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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), 82. Used by permission of the estate of Edwin Tunis

Ropewalk

The Newsletter for
Shipwrights of Central Ohio
 April 2020

Next Meeting: May 23, 2020
"Bending Wood" – B. Nyberg

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April Newsletter

Due to the COVID-19 virus, our April & May 2020 scheduled meeting were canceled by the Westerville Public Library. All meetings through Sunday, May 31st, 2020 have been canceled. We are checking weekly for changes and also expect that the library will contact us if they open their meeting rooms earlier.

The **44th Annual Model Ships & Boats Contest & Display** scheduled for May 15-17, has also been canceled.

This month's newsletter contains ten reports with pictures from members on what we are working on.

I urge all of you to take care of yourself and your families, those seniors who live close to you who may need errands run or someone to just call them, and use your time to get back in the shop building. Just think, you get to spend 8 hours a day/seven days a week working on your ship model without an excuse not to.

It is scary out there, so be careful.

Business

ZOOM

Bob Mains and I have been exploring our ability to hold meeting virtually. What we have found using Zoom: we can hold a meeting, of all members, if we provide you with the meeting code and password; we can display PowerPoint presentations and hold two-way conversations; and that there is a 40-minute limit on free meetings. We have options and will keep you apprised of our progress.

Road Trip

The "Road Trip" committee has finalized their data gathering and is recommending that our road trip be to the "Museum of the Great Lakes" in Toledo, OH. A big THANKS to Alan, Jerry and Lee for their work and to all of you that responded to their request for your opinions. We still need to work out when we will go and how we will get there. Stay tuned for more news on this outing.

2020 Presentation Planning

With the April & May meeting cancelations, Covid-19, and the NRG conference scheduled for October our presentation schedule has been a bit uncertain. The one unknown we are dealing with is how long we will be restricted to meeting virtually. My plan is, hopefully, to have a virtually meeting, maybe on the 25th of this month.

Be patient. For me, this is a learning cycle, preparing for and being comfortable with holding a meeting using my laptop, sharing a technical topic

and also allowing discussion and questions, all virtually. It is an age "thing".

Taking those facts into consideration, the April meeting will be basically a check-in on how we are doing and possible sharing our work spaces and what we are building. The May presentation "*Bending Wood*" will be covered by me. "*Lofting & Reading Plans*" has been rescheduled to 2021.

The rest of our schedule will hold, barring a continuation of Covid-19:

June: Mike Dowler will cover "Small Boat Making";
July: Bob Mains – "Fairing a Hull/Cooper Plating";
August: Jerry Amato and myself "Rope walks";
September: Road trip to the "National Museum of the Great Lakes";
October: Alan Phelps - "Soldering";
November: "NRG Conference" slide show;
December: Open.

Ships on Deck:

Now, lets get into the fun part. Here is what your fellow craftsman have been doing.

Soliel Royal

John Boeck



Cutty Sark

Jack Bowers

I started making sails for this sucker in 19 July. Nine months later I'm at the half-way point, 17 mounted, 17 to go. This is more demanding than I expected, but I think it will be worth the effort in the end. Though I first started the Cutty Sark in 1970 (that effort was from scratch, never completed, and discarded), this is my second effort, this from a kit without sails, but I'm working from two books, Longridge's two volumes on building his model (without sails, so no help here) from scratch based on

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the actual ship in Greenwich, and Underhill's book *Masting & Rigging the Clipper Ship and Ocean Liner*, which is a generic book not specific to the Cutty, so I have to make it up, and improvise as I go. So, I have realized that, this baby is simply practice and learning for my next effort, the USS Constitution (Model Shipways kit has been under my work desk waiting for several years).

I have started collecting for a pictorial report on my sail-making techniques, as I think they are moderately successful in getting full-blown, well-bellied, fairly realistic cloth sails



Queen Anne Barge

Mike Dowler

Work has been pretty busy dealing with all the changes (Mike is an ER doctor. Thanks for your service, Mike) but I have made some progress on the QAB. I was able to get the floorboards in. They were pretty easy just had to make sure inboard fairing of the frames was done correctly then the floors just dropped in.



I also trenailed the planks using 20 lb. monofilament fishing line. I predrilled the holes using a #74 drill bit then dipped the line in some CA and it fit very well. It was easily cut flush with a new sharp scalpel blade.



I have now been getting the first base of paint down. Using very thinned out acrylic paint in about 20 layers to get the color really nice did take some time.



I am now starting on the inboard details near the stern including the seat and inboard planking. Until next time.

Deo Volente
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Mary Powell

Lee Kimmins

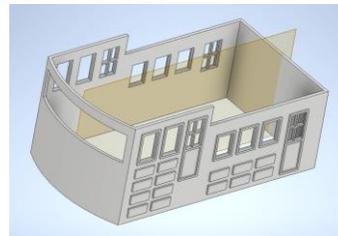
Some updates on *Mary Powell*. The pictures show some progress, would of have more but I am still waiting for all the wall sections for level 2 and 3. The parts are coming from Shapeways 3D Printing out of NY. They are short of help at the moment. The pictures show walls up on first deck and temporary second and third deck.



I need to mount the second deck walls to determine where the second deck ceiling lies so I can cut all the floor openings and build up the hog frame that goes thru all floors.



In the meantime, drawing up a 3D model of the pilot house and then the two skylights. Once these are done will have them built.



Everything is temporary one layer at a time, you work forward and backwards.

USS Niagara

Darrell Markijohn

You are free to take anything you would like from my build log. I am providing a link for anyone

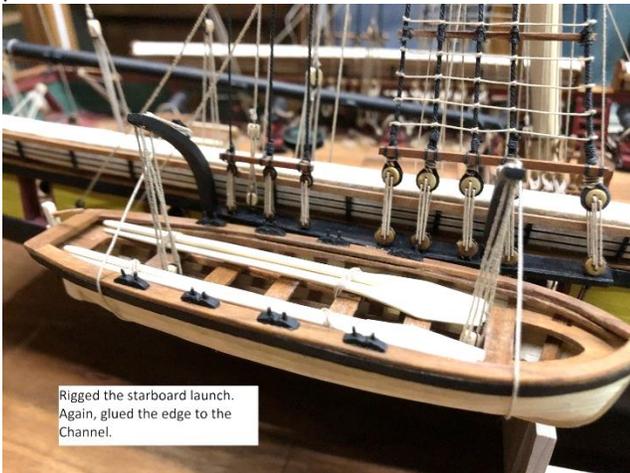
interested in seeing what I have been up to... after a long break.

<https://modelshipworld.com/topic/13562-us-brig-niagara-by-6ohiocav-model-shipways-scale-164/page/21/>

Hopefully, you have been following Darrell on Model Ship World as he built and finished his *Niagara*. Here are some final pictures.



Making oars. Note the waste at the bottom of the picture.



Rigged the starboard launch. Again, glued the edge to the Channel.

Final photos are on his build log.

