

While one man cranks the spinner, the one holding the "top" walks backwards as the rope is twisted. From Edwin Tunis, *The Young United States, 1783 to 1830* (New York: World Publishing Co., 1969). Used by permission of the estate of Edwin Tunis.

Ropewalk

The Newsletter for
Shipwrights of Ohio – January 2022

Next Zoom Meeting: February 19, 2022
"Planking a Deck"
by Darrell Markijohn

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January

My apology for all who tried to join our January 16th, Shipwrights of Ohio Zoom meeting. "The best laid plans of mice, man and Zoom masters, do go astray".

After many zoom meetings in 2021, where our Zoom master set the meeting up, so that he did not have to start the meeting as the host, 2022's meeting start failed. Knowing he would be in Cancun (life is tough!) January's meeting was set up the same. Using the same format as in 2021, in 2022 Zoom appears to require that the host launch the meeting before anyone gets in. Never fear, we do have a workaround, we just need to get and keep Bob off the beach

I repeat my monthly advice and urge all of you to take care of yourself and your families. Look to those you know who may need help or are lonely and need human contact.

Your editor.

Business

Membership Dues.

Membership dues for 2022 are due.

Our club constitution states: "The annual dues for Regular members shall be \$20.00, payable by January. Annual dues for Associate members shall be \$10.00 payable by January."

An associate member, is one who, because of distance or other restrictions, cannot physically participate in club activities, but wants to receive the "Ropewalk" and other communications from the club. With our present use of Zoom and the plan to move to Hybrid meetings in 2022, age, illness, work schedule or time zone restrictions would apply.

We will continue to send out the newsletter through March 2022 for those not paid by January. If the 2022 dues are not paid by then you will be dropped from the members list.

Since we are not meeting in person or providing an electronic format to pay your dues, make your checks out to "Shipwrights of Ohio" and send by USPS to:

Lee Kimmins
Shipwrights of Central Ohio
5298 Timberlake Circle
Orient, OH 43146-9249

Presentation Planning - 2022

With the cancelation of the January meeting our presentation schedule moves to a more fluid process. The following are the planned topics and presenters, so far, for 2022. Topics needing presenter are highlighted in red:
(January through April meetings will be Zoom)

Jan: CANCELED

Feb: Planking a Deck (D. Markijohn)

Mar: Building a deck house from scratch (B. Nyberg)

Apr: Cannon Rigging and accessories (S. Keller)
(At this time the plan is the May through the rest of the year will be Hybrid – in-person & zoom)

May: General discussion: Jigs, Fixtures & tools plus materials and parts sources (Everyone).

Jun: Flags: How to make (M. Dowler)

Jul: History: "Marietta – early 19th C ship Building in Ohio". (B. Nyberg)

Aug: Road Trip – Marietta (A. Phelps)

Sep. Scratch Building (B. Nyberg)

Oct: **Finishing: natural and paint (plus using an air brush?)**

Nov: **Rigging: Mast & Yard Making**

Dec: **Standing/Running Rigging**

We still need presenters for those highlighted in red. Here is your chance to share your experience with the other modelers or share your frustrations and ask for guidance to help you grow in our craft. For some of the subjects, I have prior copies of presentations that you can use as a foundation.

If one of the topics highlighted interests you, and you either have experience in or are interested in doing the research on the topic, you will not only share your knowledge with others but you can also learn from them.

Our objective is for all of us to grow as ship modelers. Let's hear from you. Respond back by email to shipwright@wowway.com.

Presentation:

This month's presentation, "Scratch Building", due to the meeting cancelation, has been rescheduled for September.

Ships on Deck:

The following is an update on what your fellow craftsman have been working on. As you can see, the progress covers from finishing prior work, restoration, to new builds. Thanks to all who submitted their progress and questions.

Bluenose - Restoration

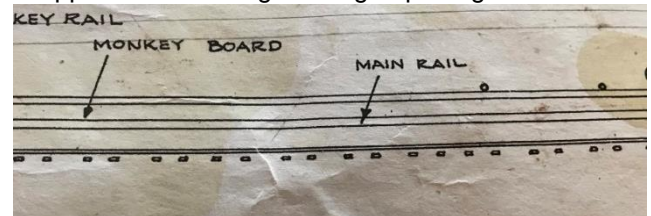
Cliff Mitchell

I decided to remove the paint from the hull of model. With sanding, noticed that the model had no primer applied. This contributed to some of the irregularities in the appearance.

To smooth out the surface, I applied various fillers: Durham's Water Putty, DAP Plastic Wood, and Evercoat Pro Grade Body Filler.



Next problem, was the uniformity and configuration of the scuppers. Below, the upper photo shows the plans where the scuppers are shown as very small rectangular holes, The lower photo shows the scuppers with as irregular large openings.



Decided to fill in the original scupper openings with filler and recut the openings. This was very difficult to do. After looking at some builds on the web, the scuppers should have been built before the planking was completed.



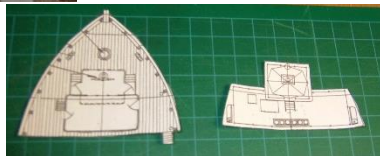
Next step will be cleaning up the bulwarks and decking. Plan to use an air eraser to remove any excess filler and poor painting in the hard to access places.

Margaret Olwill

Bill Nyberg



Cargo hold deck complete. Still need to add the comings and covers.



Starting on Bow deck structure and pilot house.
Upper left: bow with deck template being fitted. Lower right, "Huron Brave" deck house placement, to be used as a reference.

Red Jacket

Stan Ross

All 15 yardarms are ready for painting and installation.



NOTE: I encourage each of you to share photos of your works in process, what you have completed in

the past, and what you plan to work on in the future. Send it to your editor in jpeg format with a short write up.

Tips & Techniques

Glue Joints

How many times have you experienced the need to undo a glue joint? Per Kurt Van Dahm, in the Autumn 2021 NRJ (Nautical Research Journal) almost all glue joints can be dissolved, you just need the right solvent:

- White (Elmer's) the solvent is water.
- Yellow (Titebond) the solvent is isopropyl alcohol.
- Epoxy and CA (Cyanoacrylate) the solvent is acetone.

It is a matter of time, patience and gentle force to move the joint apart.

Caution the liquids we use can or are hazardous. Mineral spirits, lacquer thinner, acetone, isopropyl and denatured alcohol are combustible or flammable and give off hazardous vapors. Work in a vented area and keep away from sources of ignition.

The Winter 2021 NRJ contains an article on shop safety; hazardous liquids also by Kurt.

Other Notes: "Stuff", Tugs & Things

Nautical Terms

Alee: On the lee side of a ship. To leeward.

All hands: A ship's entire company, including both officers and enlisted personnel.

Allision: The impact of a moving vessel with a stationary object (not submerged), such as a bridge abutment or dolphin, pier or wharf, or another vessel made fast to a pier or wharf. More than incidental contact is required. The vessel is said to "allide" with the fixed object and is considered at fault.

Aloft: In the rigging of a sailing ship; above the ship's uppermost solid structure; overhead or high above.

Alongside: By the side of a ship or pier.

Amidships: The middle section of a vessel with reference to the athwartships plane, as distinguished from port or starboard (e.g., "Put your rudder amidships").

