



Volume 36, Number 9

Newsletter of the Ship Model Society of New Jersey

September 2018

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Our next club meeting is
September 25th at 6:45PM

ROSELAND PUBLIC
LIBRARY

AUGUST NOTES...

Meeting. The August meeting was opened at 1850 by VP Larry Friedlander; President Chuck was otherwise occupied and could not attend. The meeting started out as a tropical one, as the library's air conditioning was on the blink. Fortunately, it came back soon after the meeting started.

Larry welcomed 22 members and two guests. Our first guest was Tom Griffiths from Howell, New Jersey. Tom was attending his second meeting. The second guest was Stu Evans. Stu's father was an avid ship model builder, so Stu grew up with early exposure to the art. The last model his Dad worked on was *HMS Victory*. He finished about two thirds of it, but his failing eyesight would not allow its completion. Stu has taken on the task of completing *Victory*.

The meeting was adjourned at 2055 whereupon several members proceeded to the Caldwell Diner. [Click here](#) for meeting photos.

Treasurer's report. Tom Ruggiero presented the report. We have a good balance in the club account. There are a few members who have not yet paid their dues.

Next Month's Meeting is Tuesday, September 25th.

Saturday Workshop. The next Saturday Workshop will be held on Saturday, September 22nd, at Tom Ruggiero's house.

UPCOMING EVENTS

SEPTEMBER

22 - Group Working Session
25 - Monthly Meeting
6:45PM, Roseland Public Library,
1st Floor

OCTOBER

TBD - Group Working Session
23 - Monthly Meeting
6:45PM, Roseland Public Library,
1st Floor
25-27 - NRG Conference, Las Vegas, NV

NOVEMBER

TBD - Group Working Session
27 - Monthly Meeting
6:45PM, Roseland Public Library,
1st Floor

OLD BUSINESS



Group Build. Chuck is moving along with our next group build, making good progress with the Medway longboat that will be the subject of the group build. More to come...and soon.

Club Hats or Shirts. Nothing new at this time, but Tom R. will work on it.

NEW BUSINESS



Indexing of The Broadaxe. Doug McKenzie has indexed three months' worth of *The Broadaxe* and has put all of this into an Excel spreadsheet. Doug's file allows a member to search for a specific topic and find it in the issue(s) of the newsletter in which it/they appear. Doug is continuing with the effort and has shared a draft with us. See below. In his words:

"I've spent some time putting together a prototype index for titles that appear in *The Broadaxe*. It's put together in Excel because that's what I had. I've attached this prototype which includes June, May and April of 2018. The purpose of this prototype is to give the members a chance to decide if an index of this type would be useful. It's not too time consuming to create as these three months were inputted in a bit more than one hour.

Those members who have Excel can try it out and see if they think it is useful. The column headings allow you to filter which records you want to see. For example, in the 'person' column you can select from the list which persons you want to see. In the 'title' column you can type 'rigging' and all the titles that include the word rigging will be shown. After the records you want have been selected you click on the URL and the relevant issue of *The Broadaxe* will be displayed.

Since not all of the members use Excel we might need to use a different package or possibly find a way to use Excel that does not require everyone to have it installed on their computers."

More to follow. Thank you, Doug!

New Business continued on next page

Microsoft Excel - BroadAx Index [Read-Only]						
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J20 fx						
	A	B	C	D	E	F
1	Issue	Type	Title	ShipName	Person	Date
2	Jun-18	Tech Session	Rigging Techniques In Small Scale		Sort Ascending Sort Descending	
3	Jun-18	Show & Tell		RMS Campania	(All)	
4	Jun-18	Show & Tell		USS Rattlesnake	(Top 10...)	
5	Jun-18	Show & Tell		USS Fair American	(Custom...)	
6	Jun-18	Show & Tell		HMS Winchelsea	Bob Fivehouse	
7	Jun-18	Show & Tell		HMS Liverpool	Chuck Passaro	
8	Jun-18	Show & Tell		Leon	Dave Dikun	
9	Jun-18	Show & Tell		USS Rattlesnake	David Dikun	
10	Jun-18	Show & Tell		LA Dunton	Doug McKenzie	
11	Jun-18	Article	PIPELINE TO VIETNAM		Fon Huffman; Kaname	
12	May-18	Tech Session	Rigging Techniques For Stopping Blocks		Jeff Fuglestad	
13	May-18	Conference	36th Annual Northeast Joint Clubs Conference		Ken Whitehead	
14	May-18	Cool Tool	Ikohe Belt Sander		Larry Friedlander	April 28, 2018
15	May-18	Show & Tell		HMS Pegasus	Larry Friedlander	
16	May-18	Show & Tell		SS Pendleton	Jeff Fuglestad	
17	May-18	Show & Tell		Fair American	Dave Dikun	
18	May-18	Article	THE PANAY INCIDENT		Fon Huffman; Kaname Harada	
19	Apr-18	Tech Session	Various Species of Wood and Their Use in Modeling		Jeff Fuglestad	
20	Apr-18	Cool Tool	MicroLux Sword Saw		Jeff Fuglestad	
21	Apr-18			HMS Pegasus	Chuck Passaro	

December Meeting. Larry spoke about our December meeting. Roseland Library uses our meeting room for a model train display in December. In previous years, we have met in the Children's Section of the Library proper and then visited the train display. The space available for the meeting was quite cramped and the meeting was not well attended. While the model display is impressive, it doesn't vary from year to year. So, instead of our traditional December meeting, Larry proposed an alternative: a dinner or party. He asked for a show of hands from

those who might be interested, and Bob Marinovich volunteered to look into various venues. If reasonable, this could be subsidized by the Club. More to come.

Library Show. Ken Schuetz had a conversation with the Roseland Library Director. Library staff are very interested in a one day show/exhibit. We are investigating an October or November event but it could be later or next year. Tom and Ken will discuss this further with the Library.

TECH SESSION

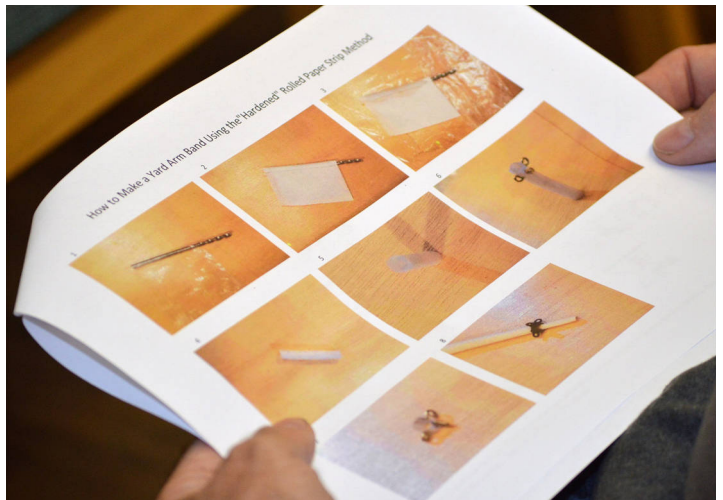
Making Mast and Yardarm Bands

The Tech Session at the August meeting was "Making Mast and Yardarm Bands" presented by Doug McKenzie. Doug distributed handouts to follow along with his talk. [Click here](#) to view these (if the PDF does not immediately come up, you might need to refresh the screen).