America

Bob Mains

Bob wrote: In this uncertain time of isolation, it is good to have a hobby that can absorb and challenge. Based upon what DeWine/Trump are saying, we could have another month of isolation/dedicated ship modeling time. I had looked at a video conferencing capability so that our associate members could participate in our meetings. If we had that now, we could have model build discussions online. Who would have known we would be dealing with times like this? Bob is now our Zoom Master.

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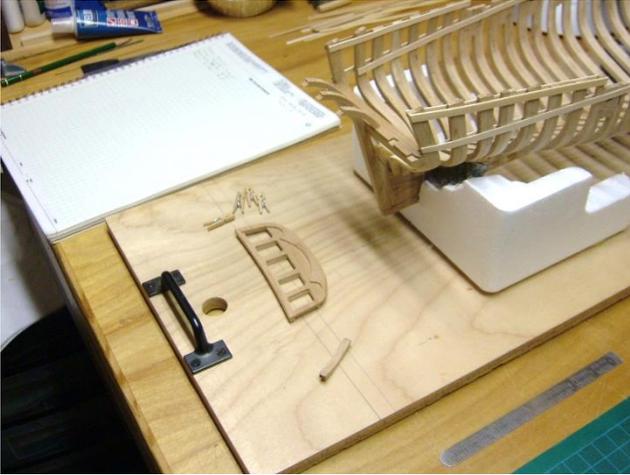


Armed Virginia Sloop, 1768

Bill Nyberg



Working on the stern, building the transom. Photo of the Q-frame that is glued to the deadwood and last frame and supports the transom. The originals provided were lasered cut using a CAD program. When removed from the stock, I found that both were cross-grained and fragile to any pressure. I had to rebuilt them using a double layer of wood to provide strength.



Shown above, are the transom supports and the transom. Need to frame in the windows before installing.

Typhoon

Alan Phelps

The *Typhoon* is coming along - sloooowly. As you can see from the pics, side planking is roughed in and deck planking is well underway. The brown lacquer is an undercoat for the planks.



The deck planks are spaced about .020 apart with no caulking strips. The designer did this to avoid the distraction from the boat's long curves.



The paint covers the lighter sub-deck material so it doesn't show in the spaces. Getting the deck planks .020 apart has been a real PIA. I ended up using .020 feeler gauges coated with WD40 to prevent them from becoming cemented between the mahogany strips. The feeler gauges are held vertically with side magnets while placing the strips. If you work too fast the strips may not be

properly aligned. Too slow and the gauge becomes stuck. I can only take that an hour at a time or I would go nuts.

The aft strips will be cemented right over the engine hatch and back to the stern. Then the hatch will be cut free later. That way the strips will end up straight.



The relatively narrow hull had only one logical location for the motor and R/C gear....right under that hatch. I elected not to eliminate the second cockpit which would have freed up much more space. I wanted to preserve the original design as much as possible.... What fun!

Hedonist

Brian Reynolds

I have attached a few pictures of my project. I have been working away at the decking for the *Hedonist*, which is a fairly slow process. I am about 1/3rd of the way through planking. Each plank is cut to fit, glued, then the simulated caulking between the planks (black plastic sheet) is applied and glued. There is a lot of clamping and waiting for glue to dry. Making lots of mistakes along the way doesn't help either.





U.S.S. Michigan

Stan Ross

The recent picture of the *Michigan* is up to date. I am hunkering down at home, recuperating and not working on anything. I can't believe the Hallmark channel is beginning to look good! Ohio State is trying to get me hooked up with ZOOM, but so far that has been a failure for me, as well.

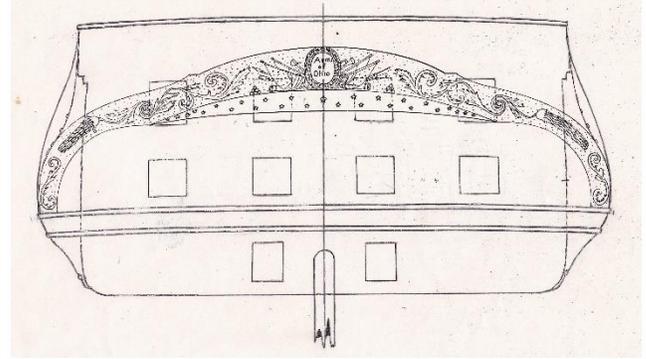
Stan as we learn how to Zoom, we will probably be helping others on how to get connected.



USS Ohio - 1838

Richard Stratton

I'm presently reworking the stern of my *USS Ohio*. As time passed, I was more dissatisfied with what I had done. It looked nice, but I knew it probably wasn't historically correct. The only historical guidance I had was this drawing which is from Howard Chappelle, reproduced from what's in the National Archives from Commodore John Rodgers in 1837:



Based on this, as well as a very large model of the USS Ohio that used to be in the Inland Seas Maritime Museum when it was in Vermilion, Ohio, I followed the same suit as well as taken some artistic license. Which, at the time I knew was probably wrong but I did it anyway. I figured that at the time, for the most part, painting was dictated by the commander of the vessel, within Navy budget limitations I'm sure. End result, was this. (sorry the image is poor quality):



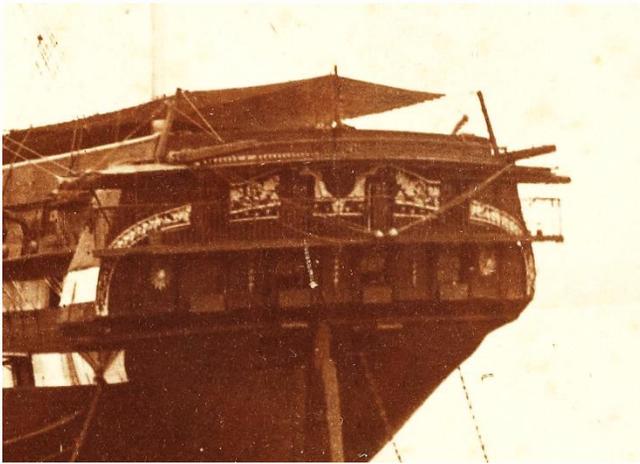
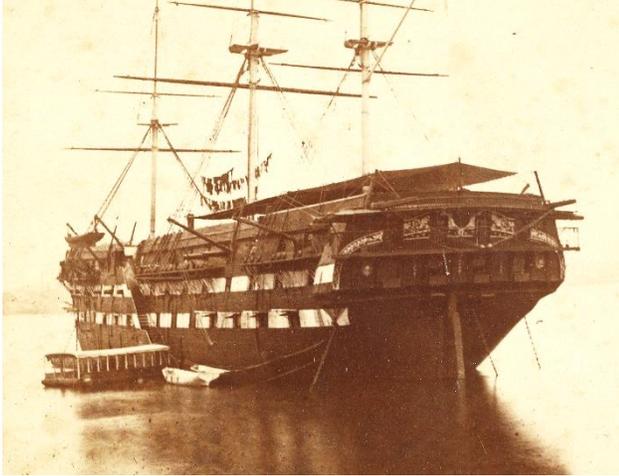
The blue band and white bands: I had a "feeling" it wasn't right but I followed similar coloring to the stern of the model at Inland Seas. The blue would have been expensive to do initially and maintain. Something that the US Navy would not have a budget for. The white band would have been a pain to keep clean and would have required constant repainting.

