

# THE MSB JOURNAL

Volume II, Issue III

2008

A TYPICAL 74 FRENCH  
GUNSHIP

TYPES OF HULL CON-  
STRUCTION PART III:

Plank on Frame Hull

THE MATTHEW PROJECT  
PART IX:

The Upperworks Continued

USING POLYMER CLAY FOR YOUR  
SHIP MODEL ORNAMENTATION

SPLICE THE MAIN-  
BRACE:

Is it time for a round  
of drinks?



## The MSB Journal

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On the Cover

The 74 French Gunship

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## Editors Notes



First off, I have to introduce you to the newest crewmember on our ship. Meet Lila Rose. She was born the beginning of April. Needless to say there have been many late night watches over the past month. Of course I guess the joke was on me because while I sat and pondered what a marvel she was and what the future held in store for her, she was busy sawing logs!

Through it all I was still able to find time to put this issue together, though there were times when I wondered if I'd stay awake long enough to finish what I was working on! :-)

To give you a heads up, over the next month or so I am going to be changing hosting companies, so you may see some disruptions at the website and being able to access both the Journal and the site. Any disruption should only be a short one (if at any) so don't be alarmed.

We have kind of outgrown our current host and they don't offer packages in the range that we need to keep growing. If you need a good reliable web host for a smaller site (under 500MB), I would have absolutely no problems recommending this one. The price may be a little steep, but its worth the extra cost (only small). Having been online with various sites now for about 10 years or so, they are the best I have come across. I only hope this new host can measure up! :-)

Which brings me to this. In the upcoming year we are going to be expanding the site to include a members area so that we can bring you a more interactive experience. If you know anything about PHP, MySQL and CSS, and would like to help build a great website for all the modelers out there, I'd love to hear from you. Just drop me an email at [winston@modelshipbuilder.com](mailto:winston@modelshipbuilder.com) and I'll fill you in on the details on what kind of help we're looking for. We're also looking for people who would like to become involved to help maintain and grow the site once its up and running.

Okay, the Rear Admiral is calling! Enjoy this issue!

Winston Scoville  
[www.modelshipbuilder.com](http://www.modelshipbuilder.com)



## Types of Hull Construction Part III:

### Plank-on-Frame

by Gene Bodnar

Many people think that a scale model built plank-on-frame (POF) style is the highest expression of the wood ship modeler's art. It is the kind of model in which the builder starts with laying a keel, then builds the stem and sternpost, and then frames it as an accurate reproduction of the prototype ship. From this point, the exterior planking is trenailed onto each frame, as precisely as can be accomplished, just like in the prototype. Some POF modeler's carry it a step further by building much of its interior, including deck beams, knees, multiple decks, and all of its interior fittings, such as ladders, capstans, and whatever else may be found below-decks, ending up with a very impressive model that emulates the real ship in almost every detail.

This article will attempt to explain some of the mystery involved in building a POF model. Actually, this type of model is no more difficult to build than a plank-on-bulkhead model; it just has more pieces to make.

This article also assumes that you are familiar with lofting your own frames, meaning that you are capable of interpreting the lines shown on a set of plans and that you can draw frames from the given lines. If you are not familiar with this process, a few good sources of such information are given at the end of this article.

#### Laying the Keel

As with the real ship, we begin building the POF model by laying the keel. If the model is built on a large scale, it may be made of two or more pieces of straight wood jointed and glued together on a perfectly flat surface. It should be made a few inches longer at both ends than the length shown on the plans so that it will be held in a jig, which will be explained later.

#### Add the Sternpost

The sternpost is the piece of wood mounted at the aftermost end of the keel and is the place for holding the rudder. From the plans, determine the length of the sternpost, and use a piece the same thickness as the keel. It is a good idea to drill a couple of small holes up from the bottom of the keel into the sternpost, and then dowel them together.

#### Add the Stem

From the plans, lay out the shape of the stem (or cutwater), which is located at the front of the vessel, usually rising in a curved shape just below the projection of the bowsprit. Cut out this piece of wood, which is the same thickness as the keel, and then glue and dowel it in place.

#### Build the Deadwood

The deadwood appears at the bow and stern area of the keel assembly. It pro-

vides an extension of the keel to which other timbers, particularly

planking, is attached. It should be made of several pieces of wood the same thickness as the keel and fitted snugly together and glued in place. Make a few scarf joints in the pieces of wood to simulate the construction found in the actual ship. It is recommended here, too, that these pieces be doweled in

place to the stem and sternpost and to each other to give the entire assembly a lot of strength.

### **Cut the Rabbet**

The exterior planking will be resting in the keel, stem, sternpost, and deadwood areas at varying angles. The first strake of planking, called the garboard strake, will fit directly into a groove cut into these areas. The

object of cutting the rabbet is to allow the garboard strake to fit snugly into this groove. The width of the rabbet that is cut will depend on the thickness of the planking material and also on the angles at which the planking intersects the rabbet. A bearding line is usually found on most plans; this line represents the innermost extension of the rabbet. Note that at the stern near the keel, the bearding line is quite wide and rounded. This distance represents the area upon which the exterior planking will rest, tapering smoothly toward the sternpost. Using a steel ruler and an X-Acto knife, remove all the unwanted material, remembering to adjust the angle of the cut as you approach either end of the model. Use miniature files to clean out the rabbet as you cut.

### **Mark the Frame Locations**

One method of determining where to place your frames is called "room-and-space." There are other methods, but this is the one described here for illustration purposes. In the room-and-space method,

it is assumed that the width of one frame is equal to the distance between two frames. For example, if your frame width will be  $\frac{1}{4}$ " , then the vacant space on either side of this frame will also be  $\frac{1}{4}$ ". In other words, there will be a frame, a  $\frac{1}{4}$ -inch space, a frame, a  $\frac{1}{4}$ -inch space, and so forth.

Examine the profile view of the ship on your plans. Note the section

lines already drawn on the plans will correspond to the location of bulkheads, especially if you are using plans designed for a POB model. Note also that there is a "center" section line located about amidships in the plan. Usually, the plans can be easily converted to POF plans by adding additional "bulkhead" lines. Measure the distance between these section

lines to determine how many additional lines should be drawn to make each of them equidistant from each other, starting from the center section line. For the purposes of illustration, it is assumed that  $\frac{1}{4}$ " intervals will work. Mark your additional section lines all across your plans, making all of them

parallel to each other and perpendicular to the load waterline. It helps to color in the frames with a colored pencil for distinguishing them from the spaces. Then transfer these same lines precisely in the same locations to your keel assembly, again distinguishing the frame locations from the spaces.

### **Cut Out Frame Spaces on Keel**

The full frames (as opposed to cant frames) will be located between the two deadwood areas of the keel. The full frames will rest in notches cut out for each of them, and they will be perfectly perpendicular to the keel assembly when placed in the notches. Now cut out these notches to the depth you have determined in lofting the frames, which will end just above your rabbet.

### Make the Keelson

The keelson is the internal keel that is mounted immediately above the main keel on the upper edges of the bases of the frames. It secures all the full frames in place and also provides extra strength to the main keel.