Anchor: Any object designed to prevent or slow the drift of a ship, attached to the ship by a line or chain; usually a metal, hook, or plough-like object designed to grip the solid seabed under the body of water; To deploy an anchor (e.g., "she anchored offshore").

Anchor ball: A round, black shape hoisted in the forepart of a vessel to show that it is anchored.

Anchor buoy: A small buoy secured to a line attached to the crown of an anchor. The line allows the anchor to be unhooked from an obstruction, such as a rock or another vessel's anchor cable, so preventing raising the anchor in the normal way.

Anchor chain: A chain connecting a ship to an anchor.

Anchor detail: A group of men who handle ground tackle when the ship is anchoring or getting under way.

Anchor home: When the anchor is secured aboard the ship for sea; i.e., when it is not deployed. Typically rests just outside the hawsepipe on the outer side of the hull, at the bow of a vessel.

Anchor light: A white light displayed by a ship to indicate that it is at anchor. Two such lights are displayed by a ship over 150 feet (46 m) in length.

Anchor rode: The anchor line, rope, or cable connecting the anchor chain to the vessel.

Anchor sentinel: A separate weight on a separate line that is loosely attached to the anchor rode so that it can slide down it easily. It is made fast at a distance slightly longer than the draft of the boat. It is used to prevent the anchor rode from becoming fouled on the keel or other underwater structures when the boat is resting at anchor and moving randomly during slack tide.

Anchor watch: The crewmen assigned to take care of a ship while it is anchored or moored, and charged with such duties as making sure that the anchor is holding and the vessel is not drifting. Most marine GPS units have an anchor watch alarm capability.

Anchor winch: A horizontal capstan in the bow used for weighing anchor

Glossary of Nautical Terms Wikipedia

National Museum of the Great Lakes

The NMGL has announce their Spring lecture series and will include a lecture on "The Underground Railroad", "Life on the Great Lakes", and "The Great Lakes History of the Army Corps of Engineers".

All lectures will begin at 7 PM, EST, and are offered both virtually and in person. Event registration is free but required. The dates are Wednesday, February 23, March 23, and April 6th.

Go to www.nmgl.org to register via their events page.

Wellington Trust

I do not know how many of you took advantage of the invite sent out by the Nautical Research Guild to participate in the Zoom presentation by Simon Stephens on "Ships in Miniature, a brief overview of the ship models from 1800BC to the present".

Simon is the curator of the Ship Model and Boat Collection at The National Maritime Museum, Greenwich. Excellent presentation that included a PowerPoint showing models and a video on exploring the interior of 18th and 19th C ship models using an endoscope.

The presentation was sponsored and hosted by the Wellington Trust, upholding Britain's Maritime History. Their next session will be February 14, 2022 at 6:30 PM GMT (1:30 PM EST) and is titled "A Mariners View of Selected Scottish Lighthouses by Captain Simon Quail.

Nautical Research Journal

If you are not already an NRG member, go to info@thenauticalresearchguild.org. Yearly subscription is available in three forms: Print copy, On-Line copy (E-Journal) and a combined both Print & On-line.

Print Journal - \$55

E-Journal - \$40

Combined - \$65

In each journal, there is always something to expand your knowledge of ships, ship modeling and maritime history.

What are the advantages?

Besides the Journal, "Model Ship World" the NRG hosts Webinars on subjects that are helpful to we ship modelers.

The NRG Online Store now has 3D printed figurines. They are featured in different scales, and poses, and in some cases, different materials. Over 70 different subjects will be available in the future
Note: they will come unpainted.

The Society of Nautical Research

A British research and model organization located in the UK also presents webinars. January 19th, 1:30 PM EST, they will broadcast, for members only, "Writing Global Maritime History: The Second War" by Prof. Evan Mawdsley.

February webinar will be Friday, Feb. 4th at 4:30 AM EST on "Doing Maritime History Research Online".

They have also released a podcast commemorating the 110th anniversary of the Titanic disaster. It can be found on the Mariner's Mirror Podcast YouTube page.

Web Site

Have you visited our web site:

www.shipwrightsofohio.com lately? If you are not featured in the "Members Showcase", the page where the models built or restored by our members, past and present are displayed? Take digital pictures of your models and send them to John Boeck at: boxlink@aol.com, he will include them under your name. Include the name of the ship you modeled.

We now have a video page that connects you to YouTube. On the home page, click on to the "Access Videos on Modeling" The new page highlights categories: Tools, Construction, Rigging, sails, Lighting, Finish/paint, and Historical presentations. While out there, explore what else, John has posted as information for you to use and to help you in your build process

Just as a reminder: our web master has installed a button on our web site home page (at www.shipwrightsofohio.com) that allows you to click on it and come directly into our monthly club zoom meetings.

Tugs

Adventure



The tug *Adventure* (US-107174) was built in 1895 of wood construction at Two Harbors, MN. She measured 51.4' x 11.2' x 6.3', 16 grt, 8 net. She was powered by a high pressure, single cylinder engine with a 16" bore x 18" stroke, rated at 125hp, built by Phoenix Iron Works, Port Huron. She was equipped with a firebox boiler: 5'4" x 12', at 100 pounds pressure. Her first owner was Alexander Strand of Two Harbors.

December 17, 1906, the *Adventure*, under tow by the tug *Tramp*, parted the tow line near the Ontonagon Lighthouse, Ontonagon, MI, Lake Superior. She drifted ashore and all efforts to release January 17, 2022

her were unsuccessful. Her machinery was removed the following spring and the vessel was abandoned.

BGSU University Libraries; Historical Collections of the Great Lakes & Alpena County
George N. Fletcher Public Library; C. Patrick Labadie Collection.

Ajax



The wooden tug *Ajax* (C-111935) was built at Bobcaygeon, Ont. for W.F.C. Boyd in 1902. Her measures were 54' x 14.6' x 6.1', with tonnage of 33grt, 23net. Bobcaygeon lays on Lake Sturgeon, part of the Trent-Severn waterway connecting Lake Ontario and Georgian Bay. She operated as a rafting tug on Kawartha Lakes moving lumber rafts to mills. In 1934 her owner was Lloyd Tankers. In 1935-36, she sank at Port Credit, Lake Ontario and was salvaged by "Russell Salvage. In 1939 she was placed in the Port Dalhousie Boneyard above lock one and west of Henley Grandstand, Welland Canal. She was stripped and then abandoned.

BGSU University Libraries; Historical Collections of the Great Lakes & Alpena County
George N. Fletcher Public Library; C. Patrick Labadie Collection.

Alabama



The steel tug *Alabama* (US-214376) was built in 1916 at Cleveland, Ohio for the Great Lakes Towing Co. Screw propulsion, her dimensions were 71' x 20' x 12.4'; 98grt, 51net. She was rebuilt and repowered at the Great Lakes Towing Co. yard, Cleveland in 1957. By 1999, the *Alabama* had been stripped of her machinery and house and was being used as a barge in the Rouge River, Detroit.

BGSU University Libraries; Historical Collections of the Great Lakes & Alpena County
George N. Fletcher Public Library; C. Patrick Labadie Collection.