The gold-leafing on the wreath. I really took artistic license on this one. There's no way the US Navy would have gilded anything on ships in the 1830s-1840s. I think I just had a gold-leafing kit and wanted to use it on something.

As time passed, although the stern looked neat, the lack of historical correctness did bother me. But with no real records, like a more detailed drawing or description, I really didn't have a feeling of how to change it until I recently found this photo on the web:

Granted this photo if from around 1870-1880, over 30 years from the time of my model. The black

and white scheme makes total sense that not only did it look this way in 1870-1880 but was probably very similar to this in 1838 when it was refitted for Mediterranean service. This is the time I'm trying to match my model as close as possible to.



So, I am now in the process of reworking the stern of the model to be similar to this. Again, while trying to make deductions on what it would have been like in 1838. But I am excited to rework it into something closer to being historically correct.

Additionally, I have 2 lesson learned: 1) If gut feeling says something's not right, stop and listen to the gut and reevaluate. 2) Never base an historical model on someone else's historical model. Do your own research.

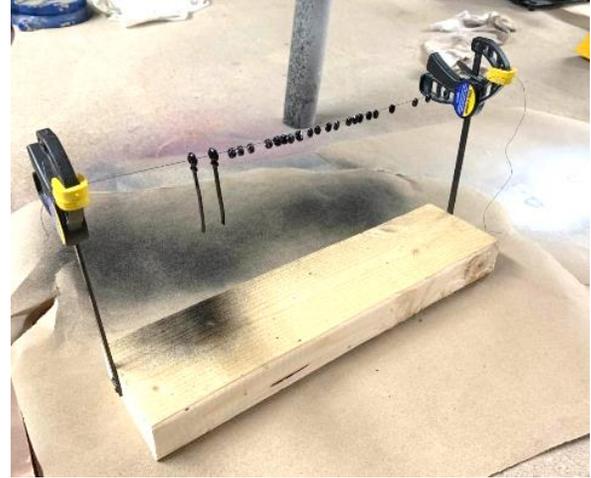
Note: Excellent advice...editor.

Odds and Ends

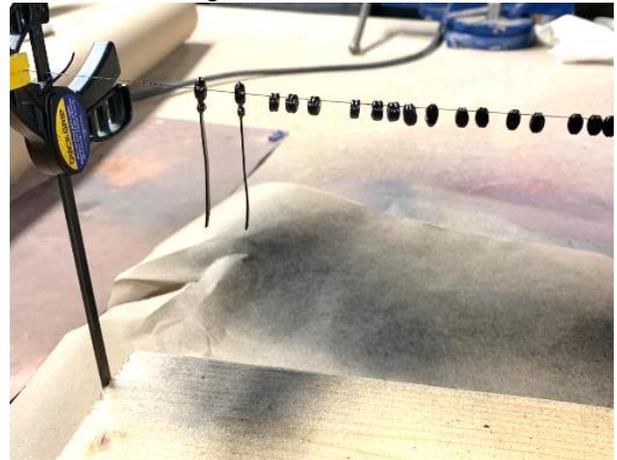
"Tips"

Bird on a Wire

This tip comes from the Bluejacket monthly newsletter. It is a clever way to handle/paint any small item.



"Bird on a Wire" is a technique that Mike G. from Maine sent in to Bluejacket. It is how he deals with small items that need painting like a large number of blocks and deadeyes at the same time. Two small clamps attached to a 2 X 4 with a thin piece of wire between the clamps. All the blocks and deadeyes are threaded on to the wire. Tape off the clamps and spray paint the group. You get a nice even finish with little or no handling."



Nautical Terms

Under the weather

Serving a watch on the weather side of the ship, exposed to wind and spray.

Under way or underway

A vessel that is moving under control: that is, neither at anchor, made fast to the shore, aground nor adrift.

Way refers to speed sufficient to steer with the rudder. "Under weigh" is an erroneous synonym.

U.N.P.O.C.

"Unable to navigate, probably on course". A 19th century term used in log books of vessels left without accurate navigational guidance, due to poor visibility and/or proximity to the North Pole. It dropped out of common usage in the 1950s with improvements in maritime navigational aids.

Unreeve

To pull a rope from a sheave or block.

Unship

To remove from a vessel. To remove an oar or mast from its normal position

Up-and-down

The relative slackness of an anchor chain where the anchor chain is slack and hangs vertically down from the hawsepipe.

Up-behind

Slack off quickly and run slack to a belaying point. This order is given when a line or wire has been stopped off or falls have been four-in-hand and the hauling part is to be belayed.

Upbound

Travel upstream, against the current.
Westward travel in the Great Lakes

Uppers

The trails above the mains synonym of 'Peaks'.

Upper-yardmen

Specially selected personnel.

Glossary of Nautical Terms Wikipedia;

Midwestern Model Ships & Boat Contest

~~The 44th Annual Midwestern Model Ships & Boat Contest and Display will be held May 15-17, 2020 at the Wisconsin Maritime Museum, Manitowoc, WI. Mark your calendars.~~

Canceled

2020 NRG Conference

The 2020 Nautical Research Guild conference will be held in Oxnard, CA, October 15 – 17, 2020. The conference will be held in conjunction with the Channel Islands Maritime Museum located in the Channel Islands Harbor, about 50 miles north of Los Angeles.

The Complete Ship-Wright

The third edition by Edmund Bushnell was published in 1669. This book is considered the first known printed English book dealing with the topic of

naval architecture and was initially published in 1664 by W. Leyburn for George Hurlock. This is a reprint of articles from the Nautical Research Journals 29.3, 30.1, 30.2, and 30.3. (If you own the NRG's "First 40 Years CD" set will have these articles on their discs.)

If you are building 16th or 17th C ship models this may be very beneficial to you.

The PDF files, consisting of 69 pages – including Tables 3, 4, 5 and Size of Small Cordage. Also included is "Books as a Key to Ship Modeling Success" by Charles O. McDonald from NRJ 31.1. This article included "Table of Size of Small Cordage" from "The Complete Ship-Wright".

For now, the PDF files are available from the NRG Office only, at a cost of \$5.00. Call the NRG office (585)968-8111 to order. The PDFs will be emailed to you upon payment. The files will be available for purchase in the future, from the NRG Website Store (www.thenrg.org) or via (www.modelshipworld.com) the NRG store as listed at the bottom of the page).

Other Notes: "Stuff" - Tugs & Things

Tugs

Chippy T.



The *Chippy T.*, one of the first-generation offshore oil tugs built especially for the business, towing a drill rig. Built in 1970 at Slidell, LA, she was 150' in length and had a 5600-horsepower rating.

