

screen share option to prevent piracy. We live and learn.

"Ship That Changed the World" is about the archaeological investigation of the 1495 wreck of the *Gribshunden* off the coast of Sweden in the Baltic Sea. Interesting, since the vessel bridged the hull construction from a 'Bremen Cog' and the 15th C. Carrack.

Zoom

If you are having trouble setting up a zoom contact or signing in, I encourage you to contact Bob Mains, **Please**. He can help you to connect. Bob can be reached at (rmains43@gmail.com)

Announcements

NRG Photographic Ship Model Competition

The Board of Directors of the Nautical Research Guild is pleased to announce the 2021 Photographic Ship Model Review & Juried Competition is open for entries. Please review the official rules carefully; there have been some changes and improvements since the last event, which was held in 2015. Most notably, all files will be submitted online...no more downloading files to a DVD or driving to the post office to mail them. Gold, Silver, and Bronze medals will be awarded for the First, Second and Third place models in three categories: Apprentice (novice), Journeyman (intermediate) and Master (advanced). A Best of Show medal will be awarded to the best Gold medal winner, and ribbons will be presented to models with qualifying points.

The competition is open to all NRG Regular Members in good standing. If you are not currently a member, you can join the Guild for as low as \$40 and enter the Competition. Winners will be announced at the Annual Member's Meeting in the Fall. To view the complete rules and download the entry form, visit the NRG website at <https://thenrg.org/contests/rules>.

The Model Review and Competition emphasizes craftsmanship and artistic expression as well as historic fidelity. As in the past, there will be multiple judges across all three entry categories. To underscore the broader educational value of their participation, every entrant will receive copies of their judge's scoring and commentary sheets for their model or models.

The participation cost is \$30 per entry, and the entry fee may be paid online through the NRG store. The Competition is only open to NRG members in good standing. Entrants whose

June 22, 2021

membership lapses during the contest will be disqualified. Multiple entries are welcome, but they must be in the same category. NRG directors, officers and judges are not eligible to enter this event.

Entries must be received by August 2nd, 2021.

Here is your chance to find out how good your modeling is and what you need to do to move to the next level. You have had plenty of time to build some great models during the pandemic, so what is holding you back?

Philadelphia Ship Model Society

Will be holding a ship model display on board the battleship *New Jersey*, at Camden, NJ, August 7th, 2021, from 11 AM to 5 PM.

www.philadelphiashipmodelsociety.com/modelcon

Northeast Ship Model Conference

Hosted by USS Constitution Model Shipwright Guild, the conference will be held Saturday, October 2, 2021, from 9 AM to 3 PM, at the "Port'n'Starbord Convention Center, Ocean Beach Park, New London, CT. Up to 100 detailed models will be on display. This is a judged competition.

For more information, go to: www.usscmsg.org click on "More" and scroll down to Northeast Ship Model conference.

Business

Presentation Schedule

The presentation schedule for the remainder of 2021 is:

7/17 – "Evolution of the Wooden Ship" – Nyberg

8/21 – Steam Engines -

9/18 – Super Detailing – John Boeck

10/16 – Illuminating Models, Fixtures/Circuitry – Amato/Phelps

11/20 – Research – Marietta – Nyberg

12/18 – From CAD to Component Parts – Kimmins

I need someone to cover the August subject "Marine Steam Engine".

With in-person as well as zoom attendees, a presenter can share their presentation from home on zoom and we will be able to project the presentation on the screen in the conference room or classroom.

Ships on Deck:

The following is an update on what your fellow craftsman have been working on. I encourage

each of you to share photos of your works in process, what you have completed in the past, and what you plan to work on in the future. Send it to your editor in jpeg format with a short write up.

Great Harry

John Boeck



The restoration project should be complete by the end of June. John had to make 60 blocks and 40 deadeyes that were missing. Now need to design a crate to ship the model (48" x 42" x 18") to North Carolina.

"Connie" Lights

Steve Keller



Steve has installed most of the lanterns that hang between the cannons on the gun deck. They are 2.5mm x 4mm 3D printed and hollow. Lanterns were painted with three stripes (not the 4 on the original) and included the access door. He drilled a hole in the peak and ran the lead of an orange nano LED through the hole. The base of the lanterns are plugged with styrene rods, cut, filed and painted. Leads were fed through a hole drilled diagonally in the cross beams. Unfortunately, the orange nano LEDs require resistors that had to be included in the wiring.

Cross beams were hollowed or grooved to accommodate the resistors and wires and shrink wrap. The LED wire pairs were approximately 0.3 mm in diameter easily embedded in the bulwark. LEDs were wired in parallel with three master leads that will run to the aft column on the main cargo hold. A Brass tube will pass through the hull and then through the center brass support pedestal to power the lights.

HMS Hildina

Cliff Mitchell





HMS Hildina, a Vintage Model Shipways, wooden kit, was built in 2010.

The vessel was launched in 1916 and had a displacement of 276 tons. She was taken over by the Admiralty in August 1939 and based at Granton in the Firth of Forth. She served in the Firth of Forth and on the East Coast. After the war she was returned to her owner in April 1946. She was renamed *Aigrat* in 1947 and scrapped in 1956.

