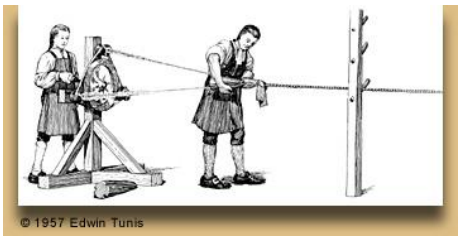


While one man cranks the spinner, the one holding the "top" walks backwards as the rope is twisted. From Edwin Tunis, *The Young United States, 1783 to 1830* (New York: World Publishing Co., 1969). Used by permission of the estate of Edwin Tunis.

Ropewalk

The Newsletter for
Shipwrights of Ohio – January 21, 2023

Next Meeting: February 18, 2023;
"Research" by John Boeck

Table of Contents

January 1

Business *2*
Constitutional Changes 2
Election of Officers 2023 2
2023 Notice for Dues Payment 2
2023 Presentation Schedule 2
Growth of Membership 3
Presentation *3*
Ships on Deck *4*
Polacca 4
Sprague 5
Pinta 5
Hannah 5
Halifax 5
Alva B 6
Pegasus 6
U.S.S. Ohio 7
U.S.S. Constitution 7
Margaret Olwill 8
Armed Virginia Sloop, 1768 8
Other Notes: "Stuff", Tugs & Things *9*
Nautical Terms 9
Vanda-Lay Industries 9
Tugs: Great Lakes *9*
***J. W. Bennett* (Towboat) 1874** 9
***L. Brickhead* (towboat) 1883** 9

Presentation Schedule: 10

Events & Dates to Note: 10

Cargo Hold 10

Wooden Steamers on the Great Lakes 11

1861-65, the War Years *11*
1864-d 11
Some Notes *17*

January

First, an apology to all who joined the zoom meeting, today, January 21st. Since our December meeting, I have been diagnosed with two clogged arteries, a leaking Aortic valve (that will be replaced this month) and came down with COVID (after all the shots and booster) that settled in my ears and pretty much destroyed my hearing. My ENT has been able to marginally adjust the hearing aids, but I am scheduled for a cochlear implant in February or March. So, apologies for not hearing clearly and I should have turned the meeting over to one of the other officers.

With that:

Happy New Year and welcome to 2023. Friday, while reading the latest "Woodcraft" issue, there was an editorial on abandoned projects. The editor was writing about woodworking projects, but like most model shipwrights, we have stored somewhere in our shop, ship modeling kits purchased, gifted or started that have been set aside for the "future". I know, because, besides the two (one that has been restarted after 3 years – see "Armed Virginia Sloop of 1768, below), I have accumulated 31 sets of plans that, 20 years ago, I had planned to scratch build. Bill Schwartz, up in Avon Lake, just finished the *Alva B*, 1890, (finished photos are in the "Ships on Deck" section) based upon the copy of the original plans from the Union Dry Dock Co., Buffalo, that he received from me. In one form or another, we have all paused our build progress to make room for another project, gift, "Honey do", whatever. It may have been, you were frustrated with the 1,000 time you drilled a trunnel hole and tapped in the treenail, finding you had 1,000 more to go, and asked "why"? The thing to remember in building ship models, like much of life, it is a journey. It may be, what you learned, becomes a testament to your quality of work on the next ship model.

On another note, as the skipper of this club, I receive emails from people seeking restoration on ship models, etc. Some are false leads, some are requests that what is left of the model is not worth the time or expense, and sometimes the request is for historic models such as the "*Henry Grace a Dieu"*, nicknamed the *Great Harry,* or a request for repairs to a museum quality ship model, such as *"HMS Falkland".*

The latest came from the Curator of Artifacts, at the Rutherford B. Hayes Presidential

Library & Museum, Fremont, Ohio. He is planning an exhibit, to run from March 2023 to June 2024, on the history of arctic exploration in the 19th century. President Hayes received the Resolute Desk from Queen Victoria, which has been used by nearly every president since Hayes. The Resolute Desk was constructed from the timbers of the *HMS Resolute*, the ship that was dispatched in search of the lost Franklin Expedition. The libraries upcoming exhibit will use that connection as an opportunity to explore the broader maritime history of the arctic. He was looking for a model of the *HMS Resolute* or the *HMS Terror.* We did find on MSW (Model Ship World) a modeler in the UK who had recently finished the OCCRE, 1:75 scale, POB, kit of *HMS Terror.* Packing and shipping the model from the UK to Ohio would have been, a bit expensive. I sent a request note to the ship modeling club distribution list and heard from our neighbor to the north, "Model Shipwrights of Niagara, that they had a professional modeler who had built a model of Amundsen's GJOA of 1872. At last note, the ship modeler and the curator were communicating on how to get the model from Ontario to Ohio, without sailing across the lake,

I have received responses to my note, asking for photos and writeup of what you are working on, from eight of you. The Ships on Deck portion features 11 ship models in process or finished. I was delighted and in awe of the work some of you have done.

All that said, read through the business section of this newsletter. We are moving forward in the new reality from the pandemic and its impact upon this club. You voted for changes to our Constitution and By-Laws so that they reflect that the club membership covers members throughout Ohio as well as far away as California.

Take care of yourself and your families, look to those you know who may need help, are lonely and may need human contact. Till next month.

Your editor.

Business

Constitutional Changes

At the January meeting, those on zoom, approved the changes to the club's constitution and by-laws as indicated below:

Constitutional Question

The club's Constitution and By-Laws will state:

- Article III of the club's constitution would be amended to read:

  "Membership in the organization shall be open to all who share an interest in the purpose and activities of the "Shipwrights of Ohio".

  1. All persons shall be eligible for Regular Membership. Regular members shall have the right to vote and hold office.

- <u>Single yearly dues</u>

  Article III of the clubs By-Laws is amended to read:

  1. The annual dues for regular members shall be $20.00, payable by March of the current year.

  2. A new Regular member, joining after the March meeting, may pay for the part of the year that remains, at the rate of $5.00 per quarter.

Election of Officers 2023

Those on zoom also approved the following slate of officers for 2023:

President: Bill Nyberg
Vice President: Bob Mains
Treasurer: Lee Kimmins
Web Master: John Boeck
Zoom Master: Bob Mains
Zoom Master backup: Steve Keller
Club Photographer: Alan Phelps

2023 Notice for Dues Payment

With the By-Laws approval, your 2023 dues are due. Send a check made out to "Shipwrights of Ohio" for the amount of $20, to:

Shipwrights of Ohio – Treasurer
5298 Timberlake Circle
Orient, OH 43146-9249

Lee can also handle payments via Venmo to our account: kimmins@shipbuilder Shipwright 22! Contact him at the phone number found on page 10 of this newsletter.