Doug did some research on the topic and found several ways to accomplish the task. The first method is to do nothing. In this case, attachment is made directly to the mast or yard. This doesn't look at all like the original, but it may suffice. The next method is to wrap thread on the yardarm. Doug had used this method previously, but he never thought to include the rigging attachment directly to the band as part of the thread that is used. The third method is to use rolled paper, or tape. Doug notes that you might be able to get a neater job if you apply the rolled paper or tape directly to the yard. You can then drill directly into the band as it sits on the mast or yard for attachment eyes. Doug prefers making the bands off the yard and then sliding them on. If you find a tube of the appropriate diameter, you can simply cut the bands. This can be problematic because the bands will have a multitude of different diameters and suitable tubes may not be available (they also may be too thick as well). You can wrap a brass strip and solder the butt ends together. This is a method used by Underhill. In this case, you crimp the band as you are bending it and incorporate the attachment point into the band. This is similar to actual practice where the eye attachment is either part of the band or welded to it. Doug noted that while he understood how to make the first one, getting the spacing to another attachment point on the same band with correct placement was difficult. Using hardened rolled paper is another method for making bands. Doug passed around a rolled paper tube he had made illustrating how rigid such a tube can be. He advises using a drill bit or rod of



the appropriate diameter and wrapping Saran Wrap one or two times around the bit. Once this is done, you can wrap tissue paper around the yard/mast and soak it with cyano. Basically, this is setting up as you would fiberglass. To finish, Doug sands the joint flat, then adds another coat of glue. He then slices off the appropriate width with a razor blade. In the band, Doug then drills the required holes and attaches the eyes. The last step is filing the eyes flush inside the band.



BOOKS AND PUBS



VALOUR FORE AND AFT

— Hope S Rider; Published by Naval Academy Press, brought in by Ken Whitehead

Ken highly recommends this [swashbuckling tale](#). It is the story of a sloop called *Katy* built in 1775. *Katy* was converted to a warship and renamed *Providence*. Her first commander was John Whipple; she was later commanded by Lt. John Paul Jones. *Providence* saw lots of action during the Revolutionary War and is considered to be the most successful colonial craft that fought during that period. She fired the first broadside of the war, was the first to land Marines on a foreign shore (Nassau, Fort Montagu), and was the first to fly the United States colors at a foreign station. *Providence* was destroyed by her crew along with other American vessels on August 14, 1779 to prevent her from falling into the hands of the British.

In the early 1970's a replica of *Providence* was constructed with a fiberglass hull and was used for youth sail training. She was launched in 1976 and designated in 1992 as the flagship and tall ship ambassador of the state of Rhode Island. The ship was in drydock for the winter of 2015, where she was toppled and severely damaged by high winds during the January 2015 nor'easter.



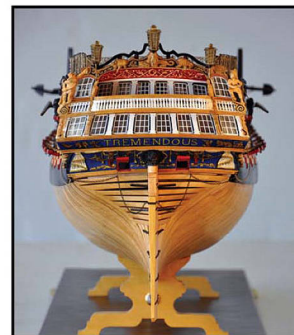
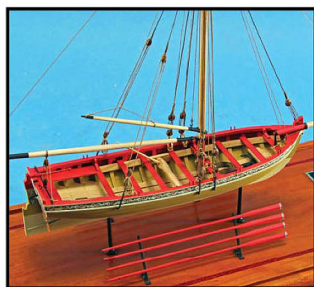
U.S.S. Providence - First ship of U.S. Navy

THE NAUTICAL RESEARCH GUILD

"ADVANCING SHIP MODELING THROUGH RESEARCH"

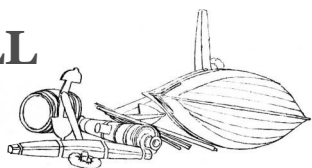
Annual membership includes our world-renowned quarterly magazine, Nautical Research Journal, which features photographs and articles on ship model building, naval architecture, merchant and naval ship construction, maritime trade, nautical and maritime history, nautical archaeology and maritime art.

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



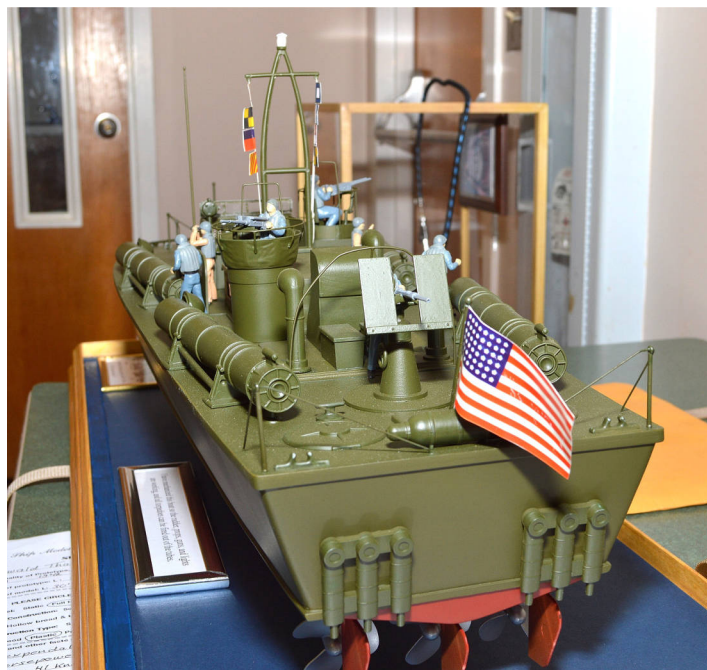
For more information contact us at: www.thenrg.org or call 585 968 8111

SHOW AND TELL

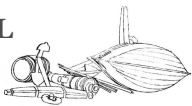


PT 109 — Ossi Thalmann

PT 109 operated under the command of John F. Kennedy. Mass produced using plywood, PT's were referred to as "expendable". JFK's boat was cut in two by a Japanese destroyer. The future US President was able to get those of his crew who survived the collision to a nearby island and eventual rescue. Ossi's model is a kit bashed work that was built for his son. It is typical of all Ossi's work, with many motorized functions, including launchable torpedoes using compressed air. He used a motor and parts from a cuckoo clock to make the guns turn and elevate. Other moving parts include a rotating prop and rudder. Ossi did a beautiful job – as we have come to expect.

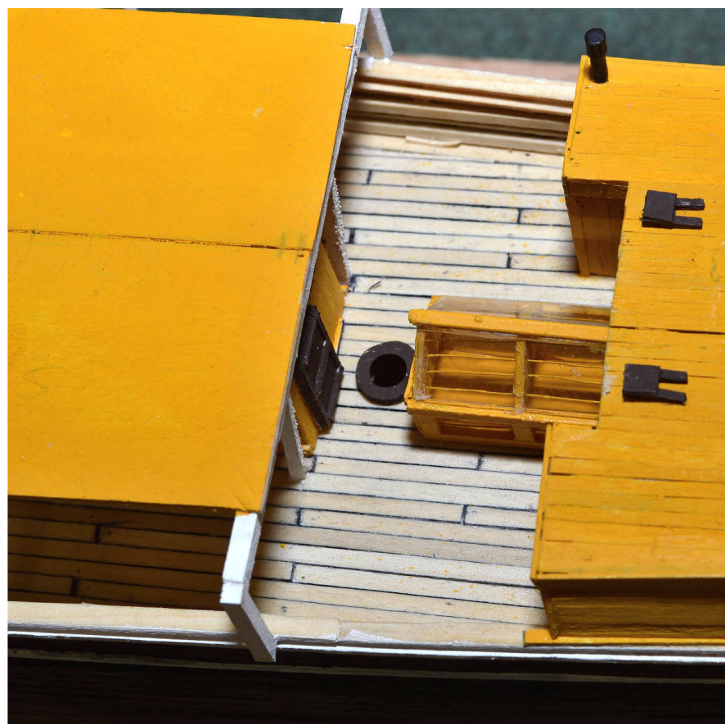


SHOW AND TELL



Charles W. Morgan — Don Otis

Don is making good progress with the *Morgan*, a Model Shipways kit that he describes as "very intricate." As an example, it took multiple attempts and several hours to get something as simple as the skylight correct. Don says that the next time he brings the model, it will be completed. Good job, Don.



