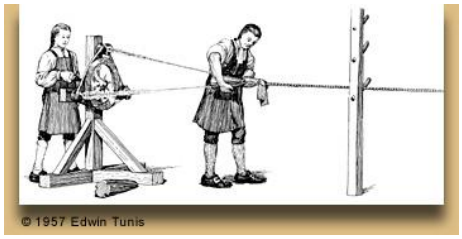


While one man cranks the spinner, the one holding the "top" walks backwards as the rope is twisted. From Edwin Tunis, *The Young United States, 1783 to 1830* (New York: World Publishing Co., 1969). Used by permission of the estate of Edwin Tunis.

Ropewalk

The Newsletter for
Shipwrights of Ohio–July 2025

Our Next Meeting: August 16, 2025;
Hybrid –
"Planking a Wooden-Hulled Ship"
by Doug Buchanan

Table of Contents

July

Editors Comments;

If you could not make the meeting, either in-person or via zoom, you missed a very informative presentation by Darrell Markijohn on his use of "Jigs & Fixtures" building the *USS Niagara*.

We had nine in-person and four on Zoom. So, where were the rest of you?


Joining us at the library were three new members this year: Barry Fagan (Galena, OH), Phil Neldon (Twinsburg, OH), and Jim Oberst (Pataskala, OH). Welcome. A good turnout Saturday morning,

As always, take care of yourself and your families, look to those you know who may need help or are lonely and may be in need of human contact.

Till next month. Your editor.

George Montag

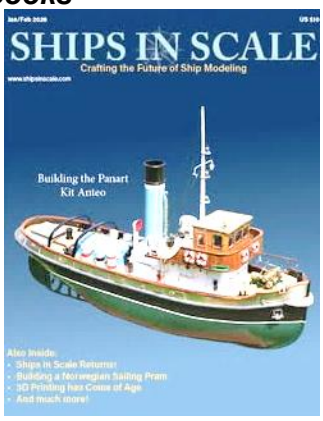
On Saturday, June 28th, 2025, George passed away at his residence in Marysville, OH. George was a "plank-owner" in the Shipwrights of Ohio. He was preceded in death by his wife Nancy, who passed in May 2023.

George was noted for building ship models using the Kammerlander Method (building the hull using a mold of the hull to form frames and planking.


A memorial service will be held in September, at the Worthington Schoedinger funeral home. We will post the notice when it is received.

"Fair winds and calm seas" George. You will be missed.

Sea Watch Books



The relaunched *Ships in Scale* magazine will be published six issues per year starting with the January/February 2026 edition.

Based on feedback from the ship modeling community, the magazine will include:

- Tool & technique tutorials
- Tips & tricks
- Product & kit reviews
- Scratch-building techniques
- Step-by-step build logs (wood & plastic)
- Historical ship articles
- Book reviews
- New kit announcements
- And more!

There are two subscription options:

- Print & Digital
- Digital Only

Pricing:

- Digital: $39.95/year
- Print & Digital: $44.95 (US); $54.95 (Canada); $64.95 (International)

Pre-Launch Discount: Subscribe before the end of 2025 and get a 10% off your first year subscription.
www.Simplecirc.com/subscribe/ships-in-scale/relaunch

Modeling Events

2025 NRG Photographic Ship Model Comp.

Registration closes Thursday, July 31, 2025. If you plan to participate, time is running out.

This is your chance to have your work judged and receive comments on how to improve. The competition judges your work against a set of standards and better yet, you don't have to transport your model anywhere.

Time to dust off that camera and start taking pictures of the ship model(s) you want to enter. The 2025 NRG Ship Model Photo Contest, the fifth photo contest since 2011, is open to the members of the NRG for an entry fee of $30 per model. Registration for the competition opened on June 16, 2025.

Because, the "Shipwrights of Ohio" is an NRG Chapter Club, non-NRG members, within the club membership, are offered a special competition entry fee for $50. You can enter a model and also receive a one-year Nautical Research Guild digital membership at half the normal yearly price.

View the competition rules and download the Entry Form, at www.thenrg.org/2025photocompetition. The forms are in pdf format and can be read with Adobe Reader. If you do not have this free application already installed, the following link will install it for you. https://get.adobe.com/reader/

All photos and supporting documentation requested will be submitted on-line. Entrants will also receive a written review of their model.

Gold, Silver and Bronze awards will be awarded for the First, Second and Third place models in three categories: Novice, Apprentice and Master. A "Best of Show" will be awarded to the best "Gold" winner.

For NRG members, the entry fee will be $30 per model entered. Entries can be submitted starting on Monday June 16, 2025. **Entries must be submitted before or by Thursday, July 31, 2025**.

I repeat, to view the complete rules and download the Entry Form, go to www.thenrg.org/2025photocompetition.

Winners will be announced at the Annual Member's Meeting, 4th Q/2025.

Reminders & Announcements

American River Roots Festival

Cincinnati – October 08-12, 2025

This festival is a signature event for America's 250th year celebration. Come celebrate as they host a unique fusion of Music, Cuisine, Culture and Cruises on the Cincinnati, Covington and Newport riverfronts.

www.americasriverroots.com

Columbus Air Show

Rickenbacker Air Field - August 22-24, 2025

Featuring:
U.S. Navy – Blue Angles; U.S. Marine, C130; Navy F-35 Lighting Demo; US Air Force F-16 Demo; US Navy Parachutes; Air Force F-35 Lighting.

https://columbusairshow.com/

Sea History Activity

LST-325 Ship Memorial: The World War II, LST-325, commenced summer hours April 1, 2025. The LST is docked on the Ohio River at Evansville, Ind.

Her annual cruise is scheduled for September 3 – October 2, 2025, where she will stop at Muscatine, IA, Alton, IL, Cape Girardeau, MO before returning to Evansville, IND, October 01, 2025.

Tall Ships Festival

The Tall Ships Erie festival will be held from August 21-24, 2025, at Dobbins Landing on Erie's bayfront.