2023 Presentation Schedule

The 2023 presentation schedule that will include:

- 3 hybrid (in-person/zoom) meetings a year at various locations for hands-on demos.
- 9 zoom meetings a year

The presentation schedule and presenters, at this time, are:

01/21 - The Principles of Rigging - Nyberg
02/18 - Research: Internet, Historical Info - Boeck
03/18 - Getting Started with RC Boats - Phelps
04/15 - Fixtures: Rudders - Nyberg
05/20 - Masts, Yards, & Spar Making - Markijohn
06/17 - Standing Rigging & deadeyes - Keller
07/15 - Running: Block & Tackle, Belaying - Mains
08/19 - Making Sails - Nyberg
09/16 - Fixtures: Capstans & Windlasses - Nyberg
10/21 - Finishing: Natural & Paint - Mitchell
11/18 - Displaying & mounting ship models - Ross
12/16 - Soldering - Phelps

Growth of Membership

We want to welcome the following shipwrights, who are joining us:

Henry Martinez, Fairborn, Ohio
Rob Washburn, Grove City, Ohio
Phil Templeton, Granville, Ohio

Who do you know that has shown an interest in your ship modeling. There are advantages in this craft.

- Engaging in a creative hobby enhances middle-aged and older adults' cognitive and mental health.
- Committed participation in leisure activities acts as a buffer against depression.
- Creating something makes you feel productive
- A study last year concluded that hobbies reduced the risks of cardiovascular disease, especially strokes, in participants ages 40 – 69.
- Hobbies provide a sense of identity and recognition from others; a mastery of a skill or topic; and a feeling of calming and spirituality.

Crafts are a good place to start, So, who are you inviting on this journey?

The best way, would be that each of you invite a friend or neighbor to your ship modeling shop and introduce them to this hobby. If you are not aware, Model Expo had a three-model offering from Model Shipways of:

Skill Level 1: Lowell Grand Banks Dory – kit $29.99; kit, paint, and tools - $49.99.
Skill Level 2: Norwegian Sailing Pram – kit $49.99, paint $19.99.
Skill Level 3: Muscongus Bay Lobster Smack – Kit $69.99, paint $19.99.

Presentation

This month's presentation was "Principles of Rig & Rigging" and the material comes for "Masting and Rigging" by Harold A. Underhill, 1946; and the Lennarth Petersson, 2007, books "Rigging Period Fore-and-Aft Craft" & "Rigging Period Ship Models".

All sailing ships have three things in common: Beauty, Great Engineering, and they are totally Orderly. To the layman, a sail powered ship appears totally unorganized.

Beauty:

Engineering:

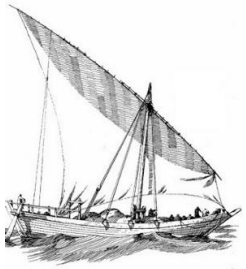
The Germain Sailing ship *Pruessen* was built in 1902. 400 feet long, steel hull, five masted, square rigged. She could carry 8000 tons of cargo at 20 knots, had 44 sails, 50,000 square feet of canvas, and 137,727 feet of running gear (26+ miles) or 34,000+ inches of line at ¼ scale.

Orderly:

A mass of chain and cordage aloft – an impression of tangle and confusion, but every rope and line has a purpose and an allotted placed on a belaying pin or bitt.

2000 years ago, James, chapter 3, verse 4 stated: “Behold the ships also, though they are so great and are driven by strong winds, are still directed by a very small rudder, wherever the inclination of the pilot desires.” Though James was referring to a different outcome, if you remove the inclination of the pilot, and remove the rudder, the question becomes “how do you control the wind?”

Man has developed ship’s that can travel great distances, depending upon control of the wind. Let us use as an example a simple rigged Dhow.



Her main characteristics are: sewn double ended construction, steering oar at the stern, and lateen rigged sail. Control of the wind is in four parts: Mast, Standing Rigging, Running Rigging without sail, Running Rigging with sail.

Masts: Originally all masts were built of timber and the length was governed by the material available. Height was obtained by fitting extra masts above the lower mast in sequence: Lower, Topmast, Topgallant, Royal, and Skysail. With iron & steel for strength, the lower and topmast, and the topgallant and royal were combined. The rake of a mast provides a better set and greater strength to resist forward motion of the mast in a plunging sea.

Standing Rigging: Purpose is to counter the strain of wind against canvas, so to prevent damage to masts and the ship. Standing rigging falls into three groups: Shrouds – support the mast in a thwart-ship direction; Back-stays” resist the forward pull of the mast; Fore & Aft stays: brace the mast against the strain in the direction of the stern.

Running Rigging: is the rigging of a sailing vessel that is used for raising, lowering, shaping and controlling the sails. One rule: belaying of running rigging - the higher up the mast, the further aft will be the belaying point.

Without sails: the following is per yard and all need belayed:

- Braces (2) control the angle of the yard to the center line of the ship
- Lift (2) Raise and lower the yard on the mast.
- Clueline (2) to draw up the sail’s lower end to the yard
- Sheet (2) to extend the sail or alter its direction.

With sails: the following is per yard and all need belayed:

- Tack (2) lowers the weather of windward corner of the sail
- Buntlines (2+) to prevent bellying of the sail and to assist furling.
- Bowlines (2) keep sail steady when ship is closed hauled.
- Leechlines (2+) control the vertical edge of the sail
- Reef tackle (2) to roll up the sail so that it can be reefed.

That is a total of 18+ lines, per yard with sails, that need to be belayed.

This was a simple overview and an introduction for the scheduled presentations:

May: Mast, yards and spar making.
June: Standing rigging & deadeyes.
July: Running rigging, blocks & tackle, belaying
August: Making sails.

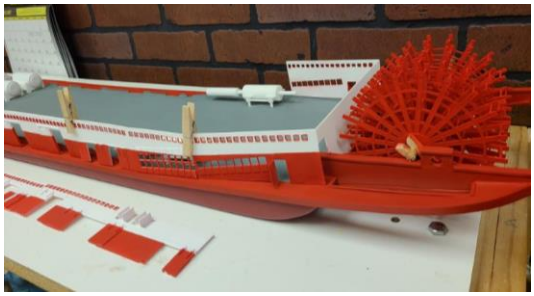
Ships on Deck

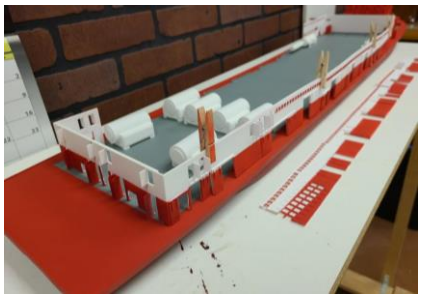
Polacca

John Boeck

This is a rough draft for "Ships on Deck". John is using it to set up the stringing plan and spacing. He will then build the "good" final version. After doing restoration projects, John had forgot how long even a tiny model can take.

