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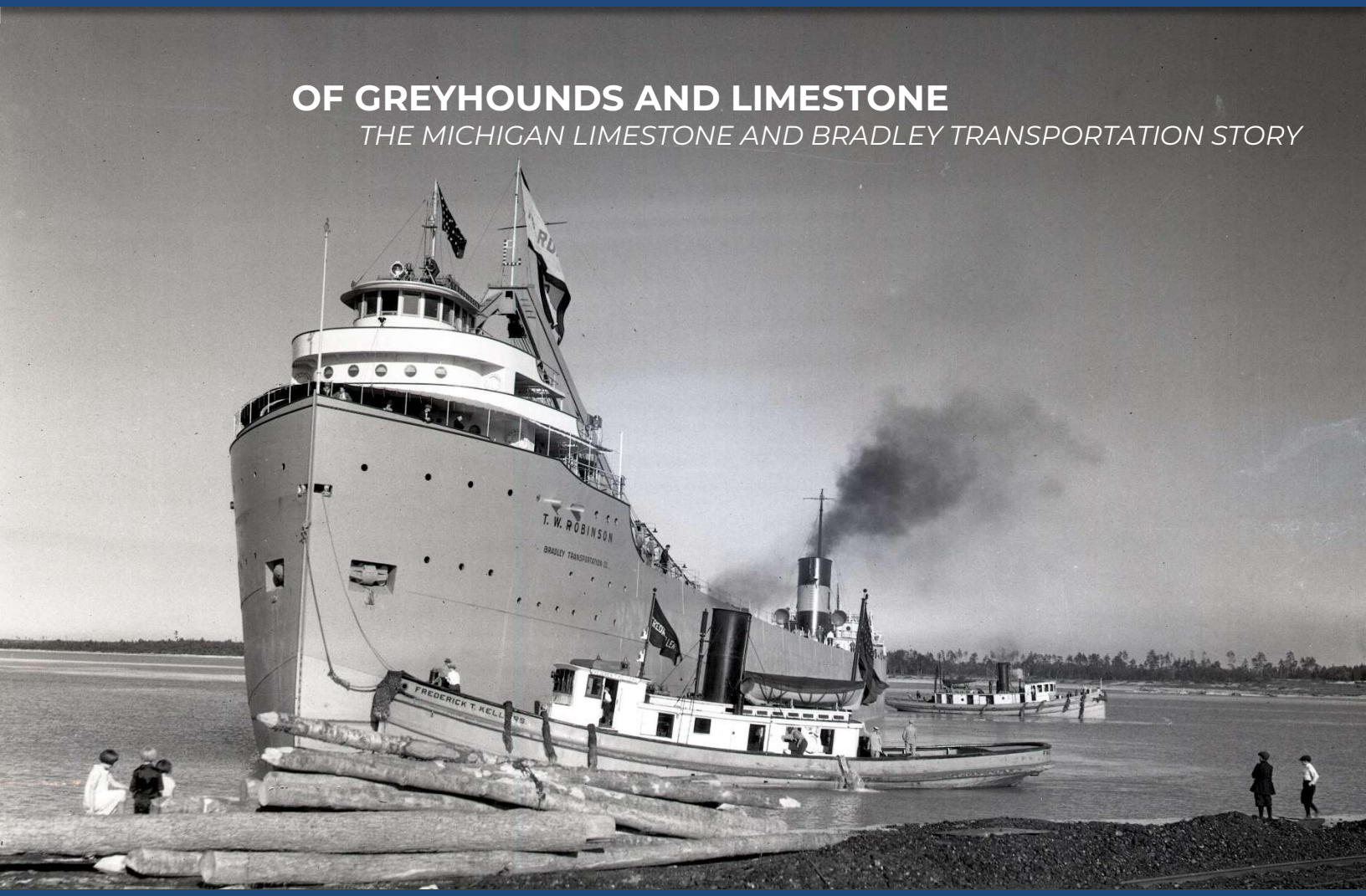
OF GREYHOUNDS AND LIMESTONE

THE MICHIGAN LIMESTONE AND BRADLEY TRANSPORTATION STORY



- ALGOMA CONTINUES TANKER FLEET EXPANSION
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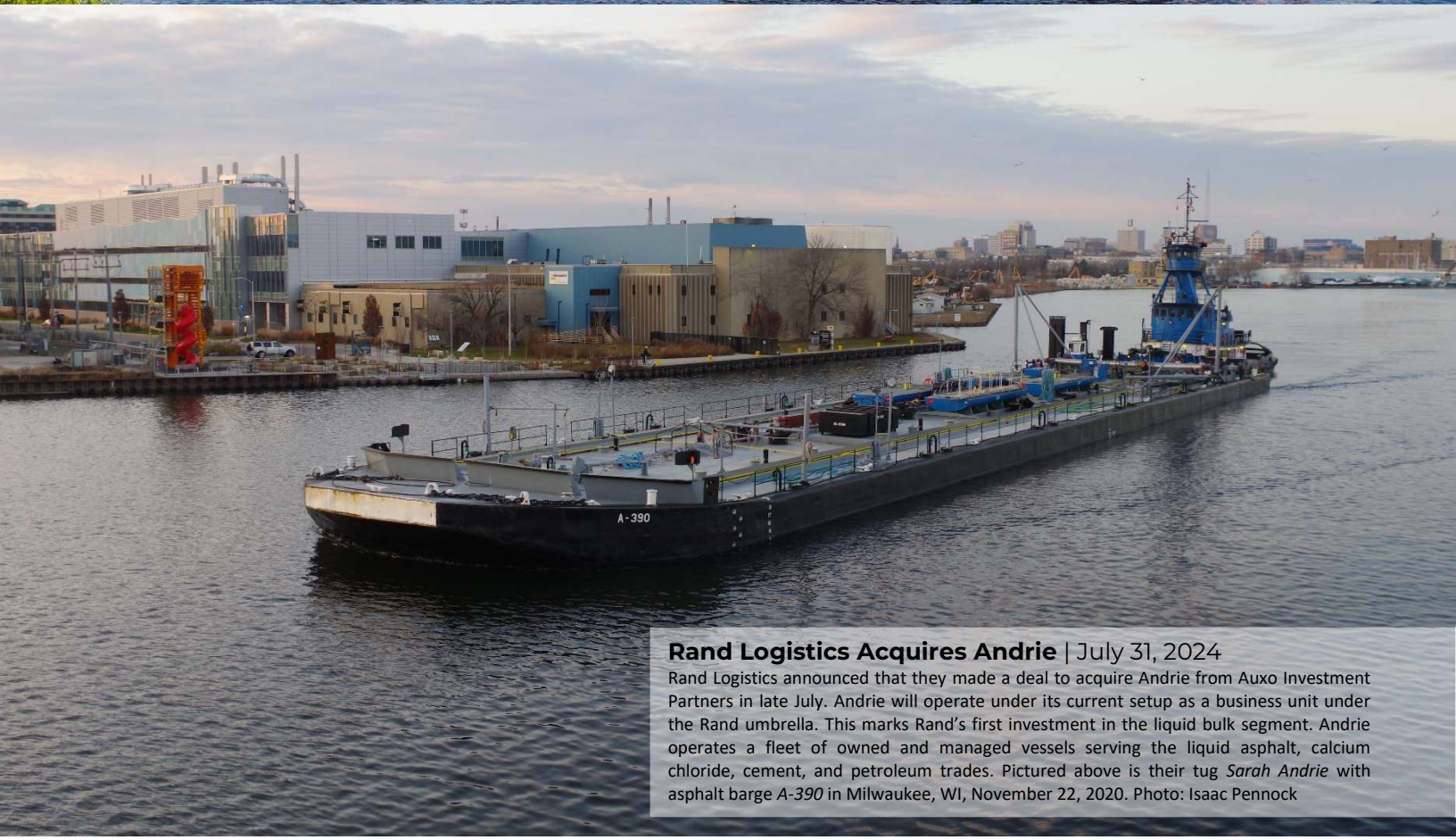
LAKER REPORTS

NEWS AND HAPPENINGS FROM AROUND THE LAKES

Algoma Continues Tanker Fleet Expansion | July 22, 2024

Algoma Central Corp. has continued the expansion of their tanker fleet with the purchase of two new tankers – *Eli Knutsen* and *Liv Knutsen*. *Eli Knutsen* was reflagged Canadian in July and renamed *Algosolis* in preparation for entering the domestic liquid bulk sector. *Liv Knutsen* continues to trade in Europe on charter to Knutsen. Both vessels are sister ships to the *Algoluna*, which Algoma purchased as the *Birgit Knutsen* in 2023. She is pictured here at Sarnia, ON, on August 18, 2023. Photo: Isaac Pennock