### The Keel Assembly Finished

So far, the keel assembly looks like this:

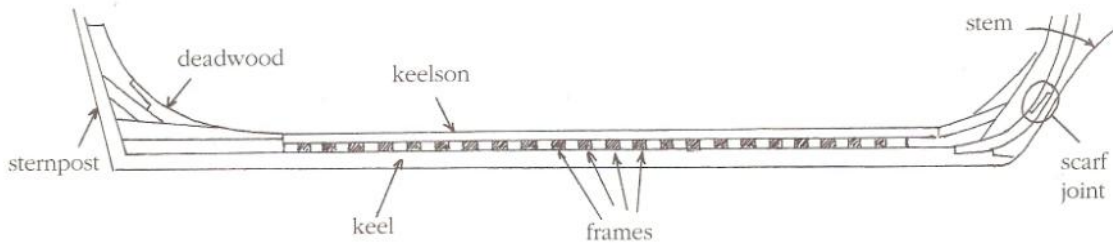


Fig.1

### Build a Framing Jig

To hold the keel assembly and the frames it is necessary to build a compound jig. The base of the jig, sometimes called the clamping jig, holds the keel assembly in place, ensuring that it cannot move in any direction. It consists of a perfectly flat board a little longer than the length of the keel assembly. Angle irons or other L-shaped material is attached to the board at the stem and stern, and small piece of wood are placed along the edge of the keel to prevent the possibility of the keel warping out of shape. It is a good idea to mark the location of all frames on the base of this jig. This part of the jig is shown in Fig. 2.

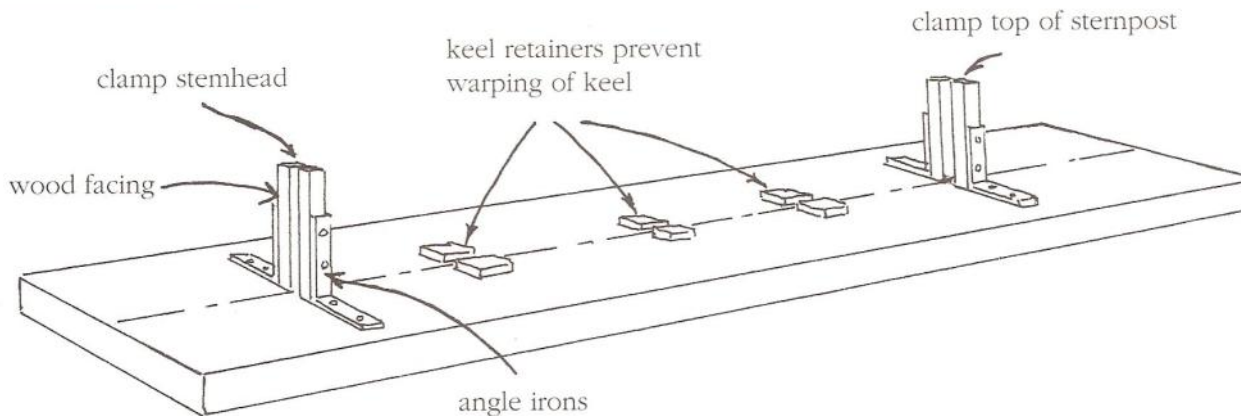


Fig.2

A second part of the same jig is called the alignment jig. It consists of a piece of plywood or Masonite cut out to the exact shape of the hull at the load waterline, with notches cut out for the precise location of every frame at the same load waterline. It is secured to the clamping jig below it with blocks of wood spaced so that it meets the load waterline precisely. Some builders use nuts and bolts for the spacing distance. The frame markings of this part of the jig should be directly aligned above the frame markings of the clamping jig. The final framing jig is shown below.



Fig.3

### Make the Frames

As mentioned earlier, it is assumed that you have lofted all the required frames, and that you are now ready to build them.

There are several ways to build frames, some more sophisticated than others. Some modelers will cut them from a solid piece of plywood; others will make them from several pieces of wood glued and doweled together, as shown below, with the grain of each piece of wood following the curve of the frame (see Fig. 4). Still others model them out of double layers of wood along with chock blocks between joints, just as they did in real ships.

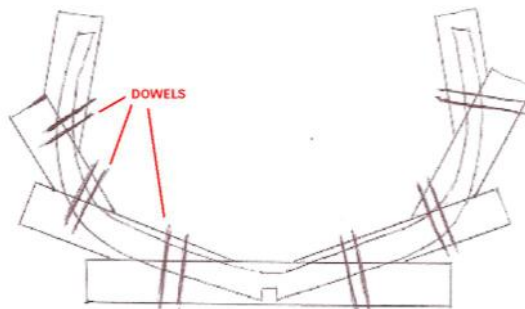


Fig.4

If you have lofted your frames properly, you have also determined the bevel required for each frame. Now is the time to form the bevel either by trimming with knives or by sanding it. It is critical that the bevel be made precisely. Just like in plank-on-bulkhead models, the bevel is the resting place for the exterior planking.

Temporarily install each frame in its location on your framing jig, aligning it perfectly within all the notches in your jig. Using a long length of

your exterior planking material, place it along several or you frames to check your bevel just as you did for POB models.

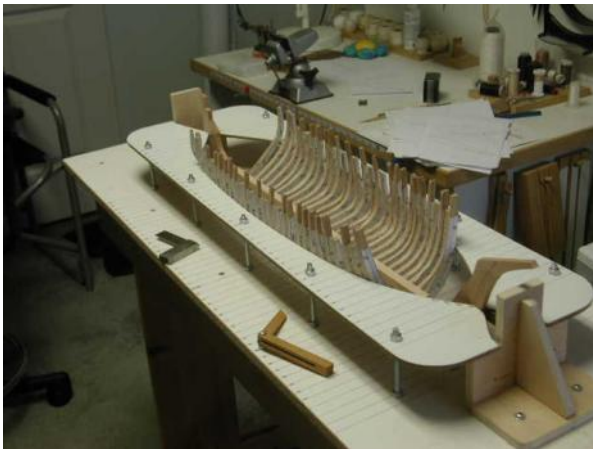
The cant frames at the bow and stern deadwood areas are different from the rest in that they are made in two pieces, with one half attached to each side of the deadwood at the places you've marked. They, too, require a bevel; in fact, the bevels at these points will be more extreme than at other locations, so be careful that they are accurate.

### **Install the Keelson**

Once all the center frames are completed – those frames not situated on deadwood – you may install the keelson, which rests directly atop those frames. It is recommended that you glue and dowel the keelson onto each frame.

### **A Great Example of a POF in Progress**

If you have followed these instructions for building a POF, your model should look similar to the outstanding example shown below:



**Fig.5**



**Fig.6**

### **What's Next?**

After you have completed framing your POF model, the remainder of the build is handled just like another other model. The exterior of the hull is now planked. A very big advantage of the POF model is that the planking will be much more accurate than any other method used, because the frames will be spaced much closer together than a POB hull, thus eliminating the need for a second layer of planking material. It is unlikely that there will be bulges or inaccuracies you commonly find in POB models. Each plank, of course, can be trenailed precisely to each frame, just as the real ship was



trenailed, and they have a solid backing to connect to as well. Your planking will be finished in the exact same way as the real ship.

Another big advantage to building the POF hull is that you can build as much of the interior of the hull as you like. You are no longer hindered from doing so, because the entire interior is still wide open. You can add other decks, if you like. You are only limited by details you see on your plans. Actually, if you do further research, you may be able to build the entire interior exactly like the original ship. If you do this, you may also want to leave several of the exterior planks off the ship to show your handiwork. There's nothing like the feeling you experience when you successfully complete a POF model with your own hands.