Anchor work was a principal determinant of the layout of the *Chippy T.* She has rollers on her stern to handle the anchor line, side-by-side winches, and a separate set of controls for the master at the after end of the boat deck. Her broad afterdeck allows the crew plenty of working room.

(Original Source: "On the Hawser" by Steven Lang and Peter H. Spectre, 1980)

Gulf King



The *Gulf King* is an oil tug working the oil fields of the North Sea. Owned by Gulf-Mississippi Marine Corp., she was built in 1967 and is 121' in length with a 4800-horsepower engine.

Tugs of this design are very wet at sea because of her low freeboard: the stern deck is in the water, making deck work in heavy weather extremely dangerous for her crew.

(Original Source: "On the Hawser" by Steven Lang and Peter H. Spectre, 1980

Presentation Schedule:

2020

- Jan 18 – Research
- Feb 15 – Scratch Building
- Mar 21 – Canceled
- Apr 18 – Canceled
- May 23 – Bending Wood
- Jun 20 – Small Boat Making
- Jul 18 – Fairing a Hull/Cooper Plating
- Aug 15 – Rope Walk
- Sep 19 – Road trip
- Oct 17 – Soldering
- Nov 21 – NRG Conference Review
- Dec 19 – Open

Events & Dates to Note:

2020

Constant Scale R/C Run – Carmel, Ind.
 Indianapolis Admirals reflecting pond
 Carmel, IN
May 16 & 17, 2020

Lakeside Antique & Classic Wooden Boat
 Lakeside Hotel, Lakeside, OH
July 19, 2020

Toledo Antique & Classic Boat Show
 Promenade Dock, Maumee River, Toledo, OH
Aug 22-23, 2020

NRG Conference
 Channel Islands Maritime Museum
 Oxnard, CA
Oct. 15-17, 2020?

2021

IPMS Columbus
47th Anniversary BLIZZCON
 Arts Impact Middle School
 680 Jack Gibbs Blvd. Columbus 43215
Saturday, February 20, 2021

Miami Valley Woodcarving Show
 Christ United Methodist Church
 700 Marshall Rd., Middletown, Ohio 45044
March 7 & 8, 2020

66th "Weak Signals" R/C Model Show
 Seagate Convention Ctr.
 401 Jefferson Ave. Toledo, OH
April 03 – 05, 2020 Canceled

31st North American Model Engineering Expo.
 Yack Arena
 Wyandotte, MI
April 24-26, 2020 Canceled
44th Midwestern Model & Boat Show,
 April 19, 2020

Wisconsin Maritime Museum, Manitowoc, WI
May 14 – 16, 2021

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THE NAUTICAL RESEARCH GUILD
 "ADVANCING SHIP MODELING THROUGH RESEARCH"

Annual membership includes our world-renowned quarterly magazine, Nautical Research Journal, which features photographs and articles on ship model building, naval architecture, merchant and naval ship construction, maritime trade, nautical and maritime history, nautical archaeology and maritime art.

Other benefits include discounts on annual conferences, ship modeling seminars, NRG products and juried model competitions which are offered exclusively to Guild members. We hope you will consider joining our ongoing celebration of model ships and maritime history.



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Wooden Steamers

1848

Because the number of vessels built in 1848, the description of the ships has been broken into three reports.

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 steam barge *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.

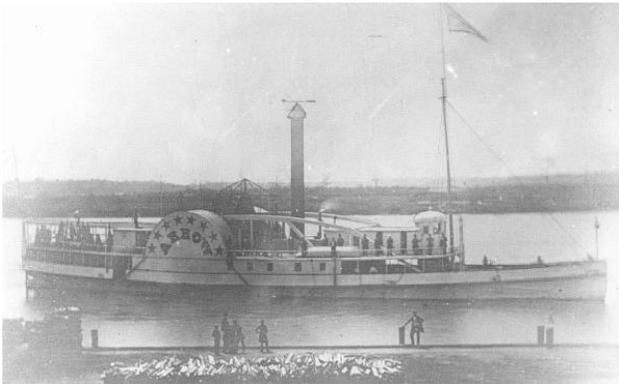
Net Tons (NT)- Obtained from the gross tonnage by deducting crew and navigating

spaces and allowances for propulsion machinery.

Ships Built in 1848

Albion: John H. Pitt & David Stebbins, Maumee City, OH, built in 1848 a wooden sidewheel steamer for Daniel F. Cook, Maumee City, OH and John Stevens, Mt. Clemens, MI with measures: 106' x 18.2' x 6.4' and rated tonnage (old style) of 115 17/95. She was built for the passenger, package freight trade and ran in the "Lines for Detroit", between the communities on Lake St. Clair and Detroit, MI. Her engine is unknown. Her master for the 1849 season was Captain Charles Carey, Mt. Clemens, MI.

Her ownership was changed in April 1853 to Kercheval & Collins. She was overhauled and placed on a run between Detroit, Mt. Clemens and Ashley, MI. During her 1854 winter layup she was lengthened 30 feet at the Wolverton Shipyard. Her new measures were: 135.3 x 16.11 x 6; 132.66 grt., the Ownership of the steamer *Albion* was changed to W. Hart, Mt. Clemens, MI in August 1855 and again to Captain Daniel Minsel in April 1856. August 1861, the *Albion* wrecked and sank on the Detroit River, at Sandwich Point, Windsor, Ont. The property loss was set at \$100. May 1863, the wrecked steamer *Albion* was raised and rebuilt as a barge. She operated as a barge until dismantled in 1865.



Arrow: Arthur Edwards, master carpenter at the Evaline Bates Yard, Trenton, MI, built a wooden sidewheel steamer for S.F. Atwood & William Dickey, Sandusky, OH, with measures: 183.0' x 24.7' x 8.4' with a GRT (gross registered tonnage) of 373.5. She was powered by a low pressure, vertical beam engine with a 46" bore cylinder and a 120" stroke. Rated at 325 horsepower, the engine was built by Murphy Iron Works, New York, NY; and installed by Cuyahoga Steam Furnace, Cleveland, OH. Her

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sidewheels were 28-foot radial. Initial enrollment was issued at Detroit, MI June 19, 1848. She was designated for the passenger, package freight trade between Detroit, MI and Toledo, OH. Her master for the 1848 – 52 seasons was Captain S. F. Atwood. October 1848, the steamer *Arrow* collided with the propeller *Oneida* (1846) receiving damage to her sidewheel and hull. She was towed to Detroit, MI for repairs. On July 11, 1849, steaming in heavy fog, the *Arrow* went ashore at Put-In-Bay, OH sustaining damage to her hull. She was towed to Detroit, MI for repairs.

