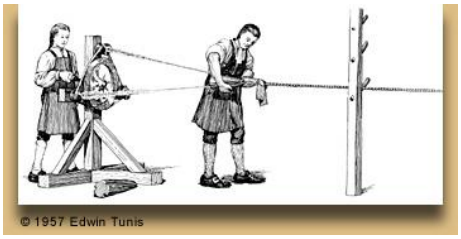


While one man cranks the spinner, the one holding the "top" walks backwards as the rope is twisted. From Edwin Tunis, *The Young United States, 1783 to 1830* (New York: World Publishing Co., 1969). Used by permission of the estate of Edwin Tunis.

Ropewalk

The Newsletter for
Shipwrights of Ohio – May 2024

June: library Display, June 1 - 28 & Ship Modeling Workshop, June 22, 2024, Noon – 4pm

Next Meeting: July 15, 2024;
"Scratch Building" by Steven Keller

Table of Contents

May

The May meeting has always had conflicts with multiple activities, like graduations, students returning from school, baseball, etc. This month's meeting was no different. Ship model building activities seem to do best in the cold of winter and the heat of summer. After 20 years, why would I expect something else?

Our meeting agenda was changed so that we could cover the presentation subject first and have the remainder of our time to devote to the June library display, workshop and an update on our web re-hosting. Alans, presentation on "Adhesives" and our discussion on June's activities are below.

So, read on and as always, take care of yourself and your families, look to those you know who may need help or are lonely and may be in need of human contact. Till next month. Your editor.

Presentation

"Adhesives" by Alan Phelps

The objective of this presentation was to provide information to help the modeler to: "Determine the most effective adhesive for every substrate or combination of substrates."

Alan covered the subject by each class of adhesive, but first, he covered the subject of material preparation which is important for insuring a tight bond'

Preparation: As with all adhesives, proper preparation of the surfaces is key to a strong bond. Glossy or shiny surfaces should be dulled or roughed up. Non-porous hardwood joints should be sanded to provide "tooth". Metal joints should be roughed up and free of oils, oxidation or other contaminants. Surfaces should be cleaned with a solvent for adhesives.

Alan, then provided the following chart. It lists the types of adhesives and if they work with the various substrates.

↓Substrates↓	Anaerobic	Cyanos	PVA I	PVA II	PVA III	Hybrids	Epoxies	Contact	PU	UV	Acrylics
Dense Woods		⊙			●	⊙	●	●	⊙	●	●
Porous Woods		⊙	●	●	⊙	⊙	⊙	●	⊙		
Metals	⊙	●				⊙	●	●	●	●	●
Plastics		●							⊙	●	●
PVC		●				●	⊙				
ABS		●				●	⊙				
Composites		●	●	●	⊙		●	●			
Glass		●								⊙	⊙
Ceramics		●					⊙			⊙	●
Fiberglass		⊙				⊙	⊙	●	●	●	●
Rubber							●	●			
Paper		●	⊙	⊙	●	●	●	●			
Cardboard		●	●	●	⊙	●	●	●			

Titebond thread lockers | cyanoacrylates, super glue | Elmer's white, Titebond I | Titebond II | Titebond III, Titebond Ultimate, Gorilla Ultimate | Loctite 4060, Locktite 4090 | Loctite E-20NS,JB Weld, Permatex Cold Weld | Stick n Seal, Gorilla Clear Cointact, Weldwood Contact | Gorilla Glue Foaming, Permabond PT321 | Loctite 352, CRL Clear V740, Bondique, 3M LC-3200 | Gorilla Clear, Super Grey Glue, Glass Glue, plastic fusion

The chart above is available, and lists the types of adhesives and how they work with various substrates. If you click on the chart and copy it to a blank sheet in WORD, then using the "graphic format", the chart can be expanded.

Below are the adhesive characteristics of the following eleven different adhesives types.

Class: PVA – Type 1

Product: Elmer's white, Titebond Orig., School glue.
Compatible materials: Paper, cardboard, porous materials
Cure mode: air
Working life: 15 min
Cure time: 2 hours
Prize/oz: $1.80/oz
Color: white, off white, amber
Flexibility: moderate to high
Strength: low
Solvents: cleanup – water; thinning - water
Pros: safe, non-toxic, easy clean-up, fingers de-bond in water
Cons. Not water proof

Class: PVA – Type II

Product: Titebond Prem., Woodweld, Weldbond
Compatible materials: Paper, cardboard, porous wood
Cure mode: air
Working life: 1 hour
Cure time: 3 hours
Prize/oz: $0.50/oz
Color: light yellow
Flexibility: less than Type III
Strength: Greater than type I
Solvents: cleanup – water; thinning - water
Pros: fast setting, clear, no air required.
Cons; not for outdoor use.

Class: PVA – Type III

Product: Titebond Ultimate, Carpenter's Max, Gorilla Ultimate, Weldbond Polyacetate
Compatible materials: Porous & non-porous woods, metal to wood bond.
Cure mode: air
Working life:30 min
Cure time:24-48 hours
Prize/oz: $1.93/oz
Color: off-white, tan
Flexibility: low
Strength: Extremely high – stronger than I or II
Solvents: cleanup – water; thinning - water
Pros: Fast setting, clear, no air required, waterproof, good for outdoor
Cons: longer cure time

Class: Cyanoacrylates

Product: Bob Smith industries super glue; Weldwood instant wood adhesives, Extreme Power
Compatible materials: most everything
Cure mode: air and humidity
Working life: 5 sec
Cure time: 30 min
Prize/oz: $5–10/oz
Color: frosty clear
Flexibility: very low
Strength: high
Solvents: acetone
Pros: quick bons, broad applicability
Cons: fumes, bonds skin

Class: Epoxies

Product: Loctite, JB Weld, PermatexCold weld, Locktite E-20NS
Compatible materials: almost everything
Cure mode: 2-part mix, some 1-part
Working life:1 to 15 min
Cure time: 12 – 48 hours
Accelerator: heat
Prize/oz: $13.00/oz
Color: amber or gray
Flexibility: more flexible than CA
Strength: Very high at final cure
Solvents: acetone, alcohol, no air required
Pros: large variety available depending on materials, strength. Cold weld bonds most metals, dishwasher safe
Cons: very slow final cure

Class: Epoxy Hybrids

Product: Locktite HY 4090
Compatible materials: Everything
Cure mode: 2:1 mix
Working life: very short
Cure time: 30 min
Accelerator: included
Prize/oz: $14.70/ox
Color: various
Flexibility: More flexible then CA
Strength: Very high
Solvents: Acetone
Pros: fast set epoxy, very strong bonds
Cons: Costly

Class: Contact Cement
Product: Stick n Seal, Gorilla Clear Contact, rubber cement, Weldwood Contact Cement
Compatible materials: laminates, hard woods
Cure mode: air
Working life:
Cure time: hours
Prize/oz: $2.00/oz
Color: amber
Flexibility: moderate
Strength: moderate to high
Solvents: acetone, lacquer thinner
Pros; fast setting, clear
Cons;
Notes: Spray on contact available at art stores; used for gluing sand paper to blocks.