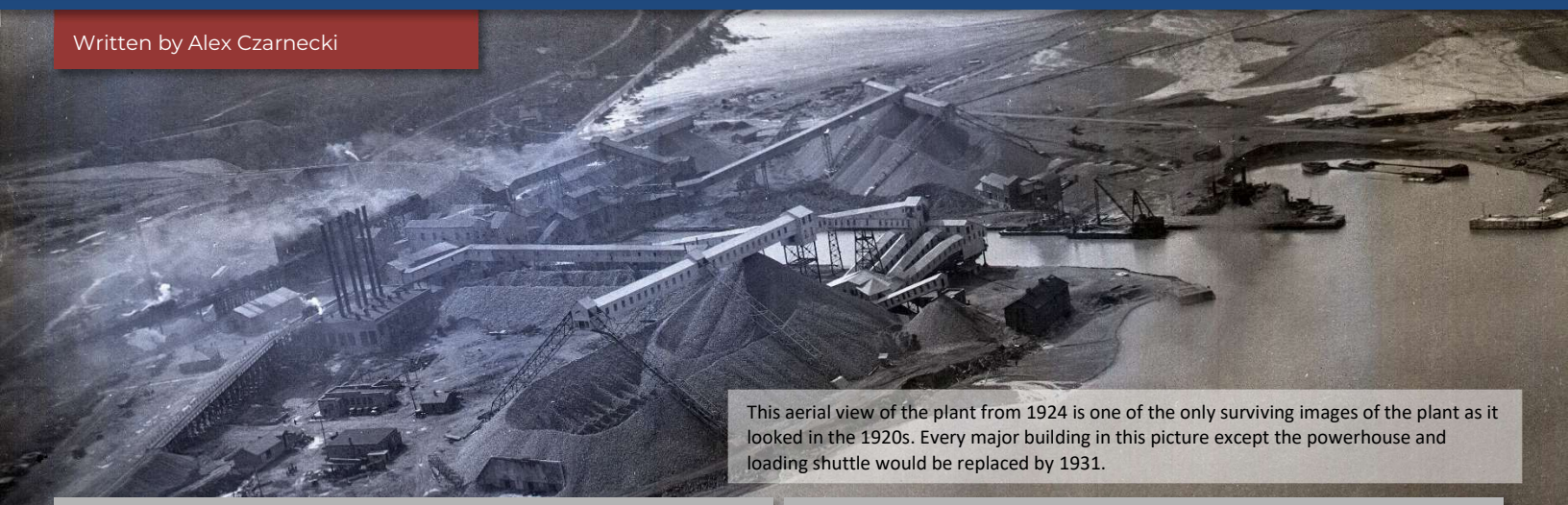
Rand Logistics Acquires Andrie | July 31, 2024

Rand Logistics announced that they made a deal to acquire Andrie from Auxo Investment Partners in late July. Andrie will operate under its current setup as a business unit under the Rand umbrella. This marks Rand's first investment in the liquid bulk segment. Andrie operates a fleet of owned and managed vessels serving the liquid asphalt, calcium chloride, cement, and petroleum trades. Pictured above is their tug *Sarah Andrie* with asphalt barge *A-390* in Milwaukee, WI, November 22, 2020. Photo: Isaac Pennock

OF GREYHOUNDS AND LIMESTONE

THE HISTORY OF MICHIGAN LIMESTONE AND THE BRADLEY TRANSPORTATION COMPANY – PT. I

Written by Alex Czarnecki



This aerial view of the plant from 1924 is one of the only surviving images of the plant as it looked in the 1920s. Every major building in this picture except the powerhouse and loading shuttle would be replaced by 1931.

Limestone is a vital mineral used in numerous products and industries. Steelmaking, sugar production, cement making, fertilizer, and more all require limestone. The state of Michigan is rich with stone, helping fuel these industries. One quarry in particular has been producing stone for over 112 years: the Calcite quarry in Rogers City. A small town on the banks of Lake Huron, Rogers City was once home to two leaders in their respective industries: Michigan Limestone and Chemical Co. and the Bradley Transportation Co.

For almost 80 years the iconic grey hulls of the self-unloading ships of the Bradley Transportation Co. sailed the Great Lakes, carrying their cargoes of coal and limestone to steel mills around the lakes. However, if you only focus on the history of the company from its incorporation in 1923 until its consolidation in 1967 you are missing out on so much of the history of the ships and sailors who plied their trade on the lakes.

The history of the Michigan Limestone and Chemical Co. can be traced back to the earliest days of Presque Isle County – specifically to Crawford's Quarry. Francis Crawford came north from Detroit around 1864 to start a lumber business along the shores of Lake Huron and founded the community of Crawford's Quarry. Francis tried to experiment with limestone in the area early on, attempting to use it for building stone. It was too flakey and soft so he abandoned the stone trade and focused on lumbering. Crawford's Quarry was used as a refueling dock for wood-burning ships throughout the late 1800s, but its importance continued to shrink as the nearby village of Rogers grew. By the early 1900s the post office was closed and the town abandoned as residents moved to Rogers.

One of the most important figures during this time was Frederick Denny Larke; one of the founders of Rogers and editor of the *Presque Isle County Advance*. He was one of the loudest cheerleaders for developing a limestone quarry near Rogers, although it wasn't until April 1910, shortly after his death, the modern limestone quarry truly began to take shape. Mr. Larke's estate sold 583 acres of land to the Solvay Process Co. in July 1910 in order to build a plant to help them produce soda ash – made by combining salt brine and limestone. Tests revealed the area lacked the salt needed to produce the soda ash, and because of this the Solvay Co. canceled plans to build their plant and sold the land shortly after buying it.

Another key player in these early days was the Rogers City Land Co. (RCLC). Founded by local businessman Paul H. Hoeft and several other men in 1907, the Rogers City Land Co. had the sole purpose of purchasing prime limestone land that could be sold to a company to set up a plant in the area. By 1910 the RCLC owned over 5,000 acres around the former Crawford's Quarry and offered to sell it to the newly created Michigan Limestone and Chemical Co.

In late 1908, New York chemist Harry H. Hindshaw arrived in Rogers and toured the lands owned by Hoeft and the RCLC to test the stone in the area to try and find industrial uses for it. He was looking at the land for the Solvay Process Co. and was instrumental to their arrival. Hindshaw was also instrumental in bringing in a group of businessmen from New York to examine the land, one of whom was William F. White. White was an investor and was convinced by Hindshaw to invest in a mining company that would mine the limestone rich area. That company would be founded on May 28th, 1910, when the Michigan Limestone and Chemical Co. was incorporated in the State of Michigan with the head office in New York City, just off of Wall Street.

The first board of directors was made up of H. S. Collette, Wm. S. Lare, L. R. Schenck, Fred G. Kaye, John W. Russell, Thomas Roberts, Jr., Albert S. Rockwood and P. H. Hoeft. At the June 27th, 1910 board meeting H. S. Collette was elected President, Wm. S. Lare was elected Vice-President, and L. R. Schenck was both Secretary and Treasurer. This iteration of the board was short lived, however, as on July 5th, 1910, all members of the board resigned except for Mr. Hoeft. They were replaced with a new board led by W. F. White as President, C. B. Humphrey as Vice President, J. W. Lewis as Secretary and Treasurer, and H. H. Hindshaw as Asst. Secretary. Mr. Hindshaw was also the general manager of the Company during these early days. It is unknown why the board resigned so soon after taking their seats.

The earliest days at Calcite were certainly a struggle to put it lightly. Construction was originally planned to begin later in 1910 and in spring 1911. However, at the June 19th, 1911, meeting of the Board of Directors it was stated that a plan was set in motion

Str. *Calcite* loading stone on her maiden voyage, June 26 1912.

for construction to finish by September 1st, 1911, and indeed at the August meeting President White revealed he had signed a contract to ship 50,000 tons of stone during October-November of that year. This would be a problem as by mid-September no buildings had actually been completed. At the same meeting, Carl D. Bradley was given supervision of the construction of the plant. With Mr. Bradley in charge, construction quickly progressed and the plant began operation on June 24, 1912, with the Pittsburgh Steamship Co. steamer *Manola* receiving the first load of stone.

Alongside the plant, the Company also purchased a small fleet of tugboats that would assist the freighters that came to load stone. The first tug to work the harbor was *Walter Mattick*, a tug built in 1908 and chartered to Michigan Limestone. For the first year she was the only tug but would later be joined by *W. G. Mason*, a wooden hull tug built in 1898. She was bought by Michigan Limestone in 1913 to aid the *Mattick* and in 1918 both would be joined by a larger tug, *Duncan City*, another wood hull tug built in 1883. In 1919 the *Mattick* left Calcite and left the two wooden tugs to continue their work alone.