### The Hahn Method of POF

An important addendum to this style of hull construction is the Hahn method, named after Harold Hahn, a prominent shipmodeler who developed the method. Briefly, his method lengthens and extends all frames to the same plane such that the tops edges of all frames are parallel to the keel. He then constructs a framing jig that connects all the top edges of these frames so that the frames correspond to the shape of the load waterline. Then, the frame is inverted so that it now becomes the base of the jig, and each frame is inserted into the base upside down and attached to the keel, which is now located at the top.

The biggest advantage of the Hahn method of POF construction is that it guarantees that the shape of hull will be perfectly symmetrical at all points. It also makes the model much easier to plank, because the model is always upside down as the planking progresses. A couple of pictures of an outstanding model in progress will serve to illustrate the process:



Fig.7



Fig.8

A disadvantage of the Hahn method is the fact that there is a considerable wastage of wood. After all framing and planking is completed, the frames are sawn off at the rail level, which means the portions of the wood frames between the rail and the edge of the jig are wasted material that is simply scrapped because it's not much good for anything else.

## The Next Article

The next part to this series of articles will briefly cover Admiralty models.

## Further Reading

For further information on reading and interpreting plans, lofting your own plans, and building plank-on-frame models, the following books are highly recommended:

1. *Plank-on-Frame Models, Volume 1* by Harold Underhill.
2. *Ship Modeling from Scratch* by Edwin B. Leaf.
3. *Historic Ship Models* by Wolfram zu Mondfeld

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## Credits

Fig. 1 -- from *Ship Modeling from Scratch* by Edwin B. Leaf, p. 51.

Fig. 2 -- from *Ship Modeling from Scratch* by Edwin B. Leaf, p. 55.

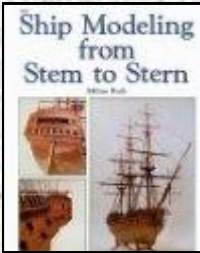
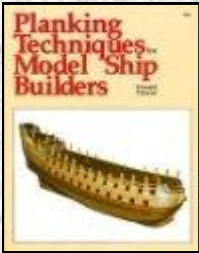
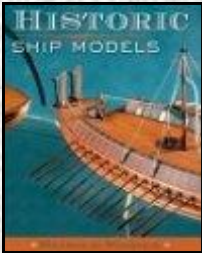
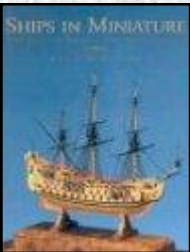
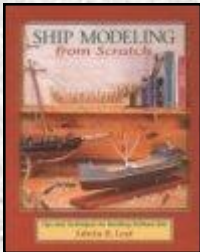
Figs. 3 & 4 -- courtesy of the author.

Figs. 5 & 6 – Brigantine *Leon*, courtesy of Keith Harrison of [www.modelshipworld.com](http://www.modelshipworld.com)

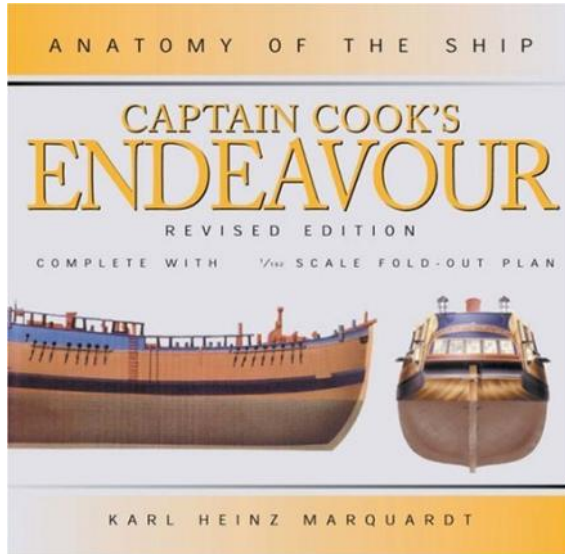
Figs. 7 & 8 – Frigate *Confederacy*, courtesy of Eric Tilley of [www.modelshipworld.com](http://www.modelshipworld.com)

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**In the Anatomy of a Ship Section**

# The Matthew Project

## Part IX

### Bulwark Planking



Planking the bulwarks begins with the scuppers shown on the photo of the Matthew. The Matthew built in

England simply left off the first plank above the wales at midship. We will begin by marking out at plank at every stanchion and dividing the width of the plank in half. Using a drum sander each scupper is sanded out leaving nice rounded corners.





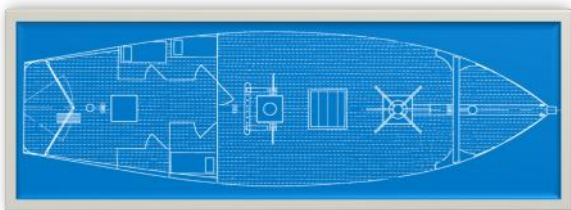
Once all the scuppers are sanded into the plank it is positioned on the hull at mid ship and the bulkheads are planked to the cap rail.

With the planking complete to the cap rail we will stop at this point and move on to

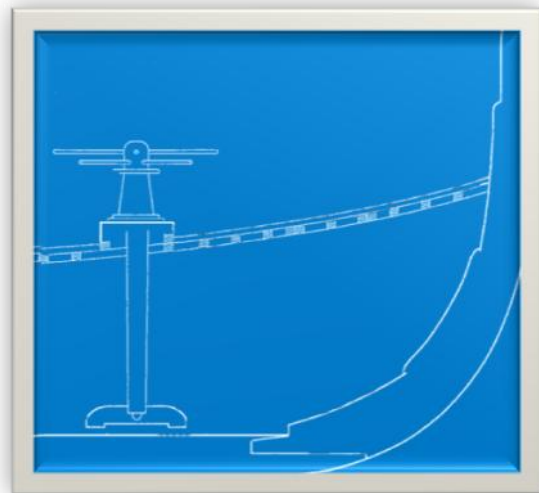
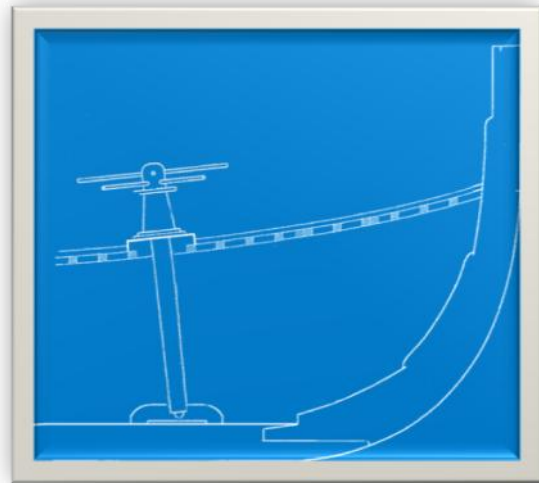


laying out the main deck. There are various molding pieces, which fit at the quarter and forecastle where the deck meets the side of the hull. In order to install these decks the main deck has to be laid down first.