Sprague
Lee Kimmins





Above is some work Lee started this week. Not sure how he wanted to paint the *Sprague*. He considered painting by brush, spray can or air brush. His local hobby shop didn't have enough paint in the brands he wanted so he settled on Tamiya which doesn't brush and cover well but goes fine with air brush. He was having air brush problems but after some adjustments it is working great. He repainted the hull and is working on cabin walls and the paddle wheels. Once all the small details are worked out, he can attach the walls and work on interior.

Bluenose
Cliff Mitchell

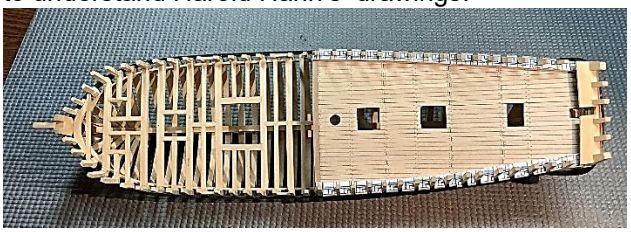
Cliff reports that he has completed the rigging on the lower shrouds, including the lacing on the deadeyes. Ratlines are installed (he says it was a tedious task which included 400+ knots). Sheer poles were installed and the running lights constructed and installed.

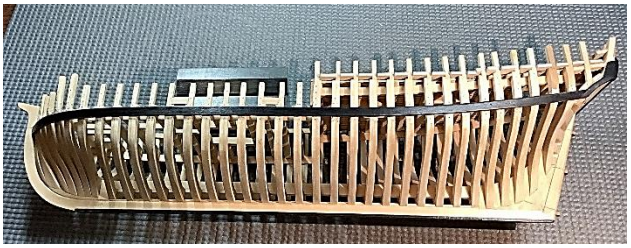
Pinta
Henry Martinez

This is an Amati kit and Henry has already finished. the *Santa Maria & Nina.* He has finished the hull and deck planking and used bamboo treenails.

Hannah
Henry Martinez

Henry, decided to use poplar instead of cherry, since this is his first scratch build and needed to understand Harold Hahn’s’ drawings.





Halifax
Henry Martinez

This is a Constructo kit. The question was asked how he made his treenails. He is using a treenail cutter from Vanda-Lay Industries in California. Information can be found on page 9 of the newsletter.

Alva B

William Schwartz

Bill and his son built the case for the tug, *Alva B* and it was presented as a gift to a friend.

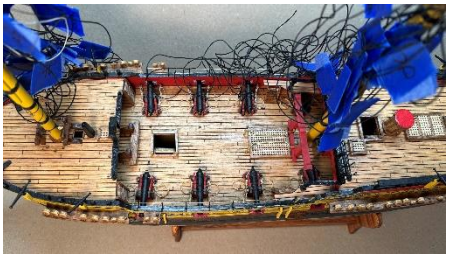
He wrote to thank me for the plans and help, and stated he believed that joining the club has been a modelers most valuable tool.

Pegasus

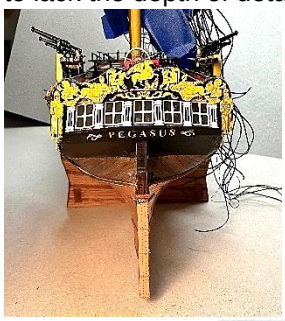
Jason Smith

Jason (Strongsville) is working on the Amati kit of the *Pegasus* from LSS (Lauck Street Shipyard).

He is far along on this, about 400 hours in. Jason has finished installing the channels and chain plates. The masts are stepped and the shrouds are all ready to have their deadeyes attached and connected to the channel deadeyes. It looks a mess now, but he labeled each shroud line with a number and reference to port or starboard, so he is hoping that when he separates and ties them to their respective channel deadeyes, the process goes easy.



He is using Bob Hunt's (LSS – Lauck Street Shipyard) *Pegasus* practicum from his College of Model Shipbuilding program. This is the second one he has done from LSS, the first being the Model Shipways Armed Virginia Sloop. He liked the AVS practicum more than this current one. It just seemed to lack the depth of detail the AVS one had.



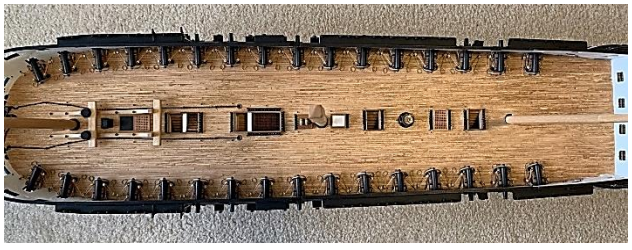
U.S.S. Ohio

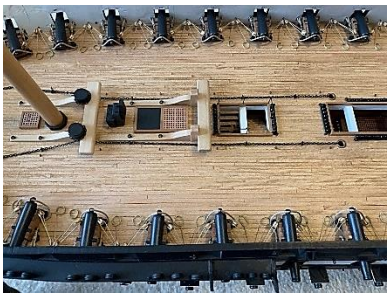
Rick Stratton

Ric is happy to report that all 32 upper gun deck cannon have been constructed and installed. In all honesty, his feeling is more like relief. He had found this effort more tedious than the previous 32 cannon on the lower gun deck. The effort included:

- 32 turned barrels, 3 coats of paint sanded in between, plus breeching rope ring and trunnion
- 32 carriages consisting of 64 axles, 128 wheels, 128 eyebolts
- Rigged with inhaul tackle consisting of 128 blocks,128 more eyebolts, and breeching rope seized at both ends.

The *U.S.S. Ohio*, is being built at 1:64 scale. The model hull is 42", stem to sternpost.



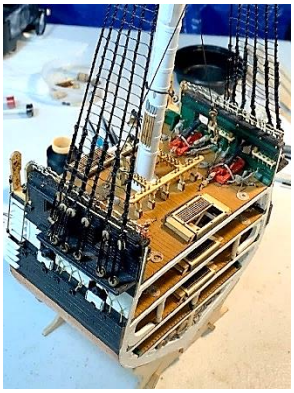


An awesome photo.

U.S.S. Constitution

Rob Washburn

This is Rob's current learning experience.



Model Shipways *U.S.S. Constitution* cross-section.