The history of the Bradley Transportation Co. can be traced back to 1912 and Carl D. Bradley. As the manager of the Calcite plant, he was concerned with not just the mining of stone, but also with the shipping of stone. He understood having a primary source of transporting product would be a massive boon to Calcite, and as such he pushed for Michigan Limestone to pursue purchasing their own freighters.

A new advance in freighter construction came about around the turn of the 20th century – the self-unloader. The wooden steamer *Hennepin* was converted to a self-unloader in 1902, becoming the first of such on the Great Lakes and in the world. In 1908 the Michigan Alkali Co. commissioned the steamer *Wyandotte*, which was the first purpose-built self-unloader on the lakes. *Wyandotte* was the perfect model to base a new self-unloader off of because its unloading system could only handle limestone and coal, the two products Michigan Limestone would need to ship.

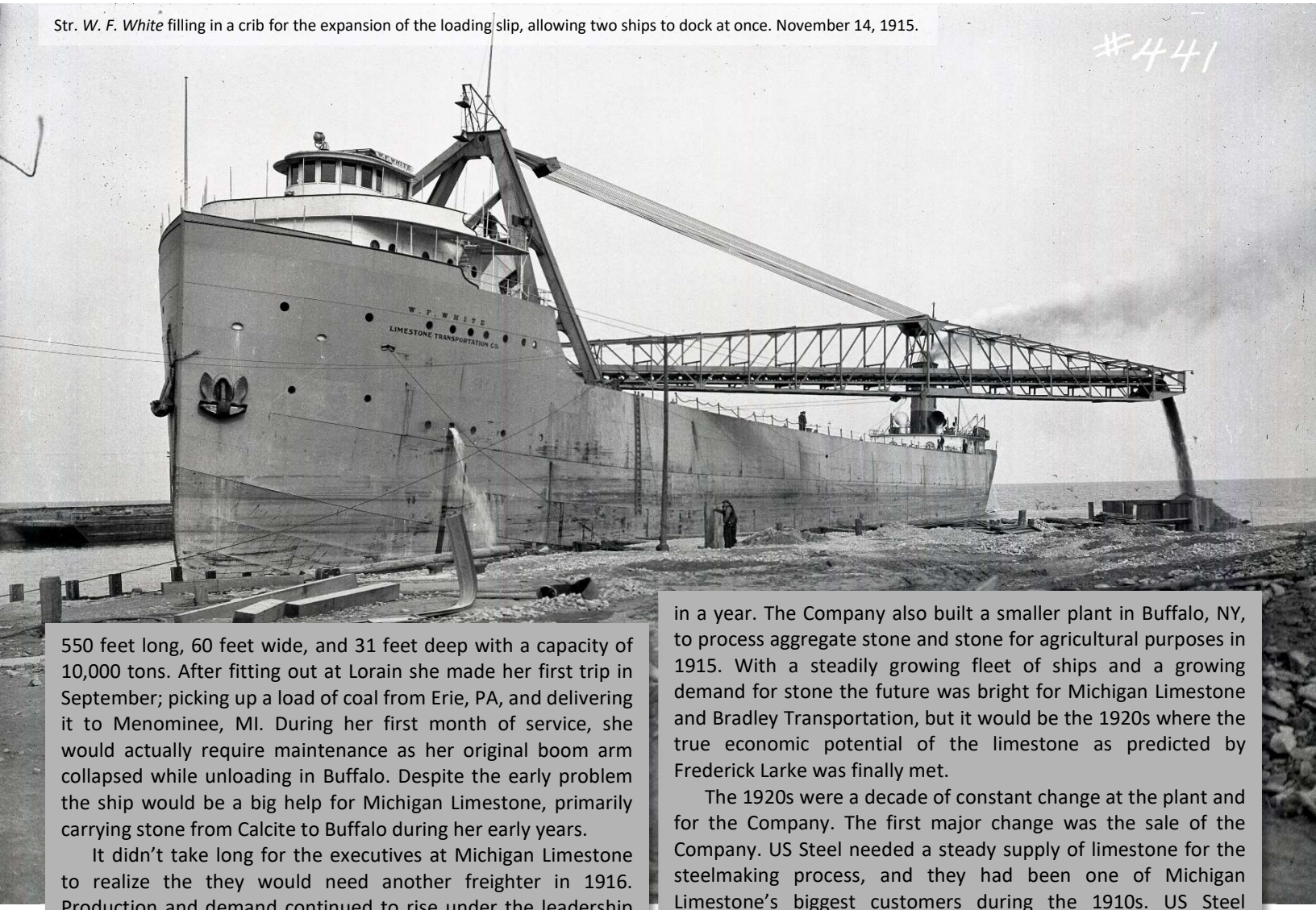
There was a problem – Michigan Limestone in 1911 did not have enough money to pay for the construction of a new lake freighter. A new ship would cost $435,000 ($14,105,659 in 2024 dollars) and Michigan Limestone simply didn't have enough money to pay for it. There was a plan, however, as Merton Farr – president of the Detroit Shipbuilding Co. – secured a loan of $200,000 and in return received a seat on the board of Michigan Limestone. The ship was built by Detroit Shipbuilding at their Wyandotte facility during the winter of 1911-12. It was decided to name the new ship *Calcite* in honor of the quarry and she was launched on March 30, 1912. The Calcite was rather small for her time. She measured in at 436 feet long and 54 feet wide with a depth of 29 feet and could carry 7-8,000 tons of stone or coal. For comparison, the steamer *Daniel J. Morrell* was built in West Bay City, MI in 1906 and was 603 feet by 58 feet by 32 feet and could carry over 12,400 tons of iron.

What *Calcite* lacked in size however, she made up for in efficiency. Thanks to her self-unloading capabilities she could unload much quicker than her larger, straight deck counterparts. While ore and grain carriers required large equipment on shore to unload, self-unloaders could unload their cargoes of stone and coal without any help, allowing for quicker trips around the lakes. The ship was owned by the Calcite Transportation Co. and chartered to Michigan Limestone for 10 years. *Calcite* was the workhorse for Michigan Limestone during the early days at the plant and after making her maiden voyage to Calcite on June 26, 1912 she went on to carry the vast majority of stone shipped during 1912.

The plant itself was made up of a crusher where the trains dumped the stone, which was carried to the mill and sorted by size before it was carried to large piles around the port. From there it was taken to the loading chutes to load the stone onto ships. In 1912 there was only one dock to load stone, but a second one with a smaller loading chute was added in 1915. The plant also included a power plant, locomotive repair shop, storehouse, machine shop and a main office housed in an old house from Crawford's Quarry.

As demand and production of stone increased at Calcite the board of Michigan Limestone realized they needed a new freighter to ensure contracts could be fulfilled. In December 1914, the board authorized Carl D. Bradley to order a new freighter for the Company. Mr. Bradley eventually signed a deal with the American Shipbuilding Co. (AmShip) to build the new freighter in March 1915. The construction of the ship would cost $459,000 ($14,294,441 in 2024 dollars) and was funded by selling bonds and stock from the Company. The new freighter was built at AmShip's Lorain, OH facility and was launched on July 24, 1915. She would be christened *W. F. White* after the president of Michigan Limestone and founder of her parent company, Limestone Transportation Co. The *White* also saw the start of a new tradition with the Bradley boats; Mr. White was a teetotaler and didn't want the traditional bottle of champagne broken against the ship as she launched, so instead water from the port of Calcite was used. Each subsequent ship christened by Michigan Limestone was done so with water from Calcite's harbor instead of champagne.

The *White* was a larger ship than her older sister, coming in at



Str. *W. F. White* filling in a crib for the expansion of the loading slip, allowing two ships to dock at once. November 14, 1915.

550 feet long, 60 feet wide, and 31 feet deep with a capacity of 10,000 tons. After fitting out at Lorain she made her first trip in September; picking up a load of coal from Erie, PA, and delivering it to Menominee, MI. During her first month of service, she would actually require maintenance as her original boom arm collapsed while unloading in Buffalo. Despite the early problem the ship would be a big help for Michigan Limestone, primarily carrying stone from Calcite to Buffalo during her early years.