November 1850, her ownership shares were changed to: Ira Davis, 3/8, Trenton, MI, Arthur Edwards, 3/8, and John Owner, 1/4. Her route was changed to Detroit, MI and Sandusky, OH with stops at Bass & Pelee Islands, Lake Erie. In April of 1853 her ownership shares were transferred to: Ira Davis, 1/3, Trenton, MI, Arthur Edwards, 1/3, John Owen, 1/4, Detroit, MI, and Sylvester F. Atwood, 1/12. Master of the steamer *Arrow* for the 1853-56 seasons was Captain William Davis

March 1857, her ownership was changed to William Caverley, 1/2, Detroit, MI, Joseph Raymond, 1/2, Detroit, MI. Her master for the 1857-62 seasons was Captain William Caverley. The steamer *Arrow* was chartered to run the Niagara River between Buffalo, NY and Chippawa, Ont. for the 1857 season. For the 1858 season, the *Arrow* was returned to her old route as passenger, package freight carrier between Toledo, OH and Detroit, MI, plus she operated as a towboat. In October 1859, the steamer *Arrow* collided with the schooner *Emory Fletcher* in the Detroit River. The schooner was badly stove in and required a tow to Detroit for repairs. In November of that same year the *Arrow* was stranded at Grosse Point, Lake Michigan during a gale. Later freed when the gale subsided. June 1861 the steamer *Arrow* collided with the towboat *R.R. Elliot* (1854) while both were in the process of picking up a tow off Bar Point, Lake Erie. The *Arrow* sustained damage requiring the need to be towed to Detroit for repairs.

Ownership of the steamer *Arrow* was changed to Albert Sturgis, Green Bay, WI in 1862. She operated out of Green Bay, WI for ports on Lake Michigan during the 1862 season. The following year the sidewheel steamer *Arrow* was condemned and dismantled at Green Bay, WI.



Bay State: Late in 1848, John Oades, at French Creek Bay, Clayton, NY, on the St. Lawrence River, built a wooden sidewheel steamer for the Ontario & St. Lawrence Steamboat Co, of Ogdensburg, NY. The vessel had measures of: 220.2' x 37.0' x 10.0' and a tonnage (old style) of 934. She was powered by a vertical beam (Walking Beam) engine, with a 56" bore x 132" stroke, rated at 400 horsepower and built by Henry R. Dunham & Co., New York, NY. The vessel was equipped with 34' paddlewheels. The *Bay State* was built for the passenger, package freight trade to run between Ogdensburg – Lewiston, NY on the Niagara River via Sackett's Harbor. She was equipped with 60 state rooms on the upper deck and a main saloon 190 feet in length. Her master for the 1849 and 1850 seasons was Captain J. Van Cleve and Captain J. A. Ledyard for the 1851 to 1858 seasons. November 1853, the steamer *Bay State*, on her passage up from Ogdensburg, NY, went on the rocks at Cross-Over Shoals, Opposite Oak Point, about 8 miles above Brockville, Ont. on the St. Lawrence River. She was released by the sidewheel steamer *New York* (US18324). Property loss set at \$500. In May 1854, the *Bay State* collided with an unknown schooner near Cape Vincent, NY, where the St. Lawrence River meets Lake Ontario. The schooner did not have lights up and was not seen by the steamer until they came together, damaging the *Bay State's* upper works.

The Ontario & St. Lawrence Steamboat Co. went into receivership and her steamers were sold to the reorganized company in April 1858 to the now named American Steam Boat Company, Ogdensburg, NY. Her value was set at \$25,500 in the spring of 1860. On Sunday, the 6th of May of that year, the steamer *Bay State* went ashore on an island outside Toronto, Ont. harbor, Lake Ontario. She was not released until May 14, 1860, a week later. In April 1863, while getting underway to leave harbor at Rochester, NY, Genesee River, Lake Ontario, the *Bay State* was damaged by the

Canadian bark *Three Bells* (C-1854). Her master for the 1864 – 72 seasons was Captain J. J. Morley. For the 1864 season the *Bay State*, as part of the American Express Line, ran Clayton, Ogdensburg, NY, Montreal, P.Q and intermediate ports.

In 1867, her ownership and registration were changed Canadian, when sold to the Canadian Inland Steam Co. and she was used on the "Express Line" between Montreal-Oswego-Rochester-Toronto. August 1867, while bound Ogdensburg, NY to Oswego, NY, the steamer *Bay State* ran into and sank the propeller *Margaret* (C46225). The *Margaret*, down bound for Montreal laden with wheat and flour, sank seven miles below Kingston, Ont, on the St. Lawrence River when the *Margaret* turned across the bow of the *Bay State* which then struck her.

In June 1868, during enrollment at Montreal, Que, the steamer was renamed *Athenian*, assigned a registration number C51693, and her measurements recorded as: 231.4' x 31.4' x 11.7'; 1083.03 grt, 708.94 net. In September of that year, the steamer *Athenian* broke her machinery and was laid up for the remainder of the season for repairs. During the 1871 season, the "Express Line" consisted of the sidewheel steamers *Athenian* and *Abyssinian* (C51694) who ran regular trips between Ogdensburg, Oswego and Charlotte (landing for Rochester, NY), Niagara Falls, Buffalo and Toronto, Ont.

Ownership of the sidewheel steamer *Athenian* was changed in June 1874 to the Union Navigation Co. and placed on the Montreal to Quebec route on the St. Lawrence River.

In 1876, the Union Navigation Co., and all her vessels, were absorbed by the Richelieu & Ontario Navigation Co. The *Athenian* was stripped of her rigging and moored at Sorel, Que. in June 1877. During a November gale the *Athenian* broke her moorings at Sorel, Que. and was carried downstream on the St. Lawrence River to Chenal-qu-Moine, where she struck a rock and sank in ten feet of water. In May 1884, the recovered engines from the steamer *Athenian* were listed at auction and sold.

Charter: Frederick D. Ketchum, Huron, OH built for Chipman P. Turner, Huron, OH & Henry P. Smith, Black Rock, a wooden sidewheel steamer with measures of 131.9' x 20.2' x 7.8' and a tonnage (old style) of 197.7. She was first enrolled at Buffalo, NY on June 6, 1849 and designated for the passenger, package freight trade and originally ran on Lake Erie, between Buffalo, NY and Port Rowan, Ont. Her engine is unknown, but the Buffalo Daily Republic stated that the engine from the steamer *Chicago* was used in the *Charter*. October 1851, the steamer

Charter collided with the sidewheel steamer *Columbia* (US-1848) off Dunkirk, NY, Lake Erie. Repaired.

Her ownership was changed to Watson A. Fox, Buffalo, NY early in 1853. Before the start of the 1853 season, the *Charter* was rebuilt as a propeller by Bidwell & Banta, Buffalo, NY and her enrollment measures changed to: 131.9' x 25.4' x 7.8' with a tonnage (old style) of 241.9. Her owners used the propeller *Charter* for towing log rafts and in the passenger, package freight trade between Buffalo, NY and Ashtabula, OH. Her master for the 1855 season was Captain William Warren and the *Charter* ran as a ferry between Black Rock, OH and Fort Erie.