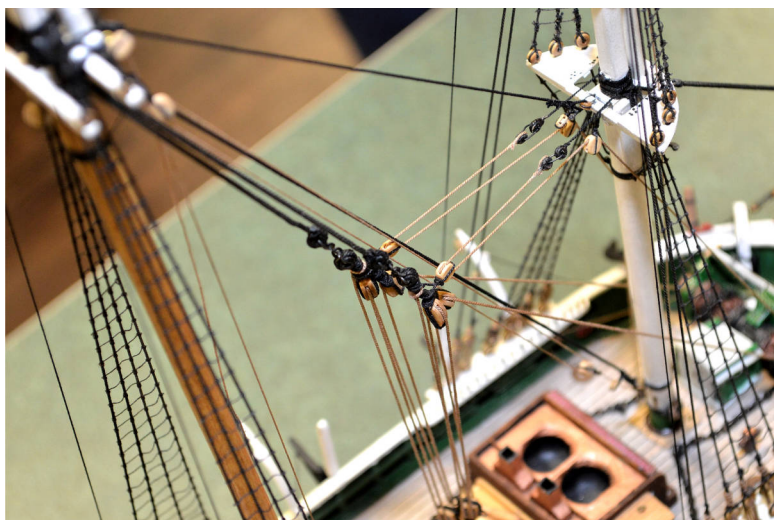
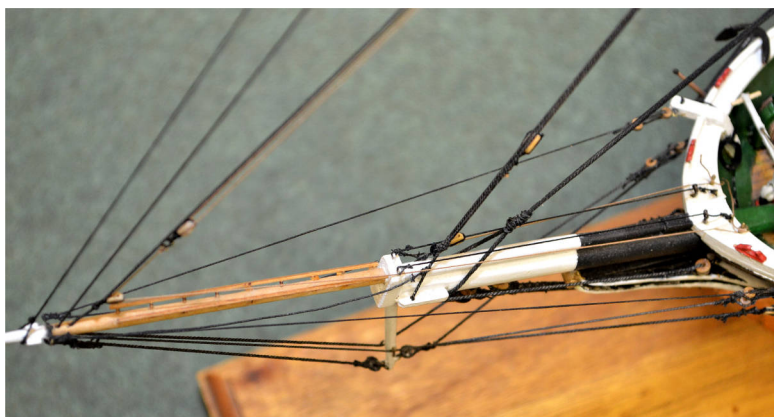
SHOW AND TELL



Kate Cory — Rich Verost

Built in 1856 in Westport, Massachusetts as a schooner, after two voyages *Kate Cory* was converted to a brig in 1858 and continued as a brig until her capture and burning at the hands of CSS *Alabama* in 1863.

Rich's model is from a kit and is 24" long, 5" abeam, and 18¾" high. Scale is 3/16" to the foot (1:64). This was Rich's first true attempt at a wooden ship model since playing around with other types as a teenager. Construction began about 30 years ago. The hull was sanded, then the bow, keel and rudder were added, bulwarks, rails and deck planking installed, and topsides painted. Rich's best estimate is that this work was done between 1987 and 1989. Then it sat until October 2016. Rich started coppering the hull and began the deck furnishings at that time. Coppering was done in strips, riveted with a pounce wheel, then applied with a coat of contact cement to the hull. Deck furnishings are a mix of cast fittings from the kit (windlass, bits, wheel) and scratch built components: companionways, tryworks (pots are cast fittings), galley, skylight, etc. Rigging line was sourced from Syren, as were the blocks. Large blocks for the cutting in tackle are specialty kits from Syren. The next step is making the whale boats; he is thankful that he only has to make four. Looking very good, Rich.

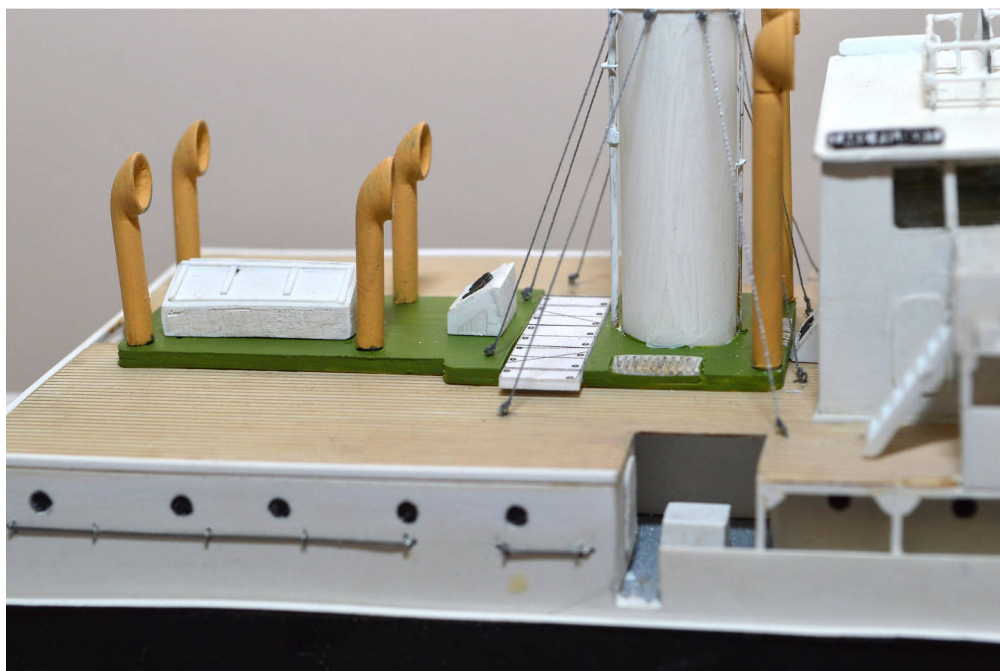


SHOW AND TELL



Lake Filbert — Rich LaRue

Rich brought back his scratch build of SS *Lake Filbert*. The model is 1:160 Scale (N gauge) and is 19½" long x 3 1/8" abeam by 73/4" high. It started out as a plank on bulkhead build and uses wood, plastic, paper and metal in its construction. The original (261 feet long) was built in 1918. This series of cargo ships were about two thirds the size of their ocean-going counterparts and were sized so that they could readily transit the canals to the St. Lawrence River. Looking very good, Rich.