Margaret Olwill

William Nyberg

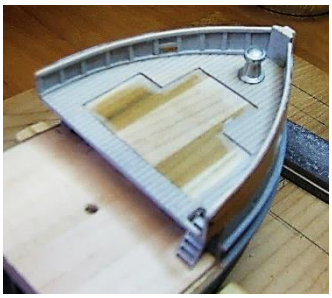
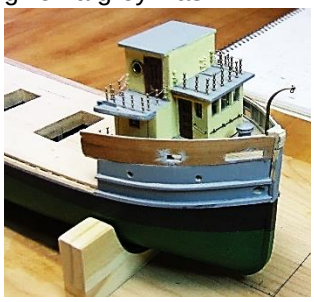
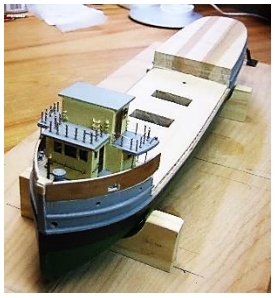
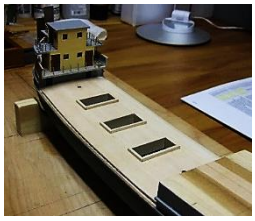
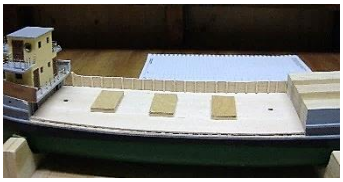



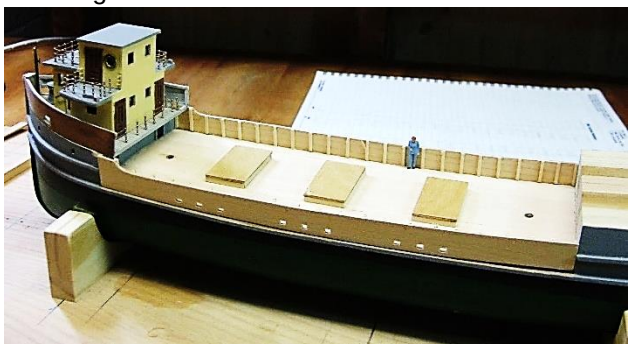
Photo on the left of the bow deck, showing bulkhead and on the right interior bulkhead painted and deck given a grey wash.

Above, two views of pilot house mounted on bow deck.

Above, the cargo hold deck showing hold comings and cargo hold lids. Need to add handholds to lids.



Cargo deck with bulkheads installed. Blue figure on starboard side is figure to scale.

Armed Virginia Sloop, 1768

William Nyberg

Last worked on in January 2020. The wood kit is from LSS (Lauck Street Shipyard)

I decided to plank the hull below the wale. My reference source is Clayton Feldman's "Progressive Scratch-Building in Ship Modeling" section on "Modeling an Armed Virginia Sloop of 1768.

Before starting, I needed to build two stands for the hull. One to put the waterline parallel to the horizontal when I start the build of the deck and rigging.

The second to hold the hull upside down while planking the hull below the waterline.

The black material is packing foam that came in 1" thickness and the four pieces were glued together with Gorilla Glue, then the edges shaved so that the interior of the hull fits tight on the foam stack.

After sanding the interior and exterior of the frames and the previous planking, I marked out the frames and divided the frame into four equal parts to run the battens.

Next step will be to produce an additional 12 strakes from cherry, at 3/32" x ½" wide x 3 foot long & a treenail supply for 2000 treenails.

I am scheduled for a couple of months of quiet activity, by my heart specialist, so building ships seems to be a good activity for me to pursue. See you in the shipyard.

Other Notes: "Stuff", Tugs & Things

Nautical Terms

Toe-rail: A low strip running around the edge of the deck like a low bulwark. It may be shortened or have gaps in it to allow water to flow off the deck.

Toe the line (*Also* ***toe the mark)*** At parade, sailors and soldiers were required to stand in line, their toes in line with a seam of the deck.

Tampion: A block of wood inserted into the barrel of a gun on a 19th-century warship to keep out the sea spray; also used for covers for the ends of the barrels of the guns on more modern ships, the larger of which are often adorned with the ship's crest or other decoration.

Tonnage: 1. Any of various measures of the size or cargo-carrying capacity of a ship in terms of weight or volume; 2. Gross register tonnage: the total internal volume of a vessel, with one gross register ton equal to 100 cubic feet (2.8316846592 cubic meters); 3. Gross tonnage: a function of the volume of all of a ship's internal spaces; 4. Net register tonnage: the volume of cargo a vessel can carry; 5. Net tonnage: the volume of all cargo spaces on a ship.

Top: The platform at the upper end of each (lower) mast of a square-rigged ship, typically one-fourth to one-third of the way up the mast. The main purpose of a top is to anchor the shrouds of the topmast that extend above it.

Topgallant: The mast or sails above the tops.

Topmast: The second section of the mast above the deck; formerly the upper mast, later surmounted by the topgallant mast; carrying the topsails.

Topping lift: A line that is part of the rigging on a sailing boat; it applies upward force on a spar or boom. The most common topping lift on a modern sailing boat is attached to the boom.

Topsail: The second sail (counting from the bottom) up a mast. These may be either square sails or fore-and-aft ones, in which case they often "fill in" between the mast and the gaff of the sail below.

Topsail schooner: A schooner that sets a square topsail on yards carried on the foremast.

Topsides: The part of the hull between the waterline and the deck.

Towing: The operation of drawing a vessel forward by means of long lines.

Vanda-Lay Industries

From Henry Martinez:

Vanda-Lay Industries
P.O. Box 1945 Running Springs, California 92382
Phone: 909-744-4445
https://vanda-layindustries.com/

Checking their web site I did not find the treenail cutter mentioned but there was a writeup on cutting treenails.

Tugs: Great Lakes

J. W. Bennett (Towboat) 1874

The wooden, propeller, towboat, *J. W. Bennett* was built in 1874 at Huron, Ohio, by Captain John Squires for J. Bennett, Mackinac, MI. Her measures were: 87.7' x 17.4' x 9.2'; tonnage: 81.37 grt, 40.68 net. She was powered by a 22" x 24" non-condensing engine, with steam generated by a 7' x 14' tubular boiler. She was built for wrecking and fishing, and from 1884 through 1910 she went through ten owners and worked out of Port Huron, Sandusky, OH; Sault Ste. Marie, MI; Ashland. Bayfield Green Bay and Sturgeon Bay, WI; with her final owner as Lake Superior Towing Co. In 1876, she grounded on Epoufette Shoals, losing 5 crewmen. In 1906, she collided with the steamer *Saugatuck* near Green Bay and sank. She was raised the following year. In 1911 she was sold "foreign" and registered as the *J. W. Bennett* in Canada with official number C131055. On October 15, 1915, she wrecked at Edwards Inlet, Black Bay, off Porphyry Light, Lake Superior

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

L. Brickhead (towboat) 1883

The wooden, towboat *L. Brickhead* was built by Alanson Gilmore, with William Bell as master carpenter, at Toledo, Ohio. The initial owner was J. N. Dewey, Toledo and when registered, had measures of: 61.6' x 16.2' x 7.5, tonnage: 33 grt, 16 net. She was powered by an 18" x 20" engine, rated at 290 hp. She was equipped with a 6' 8" x 13' firebox boiler. From 1883 through 1909, she worked out of Toledo and was owned by J. N. Dewey, S.C. Schenck, and Lafayette Sullivan. From 1909 to 1925, her owner was Grieling Brothers, Green Bay, WI. She was abandoned in 1925 at Green Bay, WI due to age.