Ownership of the propeller *Charter* was changed to American Transportation Line in 1856 and her master for that season was Captain Maxwell. The American Transportation Line propeller *Charter* was advertised to ply between Buffalo, Detroit, Toledo, Sandusky, Cleveland, and Erie. August of that year, while bound down from Cleveland, OH to Buffalo, NY, the *Charter*, laden with oats, flour, and rye, started to leak during a storm and was swamped and was run ashore near Fairport, OH where she sank. No lives lost.

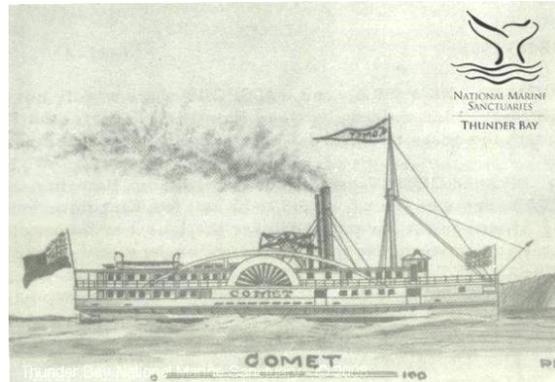
***Columbia*:** On the Grand River as it flows into Lake Erie at Fairport Harbor, OH, Joel R. Norton built a small wooden sidewheel steamer for Aaron Wilcox, Painesville, OH with measures 117.0' x 18.6' x 8.2' and a tonnage (old style) of 168.6. She was powered by a high-pressure steam engine, builder unknown, and enrolled at Cleveland, OH in 1848. The Grand River is navigable to Painesville and handled passenger and package freight from there to lake ports. Her master for the 1849 season was Captain E. Ward. October 1851, the steamer *Charter* (US-1848), while entering the harbor at Dunkirk, NY, collided with the outbound steamer *Columbia* badly damaging her side and splitting her deck amidships. In May of 1852 the *Columbia* collided with the steamer *Alabama* (US-1849) between Dunkirk, NY and Erie PA with both vessels receiving damage.

Her ownership was changed in May 1853, to J. M. Craw et al, Cleveland, OH. She was taken off local runs and placed on the passenger, package freight run between Cleveland, OH to Green Bay, WI. Her master for the 1858- 62 seasons was Captain Darius Cole. December 1858, passing Thunder Bay on Lake Huron, the steamer *Columbia* was cut by ice in her bow and leaking fast, grounded on Scare Crow Island at the mouth of bay. Patched, she left the island and continued down bound for the St. Clair

River. Fifty miles north of Port Huron, MI, the *Forrest Queen* (US-1855) came upon the steamer with her colors at half mast, union down. The *Queen* got her astern and towed her into the river where she sank. She was later raised and repaired during winter layup.

During the 1860 winter layup, her ownership was changed to T. H. Eaton, Detroit, MI. May of that year, the steamer *Columbia* broke her machinery in Saginaw Bay.

In 1861, Darius Cole and partners, all from Detroit, MI, purchased the steamer *Columbia*. She was placed on a run between Detroit to Saginaw. During the 1861 winter layup, the *Columbia* was converted to a tug for river service. Bound down on Lake St. Clair, laden with lumber and shingles, the tug *Columbia* ran hard aground on the upper end of Belle Isle in November, 1862. She was released. Listed as abandoned after being released, the steamer *Columbia* remained on the insurance list until 1864.



***Comet*:** James, Joseph & Lewis Platt, Adolphustown, Ont. (Bay of Quinte) contracted to have a wooden sidewheel steamer built by G. N. Ault, master carpenter, at Fisher's yard, Portsmouth, Ont. (now Kingston, Ont.) with measures of: 174.0' x 23.5' x 10.0' with rated unit tons of 336.1. The *Comet* was powered by two vertical beam engines, rated at 45 horsepower each and built by Ward Foundry, Montreal, Que. The engines had been originally installed in *Shannon* (C-1830). She was built for the passenger, package freight trade between Hamilton, ONT, Montreal and Quebec, Que. The *Comet* was launched June 15, 1848. Originally the launch was planned for Wednesday, June 14. "When the stays were knocked out and she slid down the ways about 100 feet before stopping. The following day, the steam-tug *William* jerked her into the water. The stoppage was believed to have been caused by the slight inclination of the ways and the vessel made a

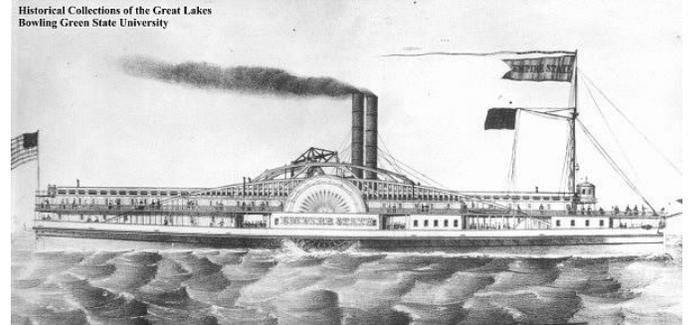
trifling sheer to starboard and she became "ribbon-bound" for want of sufficient impetus". She was first enrolled at Kingston, Ont. July 04, 1848. Her master of the 1848 season was Captain James Platt. October 1848, bound down the St. Lawrence River, laden with 3,000 barrels of flour, the *Comet* struck a shoal near Chimney Point, made an attempt to make port, sinking near the mouth of the Gallops Canal. Raised and repaired, the steamer *Comet*, bound up from Kingston to Toronto fifteen days later, struck Gull Island Shoal in Lake Ontario, 2 ½ miles from Duck Lighthouse. Three quarters of her cargo had to be jettisoned into the lake to free her. Cargo loss set at \$5,000.

Her ownership was changed to McPherson & Crane, Kingston, Ont. in 1849. November of that year, while entering Toronto harbor, the *Comet* burst her boiler, killing one fireman and badly injuring two other fireman. Repaired during winter layup in 1850, the steamer *Comet* was greatly expanded receiving new cabins on deck, a new promenade deck, and a 140-foot saloon. For the 1851 season her master was Captain A. O'Conner with Royal Davis as first engineer. In April, the start of the 1851 season, at Oswego, NY, the steamer *Comet*, after unloading 1,200 barrels of flour from Hamilton, Ont., and swinging around in the river, had her larboard boiler explode, making a wreck of the forward part of the vessel. She quickly filled and sank in nine feet of water. Eight lives were lost and two injured.

Still owned by McPherson & Crane, the *Comet* was raised by George S. Weeks in May 1951, and floated to the Marine Railway, Kingston. Repaired, she was towed to Montreal where she was overhauled and rebuilt. Her enrollment was updated and her name changed to *May Flower*. Master of the steamer *May Flower* for the 1852 season was Captain F. Patterson.