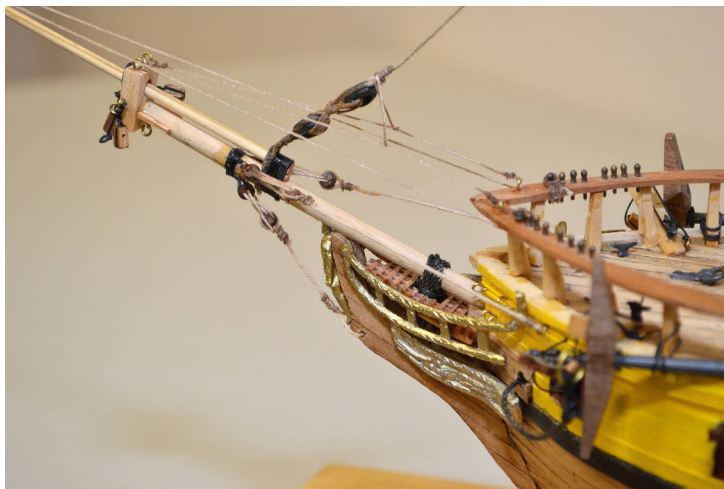
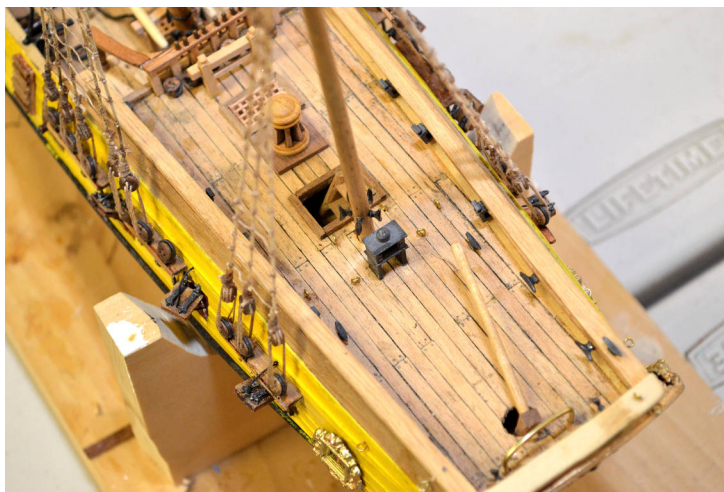
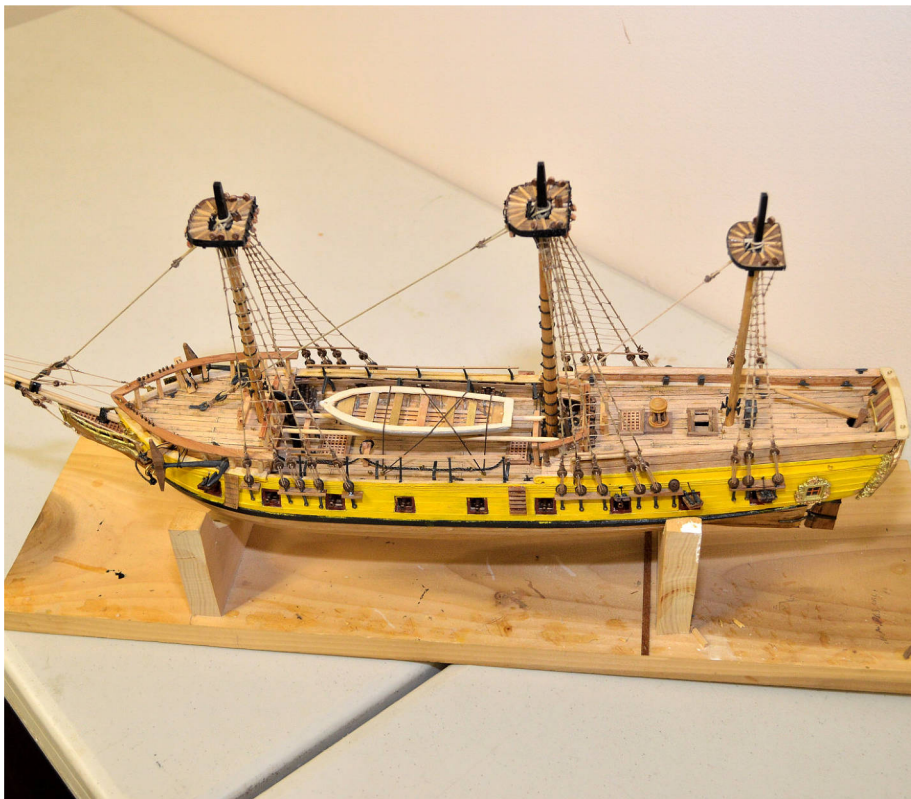
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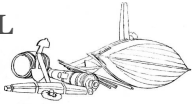
Rattlesnake — Steve Fletcher

Rattlesnake was a twenty-gun privateer. She was captured by the British and renamed *Cormorant*. Dr. Steve's model is from a Mamoli kit. He notes that the directions were translated from Italian by an Italian who didn't speak very good English. Steve says that this will be the last time that we see the *Rattlesnake*.

Because he doesn't want to go crazy with rigging, he is stopping at the lower masts and will display the model as it would be in the ship yard. He is bringing it to his hospital so that the residents can learn how to tie one of the thousands of clove hitches that he created for rattling down the shrouds. Good work, Steve.