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

Presentation Schedule:

2023- Tentative
Jan 21 – Principles of Rigging
Feb 18 – Research: internet, Historical
Mar 18 – Getting Started with RC Boats
Apr 15 – Fixtures: Rudders
May 20 – Mast, yard & Spar Making
Jun 17 – Standing Rigging & Deadeyes
Jul 15 – Running Rigging, Blocks, Belaying
Aug 19 – Making Sails
Sep 16 – Capstans & Windlasses
Oct 21 - Finishing: Natural & Paint
Nov 18 – Displaying & Mounting ship models
Dec 16 - Soldering

Events & Dates to Note:

2023 Tentative Schedule

Columbus Woodworking Show
Ohio Expo Center
January 20-23, 2023

IPMS Columbus
BLIZZCON 2023
Makoy Center, Hilliard, OH
Saturday, February 18, 2023

Miami Valley Woodcarving Show
Christ United Methodist Church
Middletown, OH
March 4 & 5, 2023

46th Midwestern Model & Boat Show,
Wisconsin Maritime Museum, Manitowoc, WI
May 12-14, 2023

Lakeside Antique & Classic Wooden Boat
Lakeside Hotel, Lakeside, OH
July 16, 2023

NRG Conference
?
Oct. 2023

Editor: Bill Nyberg
President and editor
Shipwrights of Ohio
Shipwright@breezelineohio.net

Shipwrights of Ohio
Officers & Staff
President – Bill Nyberg…….614-370-5895
Vice Pres. – Bob Mains……614-306-6866
Treasurer – Lee Kimmins…….614-378-9344
Editor – Bill Nyberg…….. 614-370-5895
Photographer – Alan Phelps .. 614-890-6164
Web Master – John Boeck……937-620-0258
Zoom Master – Bob Mains……614-306-6866

Web Site: www.shipwrightsofohio.com

Email: 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

Written by William E. Nyberg

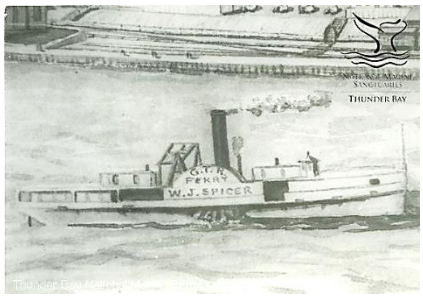
1861-65, the War Years

1864-d

J.B. Smith: C. F. Hinman, Algonac, MI, built for Abram Smith, Algonac, a wooden, sidewheel steamer, that was first enrolled at Detroit, July 15, 1864. Her measures were: 94.8' x 19.4' x 7.8', with a tonnage (old style) of 141.76. She was powered by an engine that was originally installed in the sidewheel steamer *Fox* (US-1851) and had been built for the passenger, package freight trade. In November 1865, she was readmeasured and her enrollment tonnage changed at Detroit to: 95.14 grt. She was also issued official number US 12790.

In June 1867, ownership of the steamer *J. B. Smith* was changed to John Huschings for $6,000. She broke her cross-head at Detroit in September 1869.

Her enrollment was updated in 1871, when her ownership was changed to J. P. Clark, Detroit. He had her overhauled at J. P. Clark's dry dock, in March 1871. She ran between Detroit and the mineral springs at Sandwich, Ont. In May of that year, the steamer *J. B. Smith* broke her shaft while on the Detroit River. In July 1873, the steamer *J. B. Smith* had her engines and boiler removed to be used for other purposes at Clark's dry dock. The hull was placed in the boneyard waiting its owner's disposition. In 1881, the hull of the old steamer *J. B. Smith* was abandoned.

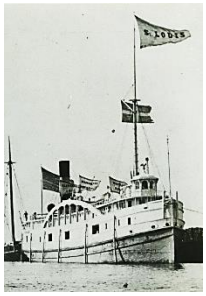


W. J. Spicer: Built by R. Stedman, Sarnia, Ont. the wooden sidewheel steamer *W. J. Spicer* was launched on September 14, 1864. Owned by the Grand Trunk Rail Road Co., Port Sarnia, Ont, she was built as a transfer steamer between Sarnia and Port Huron for the Grand Trunk Railway. Her measures were 154' x 24' x 11' with a tonnage of: 356 grt, 239 net. She was powered by a walking beam, low pressure engine, builder unknown, originally installed in sidewheel steamer *St. Clair* (C - 1854). In 1872, the *W. J. Spicer* was laid up at Sarnia, Ont. In January 1874, she was damaged by ice in the St. Clair River, Sarnia, Ont. The steamer *W. J. Spicer* was readmeasured in 1877 and her enrollment measures updated: 154 x 24 x 11; 462 grt.

February 1880, her ownership was changed to D. N. Runnels and her machinery taken out and she was converted to a tow barge at Dunford & Aversion's Shipyard, Sarnia, Ont. In April 1881, by an Act of Congress the tow-barge *W. J. Spicer* was made a United States registered vessel. [No information was found why this action taken. Newspaper reports list her in the Black River which flows south in St. Clair County, Michigan and into the St. Clair River at Port Huron. She could have been laid up or abandoned there.]

In April 1881, the tow-barge *W. J. Spicer* was renamed *W. W. Stewart* and enrolled U62851, with measures: 154' x 24' x 11'; 271.65 grt, 271.65 net. In 1882, Inland Lloyds lists the owner of the schooner barge *W. W. Stewart* as Reynolds, Port Huron. In 1883, the schooner barge *W. W. Stewart* was used in the lumber trade.

In March 1898, her ownership was changed to Thompson Towing & Wrecking Association and she was used as a lighter barge. In 1902, it was reported that the schooner barge *W. W. Stewart* was laid up on Buffalo Creek. In October 1909, while laid up at Buffalo, the barge *W. W. Stewart* caught fire and burned to a total loss. The cause is believed to have been arson.



St. Louis: Peck & Masters, Cleveland. Built a wooden propeller for the Buffalo & Detroit Transportation Co., Buffalo. She was enrolled at Cleveland on May 13, 1864 and her measures recorded as: 203.52' x 31.16 x 13.0', with a tonnage (old style) of 788 8/95. She was powered by a low pressure engine with a 44" bore x 36" stroke, 375

horsepower. The engine was built by Shepard Iron Works, Buffalo, in 1864. Steam was generated by a scotch boiler, 12' x 14', 60 pounds steam, built by Lake Erie Boiler Works, Buffalo. The propeller *St. Louis* was built for the passenger, package freight trade and ran Buffalo to Detroit, connecting with the New York Central Railroad. Her master for the 1864 season was Captain Woodruff. On May 29, 1865, the *St. Louis* was readmeasured: 2 decks, 1 mast, 193 x 31.9 x 11.7; 985.37 grt and assigned official number US23356.

In November 1867, ownership of the *St. Louis* was changed to T.D. Dole, Buffalo.

In April 1870, her ownership was changed to Stephen D. Caldwell, et al, Buffalo. She ran round trips between Buffalo to Chicago.