Class: Anaerobic
Product: Thread lockers (many brands)
Compatible materials: metal, usually steel
Cure mode: ionic
Working life: 5 min.
Cure time: 60 min.
Prize/oz: $14.00/oz
Color: color coated by strength
Flexibility: none
Strength: High
Solvents: no, acetone, lacquer thinner
Pros: can be used before, during, or after assembly
Cons: no debonder

Class: Polyurethanes (PU)
Product: Permabond PT321, Gorilla Glue (foaming)
Compatible materials: 3M DP605NS, most woods
Cure mode: air and water
Working life: Short
Cure time: hours
Prize/oz: $6.00 - $10.00/oz
Color:
Flexibility:
Strength: Extremely Strong bonds
Solvents: thinning – no; clean up - acetone
Pros: fast setting, clear, no air required, hard cure
Cons: Toxic, foams *clamping needed)
Notes: Foaming glue, clamping required, extremely strong bonds

Class: Acrylics
Product: Gorilla Clear, Super Gray Glue, Glass glue, Plastic Fusion
Compatible materials: 3M DP605NS, glass, plastics, acrylics, polycarbonate
Cure mode: air & water
Working life: short
Cure time: hours
Prize/oz: $6.00 - $10.00/oz
Color:
Flexibility:
Strength: Extremely strong bonds
Solvents: Thinning – none; clean up - acetone
Pros: fast setting, clear, no air required, hard cure
Cons: Toxic, Foams (clamping needed)

Class: UV Cure
Product: CRL /clear C740, Locktite 352, Donique, 3m LC-3200
Compatible materials: glass, clear plastic, metal, wood, ceramics,
Cure mode: one part liquid and UV light
Working life: NA
Cure time: seconds
Prize/oz: $15.00/oz
Color: clear
Flexibility: Rigid
Strength: extremely strong bonds
Solvents: Thinning – none, clean up - acetone
Pros: fast setting, clear, no air required, hard cure
Cons: Toxic, Foams (clamping needed)

Brands with multiple cross class products:
- 3M
- Weldwood
- Titebond
- Gorilla
- Loctite
- JB Weld

Shipwrights of Ohio - Announcements

Westerville Public Library Model Display

The Shipwrights of Ohio have reserved the display cases in the main hallway at the Westerville Public Library for the month of June. The purposes is to showcase our ship models and possibly increase enrollment. Our last display, was held there in 2018.

The set up for the display will be Saturday, June 1, 2024. Plan to arrive prior to 10 AM and we will off-load in the covered parking garage. We could use helpers so that we don't block the return books deposits. Set up is scheduled for 10 AM and we should be finished before noon.

The following case dimensions are:
Long Case: 72" x 12.75" x 12.75" (length x height x depth x length), qty – 2. Each case will hold two or

three models depending upon length. The critical dimension is height, which is 12": - bottom of base to inside surface of cover.

Scheduled for display are:

Cliff Mitchells: WW II, Navy: *USS Kidd, SS Jerimiah O'Brien;*

Alan Phelps: Radio control: Chris Craft: Barrelback and Racing Runabout.

Tall Case: 57.5" x 19" x 76.5" (length x depth x height: The case is a three shelf stand that we had made by a past member of the club. The critical dimension is the space between shelves, which is 25".

Scheduled for display, so far, are:

John Boeck's: Chesapeake Bay - Crabber, 1500's Korean Ship, Pickett boat, and the sailing ship *San Francisco*;

Lee Kimmins:, sidewheel steamer *Mary Powell;*

Bill Nybergs: Chesapeake Bay skipjack *Willie L. Bennett,* and if required, the Topsail schooner *Hannah*.

Westerville Public Library Workshop

On Saturday, June 22, 2024, we will be holding a "Intro to Ship Modeling" workshop at the Westerville Public Library, in classroom B, from noon to 4 PM. We have classroom C, available for staging, if required.

Our objective is: introduce ship modeling to the general public; and grow our club membership.

We plan to have five subject tables setup:

1 - Club Information: *Shipwrights of Ohio:*
- brochures,
- newsletter,
- website/pc connection,
- membership,
- challenge coins

2 - New to Ship Modeling:
- Model Shipways – starter kits, include:
  - *Grand Banks Dory*, Skill Level 1 (finished model displayed)
  - *Norwegian Sailing Pram*: Skill Level 2 (Kit)
  - *Muscongus Bay Lobster Smack*: Skill Level 3 (Kit)
- Blue Jacket Ship Crafters – starter model (finished/in case)
  - Skiff
- Practicum:
  - *HMS Fubbs*
  - *Hannah*
  - *HMN Swan Class Sloops* 1767-1780

3 – Radio Control
- Complete *Moonglow* model with RC Controls
- Photos: Build running on photo viewer (laptop)
- *Moonglow* & beginner kit display
- RC product vendor lists

4 – Plastic Kits & 3-D Printing
- Plastic ship kit – in-process display
- 3-D Print Display
- CAD design software
- Westerville Library CAD & 3-D Tools & service

5 – Tall Ships: Solid, POB, POF
- *VASA* – Billing's, unfinished
- *Mayflower* – Plans, tools, books

Bob Mains rmains1@columbus.rr.com is the primary coordinator for both events at the library and he is accepting all volunteers. If this works out well, we may replicate the event and display at other libraries around Ohio.

We have three primary objectives: display our completed ship models; introduce ship modeling to the general public; and grow our club membership.

Up Coming Events

If you are traveling this summer and in the area for these NRG sponsored events. Plan to include one or more of the following:

IPMS National Convention
July 17-20, 2024
Madison, WI

ModelCon 6
Battleship New Jersey
August 3, 2024
Canden, NJ

Web Hosting Update

If you have tried to access our web site lately, you know that it is down. For the near future, www.ShipwrightsofOhio.com will not be available.

Why? Our web hosting support from IPower, at renewal time for our 2-year contract, the cost to the club doubled, to $791.75, from our renewal cost in 2022. For 2024, the cost for web hosting, plus the cost for using Zoom, and the NRG Charter put our yearly fixed expense, exceeding our yearly dues intake. The EFT funds for the 2-year contract with IPower, had been withdrawn, but with the help of our financial institution, those funds have been returned to our account.

Going forward, we have contracted with the web hosting provider *Bluehost* which is now activated. Our cost for a 3-year contract is $200.

So, what is the plan? The previous website code was not portable to most other web host providers. The new website will be built with WordPress, which is used by 43% of web sites. Our new site should be portable in the future. The new website build Is in progress but requires our

webmaster learning the WordPress/Eliminator design tool.

The new website will be put up incrementally: Home Page; Events; Meetings; Gallery; and the rest as time permits

When the domain is set, the website will be active and get its home page. To replicate the entire offering of the previous site may take many months The look will be similar, but different and the new tool will offer options that are more attractive than the old tool.

Our web master will be doing all the work, and is asking for your help.

- If anyone notes an error or has a suggestion, please contact John via email: boxlink@aol.com
- If anyone has experience with *Bluehost* and/or *WordPress,* or building a web site, please contact John.
- If you have experience building or maintaining a web site, volunteer your skills. It will be appreciated.
- When John sends out a request for content, please respond quickly.

NRG Offerings

Creating Realistic Working & Furled Sails

by Ron Neilson & Tom Ruggiero

A Two-Part NRG Virtual Education Workshop.

The workshop will explain materials, techniques and tools for creating realistic-looking sails for ship models. The first presenter's section focuses on crafting working sails while the second presenter will explain techniques for creating furled ones. Both approaches use an inexpensive and adaptable paper-like material called "Silkspan."

The Virtual Workshop *is open to all NRG members to attend the ZOOM event on Saturday, June 15, 2024, at 10:30 AM CDS time (11:30 AM EST).*

Modeling Help's

I follow both "Model Ship World (MSW) & Ships of Scale (SOS). SOS, sends out a weekly topic list of new subjects. I will be including a summary of those topics I think will help you in your modeling. Here is the first:

Anchor Rope Size

Question: Looking for a link to a chart providing the size of the anchor rope for a vessel 1789?

- From MSW: The circumference of the cable should be 0.62 the diameter of the mainmast (sourced from James Lees "Masting and Rigging".
- On Victory, the main anchor is 21' 5" tall and the cable is 27" circumference. If you know your anchor height, you can proportionally downsize the cable circumference.
- From Hockel "Building Model Ships of the 16th and 17th C." The diameter of the anchor rope: for each foot of breadth of the vessel, take 0.5 inches of the circumference of the rope. If the width of the ship is 22 feet, divide 22 by 0.5 to get the circumference in inches. Divide circumference by 3.14 to get the diameter of the rope.
- Goodwin, in "English Man of War" provides a rule for determining the size of a rope cable, prior to the introduction of chain cable.
  - Vessels extreme breadth divided by 2; (this provides the circumference in inches) (in inches)
  - To calculate the diameter of the hawse hole, you need to know the diameter of the cable: - cable circumference/3.14
  - Diameter of the hawse hole is = cable diameter x 9/4.

And you thought, you would never need to use all that math from high school!