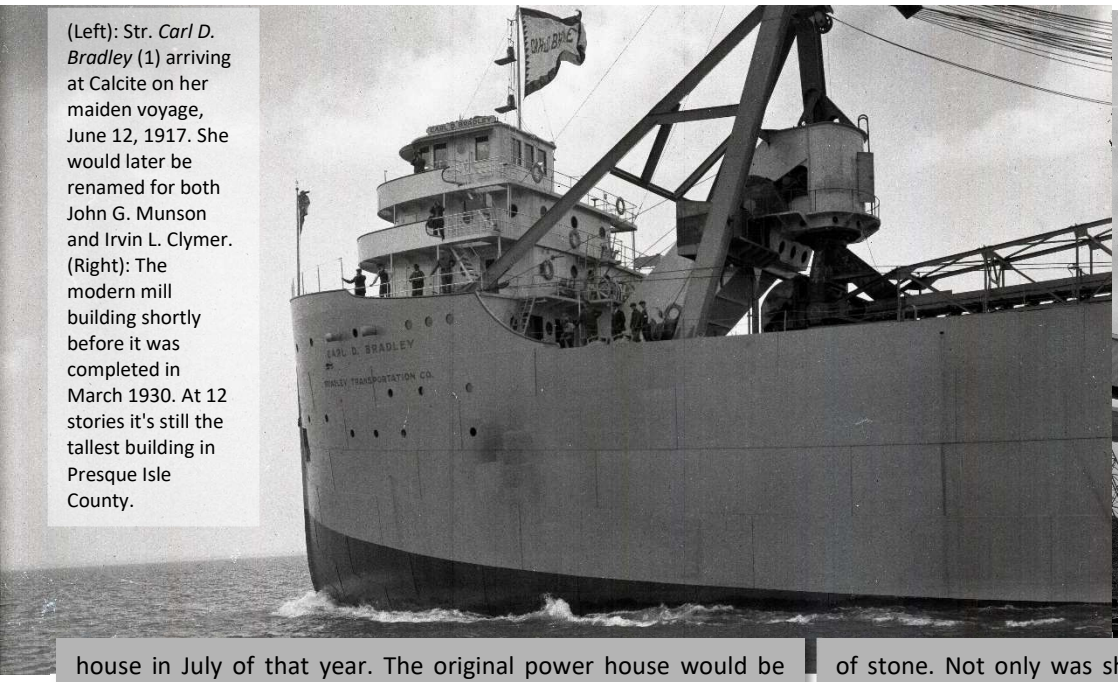
It didn't take long for the executives at Michigan Limestone to realize the they would need another freighter in 1916. Production and demand continued to rise under the leadership of Carl D. Bradley and another contract with American Shipbuilding was written up where the new ship—which would cost $625,000 ($18,050,229 in 2024 dollars)—would be built in Lorain and paid for in monthly installments. To fund the construction, Michigan Limestone sold off stock and bonds and founded another company, the Bradley Transportation Co., in Ohio.

The new ship would be launched on March 24th, 1917 and christened *Carl D. Bradley* after the man responsible for so much of the success at Calcite, with his niece Louise Bradley breaking the ceremonial bottle of lake water against the bow. The Bradley was almost identical to the *White*, coming in at 552 feet by 60 feet by 32 feet, giving her a carrying capacity of 10,000 tons. The main difference between the *Bradley* and the *White* was the addition of a Texas deck under the pilothouse of the *Bradley*, the first of the Bradley ships with the feature that would become a staple of future ships under the Bradley flag. The *Bradley* also featured a longer boom and electric motors that improved the speed and efficiency of the unloading equipment. The *Bradley* was also capable of carrying larger sizes of stone thanks to the deeper hold in the ship. Thanks to these changes the various ships of Michigan Limestone were able to keep up with the demand of shipping stone for the next several years.

The 1910s also saw gradual expansion of the quarry as the kinks were worked out and by the end of 1919 the Calcite quarry had increased its output of stone to over 5 million tons of stone in a year. The Company also built a smaller plant in Buffalo, NY, to process aggregate stone and stone for agricultural purposes in 1915. With a steadily growing fleet of ships and a growing demand for stone the future was bright for Michigan Limestone and Bradley Transportation, but it would be the 1920s where the true economic potential of the limestone as predicted by Frederick Larke was finally met.

The 1920s were a decade of constant change at the plant and for the Company. The first major change was the sale of the Company. US Steel needed a steady supply of limestone for the steelmaking process, and they had been one of Michigan Limestone's biggest customers during the 1910s. US Steel acquired enough stock to gain a controlling stake in the Company in 1920. At the June 1920 meeting of the Board of Directors five members of the board resigned outright and all members of the Executive Committee resigned as well, with only Company founder William White staying on the board. The meeting then saw the election of Carl D. Bradley as President of the Company and the addition of five new directors. Four of the five new directors were temporary and would resign in March 1922. They would be replaced by US Steel executives D. G. Kerr, William J. Filbert, T. W. Robinson and B. H. Taylor.

Despite the buyout by US Steel, operations at the plant were unchanged. Many of the original buildings would also be rebuilt to better withstand the elements of northern Michigan. The original buildings were primarily wooden with metal sidings but during the decade it became obvious they would need to be replaced with fully brick buildings. Construction began in 1926, with the machine shop—also called the general repair building—completed in 1926, and the new crusher was operational by the 1927 season, although it would take until May of that year for the exterior to be completed. Coal fueling towers would be built over the slip in 1928 so ships could refuel while they loaded their cargo. Finally, the mill and the power house would both be replaced starting in late 1929; the shoreline was expanded to allow space for the new power house and the mill was replaced with a 12-story brick building, the tallest in Presque Isle County. The mill would be finished by late April 1930 and the new power



(Left): Str. *Carl D. Bradley* (1) arriving at Calcite on her maiden voyage, June 12, 1917. She would later be renamed for both John G. Munson and Irvin L. Clymer. (Right): The modern mill building shortly before it was completed in March 1930. At 12 stories it's still the tallest building in Presque Isle County.

house in July of that year. The original power house would be converted to the store house, and is today the only pre-1930 building still standing at the plant.

In 1922 the steel hull tug *Frederick T. Kellers* was bought and she it was followed by the *Central*, another steel hull tug, in 1923. With the purchase of these tugs the older *Duncan City* was abandoned and sunk outside of the harbor. In 1927 a new tug was built specifically for Michigan Limestone. Named *Rogers City,* she replaced the *Mason* and gave the Co. a fleet of all steel tugs for the first time.

The 1920s also saw expansion of the Bradley fleet of ships. In September 1923 a new Bradley Transportation Co. (BTC) was incorporated, this time in West Virginia. All three of the ships were initially owned by separate companies and chartered to Michigan Limestone on 10-year charters. At the expiration of their charters the ships would be bought outright, their former companies disbanded, and the ships rolled into the new Bradley Transportation Co. *Calcite* was the first ship to be brought into the new BTC fold, and it was this Company that *Calcite* was transferred to, not the Ohio corporation that operated the *Bradley*. 1923 also saw the first new ship to join the fleet in six years.

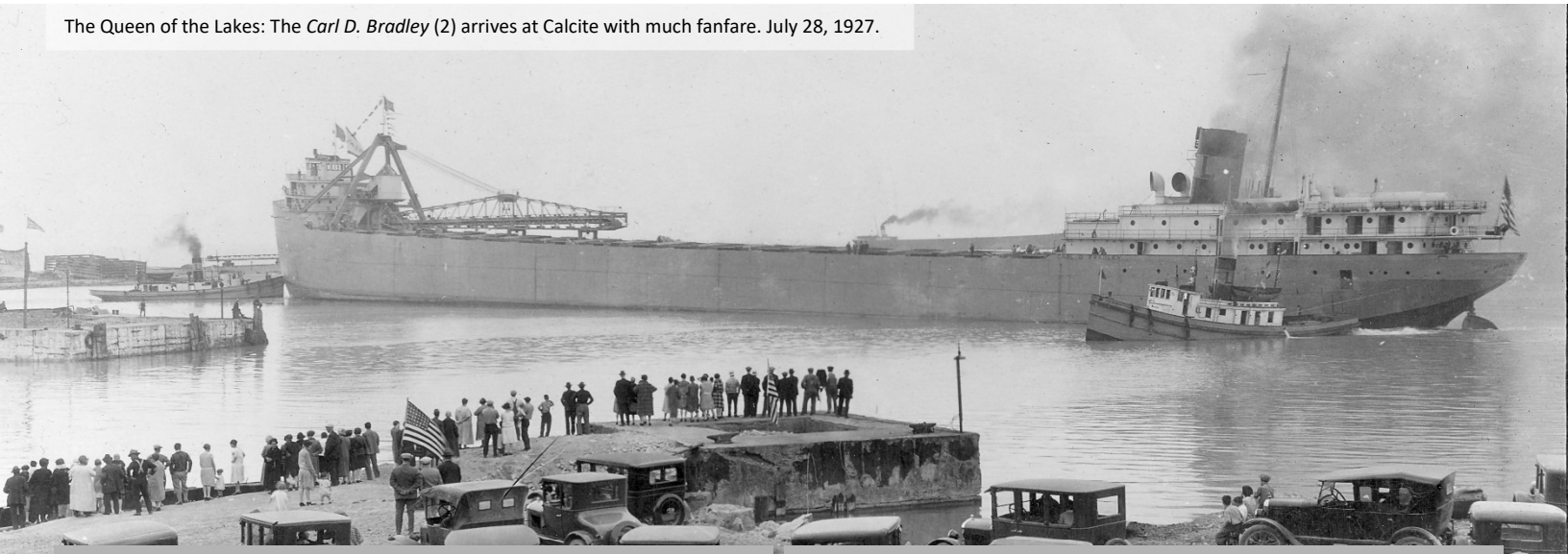
As with her sisters aside from *Calcite*, this new ship was built at American Shipbuilding's Lorain yard and was launched on September 1st, 1923. Christened as *B. H. Taylor*, she was named after Benjamin Harrison Taylor – an executive for the Carnegie Steel Co. and a member of Michigan Limestone's board of directors who was instrumental in the Company's acquisition by US Steel. The *Taylor* is identical in size and capacity to the *Bradley* and was launched just 22 days before the new Bradley Transportation Co. was incorporated, and as such she was the first ship commissioned into the new Company.