Presentation Schedule:

2022

~~Jan 15 – Canceled~~

Feb 19 – Planking a deck

Mar 19 – Deck house from scratch

Apr 16 – cannons and Accessories

May 21 – Jigs & Fixtures - discussion

Jun 18 – Flags

Jul 16 – History: Marietta, ship building

Aug 20 – Road trip

Sep 17 – Scratch Building

Oct 15 – Finishing: natural & paint

Nov 19 – Rigging: Mast & yards

Dec 17 – Rigging: Standing/Running

Events & Dates to Note:

2022 Tentative Schedule

Columbus Woodworking Show

Ohio Expo Center

January 21-23, 2022

IPMS Columbus

BLIZZCON 2022

Delaware County Fair grounds

236 Pennsylvania Ave.

Delaware, OH

Saturday, February 20, 2022

Miami Valley Woodcarving Show

Christ United Methodist Church

700 Marshall Rd., Middletown, Ohio 45044

March 6 & 7, 2022

44th Midwestern Model & Boat Show,

Wisconsin Maritime Museum, Manitowoc, WI

May 13-15, 2022

Lakeside Antique & Classic Wooden Boat

Lakeside Hotel, Lakeside, OH

July 17, 2022

NRG Conference

Oct. 2022

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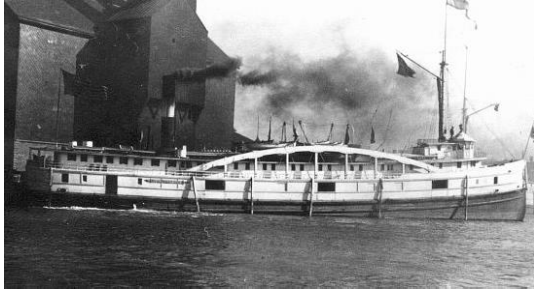
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Wooden Steamers on the Great Lakes

Written by William E. Nyberg

1857-B



Fountain City: On July 29, 1857, the builder, Peck & Masters of Cleveland, enrolled a wooden propeller with measures of 209.9' x 30.2' x 14.5' and a tonnage (old style) of 820 41/95. The vessel was owned by, and her master was Captain John Ball, Cleveland. She received her power from a high-pressure engine with a 32" bore cylinder x 42" stroke, built by Blish & Garlick or Cuyahoga Steam Furnace Co. of Cleveland. Her steam was generated by a return-flue boiler built by Thomas McGory also from Cleveland. The *Fountain City* was intended for the passenger, package freight trade and would carry cargos of wheat down bound & hardware & merchandise up bound to Wisconsin ports on Lake Michigan. She was operated by the Western Transit Line from 1857 to 1891 while going through multiple owners. In October of 1857 she went ashore at Bois Blanc Island, Straits of Mackinaw, Lake Huron. Released.

In April 1858, ownership of the *Fountain City* was changed to: Elihu M. Peck, 1/2, Cleveland, and Irvine U. Masters, 1/2, both from Cleveland. Her master for the 1858 season was Captain Elihu M. Peck.

On August 26th of that year, ownership of the propeller *Fountain City* was transferred to Elihu M. Peck & Irvine U. Masters, 40/60; Elisha C. Blish & Edward C. Garlick, 11/60; James B. Parish & Robert Knight, 7/60, William Hart, 2/60, all from Cleveland, OH. In May of the year, the *Fountain City* struck the sidewheel ferry *Islander* at Sarnia, Ont. Later that year, in September, bound for Cleveland in ballast, the *Fountain City* went ashore near Erie, PA, May of 1861, bound up, the *Fountain City* was struck ten feet from her stern by the tug *S.C. Ives*, bound down, at the mouth of the Detroit River to Lake St. Clair. Both vessels were badly damaged.

Her ownership was changed to Sheldon Pease et al, Cleveland, in September 1861. The following month, while entering Buffalo harbor, the *Fountain City* touched ground and got on the North Pier. Damage was set: cargo loss at \$250, hull loss at \$350.

In September 1862, ownership of the *Fountain City* was changed to Dean Richmond, Buffalo, NY et al. In July of the following year, the *Fountain City* went ashore at Point Waughashance on Lake Michigan. Part of her cargo was jettisoned to release the vessel. Loss to the hull was set at \$2,250, and loss of cargo set at \$6,500. In September 1865, she was readmeasured at Buffalo and her enrollment changed to reflect: 2 decks & no mast, 210' x 30.3' x 12'; 969.48 grt, 805.11 net. She was issued official number #9680. Her master for the 1865 season was Captain Welsh. David W. Chipman was listed as chief engineer for the 1869 season. In June of 1869 the *Fountain City* and the schooner *Delos De Wolf* collided on the Detroit River, and in that same month, she went aground on Grouse Island in the Detroit River. Her cargo was lightered to release her.

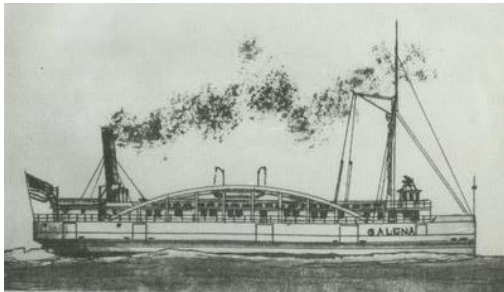
In April 1870, her ownership was changed to Western Transportation Co., Tonawanda, NY. Her master for the 1870 – 82 seasons was Captain James Gibson with Henry Hess as chief engineer for the 1870 – 75 seasons. In October 1871, she went aground at Recors, St. Clair River. October of 1872, she had her rudder disabled on Lake Michigan. In January 1874, she was damaged by a freshet at Buffalo. In October 1877 she went aground at Point au Pelee, Lake Erie. During 1878 winter she received new ceilings, flooring, keelson, arches, deck frames, decks, bulwarks, bow & cabin. She operated in 1878 as a passenger boat between Buffalo & Chicago. Her master for the 1883 season was Captain Donald Gillies. In October 1883, the propeller *Avon* towed the *Fountain City* into port after she had her machinery disabled on Lake Michigan. January 1887, the freshet that flooded Buffalo's 13th Ward also crushed some of the *Fountain City*'s bulwarks. Repaired. Chief engineers for the *Fountain City* during 1887 to 1890, were James William Brooks, Clarence Curtiss, and Francis Harringer.

In December 1891, her ownership was changed to H.S. Dickinson, Milwaukee and Eastern Transportation Co., Milwaukee, WI. She was rebuilt as a bulk freight carrier at Chicago: 210' x 30.3' x 12'; 630.12 grt, 510.99 net.

In November 1893, her ownership was changed to George Tebo & George C. Finney, Chicago. August of the following year, she sprang a leak at Chicago. Repaired. Rebuilt at Chicago in 1895, her enrollment was updated to: 1 deck, 1 mast, 210' x 30' x 11.8'; 630.12 grt, 510.88 net.

In April 1895, her ownership was changed to Leatham et al, Sturgeon Bay, WI. May 1896, while at the coal dock, Sturgeon Bay, the *Fountain City* caught fire from an exploding stern anchor lantern and burned to a total loss. The *Fountain City* 's burned out hulk laid in the "boneyard" at Sturgeon Bay where she finally sank. Her final enrollment was surrendered at Chicago, May 16, 1896 and endorsed "vessel burned".