Ships on Deck.

Ships Stove – Syren Ship Model

Dr. Michael Dowler

Very good materials and instructions. Fairly simple. Easy, and quick. Need to finish weathering.

Fair America

Loran Black

Model Shipways kit from the late 1900’s. Rerigging cannons and looking for blocks of the appropriate size.

HMS Sphinx

Cliff Mitchell

Fore bitts installed with belaying pins

Forecastle grating and stove flue

Belfry and bell

Ladder with ropes & top capstan

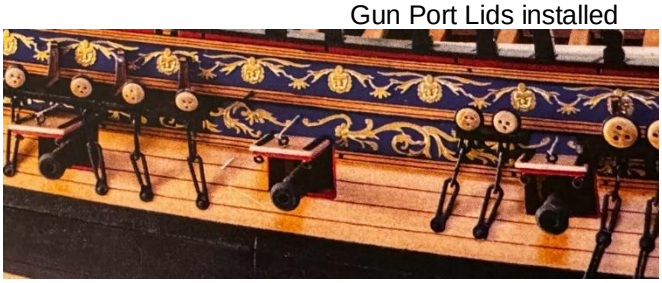
Ships Wheel and Binnacle

Forecastle stanchions & waist Hammock Crance, both with ropes.

Quarterdeck Rails installed

Breast Rail Hammock Cranes

Gun Port Lids installed



HMS Pegasus

Jason Smith

Fore and Main Backstays

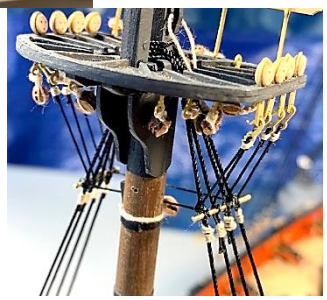
Shrouds and ratlines

HMS Flirt - 1782

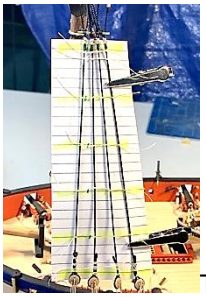
Rob Washburn

All spars done except for lower main

Lower shrouds and futtocks



Ratlines on three of the shrouds are complete



Tying ratlines – note the jig for keeping ratlines even.

Other Notes: "Stuff", Tugs & Things

Nautical Terms

Nautical Terms Wikipedia

Block: A pulley with one or more sheaves or grooves over which a line is roved. It can be used to change the direction of the line, or in pairs used to form a tackle.[

Fiddle Block: A block with two sheaves in the same plane, one being smaller than the other, giving the block a somewhat violin appearance.

Snatch Block: A single sheave block with one end of the frame hinged and able to be opened, so as to admit a line other than by forcing an end through the opening.

Blue Ensign: A flag flown as an ensign by certain British ships. Prior to 1864, ships of the Royal Navy's Blue Squadron B flew it; since the reorganization of the Royal Navy in 1864 eliminated its naval use, it has been flown instead by British merchant vessels whose officers and crew include a certain prescribed number (which has varied over the years) of retired Royal Navy or Royal Naval Reserve personnel or are commanded by an officer of the Royal Naval Reserve in possession of a government warrant; Royal Research Ships by warrant, regardless of their manning by naval, naval reserve and Merchant Marine personnel.

Blue Peter: A blue and white flag (the flag for the letter *P*) hoisted at the fore trucks of ships about to sail. Formerly a white ship on a blue ground, but later a white square on a blue ground.

Blue-water navy: 1. A navy capable of sustained operations in the open ocean, beyond a few hundred nautical miles from shore; 2. That portion of a navy capable of sustained operations in the open ocean, beyond a few hundred nautical miles from shore.

Bluejacket: 1. *Bluejacket* derives from a blue jacket naval enlisted personnel once wore while ashore. In the Royal Navy and Commonwealth navies, the term generally is synonymous with rating and often includes petty officers and chief petty officers In the US Navy and US Coast Guard, the term excludes chief petty officers. 2. More loosely, a sailor or enlisted person of any navy.

Board: 1. To step onto, climb onto or otherwise enter a vessel. 2. The side of a vessel. 3. The distance a sailing vessel runs between tacks when working to windward.

Boat: 1. Any small craft or vessel designed to float on and provide transport over or under water. 2. Naval slang for a submarine of any size. 3. A term used in Canada and the United States for a ship of any size used on the Great Lakes.

Boat hook: A pole with a blunt tip and a hook on the end, sometimes with a ring on its opposite end to which a line may be attached. Typically used to assist in docking and

undocking a boat, with its hook used to pull a boat towards a dock and the blunt end to push it away from a dock, as well as to reach into the water to help people catch buoys or other floating objects or to reach people in the water.

Boat keeper: A boat keeper was a sailor that knew the harbor thoroughly and was able to act as a pilot. He was in command after the last pilot had left to board a ship and brought the pilot boat back to harbor. He was required to know how to use a sextant as he could be 300 miles from port.

Boathouse: A building especially designed for the storage of boats, typically located on open water such as a lake or river. Boathouses are normally used to store smaller sports or leisure craft.

Boatsteerer: A member of the crew of a 19th-century whaling ship responsible for pulling the forward oar of a whaleboat and for harpooning whales.

Boatswain: *(bosun)* A non-commissioned officer responsible for the sails, ropes, rigging and boats on a ship who issues "piped" commands to seamen.

Boatswain Call: *(Also bosun's call, boatswain's pipe, bosun's pipe, boatswain's whistle or bosun's whistle):* A high-pitched pipe or a non-diaphragm-type whistle used on naval ships by a boatswain, historically to pass commands to the crew but in modern times limited to ceremonial use.

Boatswains Chair: *(bosun's chair)* 1. A short board or swatch of heavy canvas, secured in a bridle of ropes, used to hoist a man aloft or over the ship's side for painting and similar work. Modern boatswain's chairs incorporate safety harnesses to prevent the occupant from falling. 2. A metal chair used for ship-to-ship personnel transfers at sea while underway.

Tugs: Great Lakes

Grace Danforth, 1888

Built by Union Dry Dock, Buffalo in 1888, her measures were: 72' x 17.4' x 10.0'; 65 grt, 32 net. Her engine was built by Whitman & Co., Buffalo, high pressure, 21" x 22", 300 hp engine. Steam generated by a 7'6" x 13' firebox boiler @146 # steam. Assigned official number 86017. In September 1891, she sank in the Niagara River, Buffalo. Raised. Her ownership was changed to Hand & Johnson Tug Line, Buffalo in 1899. She was damaged by fire in April 1900 while off Buffalo on Lake Erie. In 1906 she was rebuilt and renamed *Cornell* in 1907. Sometime before 1922, she was bought by Syracuse Sand Co. In December 1922, the tug *Cornell* foundered on Lake Erie. Between Cleveland and Erie. Her crew of eight were lost.

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

,

***Townsend Davis*, 1890**

Launched in November 1890, her measure were: 70.16' x 19.0' x 10.3'; 67 grt, 33 net. The tug Davis was powered by a: high pressure engine: 22" bore x 24" stroke, 130 rpm, built by Whitman Co., Buffalo. She generate steam using a firebox boiler, 8" x 14", and generated 135 pounds. She was owned by Hand & Johnson Tug Line, Buffalo. Her official number was 145580.. In 1896, the *Townsend Davis* was placed out of commision.