According to the Tall Ships Erie website, the following fleet will be ported in Erie during the festival:

- *Lettie G. Howard - schooner*
- *Pride of Baltimore II – Topsail schooner*
- *Appledore IV - schooner*
- *When and If - schooner*
- *SSV Ernestina Morrissey - schooner*
- *Liberty Clipper – Baltimore Clipper*

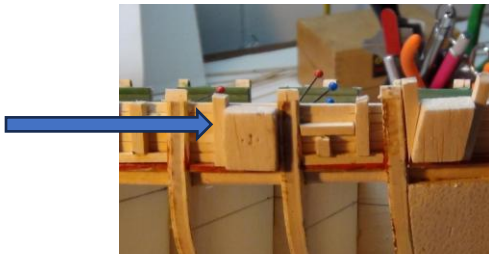
Presentation:

Jigs Used on the Brig US Niagara

The July presentation, by Darrell Markijohn, was on **"Jigs & Tools"**, and covered the jigs he developed when he built the *U.S.S. Niagara*.

Gunport

Darrell, started, by pointing out the web site Model Ship World has a separate forum for jigs and fixtures.



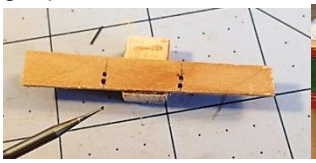
A block of balsa, carved to the size of the gunport, is used as a pattern to ensure that all gun ports are the same size.

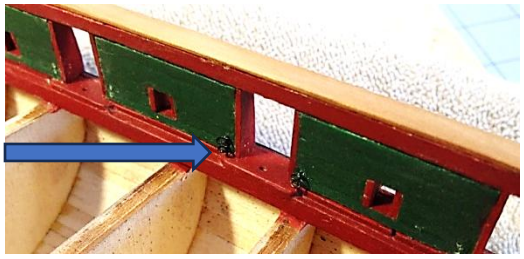
Sweep Hole

In carving out the sweep holes in the bulwark, he made a hand-held block that would fit into the sweep hole, so that they were all the same size.

Drilling eyelet holes

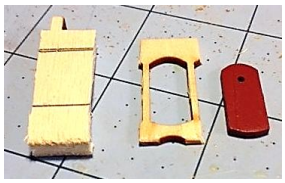
To maintain a standard position where the eyelet holes are drilled at each gunport, the balsa block had a wooden template attached that allowed all eyelet holes to be drilled in the same pattern and be uniform at all gunports.



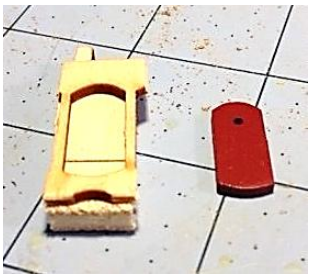


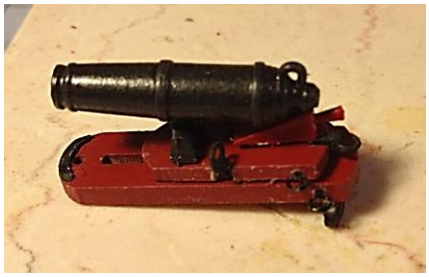
Cannon Base

With multiple cannon bases to build, Darrell built a pattern so that all bases would be similar:

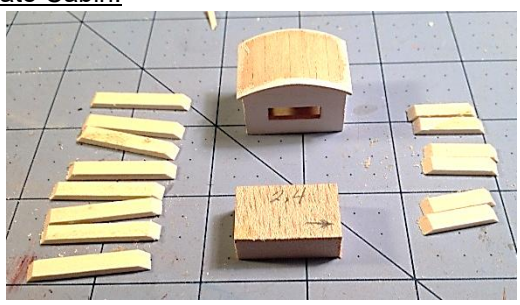


Three parts (left to right): Jig base, pattern frame, cannon base. The photos below are: Jig assembled, cannon base installed: using the jig to drill holes: assembled cannon.

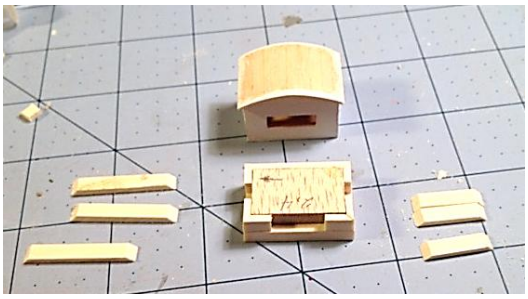




Replicate Cabin:



To replicated the deck cabins, Darrell started with a block of wood the size of the cabins interior dimensions. He also precut the side panels



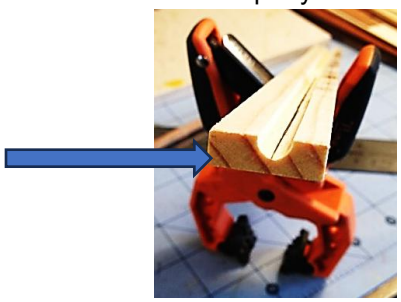
He used yellow wood glue – sparingly – to make sure that he did not glue the strips to the block.

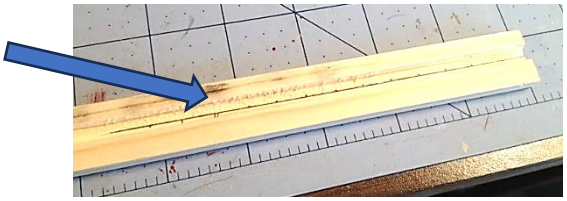
In the photo above, is the final product, with a cherry roof and sills. He finished the entire structure with some flat poly – no paint.

Spars & Yards:

The following are the steps in building a jig to drill holes into a tapered spar or yard for jack stays.

1, Make a cradle that the spar/yard will fit in.