The hull of the *Fountain City* was raised in Oct, 1900 and taken to Chicago to be converted to a floating drydock for small vessels. Final disposition "unknown".



Galena: May 19, 1857, the wooden propeller *Galena*, built by Luther Moses of Cleveland, for James F. Clark et al, was powered by a low-pressure oscillating engine with two: 50" bore x 40" stroke cylinders. She was built for the passenger, package freight trade. Her master for the 1857 – 62 seasons was Captain T. W. Steele. In May of 1858, bound for ports on Lake Michigan, the *Galena* ran aground on the Detroit River just below Sandwich Island. In September 1860, bound for Buffalo, the *Galena* had both her cylinder heads blown while east of Cleveland. She was towed to Buffalo for repairs.

Ownership of the *Galena* was changed to Sheldon Pease, et al. on September 7, 1866. She was assigned official number 10148 in 1866. Her master for the 1867 season was Captain Penny.

November 1867, ownership of the *Galena* was changed to T. D. Dole, Buffalo. The New York Central Railroad chartered the vessel for the transportation of all its freight to and from Lake Erie ports for the next five years starting in the spring of 1868. Her masters for the 1869 season were Captain McCrea and Captain Thorn. July 1869, the *Galena* collided with the schooner *W. B. Allen* (U26835) in the Chicago River. In that same month, she collided with the scow-schooner *J. H. Magruder* (U13745) at Detroit, MI.

In March 22, 1870, ownership of the propeller *Galena* was changed to Western Transportation Co., Tonawanda, NY. On the 26th of that month, she was listed as owned by the Union Steamboat Co. of

Buffalo. July 1870, her enrollment identified her owner as William Warriner, Detroit, MI. Her master for the 1870 season was Captain Dixon.

Ownership of the propeller *Galena* was changed to Warner & Beemish, Alpena, MI in 1871. The propeller *Galena* collided with the scow-schooner at Swan Creek (Munroe, MI) in June 1871. In October of that year, the *Galena*, laden with horses, went hard aground on Tawas Point, MI in Lake Huron. The passengers and horses were brought ashore by the steamer *Eighth Ohio* (U8184). Bound from Alpena, MI for Chicago, laden with lumber, the *Galena*, went ashore and stranded at Au Sable October 23, 1872, during a storm on Lake Huron. The vessel was a total loss.

Her enrollment documents were surrendered, October 11, 1872

A.E. Hart: Van Slyke & Notter, Buffalo, built for David Bell, Buffalo, a wooden towboat, enrolling her on July 1, 1857. Her measures were: 68'6" x 15' 2" x 7' 6" with a tonnage (old style) of 71 45/95. Her engine is unknown.

Ownership of the towboat *A. E. Hart* was sold Canadian to McSwain, Dunnville, Ont. in 1860. Her ownership was then changed to A. Quackenbush, Montreal, Que. She was renamed *J. W. Gordon* and her home port was Port Dalhousie, Ont., Lake Ontario. (1860)

In 1864, the ownership of the towboat *J. W. Gordon* was changed to C. H. Carter, Montreal, and when enrolled she was assigned official number C33521. In 1870, the towboat *J. W. Gordon* caught fire and burned to a total loss. Her Canadian enrollment was closed in 1871 and endorsed as "burnt".

The towboat *J. W. Gordon* was rebuilt and inspected at Port Colborne, Ont. later in 1871 and her tonnage listed as: 109 grt, 73 net. Her enrollment in 1878, listed as owned by Charles H. Carter, Port Colborne, Ont, and registered at Montreal, with measures: 67.1 x 16.8 x 7.6, 109 grt, 73 net.

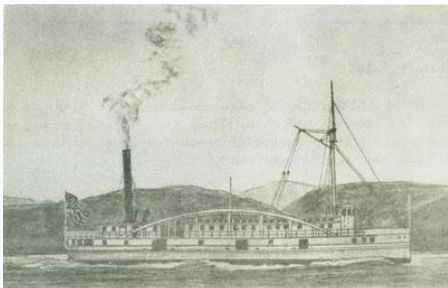
Final disposition unknown.

Hercules: Henry Roney, Garden Island, Ontario, built in 1857 a wooden sidewheel steamer for use as a towboat. Her original owner was Dexter D. Calvin of Garden Island. When enrolled at Kingston, Ont in February 1858, her measures were: 122.2' x 25.7' x 11.4' and her tonnage (old style) 470. She was powered by vertical beam, low pressure engine, 57" bore x 120" stroke, builder unknown. Her master of the 1858-61 seasons was Captain William Miller with F. Ferrier as first engineer. In October 1858, the

Hercules, while towing the disabled steamer *New Era* in the Rapid Plat, St Lawrence River, burst her boiler and sank. Seven lives were lost including Dexter Calvin Jr., son of one of her owners. Property loss was set at \$20,000. The sidewheel tug *Hercules* was raised and towed back to Garden Island, Ont. to be rebuilt in 1859.

Ownership of the tug was changed in 1860 to Calvin & Breck, Garden Island and her tonnage listed as 566 grt. Her masters of the sidewheel tug *Hercules* were Captain John Anderson in 1861 and Captain E. Thompson in 1861 to 65 with John Westaway as chief engineer for the 1860 – 61 seasons. In June of 1861, while towing several rafts of timber (275,000 feet) in a north east wind on Lake Ontario, the steam tug *Hercules* lost her tow of a square timber raft which went ashore opposite Scarborough' Heights, St. Lawrence River. In September 1864, the *Hercules*, in a high wind off Lake Ontario, lost her tow of a square timber raft which went ashore and broke up near Port Oshawa, Ont. A greater part of the timber was washed ashore. Her master for the 1866 season was Captain Rankin. In 1866, the sidewheel tug *Hercules* was ordered down to Prescott, Ont. to undergo a final examination by government authorities prior to acceptance for gunboat service in the "Fenian Troubles". She was sold to the Canadian Government in the summer of 1866 and fitted out as a gunboat.

Ownership of the sidewheel steam tug *Hercules* was returned to Calvin & Breck in 1869. She was again towing lumber rafts. In September of that year, the tug, with a tow, ran aground at Fighting Island on the Detroit River. While lying in winter quarters, December 1871, at Garden Island, the tug *Hercules*, alongside the steamer *Highlander*, caught fire and burned to a total loss. In March 1872, her boiler and engine were salvaged and removed to Garden Island, Ont.



Hunter: Jacob W. Banta, Buffalo, built for William Dixon & Robert Montgomery et al, Buffalo, a wooden propeller for the passenger, package freight trade. Her first enrollment record was at Buffalo in 1857 and her measures recorded as: 192' 8" x 30' 6" x 11' 11",

with a tonnage (old style) of 667 7/95. She was powered by a high-pressure engine, 32" bore x 39" stroke, built by Shepherd Iron Works, Buffalo. In September 1858, while on Lake Michigan, the *Hunter* had her machinery deranged and put into Milwaukee for repairs. Her property loss was set at \$1,000. Master of the *Hunter* for the 1861 season was Captain William Dixon. And the *Hunter* ran between Goderich, Ont. and Chicago in a line formed by the Buffalo & Lake Huron Railway. In October 1861, the *Hunter* broke her wheel on Lake Michigan and was towed to Goderich, Ont. for repairs. The following month, while lying opposite the warehouse of Sturgis, Smith & Co., in the Chicago River, the *Hunter* caught fire and burned from stern to middle gangway before sinking. Two lives were lost. The propeller was raised and repaired.