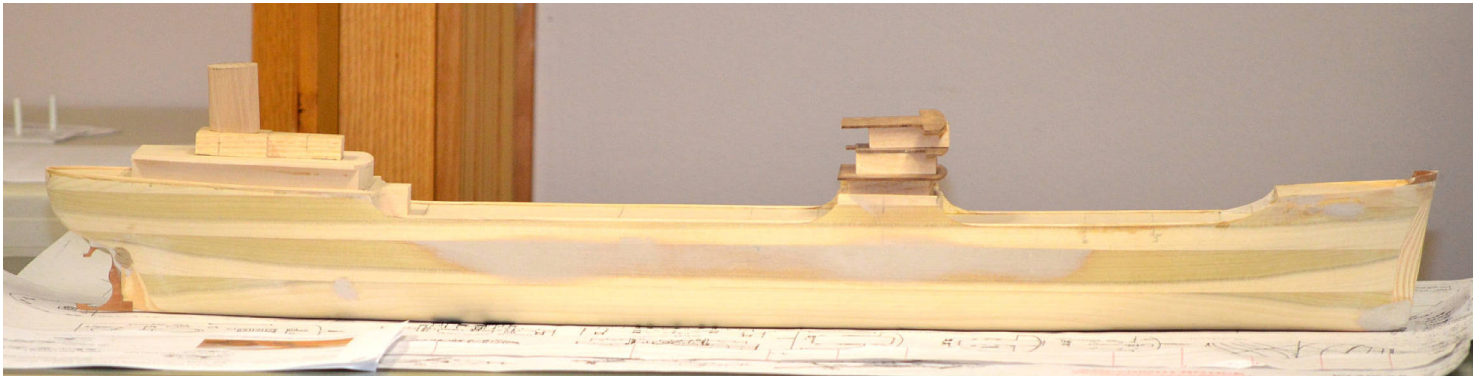
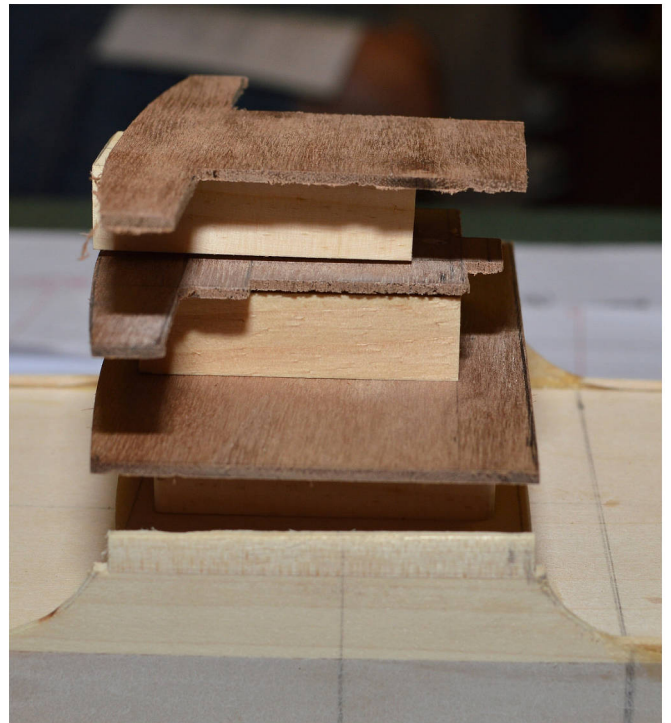
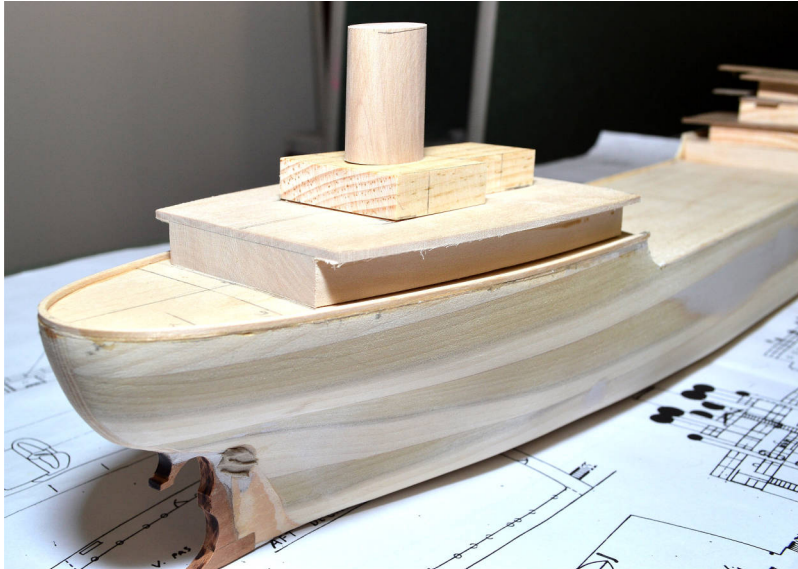
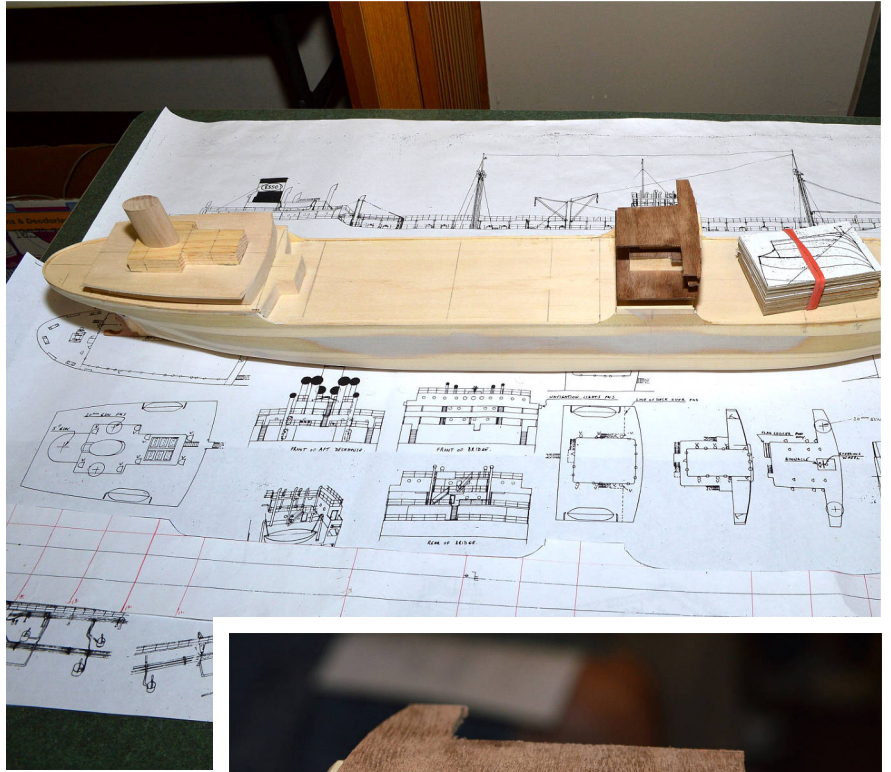


SHOW AND TELL



SS *Pendleton* — Jeff Fuglestad

Jeff's model is of bread and butter construction using poplar lifts. Jeff used a separate vertical piece between the lift halves that allowed him to perfectly align the bow and stern. *Pendleton* is 1/16" to the foot and is 32½" long by 4¼" wide. The ship was a T2 Tanker that broke in two and sank off Chatham, Massachusetts in a 1952 storm. The event is memorialized in a 2009 book entitled *The Finest Hours* and a 2016 Disney film of the same name. It is the true story of the most daring rescue recorded by the US Coast Guard. Once Jeff has finished the hull, he will cut it in two lengthwise and display it in a diorama to match an actual photograph of the ship sinking. The model is progressing very well but cutting it in two will be traumatic!