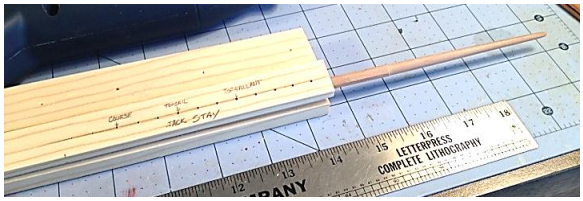




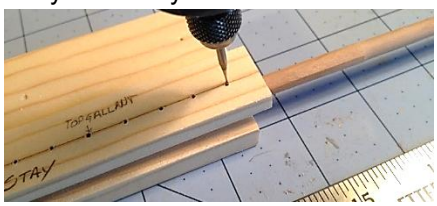
2, Mark in the grove the location of the jackstays on the yard.

3, drill the holes where marked.

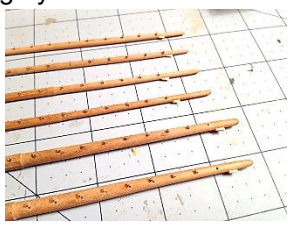
4, Fit yard in grove and clamp drill pattern over it.



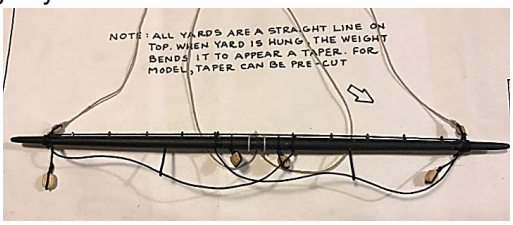
5, Drill jackstay holes in yard



6, Yards showing eyelets in holes for Jackstay.

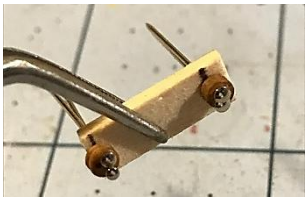


7, Rigged yard.



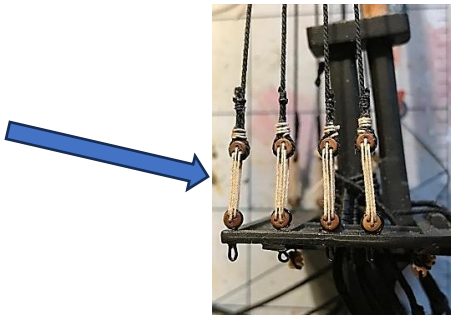
Note: on above photo: 'All yards are a straight line on top. When yard is hung, the weight bends it to appear a taper. For model, taper can be pre-cut.

Deadeye Spacing



To maintain equal spacing between shroud deadeyes on a mast or at the rail, make a spacing tool that will connect the shroud end to the mounted deadeye on the rail. Above photo is one solution.

Darrel, rigs the masts off the model. Photo shows the mast on its side with the spacer fitted to the deadeye and shroud.



Final results.

Ships on Deck

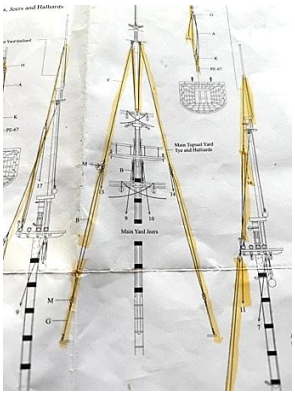
The intro photos for each ship shown before the title is for reference to what the model may look like when finished.

HMS Sphinx

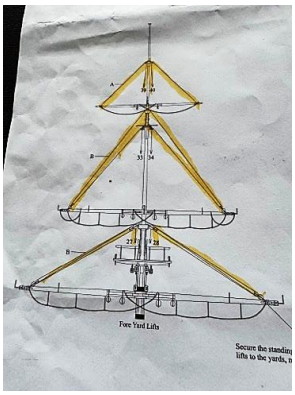
By Cliff Mitchell

Cliff is making progress on his model of the *HMS Sphinx*, an amazing kit from England and the Vanguard Ship Models. Because of the complexity of the rigging, he cannot get decent pictures to show. He is drawing pictures of the rigging plans to show what has been accomplished:

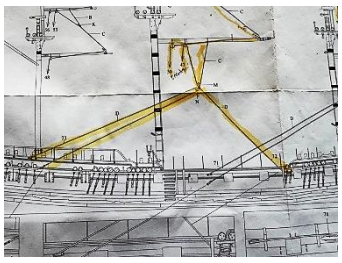
1. Topgallant Yard Halliards installed on Mizzen, Main and Fore Masts



2, Yard Lifts installed on all three masts



3, Working on the Sheets and Tacks



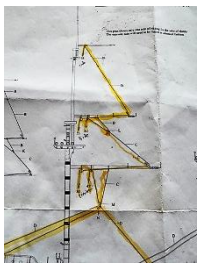
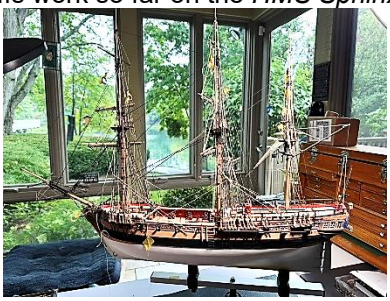


Photo of Cliffs work so far on the *HMS Sphinx*



Black Pearl

By Phil Neldon

The photos above, show modeling progress. The masts are set in place along with some of the rigging. He will probably tear this all out as Phil is not happy with his results.

When finished installing the masts, he will begin the standing rigging and then the yards, etc.

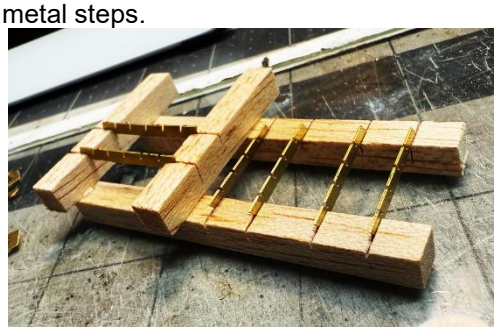
Progress to date, has taken Phil about a year and a half.