Ownership of the propeller *Hunter* was changed to William Dixon, Buffalo in April 1862.

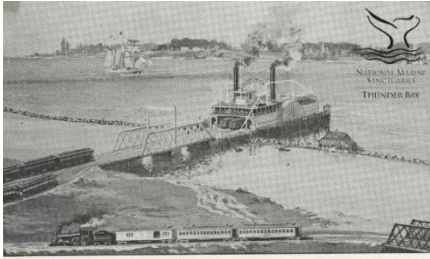
Ownership of the *Hunter* was recorded changed to William Wells et al, Buffalo on February 1864. For the 1864 to 69 season, master of the *Hunter* was Captain George Dickson. For the 1864 season, the propeller *Hunter* ran between Buffalo, Milwaukee and Chicago, touching at Cleveland, Detroit, Mackinac and Racine, as part of a daily line for transportation of freight and passengers, connecting with the New York Central Railroad, the Rochester Transportation and Western Canal Lines of Buffalo and with the Atlantic and Great Western Railway.

In August 1864, ownership of the *Hunter* was changed to Edwin E. Evans et al, Buffalo. In 1865, her enrollment tonnage measures were changed at Buffalo to 842 grt. She was also assigned official number 11139. July 1869, the *Hunter* damaged her upper works, at Buffalo in a collision with the bark *J. G. Masten*. Bound down in October 1869 in the Detroit River, the *Hunter*, laden with 15,000 bushels wheat and 1,800 barrels of flour, collided with the propeller *Comet*, bound up, laden with general merchandise, in the Detroit River. The *Comet* was run ashore where she sank in four fathoms of water. The *Hunter* sank, mid-channel in five fathoms of water. The *Hunter* was raised and converted to a barge at the Campbell, Owen & Co. yard, Detroit. Enrolled at Detroit, MI as barge *Hunter* with measures of 518.40 grt. She became a consort to the converted propeller *Detroit* (U6189) in September 1870.

That same month, her ownership was changed to J. M. Ballentine & Co., Detroit. Up bound on Lake Huron in September 1872, the propeller *Detroit* with consort barge *Hunter* under tow, were

caught in a storm and the barge broke loose and went ashore at Greenbush, MI where she broke up.

Final enrollment for the *Hunter* was surrendered at Detroit, MI, March 8, 1873.



Reproduction of water-color painting of *International* by Mildred C. Green. Photograph by courtesy of Buffalo & Erie County Historical Society. (See page 102.)

***International*:** Bidwell, Banta & Co., Buffalo, built the first railway car ferry on the Great Lakes and she could carry eight passenger or freight railway cars. Her original owners were the Buffalo & Lake Huron Railway, Buffalo, Fayette Rumsey, managing owner. Her cost: \$125,000 and she ran between Buffalo and Waterloo (Fort Erie), Ont. for 17 years. She was a wooden, sidewheel steamer and when first enrolled at Buffalo in December 1857, her measures were: 226' x 40' 8" x 13' with a tonnage (old style) of 1,221 84/95. The *International* was built upon the hull of the *International* that burned in 1854. She was powered by a horizontal, low-pressure engine with 2 - 42" bore x 108" stroke cylinders, built by Shepard Iron Works, Buffalo. Her master for the 1857 season was Captain Foreman. In March 1862, a ring (?) on the sidewheel ferry *International* gave way, damaging the vessel and dumping two freight cars into the river. In May 1865, the ferry *International* was readmeasured: 1,135.92 grt, and assigned the official number 12070.

In October 1870, ownership of the sidewheel ferry *International* was changed to Grand Trunk Railroad, Port Erie. Her on-board track was changed to universal 4' 8.5" gauge. In May 1872, while crossing the Niagara River, the ferry *International* broke her rudder chain and became unmanageable. She was swept down the river to the Great Western Dock on the Canadian side before being stopped. One of her wheels was damaged by ice. She was towed back to the American side for repairs. In November 1873, the ferry *International* was laid up following the opening of the International Bridge between Suspension Bridge, NY and Brideburg, Ont. February 1874, while in layup, the ferry *International* caught fire and burned to a total loss. Possibly arson was suspected.

Final enrollment documents for the sidewheel ferry *International* were surrendered at Buffalo, September 30, 1874 and endorsed "burned".

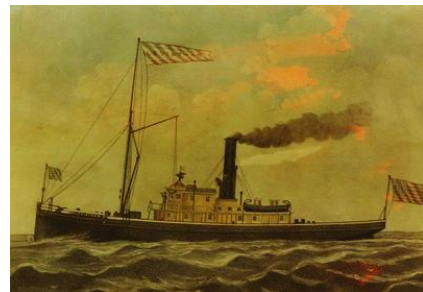
***Lacrosse*:** Daniel O'Connor, Buffalo, built a wooden propeller for the passenger, package freight trade between Oswego, NY and the Upper Great Lakes. Enrolled at Buffalo, May 12, 1857, she was owned by Elijah K. Bruce of Buffalo and had measures of: 140.0' x 25.8' x 11.8' and a tonnage (old style) of 397 76/95. Her engine is unknown.

May 16, 1857, her ownership was changed to Fitzhugh & Littlejohn, Oswego, NY. Her master for the 1857 season was Captain Hawkins.

In September of 1857, her ownership was recorded as changed to the Old Oswego Line, Oswego, NY.

Due to the depression of 1857 which caused a reduction on passenger and package freight shipments on the Great Lakes, in May 1859 the *Lacrosse* was auctioned to a Mr. Kemp, of Buffalo for \$8,200.

November 1859, her ownership was changed again to Robert B. Davis & Robert Elder, NY. In May 1860, the propeller *Lacrosse* left the lakes and wintered at Montreal, P.Q. before sailing for Galveston, TX. The enrollment for the *Lacrosse* was changed to New York, NY in June 1860. During the War between the states, the propeller *Lacrosse* was chartered by the U. S. Government, August 4 – September 8, 1863 and October 16 – February 2, 1864. While loading cotton on the Red River, the propeller *Lacrosse* was attacked and burned to a total loss, on April 12, 1864. Note: margin notes on her charter records indicate that the *Lacrosse* may not have been on Army charter when the attack took place; nevertheless, she had aboard at the time a number of soldiers, some of whom were killed."



***Leviathan*:** Benjamin B. Jones, Buffalo, built a wooden steam propeller tug for the Lake Navigation Co., Buffalo. She was enrolled at Buffalo June 06, 1857 and her measures recorded as: 175' 2" x 29' 1" x 10' 6" and a tonnage (old style): 315 64/95. She was powered by two - simple high-pressure engines with a 24" bore x 26" stroke, built by Barton & Griffin, Buffalo. She was built for the salvage trade as a "wrecker" tug and stationed at Chicago, IL. She was valued at \$30,000.

Her master for the 1857 season was Captain James M. Averill with William W. Tyler as engineer.