Red Jacket

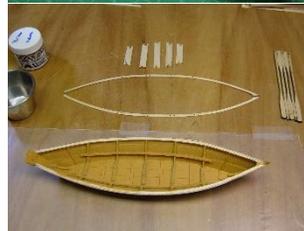
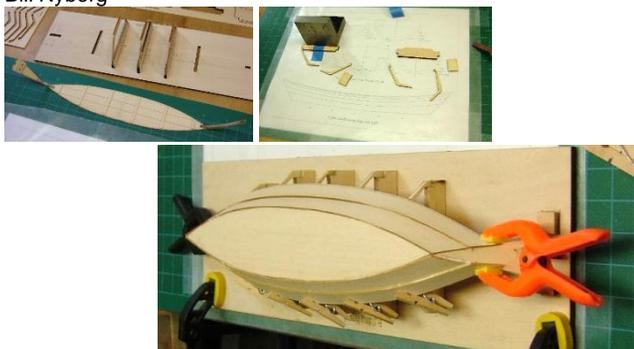
Stan Ross



BlueJacket kit, square rigged, 42" long.

Lowell Grand Banks Dory

Bill Nyberg



Photos show the steps in building the dory. She is painted, her twarts fitted, but still needs cap rail, thole pins and oars.

Nautical Terms

Merchant Marine: A collective term for all merchant ships registered in a given country and the civilians (especially those of that nationality) who man them; the ships and personnel in combination are said to constitute that country's *merchant marine*. Called the merchant navy in the United Kingdom and some other countries.

Side note: During World War II, the seamen of the U.S. Merchant Marine suffered a higher casualty rate than any service branch. As many as 9,500 perished at sea, from their wounds, or in prisoner of war camps. At the end of the war, they received no government pensions or benefits and could not take advantage of the GI Bill.

Merchant mariner: A civilian officer or sailor who serves in the merchant marine.

Merchantman: Any non-naval passenger- or cargo-carrying vessel, including cargo ships, tankers and passenger ships, excluding troopships.

Mess (messdeck): An eating place aboard a ship; a group of **crew** who live and eat together.

Metacenter: The midway point between a vessel's center of buoyancy when upright and her center of buoyancy when tilted.

Metacentric height: (GM) A measurement of the initial static stability of a vessel afloat, calculated as the distance between her center of gravity and her metacenter. A vessel with a large metacentric

height rolls more quickly and therefore more uncomfortably for people on board; a vessel with a small metacentric height will roll sluggishly and may face a greater danger of capsizing.

Middles: The middle brails on the mainsail, higher than the lowers, and lower than the mains.

Midship house: A superstructure built over the midships section of the hull, often housing the bridge and officers' quarters, as well as passenger quarters aboard cargo liners. A common feature of tankers, cargo liners, and cargo ships up until the mid-20th century, when ship design moved away from the use of midship houses.

Midships: Also, *midship* - The middle section of a vessel with reference to the longitudinal plane, as distinguished from fore and aft.

Millers: Shipboard rats

Misstay: To be "in irons" (i.e., to lose forward momentum) when changing tack.

Mizzen: A *mizzen sail* is a small sail (triangular or gaff) on a ketch or yawl set abaft the mizzenmast.

Mizzenmast: The third mast, or the mast aft of the mainmast, on a ship.

Glossary of Nautical terms Wikipedia

Other Notes: "Stuff" - Tugs & Things

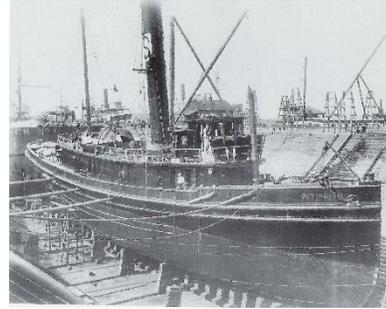
Nautical Research Journal

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

Print Journal - \$55 she had measures of; 117.4 x 24.2' x 10.5'
E-Journal - \$40
Combined - \$65

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

Tugs Covington



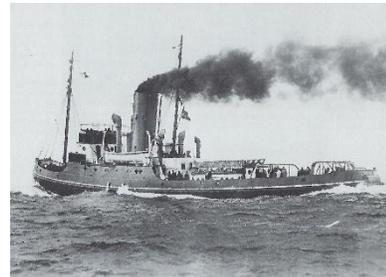
The coal tug *Covington*, shown above, is in the graving dock at Newport News after taking a beating during a storm. Her foremast is broken and her wheelhouse windows are stove in.

The *Covington* was built in 1899 at Philadelphia for Seaboard Transportation Co. of New York. Her measures were 135' x 27.5' x 15.7' and she was powered by a steam engine rated at 900 HP.

A graving dock, operated much like a canal dock. The dock is filled with water to the level of the outside basin and the ship is floated in. Once aligned, the gates are closed and the water is pumped out and the vessel comes to rest on the keel blocks. Additional support is provided by strongbacks wedged between the hull and the sides of the dock. Moveable bilge blocks, on special tracks, are moved in to support the hull.

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

John Dock



The *John Dock* was a South African steam tug, built in 1934 at Belfast, Ireland for the Railways & Harbours Admin, Port Elizabeth, South Africa. She was 154' x 32' x 15', steam powered and did ship handling as well as offshore towing. She was converted from coal to oil in the 1950's and was sent to the shipbreakers in 1978.