Buccaneer

by Jim Oberst

Jim is about finished with the hull and deck of his OcOre *Buccaneer*. He is statrt on the masts and yards.

Below is a photo of the jig made to assemble etched metal steps.



Armed Virginia Sloop – 1768

By William Nyberg

Planking clamps finished.

Making treenail stock.

Photo above shows: stock strips 1/16” square x 3.5” length. In the vise is a Dremel with an extension, a cutter and hold-it attached. I estimate that I will need approx 2,000+ treenails.

Above is a photo of the other two cutters. The cutters are 1 3/16” long, with a 1/8” dia shank. I purchased this set about 20 years ago when building the topsail schooner *Hannah.* They were sourced from Vanda-Lay industries. https://www.vanda-layindustries.com/

The cutters came in three sizes: .038, .031, .026. At 1:32 scale of the *Armed Vigirina Sloop of 1768,* this is equivalent to:

0.026 = 0.83”
0.031 = 0.99”
0.038 = 1.22”

Shipbuilding used treenails to bind the boat together. They had the advantage of not giving rise to "nail-sickness", a term for decay accelerated and concentrated around metal fasteners. Increased water content causes wood to expand, so that treenails gripped the planks tighter as they absorbed water. However, when the treenail was a different wood species from the planking, it usually caused rot.

Tugs: Great Lakes

Hattie A, Fox - 1882

The wooden towboat *Hattie A, Fox* was built at Saugatuck, MI by John B. Martel for the Harry Fox & Co. Initial enrolled at Chicago, July 19, 1882. Her measures as recorded were: 52.9' x 15.6' x 6.7'; 22.97 grt, 11.5 net. She was assigned official number 95706. In February 1884, she was renamed *Mentor.*

Ownership of the towboat *Mentor,* was changed in 1890 to the Fitzsimmons & Connell Co., Chicago.

Ownership of the towboat *Mentor,* was changed, in August 1905, to A. Green, Hancock, MI. She was rebuilt as a wrecking scow. In July 1908, the towboat *Mentor* caught fire , and burned, while at Chicago, to a total loss,

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

May French - 1883

The wooden towboat *May French*, was built at Buffalo, NY, by George H. Notter. Initial enrollment at Buffalo, May 1883. Her measures as recorded were: 42.16' x 12.58' x 6.0'; 18.71 grt, 9.36 net. She was assigned official number 91599. She was powered by a high pressure, HPNC, engine: 12 5/8" x 14".50hp @ 140rpm built by Sutton Brothers, Buffalo. Steam was generated by a firebox boiler, 3'8" x 9'; 138# steam, bult by Kingsford Machine Works, Oswego, NY.

Ownership of the towboat was changed in 1899, to E.J. Hingoton, Buffalo. The towboat *May French* was abandoned in August 1902.

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

S. W. Gee - 1888

The wooden towboat *S. W. Gee,* was built by Grady & Maher, Buffalo. Her measures were: 74' x 17.1' x 9.9'; 62 grt, 31 net. Assigned official number 116244. She received a replacement engine from Waldo Avery in 1880.

Ownership of the towboat *S. W. Gee* was changed to Maytham Tug Line, Buffalo. In 1907, the tug capsized and sank in the Blackwell Canal, Buffalo. She was raised and repaired. In February 1925, the towboat *S. W. Gee* was abandoned and dismantled.

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

Gertrude - 1885

G.J. Dorr, in 1885, built a wooden towboat at Saugatuck, MI, for captain R. Schultz, Chicago. Her measures were: 56.8' x 14.4' x 6.8'; 26.23 grt, 13.12 net. Her official number was 85890. In September 1899, while 8 miles off South Chicago, the towboat *Gertrude* foundered in a gale.

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

Events & Dates to Note:

2025 Tentative Schedule

~~**Columbus Woodworking Show**~~
~~**Ohio Expo Center**~~
~~**January 17-19, 2025**~~

~~**IPMS Columbus**~~
~~**BLIZZCON 2025**~~
~~Makoy Center, Hilliard, OH~~
~~**Saturday, February 22, 2025**~~

~~**Miami Valley Woodcarving Show**~~
~~Christ United Methodist Church~~
~~**Middletown, OH**~~
~~**March 1-2, 2025**~~

~~**46th Midwestern Model & Boat Show,**~~
~~Wisconsin Maritime Museum, Manitowoc, WI~~
~~**May 16-18, 2025**~~

~~**Bluejacket Rigging Class**~~
~~Fireside Inn, Belfast, ME~~
~~https://www.bluejacketinc.com~~
~~**May 18-22, 2025**~~

~~**Lakeside Antique & Classic Wooden Boat**~~
~~Lakeside Hotel, Lakeside, OH~~
~~**July 20, 2025**~~

2025 Photographic Ship Model Competition
NRG Sponsored
Registration opened June 16, 2025, $30 entry fee
Entries must be submitted by July 31, 2025
Winners will be announced at Annual Members Meeting

Great Lakes Tall Ship Festival,
Erie, PA
August 21 – 24, 2025

Columbus Air Show
U.S. Navy "Blue Angles"
Rickenbacker International Airport
August 22-24, 2025

Ohio River Sternwheel Festival
Riverfront Park, Marietta, OH
September 5-7, 2025

"America's River Roots Festival"
Cincinnati, Covington and Newport riverfronts
Oct. 08 – 12, 2025

"The Art of Wood" – woodcarvers show
Sauder Village, Archbold, OH
October 24 & 25, 2025

Miniature Society Show & Sale
St, John's Evangelical Lutheran Church
Grove City, Oh
November 15, 2025

Shipwrights of Ohio
2025 Officers & Staff
President – Bob Mains……..…614-306-6866
Vice Pres. – Cliff Mitchell ……..614-890-6164
Communications – Bill Nyberg..614-370-5895
Recruitment – Jeff Northup …..740-585-0383
Treasurer – Lee Kimmins……..614-378-9344
Web Master – John Boeck…… 937-620-0258
Zoom Master – Steven Keller.. 513-280-2210
Web Site: www.shipwrightsofohio.com
Email: shipwright@breezelineohio.net