The Lake Navigation Co., Buffalo, failed in the 1857 panic and the *Leviathan* was sold July 08, 1858, at a liquidation sale to Captain Asa Hart, Buffalo, and was operated under the name of "Columbian Coast Wrecking Co" and stationed at Mackinac Island, MI. Her master for the 1858-65 seasons was Captain A.E. Hart. In November 1861, the tug *Leviathan* broke her wheel on Lake Huron. Damage set at \$500. She was readmeasured in 1864 and her enrollment updated to: 126' x 25' x 9'; 232.44 grt, 129.05 net. She was assigned official number 14612.

In September 1865, ownership of the tug *Leviathan* was changed to George W. Rounds. Her master for the 1865-68 seasons was Captain Naughton.

Her ownership was changed to Captain Lemuel Ellsworth and Amos Brienig, Milwaukee in April 1868. Her master for the 1868 - 79 seasons was Captain McNally. The *Leviathan* had her wheel disabled in November 1869, while wrecking in the Straits of Mackinac. She was rebuilt during winter layup at Davidson's yard, Bay City, MI in 1872. In April 1878, the wrecking tug *Leviathan* went ashore at Gull Island Reef, Lake Michigan. Released.

Ownership of the tug *Leviathan* was changed to W. H. Wolf & Thomas Davidson, Milwaukee, WI in April 1879. She was rebuilt that winter and housed at Milwaukee, WI. Her master in 1879 was Captain Charles F. E. Kirkland until he had to retire due to illness in 1888.

Her ownership was changed to Captain Stephen B. Grummond, Detroit, in March 1887 and the *Leviathan* operated under "Wolf & Davidson". Masters of the tug *Leviathan* were Captain Peter Anderson in 1888, Captain Edward Thorpe in 1889, Captain Martin Swain in 1890, followed by Captain Laframboise in 1891. In November 1891, while at her dock in Cheboygan, MI, the tug *Leviathan* caught fire and burned to a total loss. No lives lost.

The final enrollment for the tug *Leviathan* was surrendered at Cheboygan, MI, on February 1892, after careful examination proved her beyond repair.



L. L. Lyon: Roderick Calkins, Cleveland, built for Abner Stone, $\frac{3}{4}$; James Crosby, $\frac{1}{4}$, both from Cleveland a tug to be used for lake and river towing. Enrolled at Cleveland, July 01, 1857, her measures were recorded as: 88' 10.2" x 18' 1.92" x 9' 3.84" and a tonnage (old style) of 138 84/95. She was powered by high pressure steam engine, 25" bore x 28" stroke, rated at 400 horsepower, built by Cuyahoga Furnace Co. of Cleveland. She received a new Dunham's patent boiler; 8' x 16', 100 pounds steam, built by J. Dunham, Detroit. Master of the tug *L. L. Lyon* was Captain Abner Stone from 1857 – 1863. Ownership of the tug was transferred in August 1860 to Abner Stone, $\frac{3}{4}$ and Liakein L. Lyon, $\frac{1}{4}$, both from Cleveland. The tug *L. L. Lyon* towed on the Sault River accommodating vessels of the Lake Superior trade.

In July 1863, her ownership was changed to Joseph Raymont, Detroit. Her master was Captain Raymont from 1863 to 1874. The tug was readmeasured on April 22, 1865, and tonnage changed at Detroit: 89' x 19' x 8.33'; 76.85 grt. She was assigned official number 14708. She was rebuilt at Detroit and her measures changed May 13, 1869 to: 84.42' x 18.25' x 9.42'; 98.64 grt, 53.72 net. In September 1875, the *L. L. Lyon* went aground on Peche Island, Detroit River, Released.

Ownership of the tug *L. L. Lyon* was changed to John Demass et al, Detroit, MI in 1876. In August 1877, the tug caught fire and burned at Windsor, Ont. Rebuilt. In 1880, she was reboilered with a firebox boiler, 8' 8" x 17' 10", built by Globe Iron Works, Cleveland. In October 1893, she was again rebuilt, but at Duluth, MN: 88.33' x 18.25' x 10.42'; 76.52 grt, 38.26 net.

Her ownership was changed to B. B. Inman, Duluth, MN in October 14, 1893. She was fitted with and tested a new swivel firefighting nozzle at Duluth in April 1894. While under the control of U.S. Marshall O'Connor, Duluth from 1896-97, the tug *L. L. Lyon* caught fire and burned. She was rebuilt in 1898.

Her final enrollment was surrendered at Duluth August 14, 1905 and endorsed "abandoned".

John Martin: Enrolled at Cleveland, July 31, 1857, the wooden towboat *John Martin* was built by Quayle & Martin for E. Dailey of Cleveland, her measures were recorded as: 101' 4" x 19' 3" x 9' 4" with a tonnage (old style) of 169 91/95. She was powered by a 225-horsepower steam engine and was intended for the river towing trade. In 1858 the tug was enrolled in the Detroit River Tug Association. Her

master for the 1859 season was Captain H. F. Allen. In July 1860, her machinery broke of Escanaba Mi.

Her ownership was changed to J. Bridges, Detroit in 1862. Captain John Waltman was her master.

In 1863, her ownership was changed to John Pridgeon, Detroit. Her master that year was Captain Andrew Rathbun. May of that year, with the Canadian bark *British Lion* in tow on Lake Huron, both were run down by the schooner *Nabob* (US18175) damaging the *Lion* and sinking the *John Martin*. July 1863, the *John Martin* was raised and towed to Detroit for repairs. The following month, with the bark *Fame* (US9213) in tow, the *John Martin* caught fire on Saginaw Bay. The fires were extinguished by the propeller *Adriatic* who came alongside and poured water from her hose on the flames. Repaired. April 27, 1865, the tug *John Martin* was readmeasured: 116 grt.; assigned official number 12793. G. M. Newton was the chief engineer for the 1866 season.

In 1867, ownership of the tug *John Martin* was changed to M. Hunter, Detroit.

In 1869, ownership of the *John Martin* was changed to Livingstone & Company, Detroit. They had the tug rebuilt and her tonnage recorded as: 126.4 grt. In July 1871, while contenting for and attempting to pick up a tow, the *John Martin* and the tug *George E. Brockway* were in a collision off Point aux Pelee, Ont., Lake Erie. Both tugs were damaged. The following month, while fighting a gale on Lake Huron, the *John Martin* lost her raft of lumber.

Ownership of the tug *John Martin* was changed to W. Walker, Detroit in 1873. Her chief engineer for the 1874-75 season was John M. Cronen.

In 1875, W. Livingstone, Jr. of Detroit is recorded as her owner.

1876, ownership of the tug *John Martin* was changed to J. Norval et al, Detroit. While lying at her moorings above Amherstburg, Ont. the *John Martin* burst a pipe and sank. In August 1878, the *John Martin* had her cabin damaged by fire. Loss set at \$300.

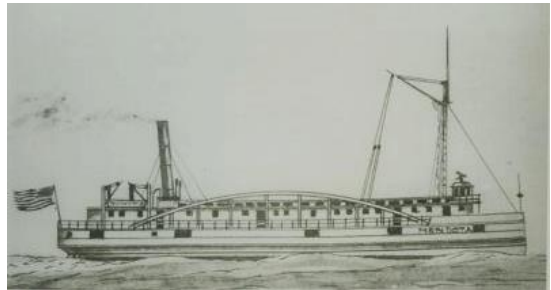
The *John Martin's* ownership was changed in 1879 to James Lewis, Detroit. He had her rebuilt in 1881 and her enrollment updated: 132.73 grt, 80.72 net. In October 1884, while towing three barges, the *John Martin* went aground on Middle Island in Lake Erie. Released.