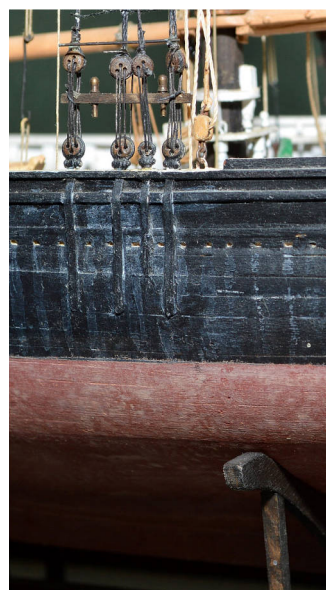
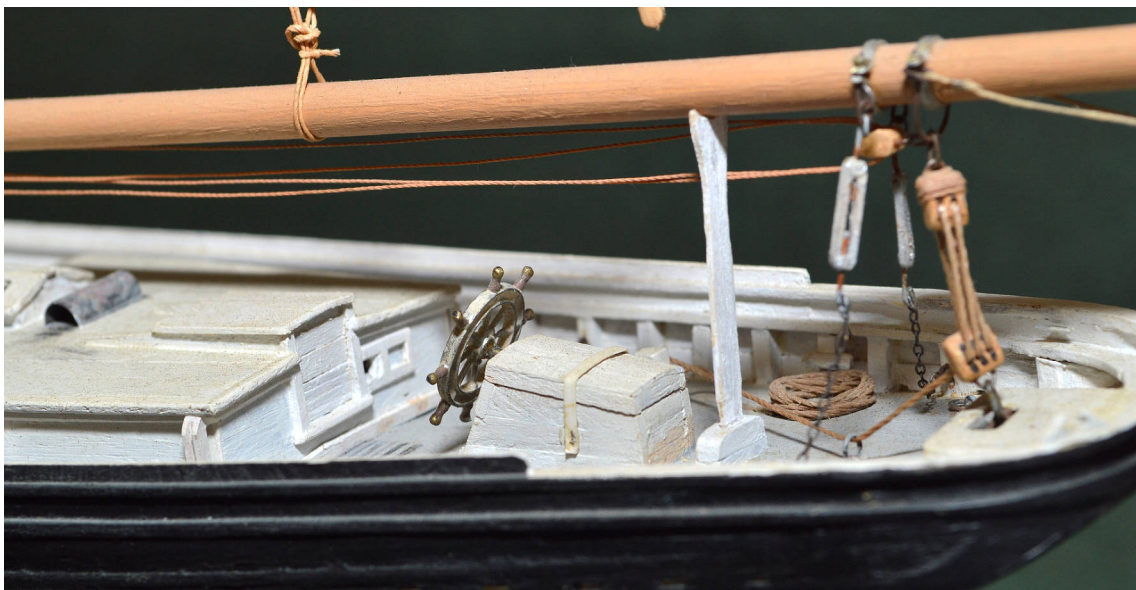
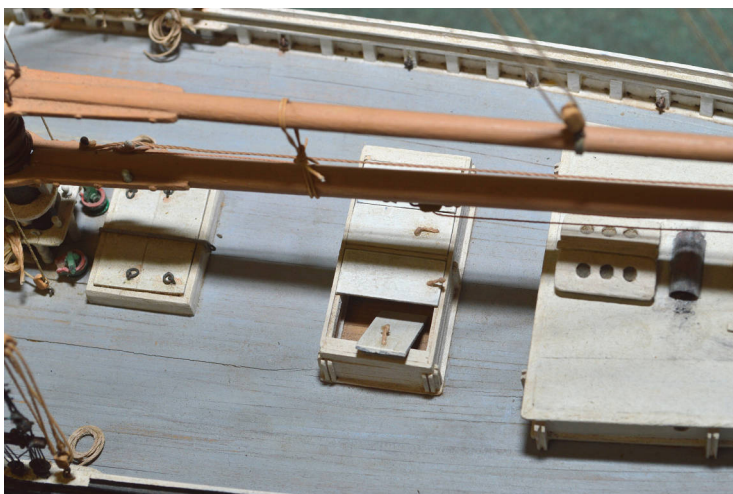


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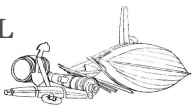


LA Dunton — Rich Lane

Rich brought back *LA Dunton*, a model in 1:64 scale (32" by 5" by 25") that is plank and bulkhead constructed, scratch built from plans available at Mystic. Rich supplemented the plans with his own photographs and *American Fishing Schooners* by Howard Chapelle. *LA Dunton* was designed by Thomas F. McManus and launched at Essex, Massachusetts in 1921. She was the last large all sail (engineless) fishing schooner except for a few that were built exclusively for racing. In 1922, she participated in the Fisherman's Elimination races at Gloucester, the winner of which was the Canadian *Bluenose*. Rich says the model is finished, but he may create more dories. Great looking, Rich.

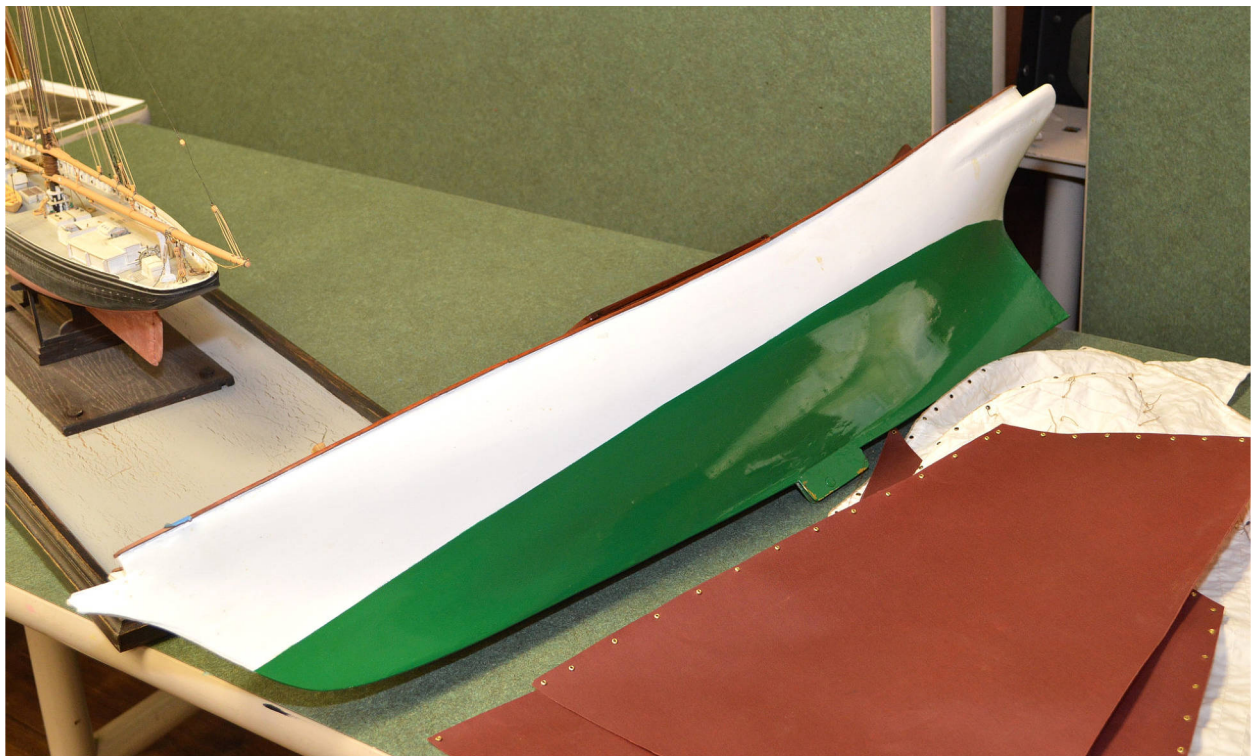


SHOW AND TELL



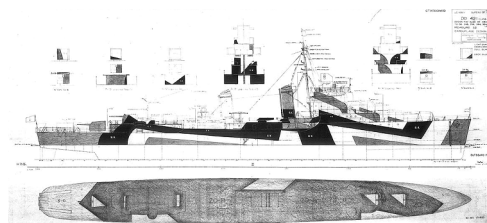
America — John Marinovich

This is a second version of *America* that John has been building. This one he is making for his grandson, a sailing model that will be finished in fiberglass. John notes that the original *America* had a black hull when purchased from the Navy. The buyer repainted the hull white. So, of the two *America*'s he will have one with a black hull and the other with a white hull.