In May of that year, her ownership was transferred to Union Steamboat Company, Buffalo. Her master for the 1871 season was Captain H. A. Sisson with Frederick Rehbaum Sr. as chief engineer for the 1870 to 76 seasons. In April of 1871, the propeller *St. Louis* went aground on Colchester Reef, Lake Erie. In September 1874, the *St. Louis* went aground in Maumee Bay, Toledo. Her property loss was set at $500. In December of that same year, she went aground in the Maumee River, Toledo, with a property loss set at $300. During the winter of 1876-77 layup, the *St. Louis* was rebuilt and fitted out for the Lake Superior trade. Her master for the 1877 season were Captain J. W. Condon and Captain Ed Turner. In September 1878, the *St. Louis* went aground on Topsail Island, in the Saint Mary's River during smoky weather.

In April 1887, ownership of the propeller *St. Louis* was changed to Henry W. Watson, Buffalo. Her master for the 1886 to 1891 seasons was Captain Peter Wex. In 1890, the *St. Louis* went aground on Manitou Island in Lake Huron and later that year, she became stranded off Presque Isle, Lake Huron with disabled machinery and required a tow to Detroit, by the *Cumberland* (U125918) for repairs. Her master for the 1891 season was Captain James Sheils.

In April 1892, ownership of the *St. Louis* was changed to Niagara Falls Paper Company, Niagara Falls, NY. Her enrollment was updated to: 805.08 grt, 660.94 net. Her master for the 1892 season was Captain W. S. Carloss, with Captain George A. Symes as master for the 1895-96 seasons. In May 1896, the propeller *St. Louis* collided with bulk freighter *V.H. Ketcham* (U25908) near Point aux Barques, Lake Huron.

Her ownership papers were transferred to International Paper Company, Niagara Falls, NY in May 1899, and her enrollment updated to: 985.37 grt, 795.36 net. Masters of the *St. Louis* were Captain James Brines for the 1899-1903 season; Captain A. P. Gallino for the 1904 season. The following who served as chief engineers were: Dennis Strubel, 1899 to 1900; M. B. Townsend from 1901 to 1902; and J. A. Dillon, from 1903 to 1904.

In April 1906, ownership of the propeller *St. Louis* was changed to Niagara Falls Paper Company, Niagara Falls, NY. The *St. Louis* was rebuilt at Tonawanda, New York as an unrigged barge with: one deck, one mast, 193' x 31.9' x 11.7'; 599 grt, 599 net.

Ownership of the barge *St. Louis* was changed to Atlantic Coast Steamship Company, Buffalo, NY in December 1908. Her master of the barge *St. Louis* was Captain A. Hartwell in 1909. In February 1914, the barge *St. Louis* stranded on Cape Vincent, NY and became a total loss.

Final enrollment document for the barge *St. Louis* was surrendered, February 18, 1914 and endorsed "total loss".

Sunnyside: Stewart McDonald, Detroit, built for the Hannah, Lay & Company, Grand Traverse, MI, a wooden towboat that was enrolled at Sault Ste Marie, MI, in 1864. Her enrollment measures were: 90' 6" x 21' 11" x 7' 9" and a tonnage (old style) of 139 27/95. The tug *Sunnyside* was readmeasured in July 1865, and her enrollment at Sault Ste Marie was changed to 87.53 grt. The tug was assigned official number 22555. In November 1867, while tied to the pier of S. Pease & Co., Pine River (west side of Grand Traverse Bay), MI during a storm, the *Sunnyside* began to break up and went ashore in slurry of timbers and was pounded to pieces.

The final enrollment for the tug *Sunnyside* was surrendered at Grand Haven, in May 13, 1868, and endorsed "loss of vessel".

Tawas: Thomas Arnold, Vicksburg (Marysville), MI; with M. Williams as master carpenter, built for Myron Williams et al, Marysville, a wooden tug (towboat) to be used in the towing trade. She was powered by a two-cylinder, high pressure engine 15', 15' x 20',

originally installed in the tug *Elisha Blish* (C1857). Her boiler was built by Turnball, Corunna, Ont. Her first enrollment was issued at readmeasured, 98’ x 18’ x 8.7’; 88 grt, June 13, 1865. She was assigned official number, for

Ownership of the towboat *Tawas* was changed to Eugene Smith et al, St. Clair, MI, on April 27, 1867.

On April 29, 1870 her ownership was recorded as changed to J. C. Robinson et al, St. Clair, MI. Her master for the 1874 season was Captain James Robinson with William Hand as first engineer. In May of that year, while towing the bark *Zach Chandler* (U28020) on Lake Huron, the towboat *Tawas,* had her boiler explode off Rock Falls (near Sands Beach, MI) and sank. Six lives were lost, 5 from the tug and one from the bark.

Final enrollment for the towboat *Tawas* was surrendered at Port Huron, MI, July 1, 1874; and endorsed “vessel lost at sea”.

G. J. Truesdell: Built for the passenger, package freight trade, by Doolittle & Olcott, Chicago, for Gideon Truesdell, Muskegon, MI, the wooden propeller was initially enrolled at Chicago on June 8, 1864. Her measures recorded as 149’ 2” x 27’ 2 ½” x 10’ 3 ½”, with a tonnage (old style): 391 90/95. She was powered by a high-pressure engine, builder unknown.

In 1865, her ownership was changed to Martin Ryerson, Chicago, IL In September of that year, the propeller *G. J. Truesdell* was readmeasured at Detroit: 147.58’ x 27.33’ x 10.42’; 498.87 grt. She was issued official number 10214. In April 1866, the *G. J. Truesdell* was damaged by fire on Lake Michigan. Her loss was set at $1,000.

Ownership of the *G. J. Truesdell* was changed to Albert E. Goodrich, Chicago in 1867. Her passenger accommodations were upgraded at the Rand Yard, Manitowoc, WI and she ran the west shore of Lake Michigan.

In 1868, her ownership was transferred to the Goodrich Transportation Co., Chicago. Her chief engineer for the 1870 season was Jeremiah Collins. In April 1869, she had her boiler flues damaged while on Lake Michigan. In February of 1874, the *G. J. Truesdell* broke her machinery near Chicago.

In 1881, ownership of the *G. J. Truesdell* was changed to John B. Lyon, Chicago, and Thomas R. Lyon, Ludington, MI. They had her converted to a steambarge for the bulk freight trade. In October of the following year, the steambarge *G. J. Truesdell,* laden with 480 gross tons of pig iron, went ashore at Charlevoix, MI.

Later that year her ownership was changed to James Goodman, Ironton, MI and John Otis, Chicago .and then in the same year to sole ownership by John Otis, Chicago. During winter layup, 1882/83, the *G. J. Truesdell* was rebuilt at Grand Haven, MI & reengined with a steeple compound engine, 19”, 32” bore x 30" stroke, 270 horsepower, built by Vulcan Iron Works, Milwaukee, and a firebox boiler, 7' x 131", 80 pounds steam, built by R. Davis, Milwaukee. She was readmeasured and her enrollment updated, May 21, 1883 to: 148.58’ x 27.33’ x 10.4'; 301.75 grt - 254.14 net.