Ownership of the steamer *May Flower* in 1856 was Stark, Hill & Co. For 1857, Hill, Sears & Co. were listed as owners. Her master for the 1856-57 seasons was Captain Sinclair. The steamer *May Flower* was put up for auction in 1858. No ownership changes are listed. Her master for the 1860-61 season was Captain Patterson. May 1861, bound from Kingston for Toronto, the schooner *Exchange*, laden with wheat from Chicago, collided with the steamer *Comet*. The steamer had steered a course to give the schooner right of way, but the schooner crossed the bow of the steamer and was struck on her starboard side. The bow of the steamer was sprung and she quickly filled with water, sinking north of Oswego, NY in sixty feet of water. Two lives were lost.

NOTE: There were two *May Flower*'s a schooner and a steamer registered Canadian and a U.S. propeller and barkentine named *Mayflower* during this time period. The names were printed as *Mayflower* and *May Flower* in the newspapers for all four vessels.



Empire State: At St. Clair, MI on the St. Clair River, John Griffin built a large, wooden, sidewheel steamer with measures of: 298.9' x 37.0' x 14.4' and a tonnage (old style) of 1553.7. The *Empire States* original owners listed at her enrollment October 10, 1848 were: Captain Morris Hazard, Samuel H. Mosier, Pardon C. Sherman all from Buffalo, NY; William Monteath of Albany, NY; and William H. Hazard of Brooklyn, NY. She was powered by a low pressure, vertical beam engine, with a cylinder bore of 76" and a 144" stroke, built by Merrick & Towne Foundry, Philadelphia, PA. Her wheel was 38 feet in diameter, with buckets that had a 10-foot face. Her boiler was 10.5' x 28'. She was built for the passenger, package freight trade between Buffalo, NY and Munroe, MI and had 430 cabins with accommodations for 4,000 steerage passengers. Her master for the 1848 – 51 seasons was Captain Morris Hazard with S.T. Newrail in 1848 and Nelson Whaley in 1849 as first engineers.

May 1849, the ownership of the steamer *Empire State* was transferred between Captain Morris Hazard, Samuel H. Mosier, all from Buffalo, NY; William Monteath of Albany, NY; and William H. Hazard of Brooklyn, NY. The following month her ownership was transferred to Marshall French of Norwalk, CT; Samuel H. Mosier of Buffalo, NY; William Monteath of Albany, NY. In August of the year, down bound from Chicago, IL with passengers and a cargo of 300 barrels flour, 10 tons copper, 10 tons shot and 50 casks ashes, the steamer *Empire State* sprang a leak on Lake Michigan during a gale, and was run ashore about 3 miles south of Sleeping Bear, MI, and sank in nine feet of water. She was pumped out, raised and repaired at a cost of \$4,000.

In February 1851, ownership of the steamer *Empire State* was consolidated into four shares held

by Thomas Hefford, ½, Buffalo, NY; William Monteath, ¼, Buffalo, NY; Samuel H. Moser, ¼, New York, NY. In May of that year, the steamer *Empire State* collided with the brig *Mayflower*, badly damaging her. In that same month her ownership shares were transferred between Thomas Hefford, ½, Buffalo, NY; William Monteath, ¼, Buffalo, NY; Captain Morris Hazard, ¼, Buffalo, NY. Four months later the *Empire State*, with a tow of three canal boats belonging to the "Dan Rice's Circus", broke free during a gale on Lake Erie. The canal boats, cargo and crew were lost. That same month, while entering the port of Toledo, the *Empire State* ran into the starboard quarter of the schooner *Jane Louise* doing considerable damage to the schooner's hull. Two months later, while entering the port at Cleveland, OH, Lake Erie during a gale, the steamer *Empire State* struck the East pier and stove a hole in her bow, sinking. The steamer was raised and repaired with the cost of the repair set at \$3,000. During the off season of 1852, the steamer was readmeasured and lengthened at Buffalo, NY to: 314 x 37 x 14.42; 1691.29 grt and her enrollment updated.

March 1852, ownership of the steamer *Empire State* was transferred to Captain Morris Hazard, ½, Buffalo, NY; William Monteath, ¼, Buffalo, NY; William H. Hazard, ¼, New York, NY then the shares held by Captain Morris Hazard were transferred to Michigan Southern Railroad Co, ½, George Bliss, Springfield MA, President of MSRR of Monroe MI; William Monteath, ¼, Buffalo, NY; and William H. Hazard, ¼, New York, NY maintained their share of the vessel. Master of the steamer for the 1852 season was Captain H. Van Allen with Captain John Wilson as master for the 1853 season. April 1853, while entering the harbor at Buffalo, NY, the *Empire State* struck a pier, damaging her hull. She was drydocked for repairs and sustained a property loss of \$2,500.

Ownership of the sidewheel steamer *Empire State* was transferred to Michigan Southern Railroad Co, John Wilkinson, President of MSRR in November 1853. Her master for the 1855 season was Captain L. B. Goldsmith. September 1855, steaming during a gale on Lake Erie, the steamer *Empire State* broke her arches. The repairs cost \$1,800. In 1857, during a severe business depression that reduced the immigrant and lake traffic, the steamer *Empire State* was laid up for lack of business. Although only nine years old the hull was stripped of her machinery at Detroit, MI with her engine being installed into the *Western Metropolis* (US-1856). May 1858, Captains C.V. Dixon and J.W. Vanorman purchased the hull of the *Empire State* and towed her to Buffalo, NY for

conversion into a dock to accommodate tugs, propellers and steamers.

Free Trader: First enrolled at Montreal, Que., June 12, 1848, the wooden sidewheel steamer, built by Augustin Cantin had measures of: 136.3' x 24.3' x 10.1' and unit tons of 134.3. She had been built for the Great Lakes & Atlantic package freight trade. Built "pollywog" (engines as far aft as possible for maximum cargo space). "She is of considerable length and having her paddles close aft, when under way has much the appearance of a propeller; the narrowness of her beam fitting her for canal navigation." Her original owners were Luther H. Holton, Montreal, P.Q.; Frances Henderson, Kingston, Ont. in equal shares. She was powered by a low pressure, 75 horsepower engine. Master of the steamer *Free Trader* for the 1848-52 seasons was Captain Neil McMullin. In June 1848 the steamer *Free Trader* was dispatched to Chicago with cargo, picking up a return cargo intended for Halifax, N.S., to be delivered there without break of bulk.

In January 1850, the ownership of the steamer *Free Trader* was changed to Luther H. Holton, Montreal, P.Q. In January 1854, ownership of the *Free Trader* was changed to Alfred Hooker, Prescott, Ont. During the winter layup of 1854, the steamer *Free Trader* was extensively rebuilt at the Marine Railway Shipyard, Kingston and she was issued registration number C33464. Her masters for 1854-55 season was Captain Moore, with Captain Hanby in 1856 and Captain Moore in 1857. April 1856, the *Free Trader* sprang a leak due to ice on Lake Ontario, damaging her cargo of flour.