In 1899, ownership of the *Townsend Davis* was changed to the Great Lakes Towing Co., Cleveland. She continued with then until 1916, when she was abandoned and disdmantled,

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

Presentation Schedule:

2024 – Schedule Tentative
~~Jan 20 CAD, 3D Printing~~
~~Feb 17 Display Case~~
~~Mar 16 CAD, 3D Printing, Advanced~~
~~Apr 20 Dioramas~~
~~May 18 Adhesives~~
June 22 Workshop
July 20 Scratch Building
Aug 17 Air Brushing
Sep 21 Planking
Oct 19 Weathering
Nov 16 Carving
Dec 21 Small Boats

Events & Dates to Note:

2024 Tentative Schedule
~~**Columbus Woodworking Show**~~
~~**Ohio Expo Center**~~
~~**January 19-21, 2024**~~

~~**IPMS Columbus**~~
~~**BLIZZCON 2024**~~
~~**Makoy Center, Hilliard, OH**~~
~~**Saturday, February 24, 2024**~~

~~**Miami Valley Woodcarving Show**~~
~~**Christ United Methodist Church**~~
~~**Middletown, OH**~~
~~**March 3-4, 2024**~~

~~**46th Midwestern Model & Boat Show,**~~
~~Wisconsin Maritime Museum, Manitowoc, WI~~
~~**May 17-19, 2024**~~

Westerville Library Display
June 1 – 28, 2024

Columbus Air Show
U.S. Air Force "Thunderbirds"
Columbus Rickenbacker International Airport
June 14-16. 2024

Ship Modeling Workshop
Westerville Public Library
June 22, 2024, Noon – 4 pm

Lakeside Antique & Classic Wooden Boat
Lakeside Hotel, Lakeside, OH
July 14, 2024

Ohio River Sternwheel Festival
Riverfront Park, Marietta, OH
September 6-8, 2024

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Cargo Hold

www.shipwrightsofohio.com/cargo hold/

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

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

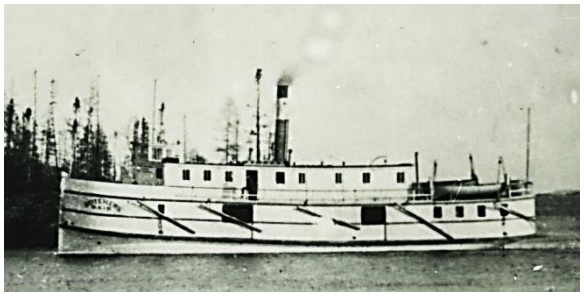
There are currently two logo styles available**:**

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

Wooden Steamers on the Great Lakes

Researched & Written
by William E. Nyberg

1871-C



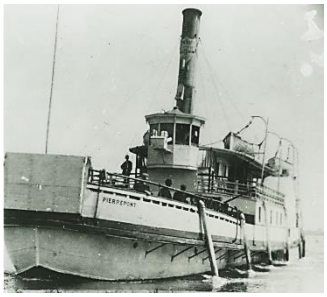
Albert Neff: The wooden propeller A, Neff, built by Donald Walber, Oshkosh, WI, in 1871, for S. Neff and the package freight trade. Her measures were: 90' x 16' x 8'; 128.0 grt. She was powered by two-cylinder high pressure engines 10', 10' bore x 12" stroke, 12 horsepower, built by Perry Ranson, Oshkosh. In August 1871, while bound for Green Bay, the propeller *Albert Neff* became disabled in her machinery and drifted on the beach near Dyckesville, WI.

In 1872, ownership of the propeller *Albert Neff* was changed to Davidson & Co., Port Arthur, Ont. She would be used in the construction of the Canadian Pacific Railroad. In 1873, the *A. Neff* (*Kaministiquia* – possible rename in 1872) was renamed *Jessie Oliver.* The following year, 1873, the *Jessie Oliver* was used as a passenger steamer between Fort William and Thunder Bay, Ont. on Lake Superior.

Ownership of the propeller *Jessie Oliver* was changed to Adam Oliver et al, Ingersoll, Ont. and enrolled at Sault Ste. Marie, Ont. on August 07, 1875, as the *Albert Neff* (C71223), with the following measures: 80' x 16.5' x 8'; 128.59 grt, 1 – deck, and (2) 12" bore x 24" stroke, 50 horsepower engines.

In 1884, ownership of the *Albert Neff* was changed to Smith & Mitchell, Prince Arthur's Landing (Port Arthur), Ont.
In 1885, she was rebuilt and renamed *Butcher's Maid;* and her enrollment updated to: 80'x 17' x 8'; 129 grt; two - 12" x 24", 50 hp engines. In October 1886, bound up, for Port Arthur (Thunder Bay) the propeller *Butcher's Maid* was struck by a northwest gale and driven onto the rocks at Porphyry Point, Edward Island, North Shore Lake Superior and broke up. She was declared a total loss. No lives lost.

Final enrollment for the propeller *Butcher's Maid* was surrendered May 8, 1887.



Pierrepont: In 1871, William Power & Sons, Kingston, with Alexander R. Milne, master carpenter, built a composite hull, sidewheel steamer with a shovel nose bow. She was prefabricated on the Clyde, Scotland and assembled and launched at Kingston, Ont. Her bottom was of wood and the rest of her build is of iron. Her initial owner was George M. Kinghorn, Kingston, and Captain Coleman Hinckley, Cape Vincent, NY. The steamer *Pierrepont* was enrolled at Kingston in 1872, and her measures recorded as: 123.0' x 18.8' x 7.1'; 148.9 grt, 82 net. She was powered by a vertical beam, condensing engine: 27" bore x 60" stroke, 190 horsepower, built by Leslie Iron Works, Ont. in 1865. The steamer *Pierrepont* was built for the passenger, package freight trade between Kingston and Cape Vincent, NY. Her master, for the 1872 season, was Captain C. Hinckley, Jr.

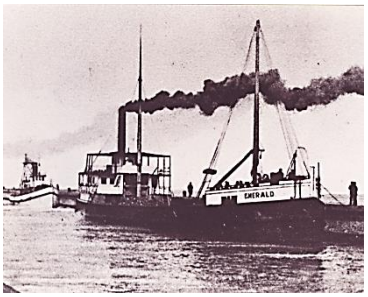
In 1873, ownership of the steamer *Pierrepont* was transferred to Coleman Hinckley and William Nickle, Kingston. Master of the steamer *Pierrepont* for the 1873 – 86 seasons, was Captain Andy Miller with J. Gillie as chief engineer in 1881 through 1888. While attempting to leave Kingston Harbor in on March 20, 1874, the steamer *Pierrepont* encountered heavy ice and damaged several buckets on her wheel. June 1877, she was remeasured and her enrollment tonnage was updated: 251.98 grt, 152.57 net. In September of that same year, while lying to at Garden Island, the steamer was struck by the *Oswego Belle* on her quarter, inflicting considerable physical damage, but did not impact her running powers. April 1880, bound on the St. Lawrence River, in fog, the steamer Pierrepont, hit rocks. The sudden stop caused two crewmen to be scalded. The vessel was towed to Kingston for repairs. March 1880, during winter layup, while being prepared for the new season, the workers left a plug out and during the night the steamer *Pierrepont* took on water, listing over with two feet of water in her hold. Pumped out and repaired. March 1886, coming out of winter layup, where she received a new firebox boiler, 6'6" x 11', 60 pounds steam, built by Kingston Foundry and Machine Co., Kingston, Ont. In August of that same year, while returning from Channel Grove, the steamer *Pierrepont,* broke her crank pin and was laid up. Her masters for the 1886

season were Captain Nolan, August, and Captain Rothwell, December.

In spring of 1887, ownership of the steamer *Pierrepont* was changed to St. Lawrence River Steamboat Co. Her master for the 1887 to 1909 seasons was Captain James F. Allen with W. Kelly, 1906-08, and J. McWilliams, 1909, as chief engineers. In May 1887, the steamer *Pierrepont* received a new walking beam engine. In October of that same year, the steamer *Pierrepont* ran on a rock between Garden and Wolfe Islands. She worked herself off uninjured. After repairs were complete in November 1887, and the steamer, while going off the ways at Garden Island, had some planks stove in on her stern by the shore posts. She was required to be hauled back out for repairs. Her master for the 18911 season was Captain Coleman Hinckley with J.F. McEwen as chief engineer.

Ownership of the steamer *Pierrepont* was changed in 1912, to Richelieu & Ontario Navigation Co.

In 1920, ownership of the steamer *Pierrepont* was changed to Joseph L. & E. Ally, Notre Dame de Pierreville, Ont.
Sometime after 1930, the steamer *Pierrepont* was dismantled and rebuilt as a barge.