On September 03, 1883, the steambarge *G. J. Truesdell* was renamed *John Otis,* (U10214). Her chief engineer was William Eddy.

In 1884, ownership of the steambarge *John Otis* was changed to Pine Lake Lumber Co., Ironton, MI.

The following year, ownership shares of the *John Otis* was changed to William Turnbull, Saugatuck, MI; John Gilchrist, Gilchrist, MI, and O.W. Johnson, St. Ignace, MI. Later that year, ownership shares in the steambarge *John Otis* was consolidated to William Turnbull, Saugatuck, MI; O.W. Johnson, St. Ignace, MI

In 1887, her ownership shares were held by James Sanford; Donald McMillen; Dennis McMillen; and Matthew Wilson all from Muskegon, MI. In 1890, she was converted to carry sand & lumber. Master of the steambarge *John Otis* for the 1902 season was Captain John Walker with Donald McMillan as chief engineer. During the 1903 season, the steambarge had her beam increased and was converted to a coal carrier. In May 1904, the *John Otis* was badly damaged by fire while docked at Muskegon. Masters

of the steambarge *John Otis* were Captain Peter Young for 1905 season with Alfred Green as chief engineer, and Captain Charles E. McClure for 1906 season.

In 1907, ownership of the steambarge was changed to Detroit River Transit Co. a subsidiary of the Mullen Coal Co., Amherstburg, Ont. Masters of the steambarge *John Otis* were Captain Charles E. McClure for the 1907 season with Elmer Paterson as chief engineer; for the 1908 to 1910 seasons Captain E. J. Donoghue with chief engineers Samuel Henry Braund in 1908, Henry Minnie in 1909, and E. Goodhand in 1910.

In 1910, ownership of the steambarge *John Otis* was transferred to Mullen Coal Co., Amherstburg, Ont. Her masters were: Captains: Captain W. Boullick, 1910 – 12 & 1914-16; Captain Joseph E. Mahon, 1913; with John Mogan, 1911 – 15 as chief engineer. In August 1916, while coaling the Detroit & Cleveland Navigation Co. sidewheel steamer *City of Detroit III* (U209571) at the latter's Detroit dock, the steambarge *John Otis* sank. She was raised and inspection revealed she was not worth repairing. She was towed to Toledo.

No history or ownership information on the steambarge *John Otis* after 1916 was found, but the BGSU Historical Collection lists the following as masters and engineers for the vessel: Captain O. E. Pullock, 1918, Captain Walter T. Lawler, 1919 – 1922, Captain James McCarthy in 1923, and Captain Frank Wolf in 1928 with John Mogan in 1918 and George H. Braun 1919-1922 as chief engineers.

Final enrollment for the steambarge *John Otis* was surrendered at Detroit, MI, April 30, 1936, and endorsed as "Abandoned"

Twilight: Charles E. Owen, Algonac, MI, built a wooden propeller for Charles E. Poole et al, Algonac. Enrolled at Detroit on July 18, 1864, her measures were: 96' 8" x 21' 11" x 6' 6" with a tonnage (old style) 125 18/95. She was powered by a high-pressure engine, builder unknown. She was built as a steambarge for the bulk freight trade. She was readmeasured in 1865: 98 x 22 x 6.7'; 185.18 grt. Assigned official number 24508.

Ownership of the steambarge *Twilight* was changed to C. Chamberlain et al, Algonac, in April 1867.

Her ownership of the steambarge *Twilight* was transferred back to C. L. Poole et al, Algonac in July 1868.

In November 1868, ownership of the steambarge *Twilight* was changed to Michael Dawson et al, Portsmouth, MI. He had her engines removed and the vessel rebuilt as a barge. Her enrollment was updated to: 95.5' x 21.7' x 6.4', 105.71 grt.

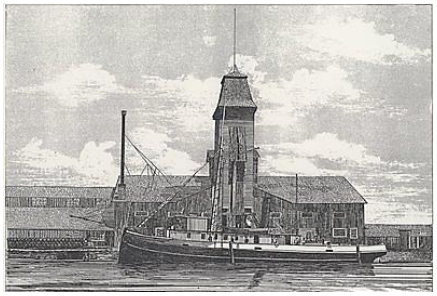
Ownership of the barge *Twilight* was transferred to Michael Dawson, Portsmouth, MI, in September 1869.

In April 1870, ownership of the barge *Twilight* was changed to Ester Worden, Saginaw, MI.

In August of 1870, ownership of the barge *Twilight* was changed to George H. Stewart, Saginaw. Her master for the 1871 season was Captain J. H. Gibbs. October 1871, in tow of the tug *Dispatch* (US-1856), the barge *Twilight,* laden with lumber, and four other barges in the tow, stranded at Port Austin reef, Saginaw Bay, Lake Huron. All five barges drifted to the Canadian shore at Kincardine, Ont. where they were released by the tug *George E. Brockway* (US10666).

The following month, bound down, Goderich, Ont. for Port Huron, the barge *Twilight* was driven on a reef during a storm on Lake Huron and broke her rudder, leaving her helpless and sinking. The crew abandoned the barge in her yawl, but it capsized drowning all but 2. Six to eight lives lost.

Final enrollment documents for the barge *Twilight* were surrendered at Port Huron, January 14, 1879.



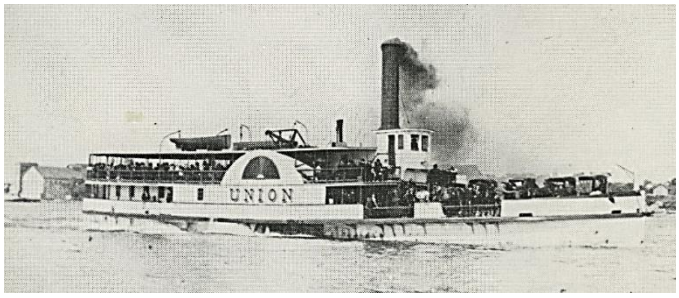
Wales: George Chaffey & Bro's, Brockville, Ont. with William Saunders as master carpenter, built for the Chaffey Brothers, Kingston, Ont a wooden propeller towboat. She was enrolled Canadian at Kingston, Ont. on September 23, 1864 and her measures recorded as: 110' x 19.4' x 10.9', with a tonnage of 268 grt, 188 net. She was powered by a high-pressure engine: 22 1/2" bore x 20" stroke, built by E. E. Gilbert, Montreal. The towboat *Wales b*uilt for towing barges on Lake Ontario and the St. Lawrence River. In April 1867, bound for Hamilton, Ont., the towboat *Wales* sustained damage to her water pipes and had to return to Kingston for repairs.