Looking at the deck layout we will need to install a few items before we can start lay-



ing deck planking. Starting at the bow the first pieces will be the platform the capstan sits on. The deck is not level, it has a sheer from the bow to the stern, if the capstan platform were laid on the deck it would have a slant as shown in the first drawing. In the second drawing the capstan platform is wedged shaped allowing the capstan to sit vertical. On the model a wedged



shaped platform is used. Exactly how the platform is made will be up to you as the builder. In the photo it appears the platform is higher in the middle then tapers to the front and back. This platform would



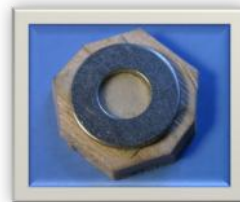
Building the rest of the capstan began with turning the spindle to the measurements

have been made of two or three heavy timbers rather than one piece.

It's a simple job to make the platform. Cut a piece from the 1/4 thick sheet material to the size indicated on the plans. Cut a groove along the two sides to the correct depth then clamp the piece in a vice. Proceed to sand down the surface until its even with the groves on either side.



on the plans. Two circles were cut from sheet stock and black paper was glued around the edges to simulate the banding. Cutting the circles for the spindle and the head peaces is a simple job of finding an exact size washer and using it as a guide. Using a



double sided tape stick the washer to a piece of wood. With a single edge razor blade continue to nip away the wood until you have a nice circle.

The three head piece you just cut now have to be split for the bars. Using a piece of two sided tape stick the end of a bar to the center of the circle piece. With a sharp



razor blade cut on both sides of the bar producing two semi circle pieces. Do this with all three circle pieces. Mark out the center of the spindle circle and place the bar in the center of the circle. Glue the two



semi circles on both sides of the bar. Before the glue sets remove the bar so it does not end up getting glued to the circles. Do the same thing with all three circles being sure you rotate the location of



each bar. The final piece is the drum cap. With everything glued in place sand the drum smooth.

You can glue the capstan together but at this time do not glue it to its base. If you glue the capstan to its base it will be in the way of planking the deck.

Looking at the capstan on the Matthew there are thin boards called whelps attached around the spindle. You can either scribe lines in the spindle and cut a small notch at the base or add the thin boards around the spindle.



The next item is a hatch, which will take a bit more work to create than the simple platform. Before building the hatch coaming, let's first examine a real hatch and see how they are built.

In this photo the view is from inside of the hold looking up through a hatch. A com-



mon error model builders will make is place the hatch coamings on top of the deck

planking. In actual construction the coamings rest on the deck beams and carlings with the ends of the deck planking butting against the sides of the coamings.

The next photo is standing on deck looking at the hatch. The white arrow points to the coaming, the yellow arrow is the deck beam and the blue arrow is the carling.



At the corners coamings have a lap joint which is fastened with a long spike which goes down through both coamings and into the beam below. The white arrow points to the head of this spike. The height of the coamings will vary from ship to ship and

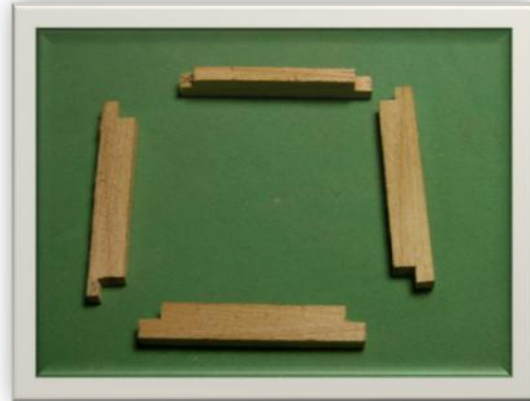


from builder to builder. An average is 8 to 14 inches.

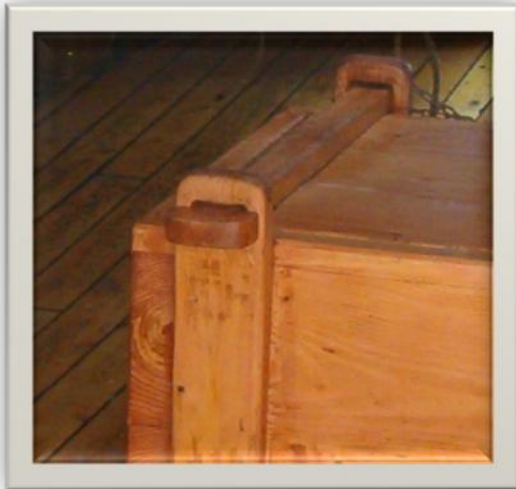
The Matthew hatch has a separate piece on the top edge forming an inset for the hatch covers. There is a piece fastened to the side of the coaming with a slit cut in one



end where a board is slid through to hold the hatch cover boards in place.



with an overlapping joint and then two sides are glued using a square block cor-



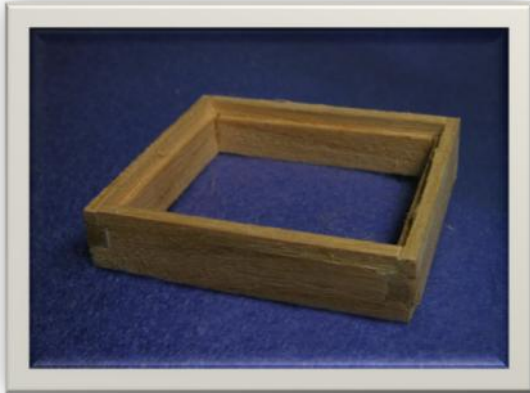
ner . After you have a set of two sides

Hatches on the Matthew appear to be about 18 to 24 inches, which seems to be a little high for a coaming, on the model the coamings are 12 inches. There is no right or wrong way, so if you want to make your coamings 12 inches or 20 inches the choice is up to you. If you do decide to go with a higher coaming you will not be able to overlap the corners. Corners on the higher coamings will either have to fit at a 45-degree angle or butt together.

The following steps are using a piece of  $\frac{1}{4}$  x  $\frac{1}{8}$  inch material. Each corner is cut



glued up, glue the two pieces together to

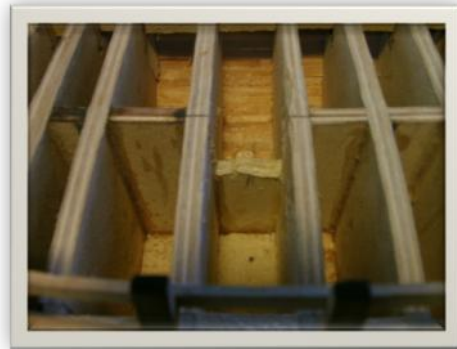


form a complete coaming. Once all the sides are glued together place a 1/16 square frame around the top to form a ledged for the hatch cover boards.



Carlings were added to between the bulkheads for the hatch coamings to sit on and add a surface along the hatch for the planking.