It wouldn't take long for another ship to join the expanding Bradley fleet. In the winter of 1924-25 another new ship was built at Lorain, and this one would be larger and more innovative than the previous Bradley ships. The new ship would be launched in April 1925 and was christened *T. W. Robinson* after Theodore Winthrop Robinson, vice-president of the Illinois Steel Co. and another Michigan Limestone board member. The *Robinson* was the largest ship in the fleet at 588 feet long by 60 feet wide and 32 feet deep, and its larger size allowed her to carry 10,800 tons of stone. Not only was she larger than her fleetmates, but she carried several other engineering innovations as well. She was also the first ship in the fleet to have water-tube boilers instead of Scotch boilers, as well as the first ship on the Great Lakes to be powered by a turbo-electric turbine engine instead of the standard multiple expansion steam engines.

In the winter of 1926-27 *Carl D. Bradley* had its name changed to *John G. Munson* in order to allow the newest ship to carry the name of the Company president. The new ship, *Carl D. Bradley* (2), was the largest and one of the most advanced ships on the Great Lakes when she was launched. The *Bradley* (2) was 638 feet long, 65 feet wide, and 33 feet deep when she launched on April 9, 1927 and could carry over 14,000 tons of stone in her hold. She also featured several improvements to navigation and communication including a gyrocompass and radio direction finder. The arrival of the *Bradley* (2) at Calcite that July was a major celebration. Work was stopped for several hours so employees could tour the massive new ship and the local band played music while residents were able to visit and tour the ship. After the open house she loaded stone bound for Buffington, IN, her primary destination for many years.

The launch of the *Bradley* (2) also ended a tradition for the Bradley Transportation Co. Every Bradley ship had launched with the same man in command: Captain William J. MacLean. The captain was born in Goderich, Ontario in 1878 but moved to Detroit as a teenager. Not much is recorded about his early career, but he had already attained his master license by the time he joined Michigan Limestone and was appointed captain of the *Calcite* in 1912. He would captain each of the first six vessels built for Michigan Limestone upon their commissioning before he became the permanent captain of the *Bradley* (2) in 1927. He captained the BTC's flagship until he retired due to ill health in 1936, and he passed away at his home in Florida on January 21st, 1938.

Not all was good during the 1920s however. Carl D. Bradley, the so-called "limestone king" passed away suddenly in April 1928 while on vacation in Pasadena, CA. His loss was a great shock to both Michigan Limestone and Rogers City, where he was an active member of the community. As part of his contract all of the property he owned was purchased by the Company on his passing and would be used for various purposes over the



The Queen of the Lakes: The *Carl D. Bradley* (2) arrives at Calcite with much fanfare. July 28, 1927.

years. His home became the residence for the Company President and his dairy farm was converted to community plots for plant workers to grow their own food. This was especially helpful during the tumultuous 1930s.

John G. Munson was elected to replace Mr. Bradley in 1928 and he oversaw some of the difficult challenges in the history of Calcite and Michigan Limestone. The Great Depression devastated the world and Calcite would not be spared by the economic disaster. Many employees were laid off as demand for stone plummeted. In 1929 Calcite shipped 10,475,498 tons of stone; in 1932 they shipped an all-time low of 1,276,231. In 1930 there were 611 employees at the plant and by 1934 employment fell to 416, two-thirds of the entire workforce. It wouldn't be until the start of World War II that the Company would fully rebound.

Despite the economic struggles there were still improvements to the Calcite plant. New, larger, electric shovels were brought in to allow for the retirement of the original steam shovels. The first diesel locomotives were brought in to slowly phase out the steam locomotives, a process which would be complete by 1948. The plant's tug basin would also be expanded in 1939 to allow some of the Bradley ships to lay up on site in the winter, with further expansion occurring in 1940 to allow all 6 of the ships to spend the winter at Calcite. This allowed for easier and more comfortable working conditions for the men doing work on them over the winters.

The plant would also undergo a beautification process throughout the decade. Roads in and leading to the plant were paved, flower beds were planted all over, and grass was planted to turn the plant into an attractive workplace. One of the most iconic of these installations would be a rock garden planted just inside the main gate. The roads and docks were lined with street lights that all came together to give the plant a refined, modern look which would be maintained for decades to come.

The Company suffered another serious personnel loss in the 1930s when Company founder William F. White passed away in 1936. He had stayed on the Board of Directors after his resignation as president and was the longest serving Director on the board; he had served since almost the Company's founding in 1910. John G. Munson too would leave the Company in 1939. He was promoted to Vice-President of Raw Materials for US Steel and moved with his wife to Pittsburgh. Under Munson's leadership the Company weathered the harsh economic strife of the early decade thanks to more efficient practices and saw a rise in production every year from 1934-37 as Roosevelt's New Deal policies and projects led to the demand for stone and steel to rise once again. Despite another, smaller, recession in 1938, the plant recovered quickly by the time of his promotion. Munson was a beloved member of the community and Company, but he would be replaced by Irvin L. Clymer in November, 1939. Clymer would guide Michigan Limestone to new heights over the next decade.

The Bradley ships would not be spared hardship in the 1930s either. Operations continued as normal with all six ships in service in 1929 and 1930, but by 1931 the Depression was really being felt. Only four of the ships entered service that year, with the *White* and the *Munson* staying laid up for the season. *B. H. Taylor* would be commissioned first in 1932, but the crew transferred to the *Calcite* in June, while the *Bradley* would enter service later in the summer. 1932 was the worst year for the Bradley fleet, with three of the six ships remaining idle and only 1.2 million tons of stone being shipped, a number not seen since 1913.

By 1933 things were beginning to improve, slowly but surely. Only three ships—*Carl D. Bradley, T. W. Robinson,* and *John G. Munson*—worked that season, but they shipped double the stone when compared to 1932. Despite those three ships being the only ones to fit out for Michigan Limestone, they weren't the only ships to sail. Both *B. H. Taylor* and *Calcite* were chartered to Waterways Navigation to run coal from Detroit to Port Colborne, Ontario and from Cleveland to Detroit.

1934 saw all six ships fit out at some point during the season for the first time since 1930. The *Munson* and *Calcite* fit out first in early May with the rest of the fleet joining them before the month was out. *Calcite* and *B. H. Taylor* spent the whole season chartered with Waterways Navigation while the *Robinson* was chartered for six weeks. The rest of the fleet operated normally for Michigan Limestone. Wheelsman Henry Kaminski remembered when the ships were chartered, they left Calcite at the start of the season and often wouldn't return until the end of the season.