Due to the settlement of the estate in April 1868, ownership of the towboat *Wales* was

transferred to John McLennan, H. Mclennan, J. B. Auger and M. Laing, all of Montreal and Geo. Chaffey and G. M. Kinghorn of Kingston. In September 1869, the towboat *Wales* was placed up for sale and listed as: 110’ x 21’ x 9 ½’, 250 gross tons, with two tubular boilers, each 12' x 7', a double condensing engine, 2 cylinders each 20" bore x 18" stroke, 150 horsepower.

In December 1869, ownership of the towboat *Wales* was sold at auction for the sum of $7,925 to Messrs. Hughson and Hotchkiss, Collingwood, Ont. She would be used for wrecking and towing. Master of the *Wales* for the 1870 and 1871 seasons, was Captain Benjamin Tripp. In May 1872, the towboat *Wales* went on the rocks at the mouth of the Muskoka River. She was before 1877 and her measures recorded as:110' x 19.4' x 10.9'; 188.78 grt, 96.0 net.

In 1877, ownership of the *Wales* was changed to Archibald H. Campbell, Peterborough, Ont. In May 1881, the Wales was dismantled at Collingwood, Ont. and converted to a barge; 150 grt. Master of the barge *Wales* was Captain William Smith for the 1881 season. The barge *Wales* was abandoned near Muskoka Mills (north of Penetanguishene, Ont.) Final disposition unknown.



Watertown: George Thurston, Kingston, built a wooden sidewheel steamer for Kinghorn & Hinckley, Kingston. First enrolled at Kingston, December 29, 1864, with recorded measures:133’ x 16’ 7” x 8’, 179.93-unit tons. She was powered by a vertical beam, low pressure engine, 28 1/2" bore x 72" stroke, built by Davidson & Doran, Kingston. Steam was generated by a return tubular boiler, 50 pounds steam. The steamer *Watertown* was built for the passenger, package freight trade between Kingston, Ont. and Cape Vincent, NY. Her master for the 1864 to 68 seasons was Captain Coleman Hinckley, Sr.

On September 7, 1865, the sidewheel steamer *Watertown,* while docked at Cape Vincent, NY, caught fire from a candle left burning in the kitchen. When discovered, the fire had made considerable advancement and she was cut adrift, drifting 3-mile down the St. Lawrence River before grounding on Featherbed Shoal, where she burned to her water’s edge. Her remains were towed to Dawson's Ferry, Wolfe Island, where she was rebuilt by Foster, Jenkins & Co. She was launched in December 1865, as sidewheel steamer *Watertown:* 132' x 23.6' x 6.8'; 162.86 Unit Tons.

June 1866, the steamer *Watertown* was drafted by the Provincial Government for military duty during the "Fenian Revolt". She carried two guns, with gunners from the Royal Artillery and a company of volunteers from Garden Island. Master of the gunboat *Watertown* was Lt. Spencer Smith, R.N.

At the end of her deployment, July 1866, she returned to the Kingston - Cape Vincent route with Captain Coleman Hinckley in command. In December 1867, the steamer *Watertown,* while passing Wolfe and Garden Islands, struck on a bar near Big Rock and was held there due to low water caused by a north-east wind and the ice. In April 1868. The *Watertown* broke her crank at Cape Vincent and did not get her new crank for nine days. Master of the steamer *Watertown* was Captain Thomas Hinckley in 1872. In August 1872, the downbound, sidewheel iron steamer *Corsican* (C-1870) collided with the steamer *Watertown* in the narrow channels between Kingston and Gananoque. The *Watertown* went aground when struck.

In January 1873, ownership of the steamers *Watertown, Pierrepont and Gazelle* plus wharfs and storehouse were changed to Messrs., Folger and William Nickle. In July of that year, the *Watertown* went aground below Cedar Island, NY, on the St. Lawrence River.

August 1874, ownership of the steamer *Watertown* was changed to Frank Jackman, Toronto, and she will be used as a ferry boat in Toronto Harbor. January 1877, while lying off Gooderham's wharf, Toronto, the steamer *Watertown* was boarded and everything portable was ransacked and carried away. In August 1879, while carrying 150 excursionists to Cape Vincent, the steamer *Watertown* struck in the Wolfe Island Canal and was held fast. The passengers were returned to Kingston by another steamer.

Ownership of the steamer *Watertown* was changed to J. F. Allen, in 1880. Her master for the 1881-82 seasons was Captain M. Nolan with John Miller as chief engineer.

Ownership of the steamer *Watertown* was changed to Nichol et al, Kingston, Ont. in 1882.

In 1883, ownership of the steamer *Watertown* was changed to the St. Lawrence Steamboat Co. and she was operated as a wrecker under command of Captain T. Donnelly.

In September 1874, ownership of the *Watertown* was changed to Baxter Bros. for $3,000. She ran between Black Rock (Buffalo) and Fort Erie, Ont. on the Niagara River. Her master for the 1887 season was Captain A. B. Drake.

During winter layup of 1887/88, the steamer *Watertown* was rebuilt and her register transferred to St. Catharines, Ont. in February 1888. She was renamed *Union* and assigned official number C92654; and her measures recorded as: 132’ x 23.6’ x 6.8’, 266.96 grt, 162.86 net.

Ownership of the steamer *Union* was transferred to the International Ferry & Railway Co., Fort Erie, Ont. in 1889.

In 1899, the ownership of the *Union* was transferred to the Fort Erie Ferry Co., St. Catharines, Ont. In October 1902, the steamer *Union,* while moored at the foot of Auburn Avenue, Fort Erie, Ont., Niagara River, listed to one side and then gradually settled to the bottom. In August of the following year, she was raised from the site of her sinking, dismantled and the hull scuttled in deep water. The hull was removed in 1911.

Final enrollment for the sidewheel steamer *Union* was closed February 22, 1912.

Wave: Robert C. Cornwall, Newport, MI, built a wooden sidewheel steamer for D. Gallagher et al, Newport. Her initial enrollment was issued at Port Huron, MI, July 19, 1864, and her measures recorded as: 115’ x 20’ x 7’ 1”, with a tonnage (old style) 163 59/95. Her engine is unknown, but was originally installed in sidewheel steamer *Huron & Franklin Moore.*

The steamer was built for package freight trade.

In December 1865, her ownership was changed to Neal B. Rogers et al, Bay City, MI. She was readmeasured: 117’ x 19.6’ x 8.2’, 122.63 grt, and issued official number 26645.

In March 1869, ownership of the steamer *Wave* was changed to Peter C. Smith & Henry C. Moore, Bangor, MI. In May 1871, the steamer *Wave* lost a raft of 16 cribs of lumber in Saginaw Bay. Lake Huron. Her master for the 1869-73 season was Captain P. C. Smith (1869-74) with Captain Donahue as master for the 1874 season. In August 1874, the steamer *Wave* was engaged in towing lumber rafts of Saginaw Bay. While anchored in 11’ of water near Charity Island, while her crew was ashore engaged in rafting, she caught fire and had her boiler explode, destroying the vessel. No lives were lost.

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.

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.

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.)