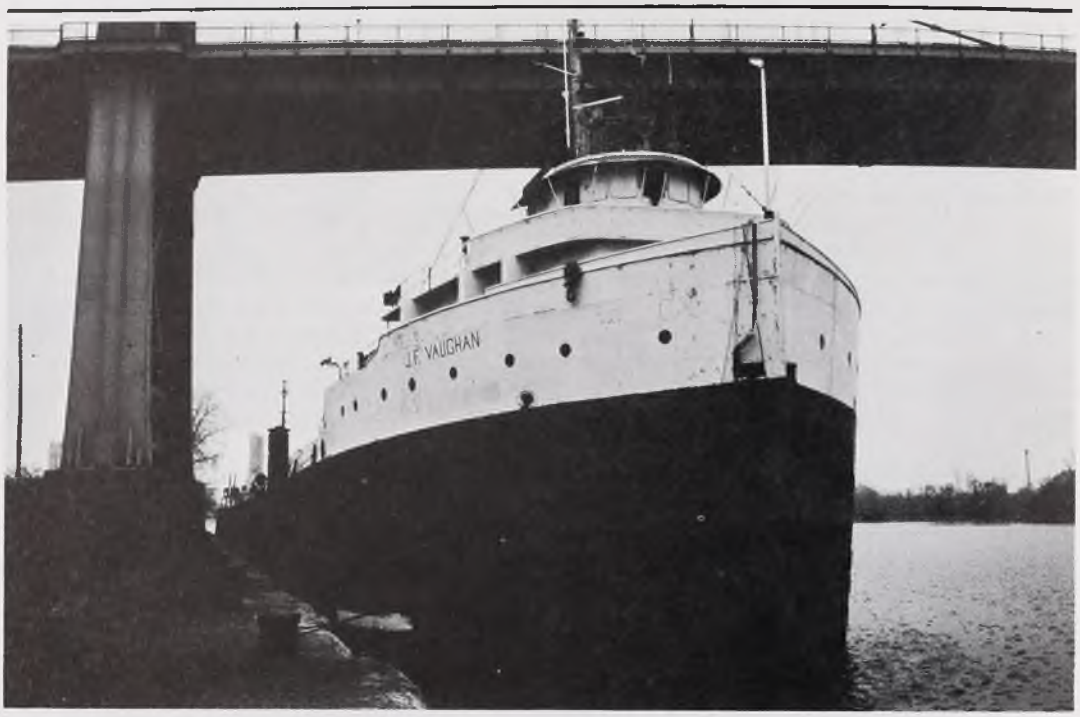


Photo by Peter Ristevich

The J.F. VAUGHN, *ex*-MAXINE *at Toledo.*

. . .The *Mathilda Desgagnes* sailed for Halifax for Algeria.

Feb. 12. . .The Belgian vessel *Cast Walrus* arrived in Montreal minus about 70 containers and some damage topside due to heavy weather. She was pounded by sleet, hail and rain during a hurricane. She listed and the deck containers fell into the sea.

Feb. 13. . .At the 1982 Grand Lodge Convention of the International Shipmasters held in Duluth, Captain Mitchell Hallin was installed as Grand President. Captain William Hoey was installed as Grand Secretary and Captain Tony Gilbert was installed as Grand Treasurer.

Feb. 15. . .*James Transport* entered dry dock at Sorel.

Feb. 17. . .*Mighty Pearl* was still aground due to weather hampering refloating efforts.

. . .The old passenger boat *Canadiana* sank at her dock in the Cuyahoga River at Cleveland. Her owner said she will be scrapped.

Feb. 18. . .Cleveland-Cliffs stated the Republic Mine on the Marquette Range may be closed longer than anticipated because of the drop in the demand for steel.

Feb. 19. . .Firefighters from South Chicago kept the Great Lakes Towing tug *Georgia* from sinking after a valve broke and she began to take on water. After three hours of pumping, the valve was fixed.