Next in line are the mast partners. First the center profile piece is cut away so the mast can drop below the deck. A piece of dowel is positioned and two side supports are



glued in place. Making the mast partner is

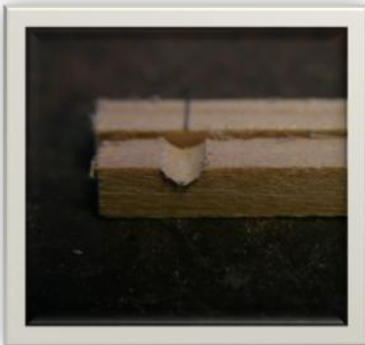
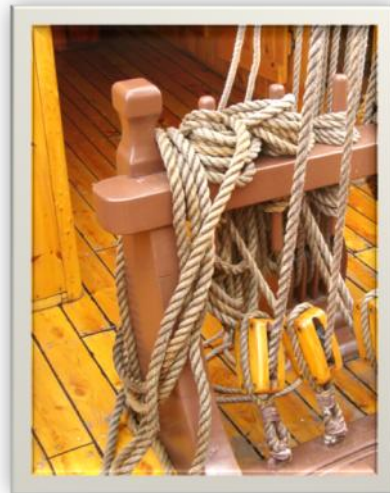


a simple job of cutting a square to the size indicated on the plans and cutting a hole in its center for the mast. Position the partner so the mast hole is tight to the forward



bulkhead and not centered between the bulkheads.

Three pin rails are needed of slightly different sizes so we begin by cutting to length six pieces of square stock and clamping them together. Draw a line for the center of the curved section. The series of photos show how the rail is assembled and glued to the face of the bulkhead.



At the break of the quarter deck the Matthew leaves the middle section open with a cabin on either side. It was a common practice to completely close off the break of the quarter deck with a bulkhead. As a model shipwright you can choose either way and either would be correct. My thought was to close off the end of the quarter deck with a bulkhead to make a dry cabin area. This was an exploration ship and was intended to sail on the open ocean. A dry cabin would be quite welcome by the crew. Bulkheads sat on what was called a sill. This



sill had the same purpose of coamings around hatches. They sealed the hatch or in this case the bulkhead from water seeping in. In the B&W photo you can see the sill being pointed to by the blue arrows. If you intend on building a bulkhead start with adding a landing for the main deck planking. This was done by gluing two pieces of wood to the outer face of the bulkhead shown by the white arrow. A sill sits directly on the deck beam and the deck planking butts against the side of the sill and caulked between the decking and sill. Looking at the photo you can see how the use of a sill would prevent water from getting into the cabin area, as apposed to the bulkhead sitting directly on the deck.



There are a few other items to add to the deck but they will be added after the planking is finished.

## A TYPICAL 74 FRENCH GUNSHIP



This article is divided in 3 parts:

1. Use of exotic wood for their grain and color
2. Getting over basic tooling
3. Ultimate lighting

### Part I Use of exotics woods for their grains and color

This scale model above is realised at 1/48 scale. It is ready for masting and rigging. The model follows a previous 74 gunship built at 1/192 scale. Third model will also be built of the same 74 gunship but this time at 1/24 scale. The figurehead represents a Minerva with an antique hat who is pulling the sword out of the scabbard. The greater the scale, the easier it is to work, and you can render the details with much greater precision.



Scale 1/192



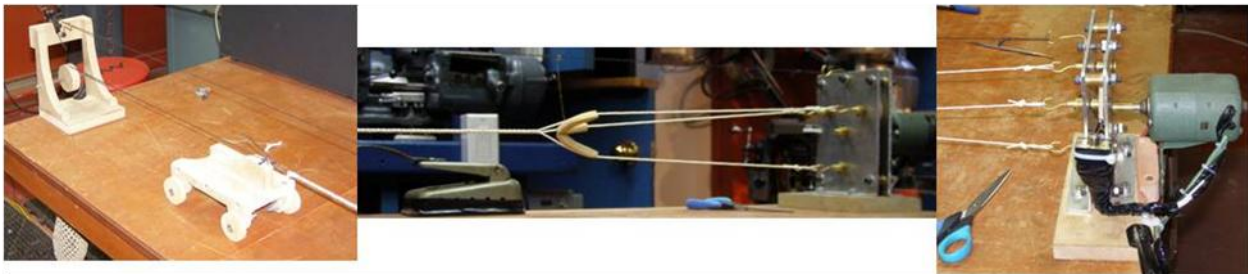
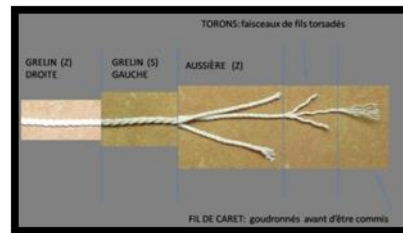
Scale 1/48

There will be three 74 gunship built, however, different woods and different techniques will be used for their construction. The references used to build this model ship are 4 volumes of Jean Boudriot. These volumes are not a practicum, but do explain with great detail the construction of the 74 gunship. When you have so much information about the same ship, you can produce a high quality model many details and you can learn so much about the construction and the history of the French naval construction.

I began this model 1½ year ago. I like to try different wood color combinations. Matching colors is not easy to get harmonious results. On the other end, I could not do a monochrome model entirely realised in one kind of wood only. I do not want to use paint or dye on the wood. For the finishing, Danish teck oil is applied. The use of exotics woods and oil helps to give an overall appearance a look of a model ship built 100 years ago... and for my taste, this is the look I am trying to achieve.

For the rigging, I have 1 kg roll of linen. With this roll I can turn all the necessary rigging I

Example showing the composition of a cotton rope



need. To increase the diameter of a line, I simply add more linen threads on the rope machine.

To get the desired color effect on the standing rigging, I use a dye powder called "Acajoutine". I mix brown and red dyes together to obtain a brown reddish color to imitate the tar used in that period.

Although pearwood is a fruit wood, it could be considered one of the less dense of the exotics woods. It is exceptionally easy to work for this category of wood. Boxwood works

great for sculpture and smalls turnings. Ebony is excellent for the black parts, but it is not easy to bend when it is too thick, it must be laminated. Bubinga, when carefully chosen, works great for the framing, it looks like wood grain at the good scale. It also gives an older look to the scale model. Bocote imitates old oak at this scale. For the mast, gongalo alves gives a nice effect. I have also tried bloodwood for the red parts but it is hard to work.

### Part II Getting over basic tooling

In a first period, I built model ships for 15 years. I believe that it is a normal progression over the years to upgrade tooling when you want to save time and to work in a better and easier way.

At the beginning, an *Xacto* knife was used. One day, I discovered scalpel blade. This blade is thinner than *Xacto* blade, it can break easily but it cuts so much better. When you working with a scalpel handle for a long period of time, you can get cramps in your hands. So, the next step was to buy another scalpel handle covered with acrylic which makes it much easier to work with.



Here is another example with sanding. At first, I bought a disk and belt bench sander. When you place a block of wood on the table, you can sand it perpendicular to the table. Then, one day I wanted to do the same thing with a small steel block. You can achieve it, but it takes a long to do. If you apply too much pressure, the block will not have perpendicular sides. The next step is to buy a better sander, or even better, you can build one as I did. The knife belt sander works very fast and can be very precise for wood and as well for metal.



Let's know see the use of a lathe. Watchmaker's lathe is not made for us. A mini lathe is more appropriate and versatile. With this kind of lathe, you can turn a pass of .001" at a time. Turning a big part with this lathe can be a very long and tedious task. The next step is a tool room lathe. This lathe is not expensive as you may think at first. I bought it used and I paid \$2000 about 5 years ago. This lathe can easily take .01" by pass. This means, you can produce a piece 10 times faster.