D. W. Powers: Morley & Hill, at Marine City, MI, built a wooden steambarge for John J. Morley, ½ share, Rochester, NY; and William B. Morley, ½ share, Marine City, MI. She was first enrolled at Rochester, NY, March 16, 1871. Her measures at enrollment were: 140.10' x 26.0' x 11.66', with a recorded tonnage of 302.94 grt, 243,60 net. She was powered by a Steeple Compound engine, 17', 36' bore x 28' stroke, built by Cuyahoga Works, Cleveland. The steambarge *D.W. Powers* was built as a bulk freight carrier and used in the coal, ore and lumber trade. She was assigned official number 6767. Her master for the 1872 season was Captain Charles Tyler Morley.

In April 1876, ownership of the steambarge *D.W. Powers* was transferred to John J. Morley, Rochester, NY. In November 1877, the steambarge *D.W. Powers* went aground at Detours, Saint Mary's River and sank. Her main deck was four feet under water. She was raised and dry docked for repairs.

April 1881, ownership of the steambarge *D.W. Powers* was transferred to C.T. Morley, ½ shares, Cleveland; and M.H. Morley, ½ share, Sodus Point, NY

In November of that same year, ownership of the steambarge *D.W. Powers* was changed, out of family, to Henry A. Hagwood, 2/3 share, Milwaukee; and Edward Smith, 1/3 share, Buffalo.

In April 1883, ownership of the steambarge *D.W. Powers* was transferred to Lizzie M. Hagwood, 19/30, Milwaukee; Edward Smith, 1/3, Buffalo; and Henry A. Hagwood, 1/30, Milwaukee. In September 1884, she was disabled on Lake Erie. Repaired.

February 1885, ownership of the steambarge *D.W. Powers* was transferred to Lizzie M. Hagwood, 9/30, Milwaukee; Edward Smith, 1/3, Buffalo; et al.

April 1886, ownership of the steambarge *D.W. Powers* was transferred to Edward Smith, 1/3, Buffalo; W.H. Bridges, 1/3, Bay City, MI; Allen C. McLean, 1/3, E. Saginaw, MI. In November 1887, the steambarge *D.W. Powers,* with tow, stranded near Kenosha, WI. Released.

In March 1888, ownership of the steambarge *D.W. Powers* was shared between: James Charnley, 1/3, Chicago; Alexander V. Mann, 1/3; and Captain Simon O'Day, 1/3; both from Muskegon, MI. Her master for the 1888 & 89 seasons was Captain Simon O'Day. Chief engineers for the *D.W. Powers* were: James Speir, 1886-87; William Eddy, 1888; and Charles Coushaine, 1888-89. In June 1889, the steambarge *D.W. Powers* collided with the schooner *America* at Chicago. damaging Both vessels were damaged, plus Captain Simon O'Day fractured his hip. The *D.W. Powers* was rebuilt at Muskegon in 1891, and supplied with a turtle deck.

In September 1892, ownership of the steambarge *D.W. Powers* was changed to Shores Lumber Co. Ashland, WI. She was enrolled at Rochester, NY, and renamed *George H. Johnson*, at Rochester, NY. In September of the following year, the enrollment location was changed to Marquette, MI, with measures: 143.75' x 30.42' x 11.42'; 334.78 grt, 277.05 net. Her master for the 1894 season was Captain George L. Thompson.

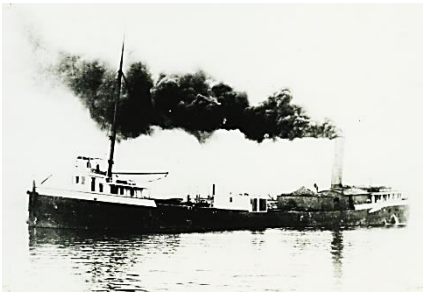
In September 1894, ownership of the steambarge *George H. Johnson* was changed to Wolverine Barge Co. River Rouge, MI.

In July 1895, the steambarge *George H. Johnson* was converted to schooner-barge at Detroit: 140.25' x 30.33' x 10.66'; 348.34 grt, 305.34 net. Owner of the schooner *George H. Johnson* was changed to Wyandotte Boat Co., Wyandotte, MI.

March 1897, ownership of the schooner *George H. Johnson* reverted to City Savings Bank, Detroit, who held her loan. They in turn sold her in September, to Charles C. Ryan, Buffalo, NY. She was renamed *Emerald,* at Buffalo, May 1898. In June of that year the schooner-barge was converted back to a steambarge at Buffalo.

Ownership of the steambarge *Emerald* was changed to Anthony T. May, Detroit, in August 1901.Her masters were: Captain John Morgan, 1901; Captain A. T. May, 1902-09; and Captain George W. Lewis, 1910; with William Pringle as chief engineer in 1903. May 1904, she was rebuilt and her enrollment measures were changed at Detroit, to: 140.25' x 30.33' x 10.33'; 297 grt, 181 net. In 1910, the steambarge *Emerald* was abandoned.

Final enrollment for the steambarge *Emerald* was surrendered at Detroit, June 6, 1910, and endorsed "abandoned".



Raleigh: Quayle & Martin, Cleveland, built a wooden propeller for the bulk freight trade. Initial enrollment, at Cleveland, August 14, 1871, lists her measures as: 227.25' x 34.0' x 15.0', with a tonnage of: 980.35 grt; and her owners as: H.J. Winslow, 23/48, New York; A.C. Winslow, 17/48, New York; Captain B.S. Wolvin, 8/48, Chicago. She was assigned official number: 110184. The steambarge *Raleigh* was powered by a Steeple Compound engine, 18", 36" bore x 36" stroke, built by H.G. Trout. She was equipped with a tubular boiler, 7'3" x 18', 80 pounds steam. Her master for the 1871-76 seasons was Captain Ben S. Wolvin. August 1871, bound up for Chicago, laden with coal, the steambarge *Raleigh* went ashore on the St. Clair Flats, Lake St. Clair, and required to be lightered to be released. The following month, downbound with a cargo of 57,500 bushels of corn, the steambarge *Raleigh* went ashore on Peche Island, Detroit River. Released. In May 1874, she struck a rock in the Neebish Rapids, Saint Mary's River, Sault St. Marie, MI, springing a leak in her bow and sinking. She was pumped out and raised. Damage loss to the hull was set at: $2,500.

September 1875, ownership shares of the steambarge *Raleigh* was transferred: H.J. Winslow, 23/48, New York; Captain B.S. Wolvin, 17/48, Chicago; A.C. Winslow, 8/48, New York. In August 1876, the steambarge *Raleigh* had her machinery disabled at Detroit. She required a new cylinder. Damage cost $600. March 1880, the steambarge *Raleigh* tonnage measurements were changed at Buffalo:1205.93 grt, 1104.99 net.

In April 1880, ownership shares of the steambarge *Raleigh* were transferred: H.J. Winslow, 23/48, New York; A.C. Winslow, 17/48, New York; Captain B.S. Wolvin, 8/48, Chicago. August 1882, the steambarge *Raleigh* struck a reef and sank at Detour, at the mouth of Soo River. A tug & pump were sent to assist her.

March 1884, ownership shares for the steambarge *Raleigh* were transferred: H.J. Winslow, 23/48, New York; estate of A.C. Winslow, 17/48, New York; William G. Winslow, 8/48, Buffalo. In October of that same year, the steambarge *Raleigh* stranded on Pilot Island, Lake Michigan. She was released, but had hull damage of $1,200. The following month. the steambarge *Raleigh* stranded at Madison Dock, Lake Erie. Released with an estimate hull loss of $800.

March 1885, ownership shares for the steambarge *Raleigh* were transferred: estate of H.J. Winslow, 23/48, New York; estate of A.C. Winslow, 17/48, New York; B.H. Jones, 8/48, Cleveland.

In March 1886, ownership of the steambarge *Raleigh* was changed to James Corrigan, 23/36; John Corrigan, 9/36; and William S. Mack, 4/36, all from Cleveland, OH. her master for the 1886 season was Captain William Simon Mack. In July 1886, the steambarge *Raleigh* was forced aground by a large log raft in the Sault Canal. She received bottom damaged and required a new wheel & rudder.