In 1885 her ownership was changed to B. M. Parker. Master of the tug in 1885 was Captain C. F. Moore with Robert Craig in 1886 and Lorenzo Willix in 1887 as chief engineers.

Ownership of the tug *John Martin* was changed to Detroit Dry Dock Co., Detroit in 1887.

Later in 1887, ownership was changed to George Hall, Ogdensburg, NY.

In 1889, the Rochester Transportation Co., C. H. Blakesley, president, Rochester, NY took ownership of the *John Martin*. Her master in 1890, was Captain Paul Howell. The *John Martin* was chartered to tow ice-laden vessels between Midland, Ont. (Georgian Bay) and Buffalo, NY for the 1890 season. In July 1890, with the schooners *John T. Mott* (US75157) and *Hayes*, laden with ice, in tow, the *John Martin*, her stern tube gave out and she foundered in 300 feet of water in Georgian Bay. No lives lost.



Mendota: The wooden propeller was built by Luther Moses at Cleveland, where she was enrolled August 05, 1857 and her measures recorded as: 193.7' x 30.6' x 12.6' and a tonnage (old style) of 709 70/95. Intended for the passenger, package freight trade, she was equipped with an oscillating steam engine, 50" bore x 40" stroke, built by Cuyahoga Steam Furnace Co. and a return flue boiler. Her owner was James F. Clark, et al, Cleveland. Her master for the 1858 season was Captain Spencer. In May 1858, bound for Racine, WI, the propeller *Mendota* broke her wheel. Property loss set at \$1,500. The following year, in May, while bound up on the Detroit River, the *Mendota* broke her shaft and drove her piston through her cylinder head. Repaired. November 1861, during a gale on Lake Huron, the *Mendota* sprang a leak and had to jettison a deck load of beef to stay afloat. July 1863, while at anchor in the St. Clair River, the *Mendota* was struck by the schooner *L. J. Farwell* (US1461) who was down bound in heavy fog. She was assigned official number 16323 in 1865. Her chief engineer that year was Daniel W, Chapman. Master of the *Mendota* in 1866, was Captain Charles W. Lockwood. In June of that year, the *Mendota* and the bark *Invincible* (US12068) collided in the Milwaukee River. Damage slight for both vessels.

Ownership of the *Mendota* was changed to Sheldon Pease et al, Buffalo in September 1866. In

May 1869, she had her machinery disabled coming up Lake Erie. Repaired.

March 22, 1870, her ownership was changed to Western Transportation Co. et al, Tonawanda, NY. Four days later, March 26, 1870, ownership was recorded as the Union Steamboat Co, Buffalo.

April 25, 1870, John Kelderhouse, Buffalo was listed as owner.

April 1871, ownership of the *Mendota* was changed to William Crosthwaite, East Saginaw, MI. Her enrollment was updated: 192.1' x 30.4' x 11.3', 785 grt. October of that year, the *Mendota* arrived at Detroit, MI with her machinery disabled. The following month, during heavy weather on Lake Erie, the *Mendota* rolled her smoke-stack overboard.

The propeller *Mendota* owner information was updated April 25, 1874, to show William Crosthwaite, Buffalo, NY. Bound, Buffalo to Chicago, the *Mendota*, laden with coal and towing the coal laden barges *Morning Star* (US90642) and *Evening Star* (US135025), foundered 12 miles off Big Sable Point, MI, Lake Michigan. Both barges and tug plus twelve lives were lost.

Final enrollment surrendered at Buffalo, NY, September 30, 1875.

Missouri: September 29, 1857, the builder of the wooden propeller, George H. Notter, Buffalo, had his ship enrolled at Buffalo. Her measures were: 185' 6" x 27' 2" x 12' 2" and her tonnage (old style) was 588 65/95. She was owned by Western Transportation Co., Tonawanda, NY; Pearl L. Sternberg, president. She was powered by a Corliss engine, 26" bore x 36" stroke, built by Buffalo Steam Engine Works.

(A **Corliss steam engine** is a steam engine fitted with rotary valves and with variable valve timing. Patented in 1849 and invented by George Henry Corliss of Providence, RI. Engines fitted with Corliss valve gear offered the best thermal efficiency of any type of stationary steam engine. The Corliss engines were generally about 30 percent more fuel efficient than conventional steam engines with fixed cutoff. This increased efficiency made steam power more economical.)

Her master for the 1857-61 seasons was Captain Woodworth and the *Missouri* was built for the passenger, package freight trade. On her first-round trip, Buffalo to Chicago, she returned with a full cargo. The weather had been extremely stormy and the winds contrary, she made the return trip in four days, using less coal than burned by the best of other steam engines.

April 1859, the *Missouri* had her rudder chain part during a squall on Lake Erie. The damage was repaired and to right the vessel the captain had 15 casks of bacon thrown overboard. The *Missouri*

struck a reef July 1861, during thick weather, at Forty Mile Point, MI, Lake Huron and was scuttled to prevent her pounding and going to pieces. She was pumped out and released from the reef. In May 1862, the *Missouri* collided with the schooner *Saxon* (US22915) off Port Maitland, Ont., Lake Erie. The propeller was towed into port in a leaky condition. July of that same year, she broke her shaft off Rondeau, Ont. and was towed to Detroit for repairs.

The Buffalo & Detroit Transportation Co. took on ownership of the propeller, February 1865. In April 1865 she was readmeasured and assigned official number 16314. In October 1866, bound down for Buffalo, the *Missouri* ran hard aground at Springwells, MI on the Detroit River.

November 1867, ownership of the propeller *Missouri* was changed to T. D. Dole, Buffalo. She broke her wheel coming up Lake Erie in May 1869. In September, her machinery was disabled while on the Detroit River. The following year, in October, down bound from Detroit with general cargo, the *Missouri* struck a bar during a gale on Lake Erie while trying to make harbor at Port Burwell, Ont. Released.

In September 1871, her ownership was changed to Andrew Abernathy and Adeline Gibson, both from Buffalo. Two months later, the *Missouri* went ashore on the dangerous reef named Whale's Back Shoal in Green Bay. Released.

February 1874, her ownership was changed to Robert Montgomery and Lyman Hunt, both from Buffalo. The ship operated on Spencer's Line, Buffalo-Lake Superior with the steamer *Cuyahoga* (US4264). July of that year, the *Missouri* and the Canadian schooner *E. P. Ryerse* (C-1861) collided at Lake Point, Marblehead on Lake Erie. Her master for the 1878 season was Captain Lyman Hunt. Early in 1879, the *Missouri* was rebuilt as a steambarge at Union Dry Dock, Buffalo. Enrollment tonnage: 378.28 grt, 282.35 net.

July 1880, her ownership was changed to Frank Rockefeller et al, Cleveland.

April 1882, her ownership was changed to E. P. Sheldon et al, Cleveland. She would tow the barges *Buckeye State* (U2858), *Orontes* (U18390), *B.M. Baker* (U31217), *Sunbury* (U22895) & *Sylvia Morton* (U23055) in the Saginaw & Cleveland lumber trade.