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

Presentation Schedule:

2021

- Jan 16 — History of Ship Modeling
- Feb 20 — Carving Ship Decorations
- Mar 20 — Photographing Models
- Apr 17 — Setting up a Hahn Frame Jig
- May 15 — Sail Making
- Jun 19 — Video: "Ship That Changed the World"
- Jul 17 — Evolution of the Wooden Ship
- Aug 21 — Steam Engines
- Sep 18 — Super Detailing
- Oct 16 — Illuminating Models – Fixture/Circuitry
- Nov 20 — Marietta Ship Building
- Dec 18 — From CAD to Component Parts

Events & Dates to Note:

2021 Tentative Schedule

~~IPMS-Columbus~~ **Canceled**

47th Anniversary BLIZZCON

Arts Impact Middle School
680 Jack Gibbs Blvd. Columbus 43215

Saturday, February 20, 2021

~~Miami Valley Woodcarving Show~~

Canceled

Christ United Methodist Church
700 Marshall Rd., Middletown, Ohio 45044

March 6 & 7, 2021

~~66th "Weak Signals" R/C Model Show~~

Canceled

~~31st North American Model Engineering Expo.~~

Canceled

Wyandotte, MI

April 23-24, 2021

~~44th Midwestern Model & Boat Show,~~

Virtual competition will take place.

Wisconsin Maritime Museum, Manitowoc, WI

May 15-16, 2021

~~Photography for Ship Models~~

NRG Virtual Seminar

June 05, 2021

~~Lakeside Antique & Classic Wooden Boat~~

Lakeside Hotel, Lakeside, OH

July 18, 2021

~~NRG Photograph Competition~~

Submission Deadline

Aug 02, 2021

~~Toledo Antique & Classic Boat Show~~

Promenade Dock, Maumee River, Toledo, OH

Aug 21-22, 2021

June 22, 2021

~~BlueJacket Rigging Class for novice~~

Belfast, ME – Enrollment closed

Sept 20 – 24, 2021

~~NRG Conference~~

Canceled

Oct. 21-23, 2021

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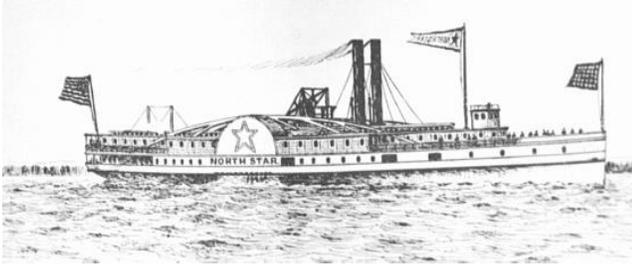
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Wooden Steamers

1854 B



North Star: Samuel W. & Alvin A. Turner, Ohio City (Cleveland), OH built a sidewheel steamer for the passenger, package freight trade between Cleveland, OH and Duluth, MN. When enrolled at Cleveland, September 27, 1854, her recorded measures were 260' x 33' 6" x 13' 1" and tonnage (old style) of 1106 73/95. Her owners were listed as: Simon Mendelbaum, 2/16, Detroit, MI; William Stevens, 2/16, Cleveland, OH; Brimsley G. Sweet, 1/16, Cleveland, OH; Samuel W. Turner & Alvin A. Turner, 11/16, Cleveland, OH. (Lake Superior Line, Cliffs Mining Co.). She was powered by a vertical beam engine built by Cuyahoga Steam Furnace Co., Cleveland, OH. Her master for the 1854 to 1860 seasons was Captain Brimsley G. Sweet.

January 1855, her ownership was shown as a transfer of shares to Captain Brimsley G. Sweet, 1/16, Cleveland, OH; Samuel W. Turner & Alvin A. Turner, 15/16, Cleveland, OH. In September 1855, the steamer *North Star* and the brig *Canopus* collided on Lake Huron. Property loss between both vessels was set at \$2,000. December of that year the steamer *North Star* did \$400 damage when she struck a wood pier at Algonac, MI on the Saint Clair River. In August 1856, the *North Star* broke her machinery on Lake Superior and required a tow to Cleveland, OH for repairs. Her loss was set at \$3,000.

March 1859, her ownership was shown as a transfer of shares to Brimsley G. Sweet, 2/32, Cleveland, OH; Samuel W. Turner, 15/32, Cleveland, OH, Henry L. Whitman, 15/32, Cleveland, managing owner.

July 1859, her ownership was shown as a transfer of shares to Brimsley G. Sweet, 2/32, Cleveland, OH; Samuel W. Turner, 15/32, Cleveland, OH, Alvin A. Turner, 15/32, Cleveland. May 1860, the steamer *North Star* stranded on rocks above Detour, MI, in the Sault Ste. Marie River. She was released

but declared a loss to the hull of \$300 and to her cargo of \$200.

April 1861, ownership of the steamer *North Star* was changed to James M. Cooper & Thomas M. Howe et al, Alleghany City (Pittsburgh), PA. Her master for the 1861 season was Captain Francis Balfour Higgin. June 1861, the *North Star* was damaged in a collision with the tug *Eagle* at Detroit, MI. September of that same year the *North Star*, down bound from Lake Superior, was involved in a collision with an unknown schooner on Lake Erie that damaged her upper works. Damage loss was set at \$250. During winter layup of 1861-62 in the "Old River Bed" near the Rhodes-Card & Company coal yard, Cleveland, OH, the steamer *North Star* caught fire and burned to a total loss on February 20, 1862. No lives lost.