Presentation Schedule:

2025 – Schedule Tentative
~~Jan 18 Scale Comparison Thread to Actual Rope Lines~~
~~Feb 15 (to be rescheduled) to May~~
~~Mar 15 Fixtures: Anchors~~
~~Apr 19 Ships in a Bottle~~
~~May 17 History of Ships WW 2~~
~~June 21 Photo Etching Brass Parts~~
~~July 19 Jigs & Fixtures – ship modeling~~
Aug 16 Planking a Wooden-hulled Ship
Sep 20 Bending Wood
Oct 18 Lofting & Reading Ships Plans
Nov 15 Power & Hand Tools in Ship Modeling
Dec 20 Card Modeling

Editor: Wiliam Nyberg
Shipwrights of Ohio
Shipwright@breezelineohio.net

Cargo Hold

www.shipwrightsofohio.com/cargo hold/

Here you will find how to order **Challenge Coins, as shown above, on left, that have been used historically for Identification within an organization, Recognition of achievements, Appreciation of services and Trading/Collecting. Our Shipwrights of Ohio coin contains both the Club Logo and the Club Coat-of-Arms.**

You can also order Logo shirts from "Lands End". They offer an on-line link for direct, personal purchases of many of their products without Shipwrights of Ohio logo.

There are currently two logo styles available:

- **Full Club logo – with Motto, for digital print use on the backside of T-shirts. 10" or 12" round.**
- **Small Club logo – without Motto for embroidered or digital print on the front of items. 4" round.**

Wooden Steamers on the Great Lakes

Researched & Written
By William E. Nyberg

The Gilded Age was a period in the United States from 1873 to the early 1890s, and was marked by rapid economic growth, political corruption, and social inequality:

- Economic growth: The US became the world's leading producer of coal, oil, steel, and food, and saw a huge increase in the importance of the factory system, railroads, mining, and finance.
- Political corruption: The Gilded Age was marked by widespread political corruption, with wealthy industrialists and bankers holding the most political power. Tammany politicians in New York used fraud, violence, and intimidation to win elections.
- Social inequality: The Gilded Age saw the rise of two distinct classes, separated by a gulf of wealth and circumstance. Women faced a sexual double standard and inequalities in marriage, with limited access to divorce and few long-term career options.
- The Gilded Age name: The term comes from the 1873 novel "The Gilded Age" by Mark Twain and Charles Dudley Warner, which satirically depicted the era's corruption and political figures.
- The Panic of 1873 was blamed for setting off the economic depression that lasted from 1873 to 1879. This period was called the Great Depression, until the even greater depression of 1893 received that label, which it held until the even greater contraction in the 1930s—now known as the Great Depression.
- Other events during the period were: The US seized the Philippines, Puerto Rico, and Cuba after the Spanish-American War.

Supporting the economic growth was the change from wooden vessels on the Great Lakes to larger iron and then steel vessels. To transfer the growing needs of the steel mills and the transfer of grain crops to populated areas, Great Lakes ships needed to be structurally stronger to support the increase cargo weight, Longer vessels were required to support the larger cargos and this required stronger hulls to prevent "hogging" which impacted wooden ships structural keels.

The first two iron hulled vessels were bult on the Great Lakes in 1844, The *Colonel Albert* for the U.S. Army, at Buffalo, NY; and the *USS Michigan*, for the U.S. Navy, at Erie, PA. The first steel vessel was the propeller*, William Chisholm* built by Globe Iron Works at Cleveland, OH in 1884.

1877

Alberta: David & William McMurchy, at Picton, Ont., built a wooden propeller for John Brokenshire & Rathbun & Sons, Kingston, Ont. to be used in the passenger, package freight trade on daily runs between Picton, Ont and Alexandria Bay, NY on the Saint Lawrence River. She was initially enrolled at Picton, Ont, May 01, 1876, with her measures recorded as: 100.5' x 18.67' x 7.5'; 125.0 grt. Her engine is unknown. In 1877, the propeller *Alberta* was readmeasured according to 40th Victoria, Chapter 19: 89.7' x 22.0' x 5.9'; 93 grt. In 1883, the propeller *Alberta* was reported "out of service"

Avon: The Union Dry Dock Company, Buffalo, NY, built a wooden propeller Union Steamship Co., Buffalo, to be used in the package freight trade. Her hull number was 00010, and she was launched August 30, 1877 and registered at Buffalo. Her measures were recorded as: 251.0' x 35.33' x 15.0'; 1702.33 grt, 1538.84 net. The propeller was powered by a Steeple Compound engine, 25", 54" bore x 36" stroke, 600 horsepower, built by King Iron Works, Buffalo, NY. Steam was generated by a boiler: 9' x 18' 1/2"; she was equipped with a 11' wheel by King Iron Works. She was assigned official number 105733. For the 1877-78 seasons, her chief engineer was Frederick Rehbaum. She carried package freight between Buffalo and Chicago & Milwaukee. In June 1878, the propeller *Avon* with schooner *G.S. Hazard* (US85338) in tow, mistaking a locomotive headlight for the Bois Blanc Light, went aground on the Canadian side of the Detroit River. She was released and repaired. Master of the *Avon*, for the 1883 season, was Captain Marion. In March 1881, the *Avon*, collided with the package freighter *Thomas A. Scott* (24785), in Milwaukee Bay, sinking the *Scott* in 30 feet of water. In November 1883, the *Avon* broke her steering gear, during high winds off Buffalo, and stranded at South Beach, Lake Erie. Released and repaired. During winter layup in 1886, the *Avon,* received new steel crown arches, to prevent hogging. In November of 1887, the propeller *Avon* struck the coal laden schooner *Middlesex* (US91307)*,* crushing her badly on the starboard side from foremast to mainmast, due to high winds. The *Avon* received minor damage. Her chief engineer for the 1889 season was George Fritsche.