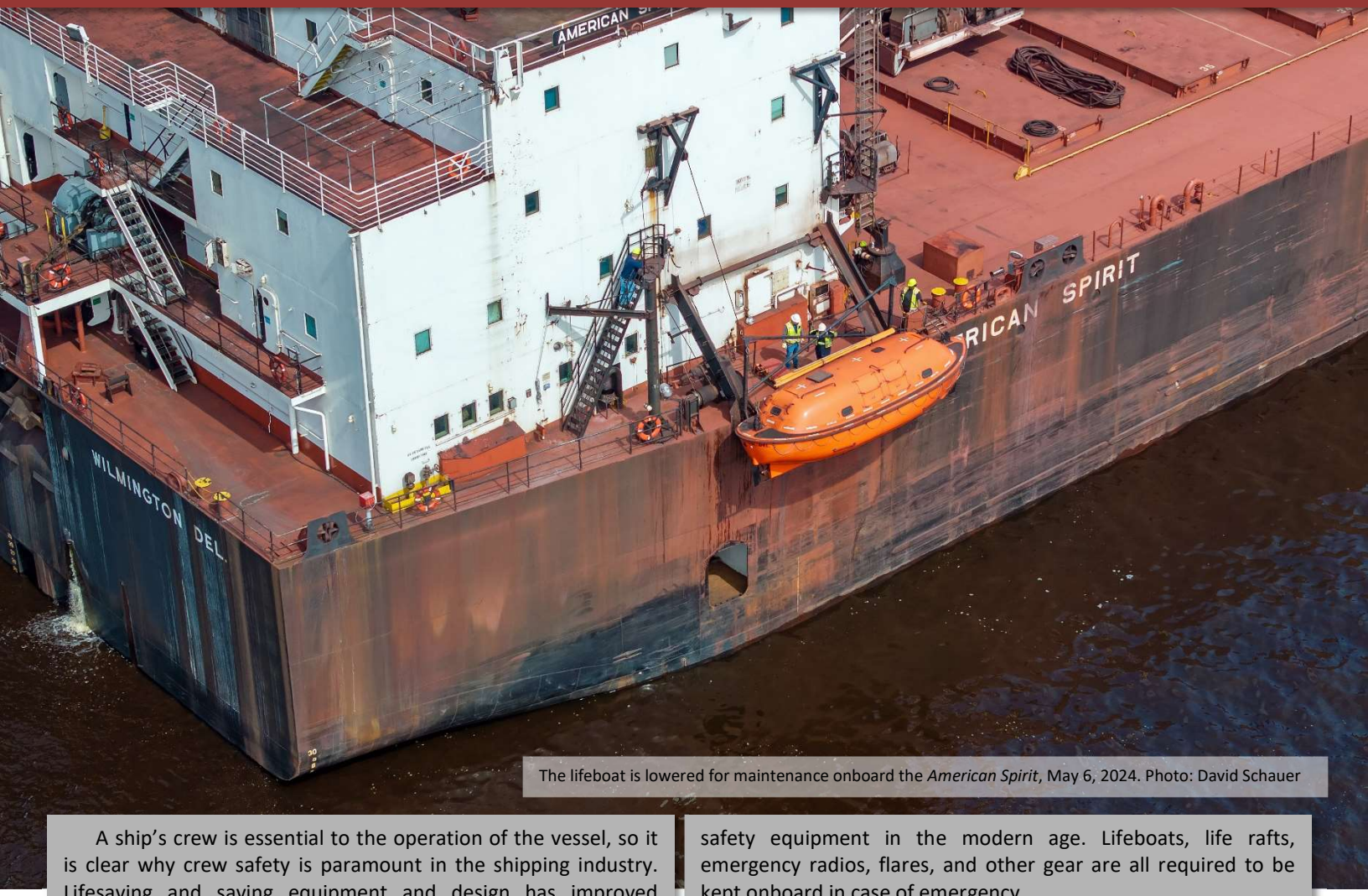
This story will be continued in the next edition of Shipwatcher News Freighters. □

Special thanks to Alex Czarnecki, Curator of the Presque Isle County Historical Museum, for preparing this story. All photos courtesy of Presque Isle County Historical Museum.

IN THE DESIGN – NAVAL ARCHITECTURE & MARINE ENGINEERING DEPARTMENT

SAFETY EQUIPMENT AND DESIGN

A LOOK AT SAFETY EQUIPMENT AND DESIGN CONSIDERATIONS



The lifeboat is lowered for maintenance onboard the *American Spirit*, May 6, 2024. Photo: David Schauer

A ship's crew is essential to the operation of the vessel, so it is clear why crew safety is paramount in the shipping industry. Lifesaving and saving equipment and design has improved significantly to make marine shipping a safer and more efficient industry.

Most lifesaving and safety equipment carried onboard is prescribed by IMO's Safety of Life at Sea (SOLAS) regulations and the Life Saving Appliances (LSA) Code, though the U.S. Coast Guard (USCG) has some of its own prescriptions for U.S. flag vessels as well. Due to the nature of operating in inland waters, Great Lakes ships are not subject to SOLAS requirements, and have a slightly reduced life raft capacity and are not required to carry free-fall lifeboats.

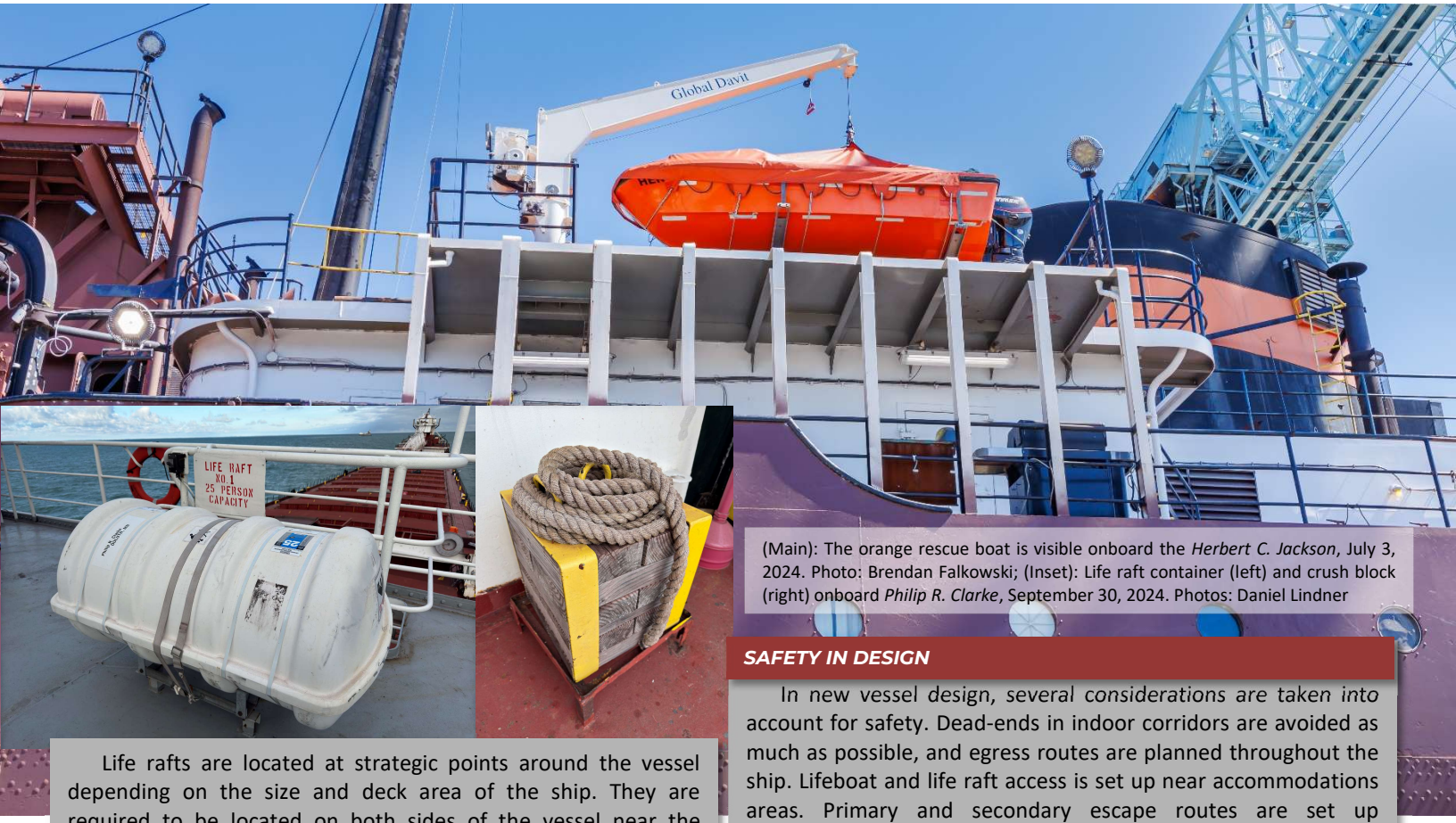
SOLAS is a required standard for oceangoing ships, and defines regulations for safety equipment and design onboard ships. Domestic US ships are not required to be held to SOLAS standards, but those sailing on international voyages are. SOLAS requires vessels to carry free-fall lifeboats, separate engine room spaces and the exhaust stack from accommodations, and much more. The next generation of Lakers will likely be built to SOLAS regulations, or will be built with several SOLAS standards in mind. ABS rules have been slowly absorbing SOLAS regulations in recent years.