Oriental: April 17, 1854, Bidwell & Banta, Buffalo, NY launched the wooden, propeller *Oriental*. The new vessels owners were Wells D. Walbridge, C. Hitchcock, and Captain H. Squire all from Buffalo. Her measures were: 222' 11" x 34' 1" x 13' 1" with a tonnage (old style) of 950 25/95. She was powered by a Crosshead, non-condensing engine, 36" bore x 56" stroke, built by Shepard Iron Works, Buffalo, NY. She was equipped with a Drop flue boiler, 10' x 21 1/2', 50-55 pounds steam and her original propeller was 22' diameter that was later replaced with an 18' 6" blade propeller. Her trial run was held on May 17, 1854. No enrolment record for the vessel could be found. The propeller *Oriental* was built for the package freight trade and she ran between Buffalo, NY and Chicago, IL. Her master for the 1854 season was Captain H. Squire. December 3rd, 1854, the propeller *Oriental* grounded on the bar at the entrance to Buffalo harbor due to the low water. She was laden with flour, wheat and 850 tons of freight.

May 1855, her ownership was changed to the American Transportation Company. Her master for the 1855 season was Captain Julius Brett. September of that year, the propeller *Oriental* lost part of her deck load in a gale on Lake Michigan incurring a property loss for the vessel of \$150 and to the cargo of \$3,000. The following month, the propeller and the Canadian schooner *Acadia* collided in the St. Clair River with both vessels receiving some damaged. In November of 55 the *Oriental* broke her machinery on Lake Erie and was towed to Buffalo, NY for repairs. Her property loss was set at \$2,000.

May 1856, while downbound from Chicago for Buffalo, the *Oriental*, laden with corn, flour and provisions, broke her crank pin near the St. Clair

Flats and was towed to Detroit, MI for repairs, incurring a loss of \$300. In October of 1856, steaming in fog on Lake Michigan, the *Oriental* collided and sank the brig *Nebraska* (US-1849) off Milwaukee, WI. Her master for the 1857 season was Captain Victor Bonnah.

Master of the propeller *Oriental* for the 1858 & 59 seasons was Captain Briggs. In October 1858, up bound for Chicago on Lake Michigan, the propeller *Oriental*, laden with 100 tons of merchandise for Milwaukee, Racine and Chicago, broke her crank pin during a storm. She rode out the storm at the Manitou's and was towed to port by the propeller *Potomac* (US19618) for repairs. Her property loss was set at \$1,000. December 1858, while downbound for Buffalo, NY, the *Oriental* went ashore in the Rapids, on the St. Clair River, half-way between Port Huron and the Lighthouse. She went bow on and swung around stern downstream. She was lightered to be released. In October of the following year, while downbound from Chicago for Buffalo, the *Oriental*, laden with beef and rolling freight, ran on to Skillagalee Reef, Lake Michigan during a storm and went to pieces. She was declared a total loss. No lives were lost.

Oshawa: Augustine Cantin at Lapraire, Que, at the confluence of the Saint-Jacques and the St. Lawrence Rivers, built a wooden, propeller for H. & S. Jones to be used in the package freight trade, running between Montreal - Lake Huron. Her measures were 128' x 23' x 10', with a tonnage (old style) of 340. Her master for the 1856 season was Captain J. Kennedy.

Her ownership was transferred to Jones & Black Company Freight Line in 1858. In November of that year, she incurred a property loss of \$400 when her cargo was damaged off Cobourg, Ont., Lake Ontario. The following year, in October the propeller was damaged off Pointe Lalonde, Que. Lake St. Francis, River St. Lawrence.

Her ownership was transferred in 1861 to Perry & Black "Beaver" Line. In September of that year, while bound down from Port Dalhousie, on Lake Ontario, for Montreal, the propeller *Oshawa*, laden with 3500 barrels of flour, sprang a leak near the Main Ducks Island, put in to South Bay, Prince Edwards County, before going aground 2 1/2 miles from the extreme end of Long Point, during a gale. She rolled over on her beams end and rested, twisted, in eight or ten feet of water. The vessel was declared a total Loss. No lives lost.

Omar Pasha: Bidwell & Banta, Buffalo, NY with Vincent Bidwell as master carpenter, built and launched in 1854 a wooden, propeller for J. L. Hurd & Co. et al, Detroit, MI. Her measures were 138.7' x 26.4' x 10.0' and her tonnage (old style) was 343 81/95. Her first enrollment was recorded at Detroit, MI, October 16, 1854. The propeller was built for the bulk freight trade. Her master for the 1854 season was Captain Watts. December 1854, bound down from Detroit, the *Omar Pasha* after riding out a gale on Lake Erie, arrived at Buffalo, NY. Her gangway had been stoved in by the force of the seas and some \$20,000 worth of copper, seed, wheat and hogs had been lost overboard.

Her master for the 1855 season was Captain H. K. Langly. On the 22nd of October of that year, the propeller went aground between piers at Milwaukee, WI. The following day, she had her stem knocked off in a collision with the schooner *Lark* (US-1855) while in the Milwaukee River. In November 1855, laden with 12,500 bushels wheat and a deck load of flour, the *Omar Pasha* sprang a leak during a gale on Lake Michigan and put into Sheboygan, WI where she sank alongside the pier. The propeller was raised and repaired, incurring the following property loss: vessel at \$6,000; cargo loss at \$23,000.