Metal lathe tools accessories can be very expensive. As an example, if you buy a 3 jaws chuck with a precision of .001", you could pay \$150 depending of the size. If you buy one with a precision of .0001", you would have to add a 0 to the price. Again, another option is to build the tools you need.



When I had badly fractured my right index finger, I had stopped model ship building for a while. I did not have enough dexterity to make knots for the rigging. Instead I changed to tools building. During this second period, I wanted to be able to build anything I wanted. To have a lathe was the first goal; to equip it is the second, because there is always a missing tool to build a more complex tool. For the metal, 3 categories of tools and accessories are needed: lathe, milling and grinding. I went through that spiral for a period of 10 years. 1½ year ago, I did not have any more tools to build. I now had a options to do the work I wanted. I like to use my hands and my brain to create something so, I turned once again to model ship building.

Many tools we use already exist in other professions. Dentistry can offer us a wide

variety of dental burs perfectly suited for our needs. The jewellery world is a very helpful world. It is nice to say: "If you buy a tool, buy a good one". This is not as easy as it is sounds. When we begin to build model ships, we are not aware of the wide range of tool availability on the market. So we buy the tool we know at this moment and we use it as long as we do not need any better.

The first rotary tool I bought was a *Dremel*. I had many years of satisfaction with it. But this tool is heavy, not very strong and is very noisy to use. *Foredom* shaft was the next step with different heads through the times. The *Foredom's* shaft decreases the dexterity of the user. To eliminate this shaft, we can go one step further; *Gesswein* electric rotary handpiece. The speed

turns from 0 to 50,000 turns per minute. The motor is very quiet. The precision and the dexterity offered by this tool are outstanding.

One last point, when I work, there is no other tool on the table than those I need at this moment. I want to have as less possible tools on the table. The cleaner is the place, the easier it is to work, and the easier it is to find the tool when you need it. The little tools that I use regularly are placed in the tray system near by the table.





### Part III Ultimate Lighting

Lighting is an under-estimated subject. To clearly see an object, 2 things must be considered; accurate vision and lighting. When I need to work on small objects, I use a head magnifier with interchangeable lens. It can be use with or without eye glasses. For the sculptures and smalls detailed works, I use a surgical loupe. If I need to check a very small detail, or if I want to check a first part of a series, I use a gemmology microscope.

A well adapted lighting greatly facilitates the work and reduces the ocular tiredness. Basic lighting is done with neon fixtures on the ceiling. Incandescent light must be avoided. A good neon quality produces a good color rendition. For the close range work, a *Dazor* jeweller's bench top light with 3 neons is the best. Finally, for the small details, I bought surgery lights on *eBay*. With this type of lamp, there will be no hidden details and the color rendition will be very close to the reality. Dentist's lights are not as powerful. Their color rendition is much less accurate. I do not use anymore halogen lamp because it radiates too much heat and color rendition is too yellow. These types of lamps are fixed to the ceiling and it is possible to adjust it in almost any position. From all these previous lamps, if I had only one to choose, I would pick the one I use the most often; the *Dazor's* jewellery lamp.

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*You'll soon be able to see more pictures of these models at the **Model Ship Builder** website in the model builders section.*

## *What Ship Is This?*



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### ***Last Issue***

#### **HMS Ark Royal**



This is the fifth vessel to bear the proud name. Ark Royal was built by Swan Hunters Ship Builders' yard at Wallsend in December 1978 and launched by Her Majesty Queen Elizabeth the Queen Mother. HMS Ark Royal was accepted into service on 1 July 1985.



## SPLICE THE MAINBRACE!

by Gene Bodnar



In pirate movies, in books, in bars, in today's popular culture, you hear it frequently: "Splice the mainbrace!" It's time for a round of drinks. The term originates, of course, from the days of the wooden sailing ships. It was an order to perform a difficult and dangerous repair job aboard a sailing warship, frequently right during the engagement that caused its loss.

As every ship modeler knows, braces are the lines that control the angle of the yards. The mainbrace, especially on a first-rater, was the heaviest rope of the running rigging, up to five inches in diameter. It was common practice during a naval battle to aim for the mainbrace; if it was shot away, the ship would stay on the same tack, could not be steered at all, and became a much easier target of destruction for the adversary. Therefore, if the main-brace was severed, it had to be repaired immediately if the vessel expected to survive. Splicing in a large run of rope required strenuous effort by the ship's best Able Seamen under the supervision of the Bosun, and it was a task upon which the ship's safety depended.



*Pulling up the Port Main Brace*

Indeed, splicing the mainbrace was so difficult that, when the task was completed successfully, it warranted the issue of an additional ration of rum to the Ship's Company. It was customary for the Bosun to always get a sip from the ration of each of the men he had selected for the task.

Eventually, the order to "Splice the mainbrace!" came to mean that the crew would receive an extra ration of rum on special occasions, especially after victory in battle or the change of a monarch or a royal birth.

In recent times, the issue to splice the mainbrace was heavily restricted. For example, the Royal Navy allowed only the Queen or the Admiralty Board to issue such an order. The Canadian Navy allowed the Queen, the Governor General, or the Chief of the Defense Staff to issue the order.

Nowadays, the order is somewhat more freely given than it once was. As recently as 2002, the Queen issued the order after merely reviewing the fleet off Portsmouth.

In common usage, the phrase refers to an invitation to have a drink after a hard day, or even not so hard a day.



## ***Online Discussion Forums***

In this issue we continue on with our list of discussion forums. These are online forums where model builders can connect to discuss all aspects of model building. They are listed in no particular order of importance as all have something unique to offer you the modeler. If you know of a good discussion forum you think others would like to know about, by all means let us know by sending us an email at [msbjournal@modelshipbuilder.com](mailto:msbjournal@modelshipbuilder.com). Eventually, we'll get them listed in this section.

### **Admiralty Board**

<http://admiraltyboard.imsaw.com/index.php>

The Admiralty Board is a discussion forum which only recently started up. I'm not sure what direction it's going to go in, but from my discussions with the owner Andrew Gilmour it certainly has some promise. What direction do you think modeling is heading? Join in the discussion.

### **Model Ship World**

<http://www.modelshipworld.com>

A very active and friendly discussion forum. There are also a few online projects that may be of interest to those of you who either scratch build or want to learn how to scratch build. At present: The USS Syren (POB), The HMS Triton (section build and full build) (POF) and the 100 Gun Royal Albert (POF, POB and Admiralty).

### **Warriorgroup**

<http://groups.yahoo.com/group/Warriorgroup>

This discussion group is primarily focused on scratch building 17th and 18th century wooden ship models using plank on frame methodology. The membership is composed of modelers at all levels of expertise. Discussion of all topics related to ship modeling are encouraged, and everyone is welcome to comment.

## Using Polymer Clay for Your Ship Model Ornamentation

by Chuck Passaro  
cpassaro@mindspring.net

You have probably marvelled at the carving skills of 18th century masters when visiting a naval museum. I am sure you have admired the intricately carved details of a figurehead. Some ship models have an



abundance of finely carved and elegant scroll work. Sometimes these elements are gilded or painted or left in their natural state. One of the most intimidating aspects of ship modeling is how to approach carving these details.