September 1883, her ownership was changed to M. L. Grane, AuSable, MI. During the 1884 season, the *Missouri* ran AuSable to Cleveland in the lumber trade, towing the barges *Andrew Walton* (U-1869), *Conrad Reid* (U4369) & *Kate Kelly* (U14031). July 1886, the *Missouri*, with three barges in tow, went ashore in fog, at Sleeping Bear, MI on Lake Michigan. Released.

Ownership of the steambarge *Missouri* was changed to George Wallace, Detroit in January 1887 and in March of that year to W. J. Daly et al, Mt. Clemens, MI. In 1889, she towed *Grace Murray* (U10222), *W.R. Clinton* (U26250) & *Golden Rule* (U10153). December 1890, the steambarge *Missouri*, docked at the distillery on the Canadian side of the Detroit River above Sandwich, Ont, caught fire and burned to the water's edge. Declared a total loss. Her engine was later salvaged and the hulk dynamited.

Some Notes:

Black River, Ohio: Drains Medina County, emptying into Lake Erie at Lorain, OH.

Cargo-carrying capacity in cubic feet, another method of volumetric measurement. The capacity in cubic feet is then divided by 100 cubic feet of capacity per gross ton, resulting in a tonnage expressed in tons.

Mail Steamer: Chartered by the Canadian government to carry the mail between ports.

Navigation: The reader may wonder what, with so few vessels on the lakes, why steamers could not avoid each other. Two main reasons, the visibility during storms and the vessels did not carry any lights so you came upon a vessel you could not determine if the vessel was approaching or departing from you.

Old Style Tonnage: The formula is: $\text{Tonnage} = ((\text{length} - (\text{beam} \times 3/5)) \times \text{Beam} \times \text{Beam}/2)/94$

where: *Length* is the length, in feet, from the stem to the sternpost; *Beam* is the maximum beam, in feet.

The Builder's Old Measurement formula remained in effect until the advent of steam propulsion. Steamships required a different method of estimating tonnage, because the ratio of length to beam was larger and a significant volume of internal space was used for boilers and machinery.

In 1849, the Moorsom System was created in Great Britain. The Moorsom system calculates the tonnage or cargo capacity of sailing ships as a basis for assessing harbour and other vessel fees.

Up to 1848, most freight was shipped, on steamers or propellers, as package freight. This meant that coal, grain, apples, and produce had been placed in a container or sack and carried aboard on the back of a laborer. Bulk freight in the form of lumber would have been loaded on barges and schooners and towed by a steam driven ship. In 1848, Joseph Arnold built at Port Huron, MI, a the steambarge *Petrel* (found in the third section) for the bulk freight trade answering a need to move bulk coal to the northern communities and iron ore, lumber, and grain south to the growing cities in the East.

By 1848, some ships built in that year, continued to operate beyond the "War of Rebellion" and may be listed with two different tonnage ratings. Most ships built on the Great Lakes were rated as Tonnage (Old Style). This dates back to the 1600's and comes to the U.S. from our cousins.

Tonnage (Old Style): The British took the length measurement from the outside of the stem to the outside of the sternpost; the Americans measured from inside the posts. The British measured breadth from outside the planks, whereas the American measured the breadth from inside the planks. Lastly, the British divided by 94, whereas the Americans divided by 95. The upshot was that American calculations gave a lower number than the British. For instance, when the British measured the captured *USS President* (a three-masted heavy frigate), their calculations gave her a burthen of 1533⁷/₉₄ tons, whereas the American calculations gave the burthen as 1444 tons. The British measure yields values about 6% greater than the American. The US system was in use from 1789 until 1864, when a modified version of the Moorsom System was adopted (see below).

Unit Ton - The unit of measure often used in specifying the size of a ship. There are three completely unrelated definitions for the word. One of them refers to weight, while the others refer to volume.

Measurement Ton (M/T) or Ship Ton Calculated as 40 cubic feet of cargo space. Example, a vessel having capacity of 10,000 M/T has a bale cubic of 400,000 cubic ft.

Register Ton - A measurement of cargo carrying capacity in cubic feet. One register ton is equivalent to 100 cubic feet of cargo space.

Weight Ton (W/T) - Calculated as a long ton (2,240 pounds)

In 1849, a Royal Commission was formed in England with the secretary of the commission as George Moorsom, and the resulting tonnage admeasurement system was called the "Moorsom System". The idea of this system is that the fees charged to vessels should be directly proportional to their potential earning capacity, i.e., the space occupied by passengers or cargo. A vessel is measured at a series of sections throughout its length, the transverse area determined at each section, and the areas integrated to determine the volume. The total internal volume was then divided by 100 to determine the vessel's "tonnage", since at that time, 100 cubic feet was determined to be the appropriate factor so that vessels would maintain approximately equal tonnages under the new and old regulations. There were two tonnages determined under the Moorsom System: "gross" and "net" tonnage. Gross tonnage reflected the entire measured volume of the vessel less certain "exempted" spaces, initially spaces used only for the crew or for navigation of the vessel, and spaces in the superstructure not used for cargo. Net tonnage was equal to gross tonnage less a deduction for the machinery space, reflecting the earning capability of the vessel.

A measurement of the cargo-carrying capacity of merchant vessels depends not on weight, but on the volume available for carrying cargo. The basic units of measure are the *Register Ton*, equivalent to 100 cubic feet, and the *Measurement Ton*, equivalent to 40 cubic feet. The calculation of tonnage is complicated by many technical factors.

The current system of measurement for ships includes:

Gross Tons (GRT) - The entire internal cubic capacity of the ship expressed in tons of 100 cubic feet to the ton, except certain spaces which are exempted such as: peak and other tanks for water ballast, open forecandle bridge and poop, access of hatchways, certain light and air spaces, domes of skylights, condenser, anchor gear, steering gear, wheel house, galley and cabin for passengers.

Net Tons (NT) - Obtained from the gross tonnage by deducting crew and navigating spaces and allowances for propulsion machinery.

P.Q.: Province of Quebec

Packet Freight: almost every imaginable item of merchandise – bags of onions, grain, etc., processed foods, bags of coal, stoves, furniture, that can be packed and moved by manpower from dock to hold and reverse.

Patriot War: A conflict along the Canada – U.S. border where bands of raiders attacked the British colony of Upper Canada more than a dozen times between December 1837 and December 1838. This so-called war was not a conflict between nations; it was a war of ideas fought by like-minded people against British forces

Ship Inventory: Will include the names of wooden steamers that will not be identified in the manuscript. The research project that the information was gathered for included all wooden steamers built on the Great Lakes or St. Lawrence River and operated on the Great Lakes with a gross tonnage at or over 100 tons.

Up-bound: Going against the current – St. Lawrence River to Lake Superior. (Lake Michigan – steaming north)

Down-bound: Going with the current – Lake Superior to the Saint Lawrence River. (Lake Michigan – steaming south)

(Original Source: "Wooden Steamers on the Great Lakes" – Great Lakes Historical Society; Bowling Green State University – Historical Collection; Thunder Bay National Marine Sanctuary Collection; Maritime History of the Great Lakes; and the scanned newspaper collection of the Marine Museum of the Great Lakes, Kingston, Ont. and 746 additional documented sources.)