In March 1892, ownership of the propeller *Avon* was changed to Union Transit Co.; a consortium of investors from Buffalo, including: Henry C. French, 51/100; John Gordon, 25/100; and William B. Meadowcroft, 24/100 shares. Master of the propeller *Avon* for the 1892 season was Captain M. H. Murch. The

Avon ran between Lake Superior and Buffalo, NY for the 1892 season.

April 1893, ownership shares in the Union Transit Co., propeller *Avon* were transferred to Henry C. French, 51/100, and William J. Conners, 49/100, both of Buffalo NY. Her chief engineers for the 1894 season were Charles Coushaine and Henry C. Farrell. In June 1893, the propeller *Avon*, lost steering and went aground at Sault Ste Marie. Released.

September 1895, ownership shares in the Union Transit Co., propeller *Avon* were transferred to Henry C. French, 51/100, and John Gordon, 49/100, both from Buffalo NY. In August 1896, the Canadian excursion boat *Garden City* (C100035) collided with the propeller *Avon* in the Buffalo harbor due to a misunderstanding of signals. Minor damage to both. September 1897, the *Avon,* struck bottom and sank at Lime-Kiln Crossing on the Detroit River. Raised and repaired. Her master for the 1899 season was Captain James Countryman; followed by Captain Joseph Jamieson for the 1900-01 season; with Norman McGuire as chief engineer for the 1899 to 1901 seasons. In June 1901, down bound, loaded with grain, and fighting a strong gale, the propeller *Avon* caught fire and totally burned off Point Aux Pins, St Mary's River, Lake Superior. The vessel was declared a total loss by underwriters from New York and London.

In October 1901, ownership of the wreck of the propeller *Avon* was transferred to John Hannah, Hannah Coal and Transportation Co., Ogdensburg NY. She was rebuilt, during the 1901-02 winter layup, as a bulk freighter for Hannah Coal Co. Her masters were: Captain David Allen Kiah, 1902 season; Captain George P. Clifford for the 1903 –11 season; and Captain John Gallagher for the 1912 to 19 seasons. Her chief engineers were: 1912 - Hugh Goodheart; 1903 - Thomas Grady; 1905 - Freeman Axtell; 1906-07 - D.G. Costello; 1908 - Patrick Holleran; 1909 & 1911–12 - Charles Cotter; 1910 - Charles Potter; 1913 - W. Duncan; 1918 - C.H. Little; and C.A. Stillson in 1919.

During the 1919/20 winter layup, the bulk freighter *Avon* was sold Canadian to Canadian Steamship Lines and renamed *Stormont* (C140962) to be used as a St. Lawrence River barge. She was readmeasured Canadian: 254.25’ x 35.25’ x 14.58’; 1180 grt, 704 net. Master of the bulk freighter *Stormont* was Captain E. J. Smith for the 1919 & 1920 seasons. In November 1920, the bulk freighter *Stormont* stranded opposite Morrisburg, ONT, in Williamsburg Canal. She was removed from Kingston and the *Stormont* was scuttled at Nine Mile Point Graveyard.

R. C. Brittain: James L. Elliott, at Saugatuck, MI, built a wooden propeller for Ralph C. Brittain, Toledo, OH, to be used in the bulk freight trade, running between White Lake, MI, Saugatuck, St, Joseph and Chicago, IL. At her initial enrollment, August 1877, at Grand Haven, MI, her measures were recorded as: 105.16’ x 22.0’ x 8.0’; 286.04 grt. She was powered by a High-Pressure Non-condensing (HPNC) engine, 20" bore x 22" stroke, built by Henry Bloecker, Grand Haven, MI. Her assigned official number was 110327. Her master for the 1877 & 78 seasons was Captain Ralph Brittain. In October 1877, she collided with the bark *Naiad* (18100). In September 1878, the propeller collided with a tree, losing her top mast. In 1879, she recorded her quickest trip to Chicago from Saugatuck, MI in 7 hours, 40 minutes. In October 1879 she lost her rudder shoe. Repaired. During winter layup, 1879-80, the *R.C. Brittain* was rebuilt as a steambarge. In March 1880, her enrollment tonnage was changed at Grand Haven, MI, to 174.47 grt.

Ownership of the steambarge was changed in 1880, to Covell & staples, Whitehall, MI. In May 1881, she had been lengthened and her enrollment tonnage was corrected to:142.2’ x 24’ x 8’; 200.17 grt, 148.23 net. During winter layup 1882-83, she received extensive repairs to boilers and machinery. In November 1883, she lost her a portion of her deck load near Whitehall.

Ownership of the steambarge *R. C. Brittain* was changed to George Morley, Detroit. Her master for the 1887 season was Captain H. L. Sanders.

Ownership of the propeller *R. C. Brittain* was changed in 1890, to E. Theobald, St. Clair, MI.

In 1899, the propeller *R. C. Brittain* was sold Canadian to W. Scott, Wallaceburg, Ont. She was registered in 1899 as *R.C. Brittain,* C100125, 213 grt, 149 net. The US registration enrollment for the propeller *R. C. Brittain* was surrendered at Port Huron, MI, September 16, 1899.in November 1901, the propeller *R.C. Brittain* went ashore, in heavy fog, on Duck Island, Lake Huron. For the 1907 season, the *R.C. Brittain* was laid up at Sarnia, Ont. In 1912, the *R.C. Brittain* burned at her layup dock Sarnia, Ont. Her hull was set aside for future rebuilding, but sank at her dock in 1924 and was scuttled in Lake Huron in 1935.

Burt R. Wellington: James E. Kelly, at Carrollton (East Saginaw), MI, built a wooden sidewheel steamer for the Saginaw River Steamboat Line, A. M. Root, East Saginaw, MI. Initial enrollment was issued at Port Huron, MI, July 18, 1877. Her recorded measures were: 154.0' x 23.0' x 6.42'; 252.94 grt, 218.22 net. Her engine is unknown. Steam was generated by a firebox boiler, 7'2" x 17', 87 psi, built by Weidemann Bros., Saginaw in 1867. She was built for the passenger, package freight trade and ran three round trips daily between Bay City and Saginaw, MI. Her assigned official number was 80763. Master of the sidewheel steamer *Wellington R. Burt* for the 1877 season was Captain Robert Medler with Harmon Gregory as chief engineer.