One alternative might be to sculpt these details rather than carve them. Sculpting a figurehead from polymer clay affords you the opportunity to continually tweak your work before curing it. When carving out of wood, a mistake can be much more difficult to fix. It usually requires that you start over rather than remedy the situation. Wood can easily split and crack and adding additional wood material to correct a deep gauge or misplaced cut would certainly show up on an unpainted figurehead.



I recommend experimenting with some Polymer clay like SCULPEY or FIMO. These clays come in a variety of colors that can be mixed. Sculpey also comes in metallic colors like gold and bronze and after being baked the ornamentation would not need to be painted. The gilded effect is quite nice and the most intricate details are not lost by painting them. In the case of Sculpey there are several grades of clay that have a different sculpting texture and consistency. You should choose the right clay for your application on the ship model. I regularly use Super Sculpey or Sculpey III. Super Sculpey comes in a limited color palette but is great to use when very fine detailing is required. This clay is baked in the oven until it hardens. After it cools

down the clay can be sanded, drilled and carved. It can be painted and accepts stain as well.

**SculpeyIII** – Comes in dozens of colors including metallic. Is less brittle after baking. However it captures less fine detail. Remains somewhat flexible after baking.



**Super Sculpey and Super Sculpey Firm**

- Much better for fine detailing. More brittle after baking. Only comes in Flesh tone. But easily stained. The firm type only comes in dark green and is also brittle if baked to long or very thin pieces are made. Can be mixed with SculpeyIII to make it more flexible and easier to work with.

The tools needed to sculpt the ornamentation and figureheads for a model are no different than any other sculpting tools you might find in an art store. They just need to be smaller. Some folks will use dental tools to good effect on small miniature sculptures. Dentil picks with varying sized tips can be bought on EBAY very cheaply. Overall the tools are very inexpensive and many can be home made. Wooden dowels can be tapered and shaped to suit. Shown



below are some typical tools. Those with the different shaped open loops are used to remove clay from your piece rather than push it around and texture the clay's surface.

Some people prefer softer clay to work with and there is a clay softener available from Sculpey. Just a drop or two on the clay while kneading it with your fingers will soften it up considerably. Softer clay will not hold details as well as firmer clay. If the clay begins to get sticky and difficult to work with simply dipping your tools into water will take care of it. Some sculpter's prefer to use corn starch much like a baker would use to prevent the clay from sticking to your tools. This will be important should you decide to create a push mold. You can quickly duplicate your carved pieces using one. Gun port wreaths and scrollwork can be precisely molded and dozens of copies produced.



To produce the push mold just prepare a piece of SculpeyIII a little larger and thicker than the piece to be duplicated. Coat the original with corn starch or brush it down with water to prevent sticking. The same should be done with the surface of the Sculpey you will be pressing the original into.



Press the original into the clay firmly and then remove it. Be careful not

to distort the unbaked mold while removing the master. Bake the mold to cure it. Just like anything else Sculpey can burn if baked for too long so adjust the temperature and time according to the directions given by the manufacturer. With the mold completed it is a snap to create multiple copies of your original. Coat the mold as mentioned above with corn starch or water and then push some uncured Sculpey into it. Remove the Sculpey carefully and you have a perfectly formed duplicate. Trim off any excess clay and bake it.

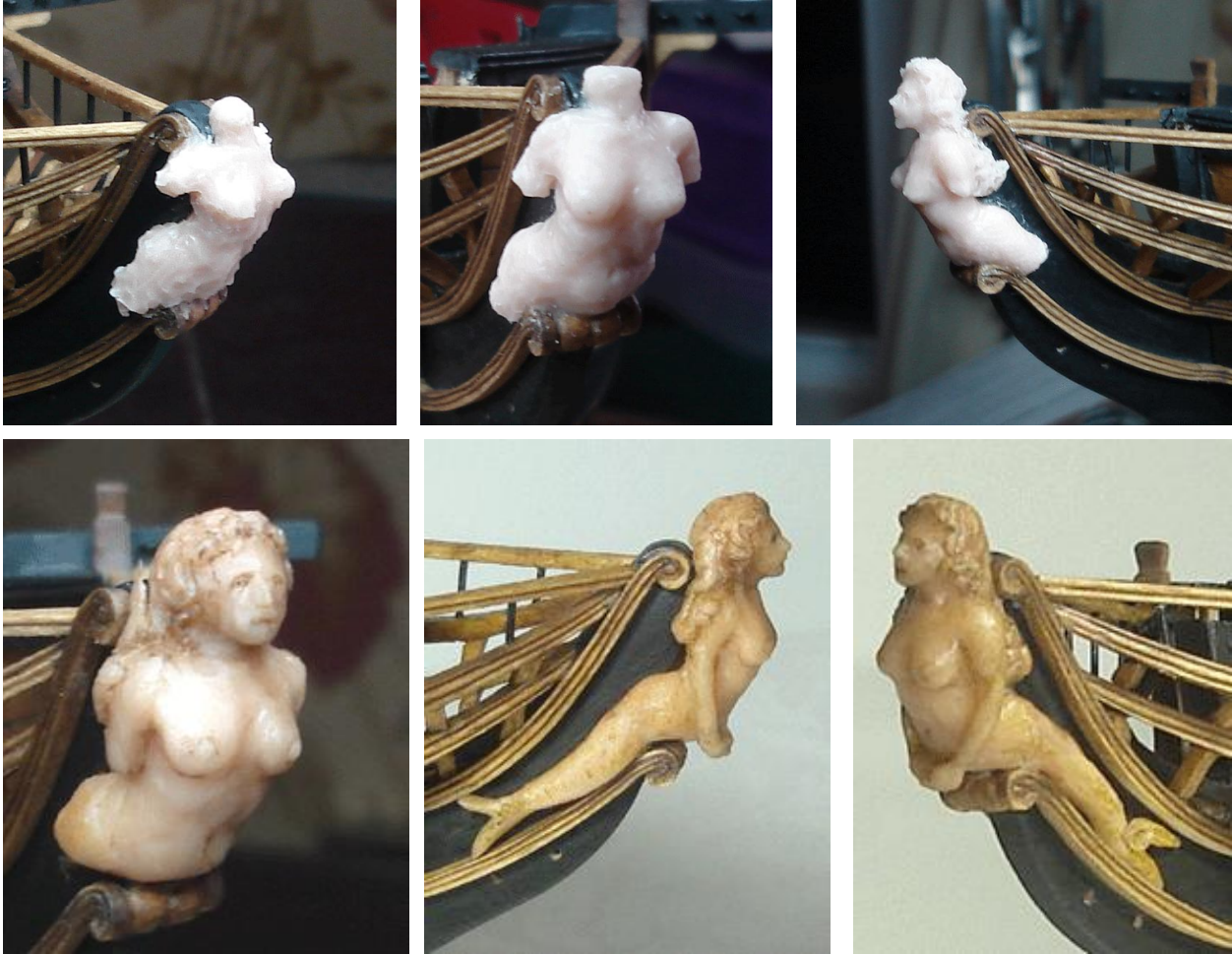


This is the technique I used to create the quarter badges for my model of the US Brig Syren 1803. It was easier to fabricate the original with mixed media. Wood, wire, clay and whatever else I could find lying around was used to make the master shown in the photo provided. It doesn't look pretty because of the colors and textures on the original piece. So I took that master and created a push mold. The photograph on the right side shows the molded badge after it was stained several times. I used the same wood stain that was used on

the hull planking. Super Sculpey was used. Its pink, fleshy color was a great undercoat and it took the stain pretty well. You will probably need to use many coats of stain to get the deeper shades you desire. The window panes were painted black afterwards. You can see the color does match the surrounding planking and the surface of the badge different than if you painted it

It would also be good to point out that polymer clay can be baked more than once. When creating larger or more complex pieces it is best to complete it a portion at a time. For example, if you were creating a figurehead you could sculpt the torso first and then bake it. This will prevent the torso from being damaged or altered. Then you can add the head and arms to the piece afterwards because the torso will now act as a strong foundation to build upon. Then bake it again. Then add some more details and bake it yet again. This stepped approach will give you some flexibility. The completed sections can still be sanded and carved if they need to be worked on. Preparing the figurehead in increments this way will alleviate the need for any wire framing to make it structurally stronger before baking it.