In April of 1856, her ownership was changed to Western Transportation Co., Buffalo, NY. During the month of May, she received arches, to prevent "hogging" and other repairs at Milwaukee, WI. Her master for the 1857 season was Captain Montgomery. October 1857, she went ashore at Stoney Island, Detroit River, incurring a property loss of \$200. the following month she broke her machinery in the Detroit River. Bound from Detroit for Buffalo in October 1859, the propeller *Omar Pasha*, laden with a full cargo of flour, wheat and produce, went on the piers at Fairport, OH, Lake Erie while trying to make the harbor during a storm. May 1863, bound up, the *Omar Pasha*, caught in a heavy gale below Long Point, ONT, Lake Erie, lost the packing from her steam chest and became unmanageable. After twenty hours, she finally reached Detroit, MI in a leaking condition and having lost her large anchor.

Ownership of the *Omar Pasha* was changed in April 1864 to Buffalo & Detroit Transportation Co., Buffalo, NY. She was readmeasured Sept 11, 1865 with her enrollment updated to: 2 decks; 1 mast; 141.5 x 26.5 x 10.3'; 510.34 gross tons and assigned the official #18918. In 1866, she ran in the Lake Superior trade with the propeller *Portsmouth* (US19619). August 1866, while laden with pig iron, the *Omar Pasha* went aground on Peche Island, Lake St. Clair. The following month, she and the

propeller *Antelope* (US571) collided on the St. Clair River, incurring a damage loss of \$500.

Ownership of the *Omar Pasha* was changed to Catherine Richmond, Buffalo, NY on May 24, 1867. In June her ownership was changed to William Fleming, Chicago, IL.

June 20, 1868, her enrollment was updated with new ownership change to E. Morrison, Chicago, IL, who ran her between Muskegon, MI and Chicago, IL. During winter layup, she was rebuilt as a steambarge: 1 deck, 134 x 26.9 x 10.2; 320.68 grt, 191.97 net, to be used in the lumber trade. June 1869, during heavy weather on Lake Michigan, the *Omar Pasha* sprang a leak. That same month she collided with the schooner *Mary* on the Chicago River, Chicago, IL. October 1869, while lying at Wilcox Bros. & Co. mill dock, at the mouth of the Muskegon Lake, the propeller *Omar Pasha* caught fire and burned to the water's edge. Declared a total loss.

William Peck: George Stewart of Buffalo, NY, built a wooden towboat for the towing and wrecking trade. Enrolled at Buffalo, NY, May 9, 1854, her measures were recorded as: 90' x 20' 10" x 10' 2" and a tonnage (old style) of 172 75/95.

Her owner was recorded as Elias & Thomas Sims, Buffalo, NY. Her master for the 1854 season was Captain Harvey Booth. September 1854, the *William Peck* succeeded in hauling the schooner *J. W. Ross* (US-1854) from where she went ashore on Long Point, Ont, Lake Erie.

Her ownership was changed to H. P. Smith, Tonawanda, NY for \$15,000. She was employed towing rafts on the Niagara River.

In 1862, her ownership was changed to Evans & McMaster, Walsingham Township, Ont. and enrolled Canadian, assigned official # C33562. In 1868, she was wrecked at Kincardine, Ont., Lake Huron.

In 1877, her ownership was changed to C. C. Scott, Buffalo, NY and enrolled at Montreal, P.Q.; 86' x 21.3' x 9.8', 134 grt, 54 net. The enrollment for the tug *William Peck* was closed in 1881 and endorsed "broken up".



June 22, 2021

Plymouth: (Photo above from after conversion to a schooner barge)

On May 12, 1854, the wooden propeller *Plymouth*, built by Lafrinier & Stephenson at Ohio City (Cleveland), OH, was enrolled at Buffalo, NY with measures recorded of 212.5' x 32.3' x 12.8' and a tonnage (old style) 846 40/95. She was powered by a high-pressure engine, 40" bore x 36" stroke, built by Shepard Iron Works, Buffalo, NY. The original owner of the propeller *Plymouth* was Pearl L. Sternberg & Co., Buffalo, NY, Pearl L. Sternberg, managing owner, who would use her in the package freight trade. Her master for the 1854-56 seasons was Captain George H. Gibson. May 22, 1854, the propeller *Plymouth* went ashore in the rapids at the head of the St. Clair River.

May 14, 1855, ownership of the propeller *Plymouth* was changed with a transfer of shares to Pearl L. Sternberg & Co., 15/16 and Captain George H. Gibson, 1/16. July 1855, up bound from Buffalo to Chicago, the *Plymouth*, heavily laden with merchandise, went aground on Sugar Island in the Detroit River. She required to be lightered to be released. In October of that year, the *Plymouth*, laden with a cargo of wheat, went ashore on a reef off Racine, WI, Lake Michigan. She was pulled off. Her property loss due to damaged cargo was set at \$8,000.

February 1856, her ownership was transferred to Western Transportation Co. of Tonawanda, NY; Pearl L. Sternberg, president. In September of that year, the *Plymouth* and the schooner *Colonel Camp* collided on Lake Michigan, resulting in the schooner declared a total loss, while the damage loss to the steamer was set at \$300. In November of that same year, the schooner *F. T. Barney* had her side badly stove, while on the St. Clair Flats, Lake St. Clair, by an anchor hanging from the bow of the propeller *Plymouth*.

Her master for the 1860 season was Captain Dickson. In August 1860, the propeller *Plymouth* broke her machinery on Lake Michigan. During winter layup of 1861-62 at Detroit, she underwent extensive repairs.