In October 1886, ownership of the steambarge *Raleigh* was transferred to James Corrigan, 23/72; John Huntington, 23/72; John Corrigan, 18/72; William S. Mack, 8/72; all from Cleveland. Her master for the 1886 to 1888 seasons was Captain A. H. Reed.

April 1887, ownership of the steambarge *Raleigh* was transferred to James Corrigan and John Huntington, each ½ shares and both from Cleveland. The steambarge *Raleigh* was re-engine with a steeple compound engine, 23', 46" bore x 36" stroke, 700 horse power, built by H.G. Trout, King Iron Works, Buffalo in 1887, She was re-boiler with a firebox boiler, 8' x 16'8", 120 pounds steam by R. Riter & Co., Buffalo.

March 1889, total ownership of the steambarge *Raleigh* was transferred to John Corrigan, Perry, OH. Her master for the 1889 season was Captain Harry L. Mills.

May 1890, ownership shares for the steambarge *Raleigh* were transferred to John Corrigan, 3/4, Perry; H.C. Scott, 1/4, Cleveland.

April 1891, ownership of the steambarge *Raleigh* was changed to: W.S. Whipple, ½; and Henry Wineman Jr., 1/2, both from Detroit. May of that year, down bound from Escanaba, MI, laden with iron ore and towing the schooner *Camden* (U125027), the steambarge *Raleigh* went ashore on Grey's Reef, Lake Michigan, damaging her bottom and breaking her engine bed plate. Master of the steambarge *Raleigh* was Captain Oliver J. Soleau (1894 season) with William Harling as chief engineer. November 1894, the steambarge *Raleigh* went ashore at Cheboygan, MI, Lake Huron. Released.

In August 1895, ownership shares in the steambarge *Raleigh* were transferred to Henry Wineman, ½; and Henry Wineman Jr., ½; both from Detroit. Her master for the 1895 & 96 seasons was Captain William H. Smith. April 1898, the steambarge *Raleigh*, down bound for Buffalo, was holed by ice on Lake Michigan. Temporary repairs were made at Mackinac Island Harbor so that she could get to a dockyard. Master of the steambarge *Raleigh f*or the 1903 season was Captain W. J. Carloss.

September 1907, ownership of the steambarge *Raleigh* was transferred to Henry Wineman Jr., Detroit. Master of the steambarge *Raleigh* for the 1907 & 1908 seasons was Captain Hiram Boles with James Carter as chief engineers. In July of 1907, the steambarge *Raleigh* went ashore and was disabled on Stag Island, Saint Clair River. Her master for the 1911 season was Captain Harry Beauvais with William Pritchard as chief engineer. In November 1911, down bound from Port Colbourne, ONT for Erie, PA with a cargo of pulp wood, the steambarge *Raleigh* stranded on Point Abino, Lake Erie, about six miles from Port Colbourne, Ont. during a gale. The *Raleigh* broke her rudder and while helpless, she was driven ashore and pounded to pieces. Three lives lost.

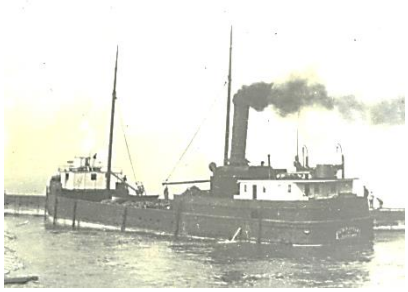
Scotia: Louis Shickluna, at St. Catharines, Ont. built a wooden propeller for James Norris, of St. Catharines, to be used in the package freight trade and to run between Montreal and the Upper Lakes for the Merchant's Line. Her measures were: 136.9' x 23.5' x 11.8'; 628.51 grt, 394.73 net. She was powered by a high-pressure engine, 30" bore x 36" stroke, 300 horsepower, built by George N. Oille. Her master for the 1871 – 1881 seasons was Captain J. H. Scott with Adam Haig as chief engineer. In September 1871, bound down, laden with barrels of pork & beef, from Chicago on Lake Michigan, the propeller *Scotia* sprang a leak and had to throw overboard part of the cargo to lessen the inflow of water, before returning back to Chicago for repairs. The following month, laden with general merchandise, she struck a rock in the Lachine Canal and sank. She was raised and repaired. In February 1874, during winter layup, the *Scotia* was damaged in a freshet at Buffalo. Loss placed at $200. In September 1875, bound up on Lake Michigan, the *Scotia,* sought shelter in Presque Isle during a gale. Dragging her anchors, she was scuttled to prevent her from going aground off False Presque Isle and being pounded to pieces by the violent seas. In July 1879, plying between Chicago and Montreal, the propeller *Scotia* caught fire in her engine room that burned the engine room, promenade deck and lifeboats. The flames were extinguished. The propeller *Scotia* made nine round trips between Chicago and Montreal; two trips from Lake Ontario ports to Montreal; one trip from Kingston to Ogdensburgh and one trip Toledo to St. Catharines during the 1880 season.

Ownership of the propeller *Scotia* was changed, in February 1882, to J. E. Battle, Thorold, Ont. for $15,000.
Her master for the 1883 & 84 seasons was Captain David Allen Kish with Francis Harringer as chief engineer in 1884.

In May 1885, ownership of the propeller *Scotia* was changed to Joseph Kidd & Henry McFarlane, Toronto, Ont. The propeller was first enrolled at St. Catharines, Ont., on May 15, 1885, and she was assigned official number - C88640. Her master for the 1886 season was Captain J. H. Scott with C. McSourley as chief engineer.

In 1889, ownership of the propeller *Scotia* was changed to Samuel Fraser, St. Catharines, Ont. She was converted to a steambarge; 144' x 26' x 12'; 458 grt in 1889. During the 1890 to 1892 seasons, the steambarge *Scotia* towed the schooner barge *Edward Blake* (C73912) and *Southampton* (C80878).

In 1895, the enrollment for the steambarge *Scotia* was closed and endorsed "broken up".



H.B. Tuttle: Lafrinier & Quelos, Cleveland, built a wooden propeller for M.A. Hanna et al, Cleveland to be used in the bulk freight trade. She was enrolled at Cleveland, May 29, 1871. Her measures were: 170.5' x 31.0' x 12.58'; 580.7 grt. She was powered by high pressure engine, 27" bore x 30" stroke, built by Globe Iron Works, Cleveland. Steam was generated using a tubular boiler, 6.5' x 17', 80 pounds steam, built by Globe Iron Works, Cleveland. At enrollment, she was issued official number: 95092. In 1874, she was reengined with a steeple compound engine, 20", 40" bore x 30" stroke, 400 horsepower, built by Globe Iron Works, Cleveland.

In April 1877, ownership of the propeller *H. B. Tuttle* was changed to John W. Moore and M.A. Hanna, both from Cleveland. During the winter layup of 1876/77, the *H. B. Tuttle* had been rebuilt with two decks, 2 masts and her enrollment measures at Cleveland: 179.6' x 31.6' x 12.7'; 844.94 grt, 689.48 net. In October 1882, she struck a reef off the Lighthouse Point at Detour, Lake Huron. Released. In September 1884, the *H. B. Tuttle* went aground on Lake Erie. Her enrollment was updated in April 1886 to 844.94 grt - 694.56 net.

April 1887, ownership of the propeller *H. B. Tuttle* was changed to M.A. Hanna, et al.

In April of 1888, ownership of the propeller *H. B. Tuttle* was changed to C.E. Benham, W. Cleveland, OH; et al. Master of the *H. B. Tuttle* was John D. Mullen for the 1888 – 92 seasons with Thurman E. Beers as chief engineer for the 1892 & 93 seasons.

In March 1896, total ownership of the *H. B. Tuttle* was transferred to C.E. Benham, W. Cleveland, OH.

In April 1897, ownership of the propeller *H. B. Tuttle* was changed to Charles A. Benham, Cleveland, OH
Master of the *H. B. Tuttle* for the 1899 season was Captain G. E. Benham with John Walsh as chief engineer.