LIFESAVING AND SAFETY EQUIPMENT

Ships are required to carry a wide variety of lifesaving and safety equipment in the modern age. Lifeboats, life rafts, emergency radios, flares, and other gear are all required to be kept onboard in case of emergency.

Free-fall lifeboats are required to be carried onboard all SOLAS certified ships, and consist of a fully-enclosed composite lifeboat that is carried on a special rack on the stern transom that allows for it to be lowered by crane or launched in "free-fall" mode. Great Lakes ships are not required to be to SOLAS standards since the Lakes are much smaller than the oceans, and the likelihood of being stranded at sea for long periods of time is considerably less. Some ships on the Great Lakes still carry the old-style open-top lifeboats. All lifeboats must be deployable while the vessel is at a certain angle of heel (tilt side-to-side), as they must be able to get out and away from the ship. This is why free fall lifeboats are located on the stern transom, the vessel will not trim (tilt between bow and stern) as much as they will heel.

Many older-style lifeboats are being phased out in favor for rescue boats and additional life raft capacity. Rescue boats are discerned from lifeboats by their deployment method, as they are typically handled by a davit or small crane. Rescue boats serve as multipurpose dinghies and can be deployed to assist in line handling during normal working operations and also for drills. In the event of such an emergency, they can be deployed to rescue lost overboard. They will typically have capacity for 6 people and must be USCG approved.



(Main): The orange rescue boat is visible onboard the *Herbert C. Jackson*, July 3, 2024. Photo: Brendan Falkowski; (Inset): Life raft container (left) and crush block (right) onboard *Philip R. Clarke*, September 30, 2024. Photos: Daniel Lindner

Life rafts are located at strategic points around the vessel depending on the size and deck area of the ship. They are required to be located on both sides of the vessel near the accommodations block and at points along the length of the ship. One life raft is required to be davit-launched by the stern and must use a separate davit from the rescue boat. Life rafts are usually gravity launched and must be able to be launched at 20 degrees of heel for davit launch and 15 degrees otherwise.

Other required safety items include Emergency Position Indicating Radio Beacons (EPIRBS) – a device that transmits a distress signal should it sink or otherwise be activated, emergency VHF radios, first aid kits, flares, survival suits depending on the vessel's operating regions, life jackets, and self-contained breathing devices. Survival suits are required on Great Lakes ships and for operating in specific regions of the oceans. Life rings and life jackets are strategically placed in locations near where people will be frequently working onboard as well. These items are placed in multiple locations around the ship so they are accessible when other portions of the vessel are not.

Passenger vessels are subject to USCG Subchapter T and K regulations. Passenger capacity is prescribed by these rules, and depends on factors such as the length of the railing criterion, deck area criterion, fixed seating criterion, and are validated compared to the vessel's stability criterion.

Fire and safety equipment plans are also required to be posted at several locations around the ship.

While not required, Great Lakes ships often carry crush blocks – large blocks of wood that are dropped in the water between the ship and deck or lock walls to prevent the ship from crushing someone who has fallen in the water – due to the frequent dockings and lock transits which require sending people ashore using a swing boom or other ship equipment. These relatively simple lifesaving devices have stood the test of time and are still carried on most ships on the Lakes today.

SAFETY IN DESIGN

In new vessel design, several considerations are taken into account for safety. Dead-ends in indoor corridors are avoided as much as possible, and egress routes are planned throughout the ship. Lifeboat and life raft access is set up near accommodations areas. Primary and secondary escape routes are set up throughout the ship.

A designated medical space will be set up onboard, sometimes located in an extra stateroom onboard, with a first aid locker adjacent. A muster station will also be designated above the freeboard deck and be strategically located near rescue craft.

Hand rails are another simple yet not always thought of form of safety incorporated into the design. Rails have to be 1 meter in total height with specific spacing requirements. Due to their length Lakers typically have hand rails consisting of stanchions with cable rails running the length of the ship for the main deck. Canadian vessels are also required to have removable hand rails surrounding hatch coamings that are not 1 meter tall.

Other safety factors are taken into account in terms of fire zones and how fire safety is figured into design, which will be covered in the next edition.

CHANGING ATTITUDES

In addition to changing rules, changing attitudes in safety from operators has helped to making shipping safer. There is more enforcement of safety gear onboard ships, and Great Lakes operators have been consistently being more conscientious about maintaining and updating safety gear. Operators are also implementing more safety-conscious practices, such as updating man-boom procedures with harnesses and clip-in points when deploying crew to shore. Safety continues to improve in the shipping world, furthering the industry's effectiveness in getting the job done. ☐

Special thanks to the naval architects who provided their time and resources to assist in the writing of this article. Thank you to Travis Martin and Fred Koller from Bay Engineering, Eric Helder from Interlake Maritime Services, and Nick Hunter from NETSCo.

VESSEL FEATURE

RADCLIFFE R. LATIMER

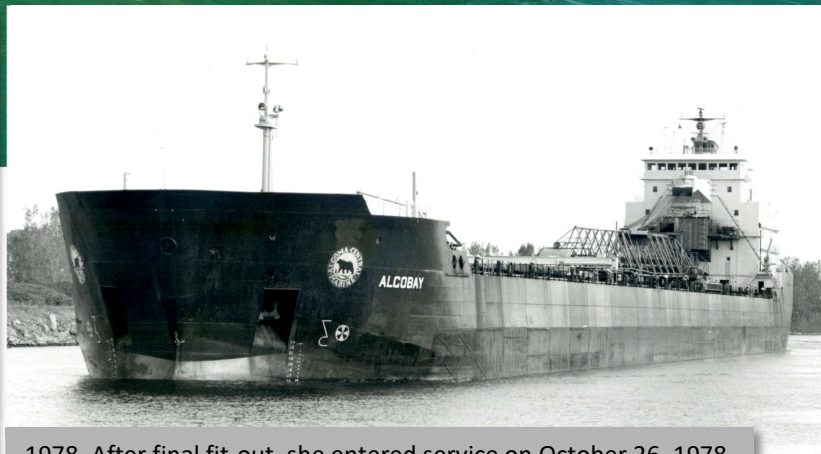
(Main) *Radcliffe R. Latimer* on the Detroit River, August 22, 2021. Photo: Sam Hankinson; (Inset) *Algobay* on the Welland Canal. Photo: Ron Beaupre

Throughout the late 1970s, Canadian utility giant Ontario Hydro's demands for coal for its power plants continued to grow. In 1977, Algoma Central Corp. was awarded a 15-year contract to supply a portion of Ontario Hydro's coal demands. The contract was to supplement the tonnage already supplied by Algoma's competitor Upper Lakes which handled most of Ontario Hydro's demands at the time. The new contract warranted new tonnage in the Algoma fleet.

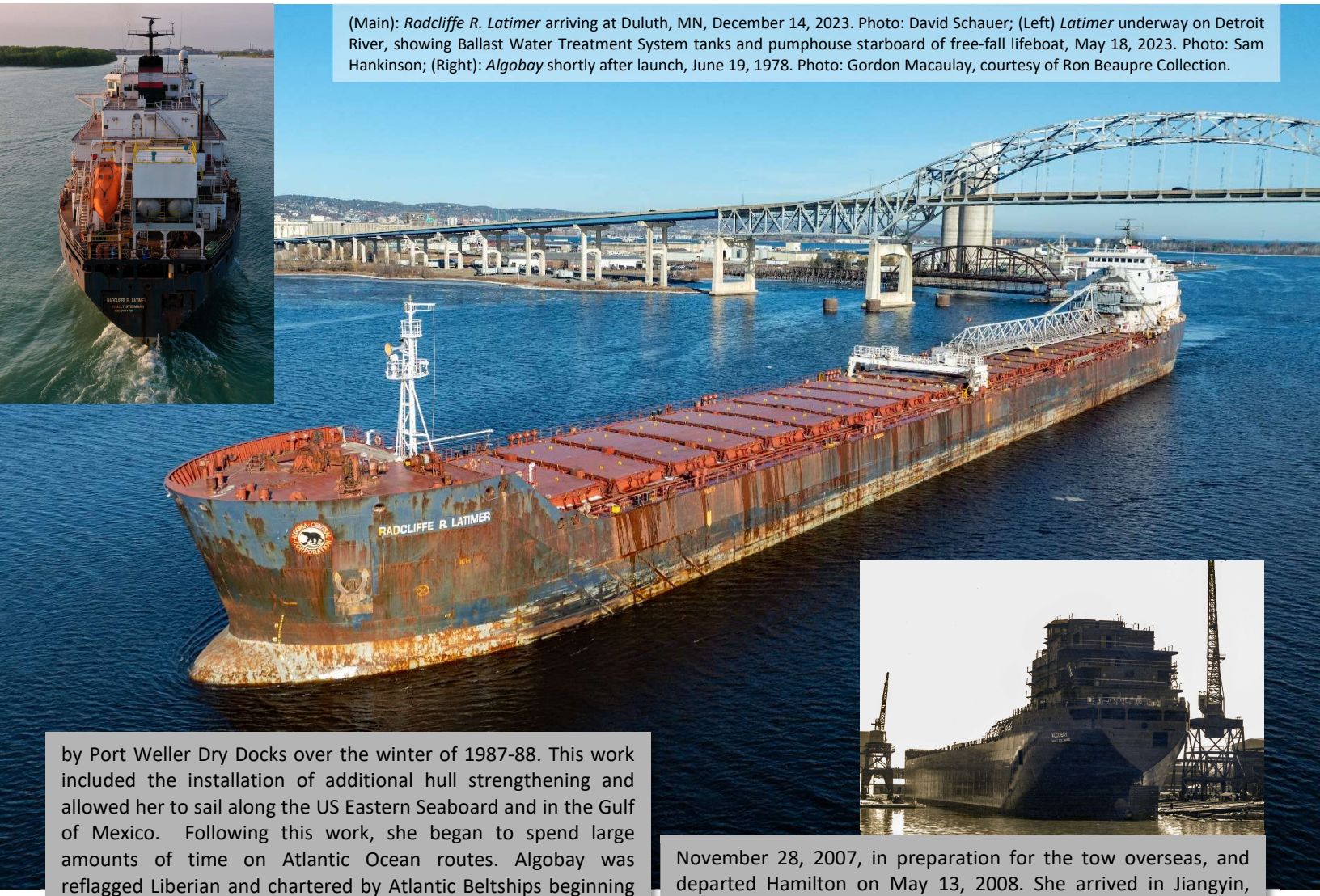
Algoma signed a contract with Canadian Shipbuilding & Engineering's Collingwood Shipyards LTD. to construct a new vessel. Algoma was making significant investments in fleet renewal during this time, but this contract was a standalone order. Other new Algoma Ships were built to haul iron ore and coal for other utilities.