The propeller *Plymouth* underwent extensive repairs at Detroit. In November 1862, while bound from Detroit, MI to Buffalo, NY, laden with flour and corn, the *Plymouth*, went ashore, during a snow squall, on Long Point, Lake Erie. Her crew jettisoned 1,000 barrels of flour and 1,500 bushels corn before being released. Property loss was set for the cargo at \$2,841 and to the ship's hull at \$4,380. In April of the 1863 season, the *Plymouth* was badly cut by ice in

the Straits of Mackinac. Her enrollment measures were changed at Buffalo, NY to: 213.5' x 33.5' x 11.75'; 1029.89 grt, and she was assigned official #19621 in April 1865.

For the 1865 season, her master was Captain James Drake. May of 1866, the *Plymouth* and the schooner *W.B. Ogden* collided on the Detroit River. In October of that year, laden with water lime and salt, she went ashore at Waukegan, IL, Lake Michigan. Property damage to the hull was set at \$1,500 and to the cargo at \$1,000. November 1867, the *Plymouth* went aground on Middle Island, Lake Huron. July 1869, she had her machinery disabled in the Straits of Mackinaw in October of that year, she and the steamer *Dove* (U6512) collided on the Saint Clair River. The following month she and the Canadian steamer *Great Western* (C80576) collided on the Detroit River.

Still owned by Western Transportation, her master for the 1871 season was Captain F. Williams with Henry F. McGinnis as chief engineer for the 1871-74 seasons and William Clancy as chief engineer for the 1874 & 75 seasons. In 1877, the *Plymouth* was reengined with a steeple compound engine of the Perry & Lay's patent, 25 ¾", 50" bore x 40" stroke. The enrollment tonnage for the propeller *Plymouth* was changed at Buffalo, NY to: 875.91 grt in June 1878. During winter layup of 1878-79, the propeller *Plymouth* was rebuilt at Mills & Co. dock receiving a thorough overhaul, including repairs to her arches and a new stem. She will be used in the lumber trade.

Fall 1882 her ownership was changed to Coatsworth of Buffalo and her steeple compound engine was installed in the new steamer *Oregon* (U155065) at the Crosthwaite Shipyard, Bay City, MI. The *Plymouth* was converted to a barge and the enrollment rig and tonnage was changed to barge at Port Huron, MI with a tonnage of 570.17 grt.

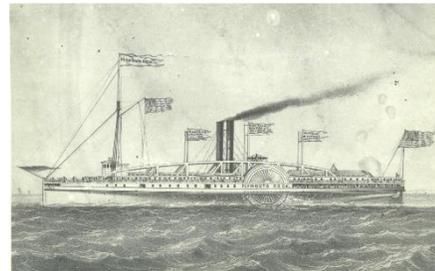
Ownership of the barge was changed to William Baker et al, Algonac, MI. She was rigged as a three masted schooner barge, and her enrollment rig and measures were changed at Detroit, MI: 213' x 35.16' x 13.5'; 776.73 grt, 739.68 net, in July 1885. October 1887, the schooner barge *Plymouth* was driven ashore in northwest corner of Presque Isle, five miles north of Marquette, MI, Lake Superior. Her enrollment was surrendered at Buffalo, NY and endorsed as "total loss" in November 1887.

August 1888, the wreck was salvaged and she was owned by Reid Wrecking, Bay City, MI. She was re-floated and re-documented at Port Huron, MI with same dimensions and tonnage in April 1889.

Ownership of the schooner barge *Plymouth* was changed to W.D. Young, Bay City, MI. In June

1898, the schooner barge collided with a railroad bridge over the Welland canal.

Her ownership enrollment shows multiple owners: 1905 – Ralph Gray, Gray Transportation, Cleveland; 1909- Margaret McTigue, Cleveland; 1910-Joseph McTigue, Cleveland; 1911-C.J. Hubel Co., Menominee, MI; 1912-McKinnon & Scott Lumber Co., where she was photographed for varying the largest load on Menominee River of 100,000 seven-foot cedar posts; 1913-John McTigue. Her master for the 1913 season was Captain Axel Larsen. November 1913, the schooner barge *Plymouth* foundered while in tow of propeller *James H Martin*, near St. Martin's Island, off the tip of Garden Pen, Lake Michigan during the "Big Storm of 1913". The *Martin* became disabled and abandoned the *Plymouth* who foundered with a loss of all nine crew. The wreck was found near Poverty Island in 1984.



Plymouth Rock: Her enrollment issued at Detroit, MI, July 21, 1854, the wooden, sidewheel steamer was recorded as built by Bidwell & Banta, Buffalo, NY with John Englis as master carpenter. Her measures were: 335' 10" x 42' x 14' 6" with a tonnage (old style) of 1991 13/95 and she was owned by Michigan Central Railroad, Detroit, MI. She was powered by a low-pressure engine, vertical beam, 81" bore x 144" stroke generating 1500 horsepower. The engine was built by Allaire Works, New York, NY. and her wheels were 39' dia. She was built for the passenger, package freight trade and destined to run between Buffalo, NY and Detroit, MI making the connection between the New York Central and Michigan Central Railroads. She had the capacity to hold up to 2,000 passengers. The steamer *Plymouth Rock* was the sister ship to the sidewheel steamer *Western World*. Master of the sidewheel steamer *Plymouth Rock* for the 1854 season was Captain George E. Willoughby with Mr. Hoover as chief engineer. In October 1854, the *Plymouth Rock* and the schooner *Sarah A. Green* (US-1847) collided at the mouth of Buffalo Creek, Buffalo, NY. In March of 1855, she received a new boiler and stateroom and cabin improvements.