Ownership of the steamer *Free Trader* was transferred early in 1857 to Hooker & Pridham, Montreal, QUE. May of that year, the steamer *Free Trader* broke her engine and had to be towed in for repairs. In October, the *Free Trader*, laden with wheat, arrived at Port Stanley, Ont., Lake Erie, and moored out board of the Canadian schooner *Isaac Buchanan* (1852). A fire was discovered on the steamer that quickly spread through the vessel, across to the schooner and to the surrounding warehouses and hotel. Both the *Free Trader* and *Isaac Buchanan* were destroyed. No lives lost. Insurance damage loss for the *Free Trader* was set at \$40,000; *Isaac Buchanan* at \$8,000; and the warehouses and hotel at \$25,000.

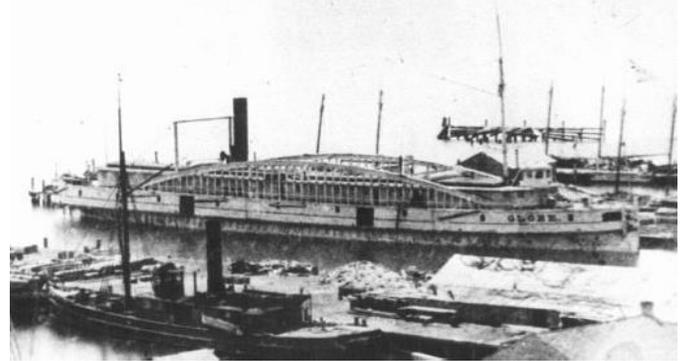
General Taylor: At Buffalo, NY, F. N. Jones built a wooden propeller that had an engine built by John D. Shepherd & Co. The vessel had measures of: 172' 8" x 25' 8" x 10' 10" and a tonnage (old style) of 462 91/95. Owned by Asa Hart et al, Buffalo, NY for the passenger, package freight grain trade and ran Buffalo, NY to Chicago, IL. Master of the propeller for 1848 was Captain Asa Hart. In March 1849, caught in a freshet on the Chicago River, the propeller *General Taylor* had her bow stove in and lost one wheel (screw). Damage was set at \$2,000. July 1853 during a gale, the *General Taylor* and the schooner O. Q. Melzar (U-1852) collided on the Chicago River at the foot of Franklin Street.

February 1854, ownership of the propeller *General Taylor* was changed to J. L. Hurd et al, Detroit, MI. That year, the propeller *General Taylor* went ashore in Dunkirk Harbor and ended up on the rocks. She was recovered and dry docked for repairs. Property loss set at \$3,000.

May 1855, ownership of the *General Taylor* was changed to Sheldon McKnight for the sum of \$18,000. In August of that year the *General Taylor* went aground on the flats in the St. Mary's River, Sault Ste Marie. She lost an anchor, a chain and one man. Her master for the 1856 season was Captain R. S. Ryder with A. LeFleur as engineer. June 1856, laden with 290 tons of copper, the *General Taylor*, broke her engine while going through the Sault canal and was propelled down the lake on one wheel (propeller) until arriving at Detroit, MI. June of 1857, the *General Taylor* and the schooner *Hubbard* (U11179) collided on Lake Huron. The propeller towed the schooner into Detroit for repairs. September of that year the *General Taylor* damaged her boiler on Lake Erie and was towed to Detroit for repairs. Property loss set at \$200. The following year, she broke her machinery on Lake Erie and was towed to Detroit for repairs. Property loss set at \$1,500. November 1858, in dense fog, the *General Taylor*, and the brig *Concord* (U4390), collided off White Fish Point, Lake Superior. The propeller reached St. Marie Canal in damaged condition. Damage loss set at \$2,300. September 1859, while coming into the St. Clair River, the *General Taylor* ran into the anchored schooner *Shook* (U22354).

In 1860 her ownership was changed to W. D. Walbridge, Detroit, MI. Master for the 1860 season was Captain Parker. November 1860, during a gale on Lake Huron, the propeller *General Taylor* was thrown on her beams end by shifting cargo. She had to jettisoned part of her cargo of barrels of copper ore to get into Tawas Harbor under sail. Both her steam pipe and smoke stack were broken. Her master for

the 1861 season was Captain McKay. During a storm on Lake Michigan, laden with flour and general merchandise, the propeller *General Taylor*, was driven ashore on Sleeping Bear Point, MI. Vessel was lost without any lives lost.



Globe: Built by Burton S. Goodsell, Trenton, MI and launched in 1847 as the *Odd Fellow*, she was towed to Detroit in December to receive her machinery and to her finish work. Purchased by Samuel Robinson in 1848, she was enrolled at Detroit, MI, June 21, 1848 as a wooden sidewheel steamer named *Globe*, with measures of: 251.0' x 34.8' x 14.5' and a tonnage (old style) of 1223 26/95. She was equipped with a side-lever engine, built by Leash & Co., Pittsburg, PA, and originally installed in the sidewheel steamer *Boston* (U-1846). She was intended for the passenger, package freight trade. Her master for the 1848 season was Captain James Sanderson.

Up bound from Buffalo, NY to Chicago, IL in September 1848, a passenger, Abraham Lincoln, representative to the U.S. Congress from Illinois, witnessed the grounding of the steamer *Canada*. He developed and patented a device for raising sunken vessels and is the only president of the United States to be awarded a patent. Her master for the 1849-50 seasons was Captain John Robinson.

Ownership of the steamer *Globe* was changed to Joshua Maxwell, Buffalo, NY in 1850. In 1853, He sold ¼ ownership to Amos Pratt of Buffalo, keeping ¾ ownership in his control. Amos Pratt was captain of the *Globe* for the 1853 – 60 seasons. In August 1853, the steamer *Globe* was struck by lightning on Lake Huron and was slightly damaged with some of the crew and passengers also slightly injured. In November of the following year, the steamer *Globe*, coming up the creek at Buffalo, NY, ran afoul of another vessel, and sustained some slight damage. January 1855, she went aground in the bay at Milwaukee, WI. Released. The steamer

Globe was converted to a propeller at C.A. Van Slyke ship yard, Buffalo, NY. Her capacity was enlarged so that she could carry 300,000 bushels of corn. She also received two new engines attached to one shaft. Her enrollment was updated at Buffalo, NY, June 20, 1856.

Note: From the photo above, she is equipped with arches to prevent hogging. The arches may have been installed at the time of conversion from steamer to propeller,

May 1858, Joshua Maxwell sold his $\frac{3}{4}$ ownership of the steamer *Globe* to Robert M. Scanlin, with Captain Amos Pratt keeping his $\frac{1}{4}$ share.

May of the following year, ownership of the propeller *Globe* was changed to Albert M. Helmer, Lockport, NY. November 1860, the propeller *Globe*, while moored at Hale's dock, near Wells Street in Chicago, IL with her firemen raising steam to unload a cargo of apples and other freight, when her boiler exploded killing sixteen men and scalding many others. The *Globe* sank besides Hale's dock. Six months later, April 1860 the hull of the *Globe* was raised and towed to Miller & Hood's Dry Dock where she was converted to a mud scow.

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.)

Some Notes:

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

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

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

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

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

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

P.Q.: Province of Quebec

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