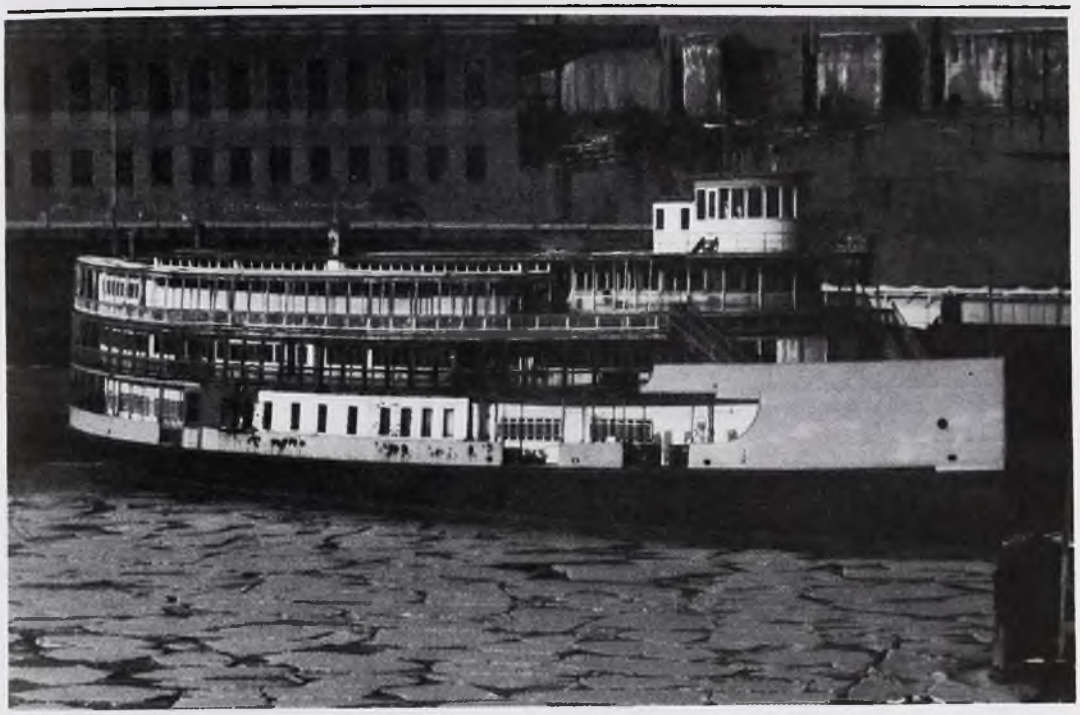


Photo by Ron Jones

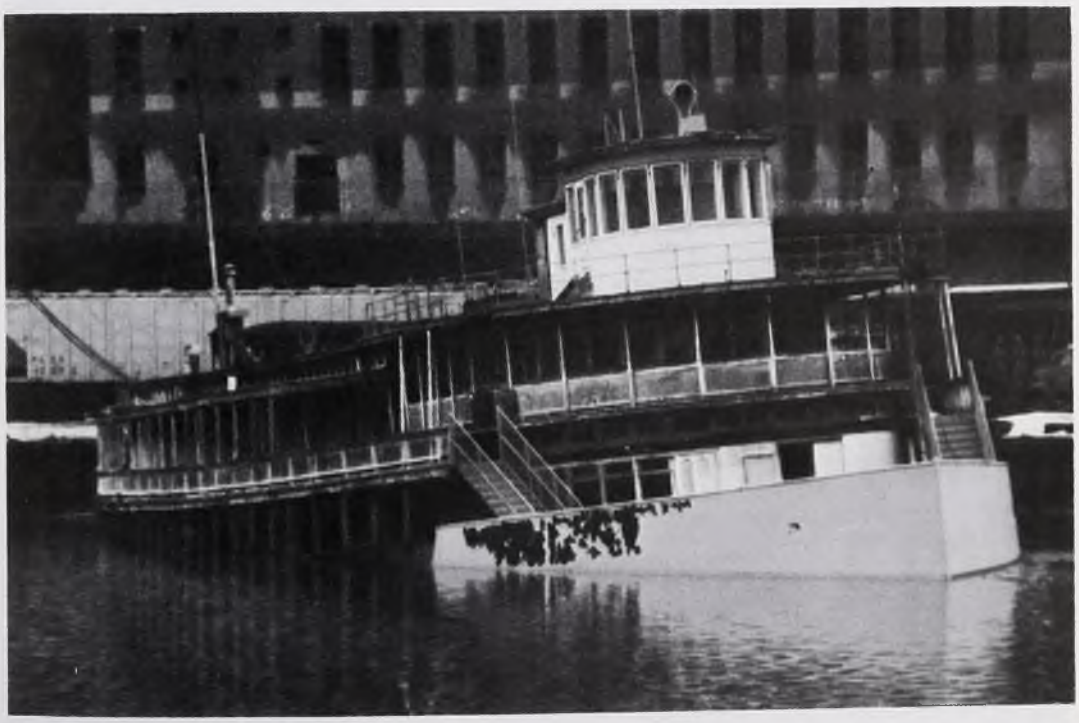


Photo by Ron Jones

Top: The CANADIANA *as she looked in January, 1981.*
Bottom: After breaking her mooring lines, the CANADIANA *sank at the dock and her owner has abandoned plans to convert her into a restaurant.*