In May 1900, ownership of the propeller *H. B. Tuttle* was transferred to Charles A. Benham, 1/2, Cleveland, J.E. Miller, 1/3, Cleveland, and W.J. Willoughby, 1/6, Cleveland. Her enrollment tonnage was changed to: 744 grt, 452 net.

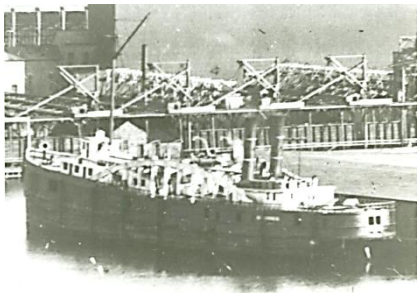
In April 1901, ownership of the propeller *H. B. Tuttle* was transferred to Charles A. Benham, 1/2, Cleveland, OH; J.E. Miller, 1/2, Cleveland, OH. Her master for the 1902 season was Captain H. R. Boles with John Stolder as chief engineer.

In January 1903, ownership shares were sold: Charles A. Benham, 1/2, Cleveland; Maggie C. Miller, 1/2, Cleveland. Her master for the 1903 & 1904 seasons was Captain L. E. King with John Lee in 1903 and Charles Maples in 1904 as chief engineer.

Ownership of the propeller *H. B. Tuttle* was changed to M.J. Benham, Cleveland, OH in April 1903. In September 1906, bound up, laden with coal, the propeller *H. B. Tuttle* sprang a leak during a gale off Cedar Point, OH and was beached near Marblehead, OH on Lake Erie. She was released and towed to Sandusky, OH but broke in two at the graving dock and sank. Abandoned.

In June 1907, Harris W. Baker, Detroit, bought the remains of the *H. B. Tuttle.*

Final enrollment for the propeller *H. B. Tuttle* was surrendered at Detroit, MI, September 30, 1908; endorsed "unfit for service".



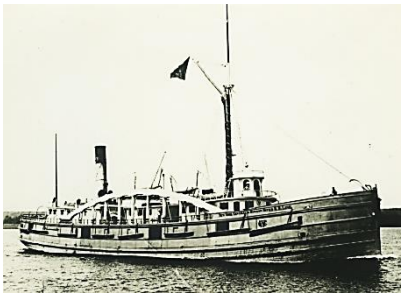
William H. Tweed: Union Dry Dock Co., Buffalo, NY; Vincent Bidwell as master carpenter, built a wooden propeller for Stephen D. Caldwell, Buffalo. The first enrollment for the propeller *William H. Tweed* listed the measures as: 216.0' x 33.0' x 13.5'; 1299.63 grt, 1195.0 net. She was issued official number 80265. Her engine and boiler were built by Shepard Iron Works. She was built for the bulk freight trade. Her master for the 1871 season was Captain John Kirby. In October 1871, the *William H. Tweed,* laden with merchandise, went ashore, in fog, on Sugar Island, Thunder Bay, Lake Huron.

In April 1873. ownership of the propeller *William H. Tweed* was transferred to Union Steamboat Co., Buffalo. In March 1874, in a bill passed in the House of Representatives changed the name of the propeller *William H. Tweed* to *Newburgh* (U80265). In August 1875, the propeller *Newburgh,* bound up, went aground on the head of Middle Island reef, Straits of Mackinaw, Lake Huron. In July 1876, the propeller *Newburgh* collided with the schooner *Zach Chandler near* the

Van Buren Street Bridge, Chicago River, Chicago. Both vessels were slightly damaged. William J. Slater was chief engineer in 1882.

In October 1886, ownership of the propeller *Newburgh* was changed to Thomas Maytham, 3/8, Buffalo, et al. Her master for 1889 was Captain David Allen Kiah, Captain Samuel Golden was master in 1890 and Captain Dunn was master with Edger Hull as chief engineer for the 1892 season. In November 1892, bound down for Buffalo, NY, with a cargo of flour and pig iron, the propeller *Newburgh,* stranded on Point Burwell, 10 miles above Long Point, ONT, Lake Erie, in a SW gale and blizzard. The vessel and cargo were valued at $90,000. No lives lost.

Final enrollment for the propeller *Newburgh* was surrendered at Buffalo, NY, December 3, 1892.



Vanderbilt: Muir & Leighton, Port Huron, MI; with A. W. Smith, as master carpenter, built for the Western Transportation Co., Tonawanda, NY, a wooden propeller. She was enrolled at Port Huron, October 17, 1871, and her measures recorded as: 223.16' x 34.0' x 14.33'; 1303.85 grt, 1157.28 net; and was assigned official number 25855. She was powered by two steeple compound engines: 18", 40" bore x 36" stroke, 700 horsepower, built by Shepard Iron Works, Buffalo, NY in 1871. Steam was generated in a boiler, 10'6" x 18'6", built by Shepard Iron Works in 1871. Named the *Vanderbilt,* she was intended for the package freight trade with a capacity for 1,400 tons and cost $95,000 to build. Her master for the 1871 season was Captain Pheatt with C. Castle as chief engineer; and for the 1876 season Captain George McDougall with Henry F. McGinnis as chief engineer for the 1875 & 76 seasons. In September 1874, the propeller *Vanderbilt* broke her rudder on Lake Huron. The following month, she went ashore ay Pointe aux Barques, Ont, Lake Huron. Her master for the 1879 season was Captain Frank Williams. In May of that year, the propeller *Vanderbilt* collided with the Canadian schooner *St. Clair* (C71210) off Bar Point at the entrance to the Detroit River, Lake Erie. In September of the same year, bound from Midland, MI to Goderich, ONT, the propeller *Vanderbilt,* laden with lumber, went aground on Griffiths Island, Georgian Bay.

In May 1884, ownership of the propeller *Vanderbilt* was changed to Western Transit Co., Buffalo. Her master during the 1885 season was Captain Angus J. McDonald, and for the remainder of the 1885 and 86 season, Captain Archibald McEachern. Frank Miller served as chief engineer for the 1884-87 seasons. In September 1895, the propeller *Vanderbilt* ran down and sank the steambarge *Mark Hopkins* (U91993) in Mud Lake, Saint Mary's River, Sault Ste. Marie.
Her master for the 1899 to 1901 seasons was Captain Frank D. Osborn with Fred W. Hale as chief engineer, 1899 to 1901. June 1899, the *Vanderbilt* collided with and sank the steamer *White Star* (U75610) at St. Clair Flats, Lake St. Clair. Captain F. J. Johnson was master for the 1902-03 seasons with James Sauger as chief engineer in 1903. The propeller *Vanderbilt* collided with and sank the steamer *White Star* (U75610) at St. Clair Flats, Lake St. Clair. Repaired. (06/1899)

In December 1904, ownership of the *Vanderbilt* was changed to Great Lakes Engineering Works, Ecorse, MI. She was renamed *John R. Stirling,* (U25855).

In June 1906, ownership of the *Vanderbilt* was changed to George Tebo, Chicago. She was altered into gambling ship. Master of the propeller *Vanderbilt* was Captain George Tebo. The gambling business process failed in Juen 1906.

In August of that same year, her ownership was changed to Peter P. Schmidt, Chicago.

In June 1907, ownership of the propeller *Vanderbilt* was changed to Northern Michigan Transportation Co., Duluth, MN.

Final enrollment for the propeller *Vanderbilt* was surrendered March 28, 1913, at Duluth, MN, and endorsed "abandoned". In September 1916, while being dismantled by the Manistee Iron Works, Manistee, MI, the propeller caught fire and burned.

Flora Webster: A. S. Webster, Menasha, WI; with E. C. Clark, as master carpenter, built a wooden steambarge for a consortium of investors, including the builder A. J. Webster, E. C. Clark & P. V. Lawson, all from Menasha, WI. The vessel was enrolled at Milwaukee, October 6, 1871. Her measures were recorded as: 120.0' x 28.0' x 9.9'; 305.51 grt. She was named *Flora Webster* and assigned official number 120065. She was powered

by two - high pressure, direct acting engines and steam was generated by a firebox boiler, 8' x 16', 86 pounds steam built by Robert Davis, Milwaukee. The steambarge *Flora Webster* was built for the bulk freight trade. In 1879, the propeller *Flora Webster* caught fire and burned to a total loss.