Ownership of the sidewheel steamer *Wellington R. Burt* was transferred, in 1882, to: Root & Miller, East Saginaw, MI. The sidewheel steamer *Wellington R. Burt* was rebuilt in 1883, receiving arches.

Ownership of the sidewheel steamer *Wellington R. Burt* was changed, in 1887, to James E. English, Saginaw, MI. in May of that year the sidewheel steamer *Wellington R. Burt* received a new horizontal engine, 24" bore x 72" stroke, built by Harkness & Mason, Cincinnati, OH. During the 1887 season, Evans Jenkins was chief engineer of the sidewheel steamer *Wellington R. Burt.*

Ownership of the sidewheel steamer *Wellington R. Burt* was changed, in April 1889, to Dora English, Saginaw, MI.

Ownership of the sidewheel steamer *Wellington R. Burt* was changed, in May 1890, to D. M. Pierce, Bay City, MI.

In 1893, ownership of the sidewheel steamer *Wellington R. Burt* was changed to Maumee Valley Navigation Co., Perrysburg, OH. The sidewheel steamer *Wellington R. Burt* was rebuilt at Sandusky, OH in 1897.

In 1899, ownership of the sidewheel steamer *Wellington R. Burt* was changed to S. C. Wheeler, Sandusky, OH. She was dismantled at the foot of Decatur Street, Sandusky, OH, and the hull towed to the head of Sandusky Bay, at Venice, OH, in 1901.

Final enrollment for the sidewheel steamer *Wellington R. Burt* was surrendered at Sandusky, OH, December 31, 1901 and endorsed as "abandoned".

Champion: George T. Davie, at Levis, Que. built wooden sidewheel steamer for A. T. Beaulieu, also from Levis, to be used as a big rafting tug for below Quebec, Que. on the St. Lawrence River. She was also known as "Champion No. 2". Her initial enrollment at Quebec in May 1883, recorded her measures as: 131.20' x 23.30' x 10.70'; 323.42 grt, 81.18 net. She was powered by a low-pressure engine, 40" bore x 81" stroke, 80 horsepower, builder unknown. Her official number was C74297.

Ownership of the sidewheel tug *Champion* was changed in November 1880, to Montreal Transportation Co. to provide service between Montreal and Quebec, P.Q. her masters were Captain J. Murray, 1881 season; Captain C. F. Moore, 1882 season, with Andrew J. Wilcox in 1877, and Alexander Morrison for the 1878-82 seasons. In October 1882, the sidewheel tug *Champion* broke one of her crank pins at Dickenson's Landing, St. Lawrence River, while on her way up with a tow. She was taken to Kingston, Ont. for repairs.

Ownership of the sidewheel tug *Champion* was changed in1883, to the Canadian Pacific Railroad and she operated between Montreal, P.Q. and Fort Williams, Ont., Lake Superior during the construction of the Canadian Pacific Railroad. In May 1883, the sidewheel tug *Champion,* bound for Lake Superior with supplies for the Canadian Pacific Railway, collided at Cornwall, Ont. on the St. Lawrence River, with the barge *Huron* (C80873) belonging to the Kingston & Montreal Forwarding Co. doing great damage to the barge.

Ownership of the sidewheel tug *Champion* was changed to J. Harris, Owen Sound, Ont. in 1885. Chief engineer for the 1887-88 season was E. C. Miller. The tug *Champion* sank at Owen Sound in 1888.

Ownership of the sidewheel tug *Champion* was changed in 1888, to Smith & Keighley, Toronto, Ont. She was rebuilt as a passenger vessel and lengthened 44' with new measures: 174.8 x 23.3 x 10.7'; 937.25 grt, 590.47 net. She was registered at Owen Sound, September 1889, as *Cambria* (C74297).

Ownership of the sidewheel steamer *Cambria* was changed, in February 1892, to the Port Arthur & Duluth Steam Packet Co., George T. Marks, president, George H. Brown, vice president. He masters were: Captain Peter C. Telford – 1894 season; Captain Neal Campbell, 1895 season; and Captain Charles Hill, 1897 season, with John Mayberry in 1893, and John Doran, 1894-95 season, as chief engineers. In September 1893, she collided with the *United Empire* (C80776), near Sarnia, Lake Huron. In May 1894, she ran ashore at Kincardine, Ont. Released. In June 1896, the sidewheel passenger steamer *Cambria,* with a few passengers aboard, went on the rocks near Algomah Mills, Georgian

Bay, in fog. Released. In July 1897, the sidewheel passenger steamer *Cambria,* up bound on Lake Huron from Sarnia, Ont., ran into a gale from the north. Trying to run back to Sarnia, the *Cambria* ran into a broken log raft and damaged her paddles and blew out a cylinder on her engine. She drifted ashore three miles north of Sarnia, Ont. The vessel was declared a total loss.

She was pumped out and pulled off the beach, in April 1898 by her new owners Donnelly Wrecking & Salvage Co., Kingston, Ont. and taken to Kingston for repairs.

Ownership of the sidewheel passenger steamer *Cambria* was changed, June 1998, to George Palmer, Toronto, Ont.

In 1902, ownership of the sidewheel passenger steamer *Cambria* was changed to M. Nesbitt, Port Arthur, Ont. to be used on the Buffalo to Crystal Beach excursions. While being towed to her new owner, the sidewheel steamer *Cambria* sheared off and struck the rocks surrounding Reid's Island, Welland Canal, Lake Erie and sank. She was raised but found to be a constructive total loss.

The enrollment for the steamer *Cambria* was surrendered in 1903 and endorsed "broken up".