The keel was laid for Hull #215 on August 16, 1977, for a 730' long, 75'10'' wide, 46'06'' deep self-unloader. She was designed with a pointed, V-shaped bow for icebreaking and handling, with a more refined stern. Ontario Power's facilities were mostly concentrated within the Great Lakes, but the new ship was built to Nova Scotia Classification standards, permitting her to operate on the eastern seaboard of Canada. The self-unloading system consisted of three cargo hold belts that are routed to a loop-belt situated in the aft house. Cargo was transferred ashore via a 252'06'' long unloading boom, and cargo was loaded through 22 hatches into 5 cargo holds. Power was provided by two Crossley-Pielstick 10PC2-3V-400 diesel engines providing a combined 10,700 BHP. She was equipped with a single controllable pitch propeller with a Kort Nozzle. The basic design for this ship would be used for several other vessels built by Collingwood in the late 1970s and early 80s.

Hull #215 was christened Algobay and launched on June 19, 1978. After final fit-out, she entered service on October 26, 1978, sailing to Stoneport, MI, to load. Just under a month into her career, Algobay was involved in a collision with the ocean ship Cielo Bianco while departing Sept-Iles, QC, on November 14, 1978. The tugboat Pointe Marguerite was crushed between the two vessels in the incident and two crewmembers onboard were lost. Repairs to the Algobay were completed at Port Arthur, ON. On December 2, 1979, Algobay grounded in the St. Lawrence Seaway after suffering a steering gear failure. Less than a year later she collided with the steamer Montrealais on the St. Clair River on June 25, 1980. The head-on collision occurred in heavy fog. Significant damage was incurred to the Algobay in her bow and repairs were made at Port Colborne, ON. Upon her return to service in September of that same year, the Algobay held the honor of loading the 400 billionth ton of iron ore at Sept-Iles, QC, on September 10.



As Algoma Central continued to grow the company's ocean shipping presence, the Algobay was upgraded to Caribbean Class



(Main): *Radcliffe R. Latimer* arriving at Duluth, MN, December 14, 2023. Photo: David Schauer; (Left) *Latimer* underway on Detroit River, showing Ballast Water Treatment System tanks and pumphouse starboard of free-fall lifeboat, May 18, 2023. Photo: Sam Hankinson; (Right): *Algobay* shortly after launch, June 19, 1978. Photo: Gordon Macaulay, courtesy of Ron Beaupre Collection.

by Port Weller Dry Docks over the winter of 1987-88. This work included the installation of additional hull strengthening and allowed her to sail along the US Eastern Seaboard and in the Gulf of Mexico. Following this work, she began to spend large amounts of time on Atlantic Ocean routes. Algobay was reflagged Liberian and chartered by Atlantic Beltships beginning on February 5, 1990, and began to operate on Caribbean routes. In the fall of 1990 Algobay broke free from tugs in Galveston, TX, and ran aground. During the incident high voltage power cables fell on her deck and superstructure. Power had to be cut off before she was refloated. Algobay returned to the Great Lakes in June 1993, and underwent a significant refit soon after before returning to service under the Canadian flag.

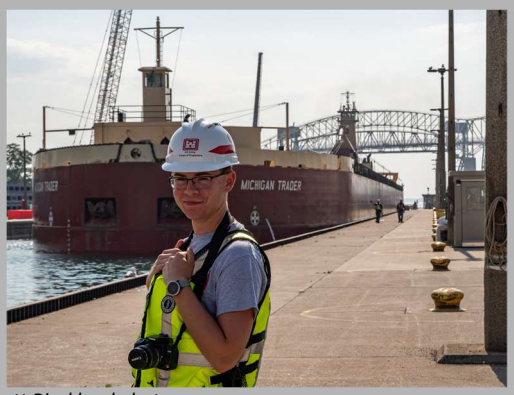
She was chartered by Canada Steamship Lines (CSL) and renamed Atlantic Trader following her refit, returned to Canadian flag on September 4, 1993. The charter to CSL ended in 1997, and Atlantic Trader returned to the Algoma fleet and reverted to her original name. Management of the vessel was taken over by Seaway Self-Unloaders, a partnership between Algoma Central and Upper Lakes Shipping. Seaway Self-Unloaders was merged with Seaway Bulk Carriers to create Seaway Marine Transport in 2002.

On December 22, 2002, Algobay was laid up at Toronto, ON. In need of significant amounts of steelwork, she remained in layup for the next several seasons. Algoma and Upper Lakes announced plans to build two new forebodies to attach to existing ship sterns on November 7, 2007. The plan represented a $125 Million contract with Chengxi Shipyard in Jiangyin, China. Algobay and her smaller sister Algoport were selected for the project, Algobay would be first and return to service for Algoma, while the Algoport would return to the lakes as a member of the Upper Lakes fleet.

Algobay was towed out of Toronto for Hamilton on November 28, 2007, in preparation for the tow overseas, and departed Hamilton on May 13, 2008. She arrived in Jiangyin, China, on September 10, 2008 after traveling across the Atlantic Ocean, through the Mediterranean and Red Seas, through the Indian Ocean and into the South China Sea to Jiangyin. Her new forebody was launched on March 30, 2009. Algobay was placed in drydock and her existing forebody was cut just forward of her aft accommodations and removed for scrapping. The new forebody was lined up and fitted to the stern in drydock. The "new" Algobay was launched on October 21, 2009, and prepared for the voyage home to Canada. On the return trip to Canada, she laid up for the winter in Portland, ME, in January 2010 to await the opening of the Seaway for 2010.

Algobay now measures in at 740' long, 77'11'' wide, 49'03'' deep, with a capacity of 36,668 tons. Her self-unloading system consists of a single cargo hold belt with an aft loop belt to a 252'06'' deck boom. She also featured 6 cargo holds with 22 deck hatches. During the reconstruction Algobay was repowered with two new MaK 8M32C diesel engines with a combined 10,442 BHP.

Algobay ran aground twice in her first season back in service, requiring drydocking for repairs. Algobay was renamed Radcliffe R. Latimer in ceremonies at Port Colborne, ON, on October 4, 2012. She was fitted with a ballast water treatment system over the winter of 2022-23 in Hamilton, ON. Radcliffe R. Latimer continues to serve the needs of Algoma Central, hauling ore, coal, stone, grain, and salt. While she spends large amounts of her time in Gulf of St. Lawrence trade, the Latimer makes occasional trips to the upper Lakes.□



Scott Bjorklund photo

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Cover Photo: *T. W. Robinson* being guided into port by tugs *Central* and *Frederick T. Kellers*. For 70 years tugboats helped to guide ships into port until the service ended in 1982. Photo courtesy of Presque Isle Historical Museum