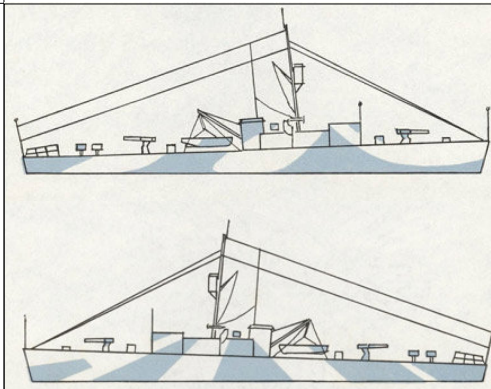



CAMOUFLAGE

PART 2



Ed Note: Last month we published a review of early World War II US Navy camouflage measures designed to confuse observers and make it more difficult to establish the size, course, speed and range of a vessel. As the war progressed, adjustments were made based on experimentation and the input and experience of those on the front line. Outlined below is the evolution of camouflage thinking from mid-1942 to the end of the war. Note that while the chips displayed are quite close to the original colors (as best I can make out on my monitor), each electronic viewing device is different. For the most accurate representation, paint chip cards can be ordered from Snyder and Short. [Click here](#).

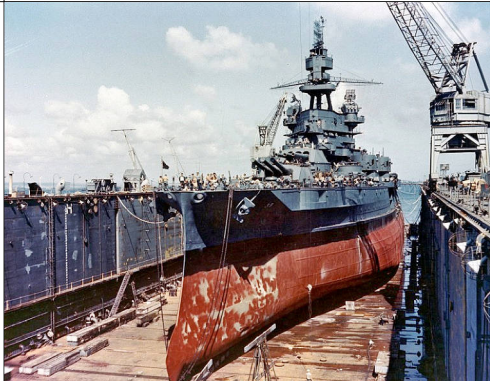


Name	Description	Image
Measure 15	An experimental dazzle pattern developed directly from the British First Admiralty Disruptive Type. Used in late 1942 on at least three vessels, the battleship <i>Indiana</i> , the destroyer <i>Hobson</i> , and the oiler <i>Tallulah</i> , in Navy Blue, Ocean Gray, Haze Gray and (<i>Hobson</i> only) White.	 <p>USS <i>Hobson</i> wearing Measure 15 off North Africa, November 1942</p>
Measure 16 (Thayer system)	White with large polygonal patches of light sea blue (called Thayer Blue). This measure was most useful in Arctic latitudes with extended twilight and frequent fog and cloud cover. "Especially well adapted for winter use in Northern areas where nights are long and days frequently overcast. It would prove useful against submarines in any area where attacks occur mostly at night." Purity of color was important for full realization of the Purkinje effect where some colors appear lighter and some appear darker at low levels of illumination. Darkening the pattern increased course deception, but increased visibility at night and in haze. This measure was used extensively through 1943 and early 1944 in North Atlantic and Aleutian waters until replaced by Measure 33. Captain-class frigates were delivered to the Royal Navy wearing this measure sometimes identified as the American Western Approaches camouflage scheme.	 <p>Ships-2 pattern drawing for Measure 16 on a submarine chaser</p>
Measure 17	A dazzle pattern of blues, grays and whites applied only to USS <i>Santee</i> , USS <i>Augusta</i> , and USS <i>Chicopee</i> ; Measure 17 was the prototype for the later dazzle Measures 31, 32 and 33.	 <p>USS <i>Santee</i> wearing measure 17.</p>
Measure 18	A rarely used pattern almost identical to Measure 12, but with Haze Gray instead of Ocean Gray upperworks, as in the later Measure 22.	

CAMOUFLAGE

Within the first six months of combat, the United States Navy modified Measures 11 and 12 to meet the needs of Pacific Ocean operations. Sea Blue was found to be too light, and it was ordered replaced by new color Navy Blue (5-N), which used 50% more of the same tinting paste as Sea Blue and was correspondingly darker.


Navy Blue	Ocean Gray	Haze Gray	Light Gray	Deck Blue

Improved Measures (Ships-2 Rev. 2, June 1942)

Name	Description	Image
Measure 10	For submarines operating beyond the range of enemy aircraft. Submarine Measure 10 was Ocean Gray (5-0) on the entire submarine above the water line, over all parts which were visible from the air including the numbers, capstan, running light boards and bridge rails. The radio insulators were to be dark and there was no boot-topping. Dull antifouling black paint was to be applied below the waterline.	
Measure 21	On the advice of United States aviators, Measure 11's Sea Blue was replaced by darker Navy Blue and the scheme designated Measure 21 in mid-1942. Overall Navy Blue (5-N), with decks in dark Deck Blue (20-B). This measure was used extensively in the western and southern Pacific from September 1942 through 1945 to minimize detection and identification by enemy aircraft. "Useful where greatest danger is from the air and high surface visibility must be accepted... Lowest visibility to aerial observers day and night in all types of weather. Low visibility under searchlight. High visibility to all surface observers in all types of weather." Measure 21 also proved effective under artificial illumination during night actions. Upper surfaces of aircraft operating from carrier decks were painted a similar shade of blue. Sailors were ordered to wear dungarees rather than white uniforms when topside, and white "Dixie cup" hats were dyed blue. USS <i>Texas</i> is, as of 2017, painted in Measure 21 as she was in 1945.	 <p>USS <i>Pennsylvania</i> wearing measure 21.</p>
Measure 22	Measure 12 was reworked following recognition of the ineffectiveness of small splotches of paint, and the relatively low contrast between the shades used. Replacement measure 22 used Navy Blue low on the hull below the first continuous deck, with Haze Gray above that. Measure 22 used a straight horizontal boundary between the two colors rather than following the sheer of the main deck, making a characteristic gray "wedge" at the bow. This bold contrast at a horizontal line near the horizon reduced visibility to surface observers and created the illusion of greater range. This measure largely replaced Measure 12 where aerial observation was unlikely. "Useful for combatant ships operating in areas where greatest danger might be expected from gunnery action either from shore batteries or from enemy surface ships. Moderately high visibility to aerial observation at close ranges." This measure was used in the Atlantic and European coastal waters from the end of 1942 through the end of World War II, and was often referred to as "Atlantic two-tone." It was worn by shore bombardment ships in the Pacific from late 1944 after the destruction of Japanese naval aviation capability at the Battle of the Philippine Sea. Due to the desire for a darker version for greater utility against air attack after the appearance of the kamikaze, Measure 12 was revived in 1945, but amended so as to be identical to Measure 22 save for the use of Ocean Gray rather than Haze Gray.	 <p>USS <i>Kidd</i> wearing Measure 22 (2015)</p>  <p>USS <i>Mobile</i> wearing Measure 22</p>

Continued on next page

CAMOUFLAGE

Name	Description	Image
Measure 23	Replacing all-over Haze Gray Measure 13, Light Gray Measure 23 was in effect a return to Measure 3 for use by anti-submarine vessels in the tropics or subtropics, and ships operating in northern latitudes. Replaced by Measure 33.	 <p>USS Concord wearing Measure 23</p>

Tropic Green system: Through 1942, the Camouflage Section had issued no instructions for landing craft, PT boats, Tank Landing Ships (LST's) and other vessels expected to operate close inshore in Pacific jungle conditions, so individual commands resorted to overall green, or ad-hoc camouflage patterns in whatever green or brown paints could be obtained. In early 1943, BuShips began the development of a green series parallel to the blue-gray series, but the process was slow and therefore the South Pacific Command as an expedient ordered its amphibious vessels to be repainted in Dark Tropic Green with "tiger stripes" in Light Tropic Green, both of which could be created by mixing standard 5-TMa blue tinting medium with yellow zinc chromate primer. According to a contemporary report, "The color of the foliage [in the vicinity of Bougainville] was surprisingly high in key, a brilliance that would have been unbelievable except for the very same observations made on first arrival in the Solomons group."