Final enrollment for Flora Webster was surrendered at Milwaukee, September 30, 1880, and endorsed "vessel dismantled".

During the winter layup of 1880-81, E. J. Cole, Green Bay, using the hull of the steambarge *Flora Webster,* rebuilt her as new vessel. She was first enrolled as propeller *George Burnham*, at Milwaukee, assigned official number U85672, with measures: 149.0' x 29.0' x 10.1'; 332 grt - 219 net. She received the machinery from the propeller *City of Toledo* (U5586); a low-pressure engine, 32" bore x 30" stroke; and her boiler: 7.5' x 18'. Her original investors were: Charles F. Burnham, 1/3; George Burnham, 1/3; and John Q. Burnham, 1/3, all from Milwaukee, WI. In July 1881, the propeller *George Burnham* went ashore on Horseshoe Reef, Lake Michigan. During winter layup 1882/83 she had her engines compounded by James Sheriffs, Milwaukee, to a steeple compound engine, 19", 32" bore x 30" stroke, 300 horse power. In May 1887, the *George Burnham* mistook a fishing pier for Horn's Pier and ran on to a rock at Manitowoc. She worked herself off with little damage. The following month, the *George Burnham,* towing the schooner barges *C. N. Johnson* (U4547) *& Wm Johnson* (pre-1887) went ashore at Fox Point, in fog, north of Milwaukee. In 1888, the *George Burnham* came in collision with the ferry *Sallie* at Cheboygan, MI.

May 1895, ownership of the propeller *George Burnham* was transferred to: Charles F. Burnham, 5/12; John Q. Burnham, 5/12, et al, all from Milwaukee.

April 1903, ownership of the propeller *George Burnham* was changed to Adolph Green, 11/12, Green Bay; and Frederick Schwermen, 1/12, Milwaukee. Masters of the *George Burnham* were Captain Fred Schwerman, 1902-04 seasons with Frank Coons as chief engineers.

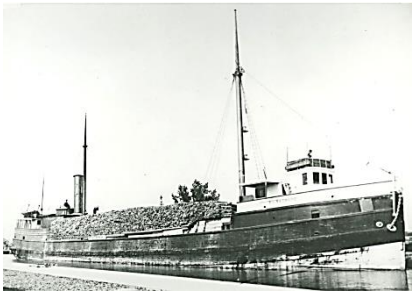
In December 1904, ownership of the propeller *George Burnham* was transferred to Adolph Green. Her master for the 1905 season was Captain Louis Strohon with Charles D. Elliott as chief engineer.

In February 1907, ownership of the *George Burnham* was changed to G.B. Shaw, ½; and A.T. Naugle, ½, both from Chicago. Her master for the 1906 to 09 seasons was Captain Edward Carus with A. F. Swan, 1907, Daniel McLennan, 1908, and D. L. McClennan, 1909 as chief engineers.

In March 1912, ownership of the propeller *George Burnham* was transferred to Naugle Pole & Tie Co. Chicago. Her master for the 1911 – 1912 seasons was Captain Edward Carus with D. L. McClennan as chief engineer.

August 1914, ownership of the *George Burnham* was changed to Acme Sand Co. Cleveland. She was converted to sand barge. In August 1916, out bound from the port of Cleveland, the sand barge *George Burnham,* light, collided with the in-bound barge *Dwight D. Cutler* (U163129). The *Burnham* was damaged with a hole forty feet long and eight foot high above the water line. Her chief engineer in 1920 was Ellery Bunker.

In December 1921, the sand barge *George Burnham* was dismantled at Toledo and abandoned.



W. L. Wetmore: Quayle & Martin, Cleveland, built a wooden propeller for the bulk freight ore trade. Her owner was George W. Bissell, Detroit. She was first enrolled at Detroit, in May 1871. Her measures recorded were: 215.33' x 33.33' x 14.16'; 850.57 grt. She was powered by a high-pressure engine, 28" bore x 36" stroke, 450 horsepower, built by Cuyahoga Iron Works, Cleveland, in 1871. She was issued official number 80196. Her master for the 1871 – 85 seasons was Captain George L. DeWolf with Charles Flynn in 1871 and C. L. Scoville in 1874, as chief engineers. The steambarge was rebuilt during winter layup 1878/79: two decks added, and enrollment measure changed at Detroit to: 215.33' x 33.33' x 21'; 1216.75 grt, 1032.76 net.

In May 1881, ownership of the steambarge *W. J. Wetmore* was changed to Daniel McGarry, 3/8, Cleveland, OH; et al.

In April 1883, ownership of the steambarge *W. J. Wetmore* was changed to Thomas Axworthy, 5/8, Cleveland; et al.

In April 1886, ownership of the steambarge *W. J. Wetmore* was changed to J. H. Palmer, Henry Gordon, et al, all from Cleveland. September 1890, downbound, the steambarge *W. J. Wetmore,* collided with, and sank the schooner *M. E. Tremble* (U90745) towed up by the steambarge *B. W. Blanchard* (2806) off Port Huron, in the Saint Clair River. The *W. J. Wetmore* was badly damaged. In March 1891, the steambarge *W. J. Wetmore* was rebuilt, removing one deck. Her enrollment measures were changed to: 213.7' x 33.4' x 12.6', 819.74 grt, 700.33 net. She was reboilered with a

scotch boiler, 12’ x 12.5', 120 pounds steam. Master of the steambarge *W. J. Wetmore* was Captain Charles H. Wallace in 1892, with Church in 1892 and Charles T. Martin 1895-96 as chief engineer. In May 1893, the *W. J. Wetmore* broke her steam chest on Lake Huron and was towed to Port Huron for repairs. In November 1894, the *W. J. Wetmore* stranded near Manitowoc, WI.

In August 1895, ownership of the steambarge *W. J. Wetmore* was changed to Frank C Goodman, and Henry Gordon, et al, all from Cleveland.

In May 1898, ownership of the steambarge *W. J. Wetmore* was changed to Minton F. Goodman, Cleveland.

In August 1898, ownership of the steambarge *W. J. Wetmore* was changed to Charles R. Jones, 11/16, Cleveland; et al.

April 1899, ownership of the steambarge *W. J. Wetmore* was changed to Lumber Transportation Co., Mentor, OH.
Master of the steambarge in 1899 was Captain Claude M. Ennes with F. Stevenson as chief engineer.

April 1900, ownership of the steambarge *W. J. Wetmore* was changed to Adam Hartman, 1/2, Tonawanda, NY; et al. Her masters in 1901, were Captain D. O. Hagan and Captain John O’Hagan with W. Nibbs as chief engineer. In November 1901, downbound from Parry Sound for Tonawanda, NY, the steambarge *W. J. Wetmore,* laden with lumber, ran ashore in a heavy snow storm, on Rabbit Island, Georgian Bay. The vessel was later pounded to pieces by waves.

Final enrollment for the steambarge *W. J. Wetmore* was surrendered at Buffalo, January 25, 1902, and endorsed “vessel lost”.

Notes:

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

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

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

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

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

Old Style Tonnage: The formula is: Tonnage= ((length - (beam x 3/5)) x Beam x Beam/2)/94

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

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

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

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

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

Tonnage (Old Style): The British took the length measurement from the outside of the stem to the outside of the sternpost; the Americans measured from inside the posts. The British measured breadth from outside the planks, whereas the American measured the breadth from inside the planks. Lastly, the British divided by 94, whereas the Americans divided by 95. The upshot was that American calculations gave a lower number than the British. For instance, when the British measured the captured *USS President* (a three-masted heavy frigate), their calculations gave her a burthen of $1533\frac{7}{94}$ tons, whereas the American calculations gave the burthen as 1444 tons. The British measure yields values about 6% greater than the American. The US system was in use from 1789 until 1864, when a modified version of the Moorsom System was adopted (see below).

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

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

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

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

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

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

The current system of measurement for ships includes:

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

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

P.Q.: Province of Quebec

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

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

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

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

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

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