Maganettawan: James Story, at Byng Inlet, Ont., built a wooden propeller for the Maganettawan Lumber Co. of Byng Inlet. First enrolled at Collingwood, Ont., June 1877, her measures were recorded as: 100.0' x 20.06' x 9.04'; 269.7 grt, 183.4 net. Her official number was C71112. She was built for passenger, package freight trade between Byng Inlet and Collingwood, Ont. on Georgian Bay, and was powered by a High-Pressure engine, 18" bore x 20" stroke, 150 horsepower, built by Lowie & Co., St. Catharines, Ont. Masters of the propeller *Maganettawan* were Captain E. O' Donnell, 1880 – 82 season and Captain Parsons. In October 1881, the propeller *Maganettawan* was delayed arriving at Byng Inlet due to a broken screw. Repaired.

Ownership of the propeller *Maganettawan* was changed, in 1884, to Jessie Peckham, Waubaushene, Ont.

In 1890, ownership of the propeller *Maganettawan* was changed to Georgian Bay Lumber Co, Byng Inlet, Ont.

In October 1892, the propeller *Maganettawan* enrolled measures were updated due to an alteration in tonnage: 186.89 grt, 127.09 net.

In 1896, ownership of the propeller *Maganettawan* was changed to William Irwin, Collingwood, Ont. for use at the lumbering trade. In 1896, her master of the propeller *Maganettawan* was Captain A. W. Clark. July 1896, the propeller *Maganettawan* went to the aid of the tug *Howard* who, while towing logs, had broken her wheel and was adrift. She struck a shoal under full steam and went aground hard. The *Maganettawan* broke in two and sank lying seven feet under water. Declared a total loss.

McArthur: George Chaffey & Brothers at Portsmouth, Ont., with J. W. Pierce as master carpenter, built a wooden propeller towboat for towing lumber rafts from Georgian Bay to the lower lakes. Owned by Collins Bay Rafting & Forwarding Co., Kingston, Ont., her first enrollment was issued at Kingston, Ont., in May 1877. Her measures were:103.0'x 24.6' x 8.1'; 167.47 grt, 77.032 net. She was powered by two upright, high pressure engines, 18" bore x 20" stroke, built by Clute Brothers, Schenectady, NY. She was assigned official number C72586. Her master for the 1878 to 1889 seasons was Captain Arch McDonald with Gilbert Johnson as chief engineer during the 1883-86 seasons.

In May 1879, bound for Port Hope, the towboat *McArthur* ran into Oswego, NY for coal and at the foot of the D. L. & W. pier went aground. Released. In that same year, her owners rigged the *McArthur* wrecking on Lake Erie. In November 1880, the wrecking tug *McArthur,* became stuck in ice at Colchester, Ont. on Lake Erie and damaged her rudder. She was repaired at Detroit. March 1881, due to the press of business in rafting, the Collins Bay Rafting & Forwarding Co. withdrew the *McArthur* from wrecking on Lake Erie to towing lumber rafts between Collins Bay and Quebec. September 1884, bound for Kingston from Toronto, the towboat *McArthur* collided with the yacht *Atlanta,* carrying away her head-gear and staving in a part of her bulwark. In November of that same year, while pulling the schooner *Mary Ann Lydon* (C71162) off Weller's Beach, St. Catharines, Lake Ontario, the towboat *McArthur* broke her wheel. During winter layup, 1886/87, the towboat *McArthur* was rebuilt, raised 18" aft & 12" forward, received new deck frames and top sides, and had one of the largest pumps in America installed allowing 6 to 8,000 tons water per hour to be pumped. Her enrollment measures were updated in May 1887 to: 103' x 24.6' x 8.1'; 190.46 grt, 82.92 net. In September 1887, while towing a raft of lumber made up of three cribs, the towboat *McArthur* broke her shaft during a gale on Lake Erie and took refuge at Port Burwell, Ont. The raft parted and one crib anchored at Port Stanley and the other two went ashore at Tyrconnell, on the north shore of Lake Erie. In April 1890, while working to raise the car ferry propeller *William Armstrong* (C80613) near Collins Bay, Lake Ontario, the wrecking tug *McArthur* caught fire and burned to a total loss. No lives lost.

Luther Westover: F. W. Wheeler & Co., West Bay City, MI, built for Wm. Mitchell, Bay City, MI a Wooden sidewheel tug for towing in the lumber trade in rivers around Bay City, MI. her initial enrollment was issued at Port Huron, MI, July 26, 1877, and her measures recorded as: 107.0' x 20.5' x 6.3'; 125.0 grt, 102.0 net. She was issued official number 140257. Her engine is unknown. Her master for the 1877 to 1881 seasons was Captain Ben Boutell. In September 1881, the sidewheel tug *Luther Westover* stranded on the Au Gres River, Saginaw Bay, Lake Huron. She later burned to a total loss and was abandoned to her underwriters. During the winter layup of 1881-82, the hulk of the sidewheel tug *Luther Westover* was recovered and rebuilt by Chesley Wheeler.

In February 1889, ownership of the sidewheel tug *Luther Westover* was changed to Benj. Boutell. In June 1892, the sidewheel tug *Luther Westover* crashed into the Flint & Pere Marquette Railroad Bridge, Saginaw, MI. The vessel was repaired at Saginaw. In May 1899, the sidewheel tug *Luther Westover* was abandoned as unfit for service at Port Huron, MI.

Ownership of the tug *Luther Westover* was sold, in 1899, Canadian as *Luther Westover,* to Thoman et al., Valdez Island, B.C. and registered C96845; 113 x 19 x 6; 127 grt. In 1903, she was broken up and scrapped.

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.

Freshet: a great rise or overflowing of a stream caused by heavy rains or melted snow.

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: Tonnage= ((length - (beam x 3/5)) x Beam x 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 $1533\frac{7}{94}$ 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 forecastle 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, which can be packed and moved by manpower from dock to hold and reverse.

Room & Space: This term has a specific meaning in the context of shipbuilding, referring to the frame and the gap between the frames of a wooden ship's hull.

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.)