Master of the *Plymouth Rock* for the 1856 season was Captain P. J. Ralph with J.E. Edwards as chief engineer.

Bound up in November 1856, the steamer *Plymouth Rock*, with passengers and a cargo of merchandise, broke her arches and started to leak on Lake Erie. She was towed to and repaired at Detroit, MI. Her property loss to hull was set at \$2,500.

The Panic of 1857, due to a failure of the Ohio Life Insurance and Trust Co. burst a European speculative bubble in U. S. railroads, causing the *Plymouth Rock* to be laid up for the 1857 & 58 seasons.

November 1860, the steamer *Plymouth Rock* and the schooner *Dial* (US-1849) collided on the St. Clair Flats, Lake St. Clair, sinking the schooner. In May 1863, the steamer *Plymouth Rock* was towed to Buffalo, NY where the hull was dismantled and engine shipped to New York to be placed in an ocean sidewheel steamer.

In December 1863, the ownership of the steamer *Plymouth Rock* hull was changed to Mills & Walsh to be converted to a floating dry dock.

In 1871, Fitzgerald & Leighton, shipbuilders, Port Huron, MI purchased the converted floating dry dock. Final disposition unknown.

St. Clair: Built by Augustin Cantin at Montreal, Que. in 1854, the wooden sidewheel steamer has no history found for the period from 1854 until 1859.

In 1859, ownership of the steamer *St. Clair* was changed to the Grand Trunk Railroad and she was used as a transfer steamer across the St. Clair River between Sarnia, Ont. and Port Huron, MI from 1859 to 1864. In 1864, the steamer *St. Clair* was laid up and her engine removed to be installed in Grand Truck RR new transfer steamer *W. J. Spicer*.

July 1866, ownership of the *St. Clair* hull was changed to Captain John Strachan & Captain R. J. Hacket who rebuilt her into a lumber barge and in September of that year she was enrolled at Detroit, MI: 156' x 24.3' x 10.3'; tonnage 270 grt. She was assigned official number - U57106. She had the capacity for 300,000 feet lumber. In the fall of 1867, the barge *St. Clair* became waterlogged near Cleveland, OH and sank in Lake Erie. She was raised and repaired.

In 1869, ownership of the barge *St. Clair* was changed to North Western Transportation Co., St. Clair, MI. She received large repairs in 1870.

Ownership of the barge *St. Clair* was changed to L. F. Hunt, East Saginaw, MI in 1871. June of that year, the barge *St. Clair*, laden with lumber and under tow of the steambarge *B. W. Jenness* (U2608), became waterlogged and lost her deck load of lumber in Lake Huron. She was rebuilt

and her enrollment updated to: 156.4' x 26.4' x 9.5'; 296 grt.

Ownership of the barge *St. Clair* was changed to Lane et al, Saginaw, MI in 1875.

Ownership of the barge *St. Clair* was changed to Green et al, Bay City, MI in 1880.

Ownership of the barge *St. Clair* was changed to Charley Wescott et al, Marine City, MI in 1883. Master of the barge *St. Clair* for the 1885 season was Captain William Rouvel. In 1886, her enrollment rig was updated to schooner-barge.

October 1888, the schooner-barge *St. Clair*, laden with coal and under tow of the tug *Champion*, broke loose during a storm and came to anchor off Harbor Beach, near Port Sanilac, MI, Lake Huron. She dragged her anchor and sank near the mouth of the harbor. Five lives were lost.

Her final enrollment was surrendered October 1888, and declared "a Total Loss".

Toledo: Benjamin Buhl Jones at Buffalo, NY built a wooden propeller for the passenger, package freight trade. Her enrollment recorded measures of: 178' 7" x 19' 2" x 11' 10" and a tonnage (old style) of 585 21/95. She was powered by a high-pressure engine, built by Shepard & Co. She was owned by Charles H. Lee et al, Buffalo and her master for the 1854 season was Captain Robert Montgomery.

Ownership of the propeller *Toledo* was changed to American transportation Co., Buffalo, NY. In August 1855, bound up, at night on Lake Huron, for Chicago the propeller *Toledo*, laden with railroad iron, came in contact with the schooner *White Cloud* (US26247). The schooner struck the *Toledo* amidships, staving in her upper works. Repaired. In December 1855, the propeller *Toledo*, laden with corn, struck a pier at Cleveland and sank. Raised. Loss set for the vessel at \$1,000, and for the cargo at \$6,000.

Her master for the 1856 season was Captain Densham. In October 1856, the propeller *Toledo*, laden with passengers and merchandise, while at anchor riding out a gale off Port Washington, WI, Lake Michigan, foundered and was a total loss. There were three survivors out of a possible 40 to 55 passengers and crew aboard.

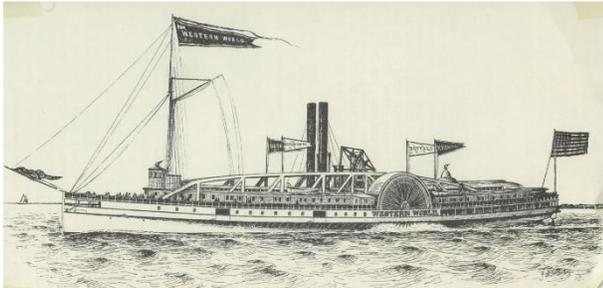
In the fall of 1857, her boilers and engine were salvaged. In 1963 the wreck site was located and some artifacts recovered.