● GREAT LAKES & SEAWAY NEWS

Photo by Gordon Macauley/Dossin Museum

Due to budget cuts, the MACKINAW *was threatened to be decommissioned but instead she will operate on a reduced schedule during the summer months.*

Feb. 22. . .Rouge Steel Division (Ford Motor Co.) held a week long seminar on medical emergencies aboard ship for marine officers and crew. This was the first time such a class has been held on the lakes and all aspects of first aid were covered including injections and CPR. Captain Robert Russell of the Maine Maritime Academy and author of *Guide to Clinical Care in Isolated Environments* conducted the seminar at the Rouge Plant.

. . .The St. Lawrence Seaway will open on March 29 if weather permits.

Feb. 25. . .The Turkish m/v *C. Tahsin* suffered a fracture in the shell plating near no. 7 hold and headed for Sydney, Cape Breton Island for refuge. She was on a ballast voyage to Port Cartier and has been in very heavy weather.

Feb. 26. . .Peterson Builders Inc. of Sturgeon Bay has been awarded a $69 million addition to a Navy contract.

Feb. 27. . .The Coast Guard has scrapped a proposal to decommission the *Mackinaw*. However service of the *Mackinaw* will be reduced during the summer months.

Miscellaneous. . .

. . .Former Bob-Lo passenger ship *City of Wyandotte* is now the *Spirit of Pittsburgh* and berthed in Pittsburgh, PA.

GREAT LAKES & SEAWAY NEWS ●

. . .The two-masted schooner *Alvin Clark* which was raised in 1969 may be moved from Menominee to White Lake in Monatgue, Michigan. She would be used to promote tourism in the area.

. . .Petro-Canada has ordered a 1,600 ton seismic vessel from Marine Industries Ltd. of Sorel.

. . .The carferry *Viking* may run between Muskegon and Milwaukee this summer if plan is successful.

. . .While digging in a construction site in Lower Manhattan, workers found the remains of an 18th century merchant ship. She was 80 x 26 feet and was buried as part of a landfill when Manhattan was expanded in 1750.

. . .The wreck of the Tudor warship *Mary Rose* lying underwater near Portsmouth, England has been declared an ancient monument by the government.

Salties Renamed. . . .*Volumnia* now *Sang Thai Steel, Muria Anna Schulte* now *Eagle, Polarland* now *Trakya, Beaverpine* now *Trade Container* and *Elsie Schulte* now *Vanny*.

MAY MEETING NOTICE. . .

Everyone is invited to bring 10 of their best slides taken at the Welland Canal to be shown at the May 21st entertainment meeting. The older the slides the better and we will have slide carousels available before the meeting. We are looking forward to seeing slides from all our photographers.

REMEMBER THAT BEGINNING IN SEPTEMBER, 1982 ALL MEETINGS WILL BE HELD ON THE 3RD FRIDAY OF THE MONTH.

The Great Lakes Maritime Institute, Inc., promotes interest in the Great Lakes; preserves items related to their history; encourages building of scale models of lake ships, and furthers programs of the Dossin Great Lakes Museum, repository of the Institute's holdings. The Institute was organized in 1952 as the Great Lakes Model Shipbuilder's Guild. It is incorporated under the laws of the State of Michigan as a not-for-profit corporation and donations to the Institute have been ruled deductible by the Internal Revenue Service. No Institute member is paid for services. □

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GREAT LAKES MARITIME INSTITUTE
Dossin Great Lakes Museum
Belle Isle, Detroit, MI 48207

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GREAT LAKES MARITIME INSTITUTE

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DETROIT, MICHIGAN 48207

All members are invited to submit items to the News Section. Those who contribute to this issue are listed in the News Section heading. The Editors must reserve the final decision in selection of items used.

Please direct ALL NEWS MATERIAL to the NEWS EDITOR - ALL OTHER CORRESPONDENCE to the COORDINATING DIRECTOR. □

Award of Merit
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