I have included some pictures of the Syren figurehead for my model illustrating this technique. The torso was actually rough shaped on the stem of the model. It was removed from the stem and then baked. I repositioned it back on the stem and the head was added. I used some clay softener on the joint between the cured torso and the uncured



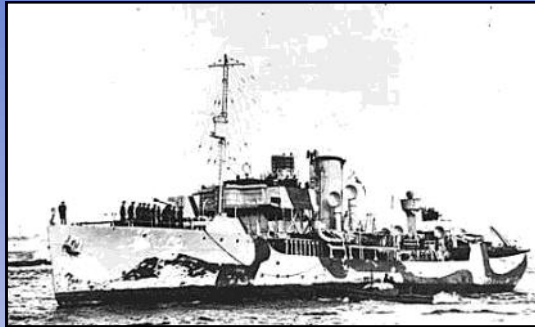
head. I applied it with a paint brush which made it easier to blend the two pieces together. Then I baked it again. The same methods were used to add the arms and then finally the mermaid's tail.

I hope after reading this introduction to polymer clay you might give it a try on your own ship model. There are a large number of websites and forums devoted to sculpting with polymer clay. A simple search on Google for the keywords "polymer clay tips and techniques" or "sculpting miniatures with Polymer clay" will yield hundreds of advanced techniques. Polymer clay is a very versatile and acceptable material for many of our ship modeling needs.





# Badges: Heraldry of Canadian Naval Ships



## HMCS BRANDON

### Description

Vert a seahorse Argent gorged of a ducal coronet and holding a trident Or.

### Significance

The horse from the unofficial symbol for the City of Brandon appears as a seahorse in the ship's badge. Around its neck is a ducal coronet recalling the Duke of Brandon for whom the city was named. The seahorse also holds a trident recalling the ship's defensive capability.

### Motto

Vires acquies eundo (She acquires strength through progress)

### Colors

Green and White

### BATTLE HONORS

The Second World War  
ATLANTIC, 1941-45  
Gulf of St. Lawrence, 1944.

## Contributors Pictures

Here's an update from Mike Pendlebury on his current project. Looks like he's about to wrap things up soon.

The next major items to be built were the deck air boxes that are under the side benches. These were beech blocks covered with lime sheeting and then had the slats for the seats fitted on top and incorporated the anchor cable locker at the front on the Port side. The mast tabernacle was also fabricated and pinned to the deck. The other deck fitting is the cover over the drop keel for when it's raised out of the way on the slipway in the boat-house.



The rigging for the sails was next, all the rigging was made to work in the correct manner to allow the mast to be folded down. The working shackles shown are only 6mm long as are the working brass pulleys.

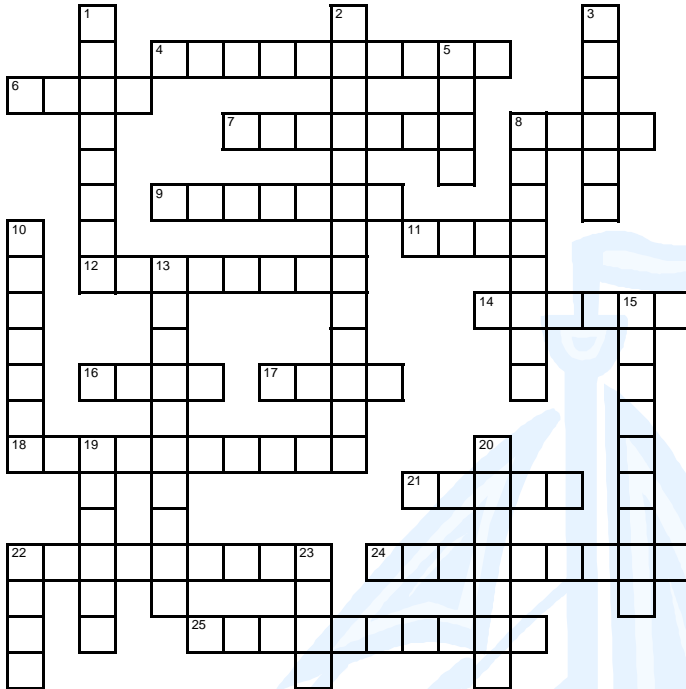






The above picture was sent in by Chip Reahard. This was Chip's first modeling project and it included the display case. Very nice job Chip! I only wish my Phantom had made it that far! You certainly have more patience than I do! :-). Currently he's working on the HMS Bounty Launch. I look forward to seeing that one as well!

**Parts of a Sail** by Gene Bodnar



**Across**

- 4 Lee edge of a fore-and-aft sail
- 6 Uppermost corner of a gaff sail
- 7 Small bulge in a furled sail
- 8 Middle part of a sail
- 9 Addition piece of canvas laced onto the lower edge of a bonnet
- 11 Small piece of canvas sewn into the middle of a sail, near the head, with an eyelet in it to take a line
- 12 Sliding ring of wood or metal which attaches the edge of a fore-and-aft sail to the mast
- 14 Any sail that widens towards its foot
- 16 Area of a sail between the head and any of the reef bands
- 17 Forward upper end of a sail set on a boom
- 18 Fitting consisting of three or four metal rings, used at the clew of a sail to take the bolt-ropes, sheets and other ropes

- 21 Curve of the edge of a sail, either inwards or outwards
- 22 Canvas made from flax or cotton
- 24 Reinforcing strip of canvas running horizontally across a square sail, halfway between the close reef and the foot
- 25 Strip of canvas reinforcing the belly of a sail

**Down**

- 1 Overlapping edges of two pieces of canvas sewn together
- 2 Small strengthening stripes of canvas at the corners of a gaff sail
- 3 Additional piece of canvas laced to the bottom of a sail in moderate weather to give it more area
- 5 Lower corner of a square sail
- 8 Rope sewn all the way around the edge of a sail to prevent the canvas from tearing
- 10 Small lines, like hoops, sewn to bonnets and drablers in order to secure them to the sail above
- 13 Extra line sewn on the seam of a sail giving addition strength
- 15 Rope hanging from the mast-head passed around the truss supporting a yard to keep it up
- 19 Short length of rope used to lash the upper corners of a square sail to the yard-arm
- 20 Broad hem on the edge of a sail, to strengthen the part sewn to the bolt-rope
- 22 Slack part of a sail which hangs down when leech lines are hauled up
- 23 The upper part of a sail

Parts of a Sail Answers