Trenton: Augustin Canton at Montreal, Que. built a wooden sidewheel steamer for J. Gilmour for the passenger, package freight trade between Trenton and Montreal. She was enrolled at Montreal, January

1855 and her measures recorded as: 134' x 23' x 8' with tonnage: 240 grt, 166 net. Her engine was built by Bartley & Gilbert, Montreal, Que.

In 1856 her ownership was changed to S. Jones. Her master for the 1856 season was Captain H. Dewitt and for the 1857 season Captain Talbot.

In 1858 her ownership was changed to J. S. McCuaig, Kingston, Ont. In March 1858, the *Trenton*, while tied up to the mill wharf at Picton, Ont., where carpenters were in the process of renovating her, when she caught fire and burned to a total loss. The machinery from the sidewheel steamer *Trenton* was sold at auction.



Western World: Her enrollment issued at Detroit, MI, July 21, 1854, the wooden, sidewheel steamer was recorded as built by Bidwell & Banta, Buffalo, NY with John Englis of Englis & Newton as master carpenter. Her measures were: 337' x 42.6' x 14' 6" with a tonnage (old style) of 2002 42/95 and she was owned by Michigan Central Railroad, Detroit, MI. She was powered by a low-pressure engine, vertical beam, 81" bore x 144" stroke generating 1500 horsepower. The engine was built by Secor & Co. (Allaire Works), New York, NY. and her wheels were 38' diameter and 11' long buckets. She was built for the passenger, package freight trade and destined to run between Buffalo, NY and Detroit, Mi making the connection between the New York Central and Michigan Central Railroads. She had the capacity to hold up to 2,000 passengers. The steamer *Western World* was the sister ship to the sidewheel steamer *Plymouth Rock*. Master of the sidewheel steamer *Plymouth Rock* for the 1854 season was Captain Charles C. Stannard with Mr. Henry Lawrence as chief engineer. September 1854. The *Western World* collided and sank the schooner *E. C. Williams* (1849) while leaving Buffalo, NY harbor.

Master of the steamer *Western World* for the 1855 season was Captain Colton. May 1855, the steamer *Western World* collided with and sank the scow schooner *Cygnat* (1854) about one mile out in Lake Erie after leaving Buffalo, NY harbor. In June of

that year, the steamer *Western World* collided with scow schooner *Hudson* (1836) off Gravelly Bay, Lake Erie in heavy fog. Neither vessel sustained damage.

Master of the steamer *Western World* for the 1856 season was Captain J. H. Barker. September 1856, the steamer *Western World* broke her arches and started to leak on Lake Erie. She was repaired and damages set at \$3,000. In September, after repairs, the *Western World* collided with scow schooner *Enterprise* (U7330) in Buffalo harbor.

Master of the steamer *Western World* for the 1857 season was Captain Richards. October of that year, the *Western World* collided with scow schooner *West Chester* (U26227) in Buffalo harbor.

The steamer *Western World* was laid up at Detroit, MI, due to the Panic of 1857 which lasted from 1857 to 1863.

By 1862, the railroad connection around the Lake Erie southern shore between Buffalo, NY and Toledo, OH had been made and the business need for steamers like the steamers *Western World* and *Plymouth Rock* were no longer profitable. The *Western World* was towed to Buffalo, NY and dismantled. Her hull was converted to a drydock by Bidwell & Mason for their use in 1863. In 1872, ownership of the floating drydock was changed to Tripp & Church, East Saginaw, MI. The floating drydock was scrapped at Bay City, MI. (1878)



Zimmerman: Built by Louis Shickluna, Niagara Harbour & Dock Co., St. Catharines, Ont., the wooden sidewheel steamer had measures of: 200.3' x 28.9' x 9' and a tonnage (old style) of 477. She was powered by a vertical beam, low pressure engine 40.5" bore x 144" stroke built by O. T. Macklem, Chippawa, Ont. Her original owner was Oliver T, Macklem, Chippawa and he named the vessel for Thorold, Ont. financier Samuel Zimmerman and was built for the Niagara to Toronto passenger trade, connecting with the Erie and Ontario Railway and she was intended to run year around between the ports of Toronto and Niagara. Master of the steamer *Zimmerman* was Captain Duncan Milloy for the 1854 to 57 seasons. In September 1855, the steamer *Zimmerman* broke her shaft and was off her Niagara

and Toronto route for three weeks. In April 1856, the *Zimmerman* was hauled out on James A. Baker, Esq. Marine Railway for a complete overhaul and to be strengthened, receiving strong arches.

March 1857, ownership of the steamer *Zimmerman* was changed to the Erie and Ontario Railway. Her master for the 1858 season was Captain Masson.

March 1859, her ownership was changed from the Bank of Upper Canada to Captain Duncan Milloy et al. Her master for the 1859 – 63 seasons was Captain Duncan Milloy. August 1863, while lying at her dock at Niagara, the steamer *Zimmerman* caught fire between her stacks and burned to a total loss. The two lives lost were the watchman and the second mate.

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: $Tonnage = ((length - (beam \times 3/5)) \times Beam \times Beam/2)/94$

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.

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 forecandle bridge and poop, access of hatchways, certain light and air spaces, domes of skylights, condenser, anchor gear, steering gear, wheel house, galley and cabin for passengers.

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

P.Q.: Province of Quebec

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

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

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

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

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

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