Dark Tropic Green	Light Tropic Green
	

Late Wartime Measures

The British Royal Navy established an Admiralty camouflage section in October, 1940. Initial Admiralty disruptive camouflage schemes employed polygons of multiple shades of gray, blue and green so at least two of the colors would blend with background sea or sky under different light conditions. Experience showed the polygons were too small to be differentiated at effective camouflage ranges. Simplified Admiralty light and dark disruptive schemes were promulgated in 1942 to use larger and simpler polygons with no more than four colors.

Artist Everett Warner, who had headed the design section of Navy Camouflage during the First World War, returned to that post during the Second. On the basis of Warner's interpretations of recent Admiralty experience, BuShips issued a supplement to SHIPS-2 in March 1943 laying out multiple dazzle patterns under Measures 31 (dark), 32 (medium) and 33 (light) to conceal identity and confuse submarine torpedo fire control. Each measure included multiple pattern designs for ship classes so the pattern would not identify the class of ship. These measures represent the final evolution of dazzle camouflage.

Warner's office issued over 300 pattern sheets for Measures 31-33. Specific patterns in the dazzle measures were designated as, e.g., MS-32/3D, meaning the 3rd Destroyer pattern under Measure 32; an A indicated an aircraft carrier pattern, B for battleships, C for cruisers and so on. Often a pattern designed for one ship type would be adapted to another, so that, for example, the battleship *North Carolina* wore an adaptation of Measure 32/18D, originally a destroyer pattern. Some patterns could be used as Measure 31, 32 or 33 depending on the paints chosen; these were listed as, e.g., MS-3_/6D.

On 15 September, 1943, the South Pacific command adopted the dazzle measures for all ships; in October the Pacific Fleet officially adopted the dazzle measures for most of its remaining ships.


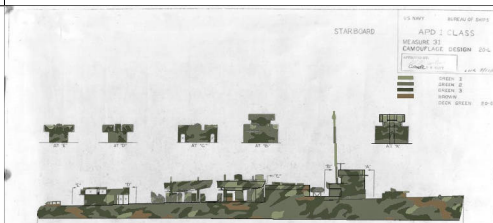

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CAMOUFLAGE






Dull Black	Deck Blue	Navy Blue	Ocean Gray	Haze Gray	Light Gray	Pale Gray

Deck Green	Navy Green	Ocean Green	Haze Green	Light Green	Brown 4A	Green #1	Green #2	Green #3	Brown #4

Dazzle measures (Ships-2 Rev. 2 Supp. 1, March 1943)

Name	Description	Image
Measure 31 (Disruptive system, dark)	Dark pattern Measure 31 was a series of irregular geometric patterns using large polygonal and striped patterns of Black and Ocean Gray, or Black, Ocean Gray and Haze Gray. The patterns and tones were designed to resolve at a distance to an average low reflectivity of 10-20%. Horizontal surfaces also carried irregular patterns in Ocean Gray and Deck Blue. This measure emphasized mistaken identity and course deception to complicate submarine attack. Patterns were carried across the bow, and light gray was used aft to blend with the wake. Undersides of horizontal elements were countershaded in Pale Gray (5-P) or White (5-U) to reduce self-shadowing. This measure was based on the World War I dazzle system modified by observations in the western Pacific. In 1944, revised Measure 31a substituted Navy Blue for Black and eliminated countershading.	 USS Evans wearing Measure 31, Design 7D
Measure 31 green (Disruptive system, amphibious)	For landing craft and amphibious vessels, BuShips promulgated patterns under Measure 31/L, which was based on Measure 31 but used the colors Haze Green, Ocean Green, Navy Green, Brown 4A and Black with Deck Green. In mid-1944 the color range was simplified (Measure 31/20L) to Green #1, #2 and #3 and Brown #4. Measure 31/5P for PT boats used a base color of MTB Green with large patches of Navy Green (5-NG). Measure 31/4P combined Ocean Green (5-OG) with Navy Blue. Measure 31/T for amphibious transports was identical to base Measure 31 but used Ocean Green, Navy Green and Black.	 Green MS-31/20L on a Manley-class destroyer-transport  LSM-152 wearing the green amphibious Measure 31 variant

CAMOUFLAGE

Name	Description	Image
Measure 32 (Disruptive system, medium)	<p>Medium pattern Measure 32 was similar to Measure 31 but somewhat lighter, a mixture of obtrusive polygons in Black against background polygons of Light Gray, or Light Gray and Ocean Gray. The patterns and tones were designed to resolve at a distance to an average medium reflectivity of 20-30%. Measure 32 was applied to most surface ships in the Pacific during 1944, but in 1945 the Pacific Fleet reverted to Measure 12, 21 or 22 in the revised 1945 colors.</p> <p>As with Measure 31, there were also amphibious-craft patterns under MS-32/L in Light Green, Ocean Green, Brown 4A and Black.</p> <p>Measures 32/3SS and 32/9SS were submarine patterns that used a multiplicity of carefully shaded grays to counteract light and shadow and reduce the visibility of a submarine on the surface.</p> <div>   <p>USS <i>Saratoga</i> wearing Measure 32, Design 11A</p> <p>USS <i>Duluth</i> also wearing Measure 32, Design 11A, an adaptation of the same aircraft carrier pattern to a cruiser.</p> </div>	 <p>USS <i>Farenholt</i> wearing Measure 32, Design 3D</p>  <p>USS <i>Honolulu</i> wearing Measure 32, Design 2C.</p>
Measure 33 (Disruptive system, light)	<p>Light pattern Measure 33 was a mixture of polygons in Ocean Gray and Light Gray or Pale Gray, or Navy Blue with Haze Gray and Pale Gray similar to the Admiralty Western Approaches camouflage scheme. This was considered very suitable for weather conditions in northern waters and replaced 16 and 23.</p>	 <p>USS <i>San Francisco</i> wearing Measure 33, Design 13D</p>

In January 1945, BuShips revised its paint formulations due to a shortage of blue pigment, and with the realization that tone was far more important than hue in camouflage effect, eliminated the blue-purple shades which had characterized nearly all Navy ship colors whether called "blue" or "gray." The new paints were neutral grays, Navy Gray replacing Navy Blue (but confusingly receiving the designation "5-N" while Navy Blue became "5-NB"), and Deck Gray replacing Deck Blue. Ocean Gray and Haze Gray retained their names but lost their bluish cast. However, the new paints (which were shipped pre-mixed, not as tinting paste) were generally only available in stateside yards, while ships repainted at forward bases continued to use the older bluish colors. Moreover, for Measure 22 (but not 12 or 21), Navy Blue was still prescribed until existing stocks were exhausted.

In February the Pacific Fleet, deciding that the primary threat to its ships was now kamikaze, directed that all ships be repainted in Measure 12, 21 or 22, and dazzle schemes began to disappear again. All auxiliaries and odd-numbered cruiser divisions, destroyer squadrons and destroyer-escort divisions were to be painted in Measure 21, and all even-numbered CA/CL divisions, DD squadrons and DE divisions in Measure 22. Ironically, the Atlantic Fleet did not get the memo, and during 1945 ships scheduled for Pacific transfer were repainted in dazzle, only to be painted again in Measure 21 or 22 on arrival at the West Coast or Hawaii.

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