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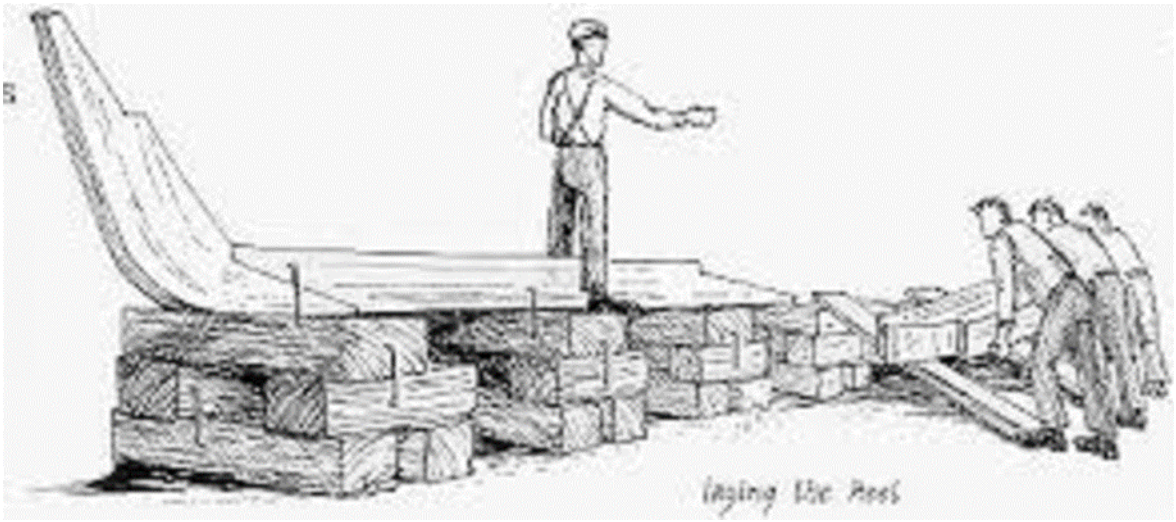
Laying the Keel

By Gene Bodnar

As a model shipbuilder, you are aware that the building of a real ship begins with the laying of the keel. The shipwrights knew the length, the molded and sided dimensions, and any other information necessary to start building it. But, as you may not know, there are a host of other factors that were taken into consideration by the shipwrights to guarantee a prosperous and lucky ship.



First of all, before any work on the keel was started, drinking to the ship's health was a necessity. Failure to do so could bring the ship bad luck. The next thing to do was to ensure that the keel would be laid in a north/south alignment whenever possible. Shipwrights believed that the finished ship's inherent magnetism should be aligned with the poles in order to reduce any compass deviations. It was also believed that when aligned in this manner, it allowed the ship to weather evenly on both sides during its construction.

Never start laying a keel on a Thursday or a Friday, which are two days associated with stormy and fiery tempers of the gods, Thor and Frigg. The gods must not be tempted to interfere.

Having the youngest shipwright apprentice place a newly minted coin under the keel and constructing the ship over it was thought to bring good luck to the ship during its construction and to the captain and the crew during her later life.

There were many good omens for the laying of the keel. It was thought that the presence of seagulls boded well for the start of the build. Seagulls were thought to be the reincarnated spirits of old sailors, and nothing could bring better luck than having such spirits present. Another good omen was

a west wind accompanied by a rising tide, or better yet, a full moon visible during the day. This would ensure an abundant catch for fishing vessels or complete success to carriers of cargo.

Some shipwrights believed it was important to drive the first spike into the keel through a horseshoe, which promise good luck. However, if the hammering of the first spike generated even the slightest spark, the ship would meet its doom by fire or would cause an accidental spilling of blood, which made it a "Death Ship."

Shipwrights never cursed around the keel. Cursing would secure the ship's doom. Likewise, many types of people and animals were banned from the shipyard because they were thought to be omens of doom, including pigs and hares, members of the clergy, red-haired virgins, prostitutes, brides, flat-footed folks and cross-eyed men.

Wearing a gold earring during the ship's construction meant that its owner would never be reduced to poverty. It also improved the shipwright's eyesight.

So, if you really want your next ship model to be truly authentic, take these strange superstitions and beliefs into account when you are laying the keel, just as the shipwrights who built the original ship probably did. Who knows, following them may bring you the finest model you ever built.

Behind the Tiller

Gary Milgram

When friend and fellow modeler Bill Edgin suggested a new segment for MSB Journal on interviewing leaders in the hobby today, little did I know that I would have the opportunity to interview a few of them myself. I have had the great fortune to interview David Antscherl in the last issue for MSB and now Ed Tosti for this issue.

Many of you might know Ed from his build logs on the Model Ship Builder and Model Ship World website forums. He embarked on a 36 year journey, building a model of HMS Victory. His build is well documented in his logs on both websites. Ed's latest journey has been the writing of ship modeling books that closely follow an actual builds, from plan design to completed product. His works, *Naiad*, Vol 1& 2, and *Young America* (Volume 1 available now) are published and available through Sea Watch Books.

I interviewed Ed Tosti by phone and found him to be an engaged enthusiast, passionate about his work and entirely humble regarding his contributions to the hobby. Interviewing Ed was a special treat for me, since I am now six months into my own *Naiad* build utilizing his books and techniques.

Ed. please share a little about yourself for the readers of the MSB Journal:

Ed: I retired in 2002 after a career in engineering and information technology management, working for a large multi-national chemical company. Most of the time was spent in managing large scale process plant design and construction here and in Europe. I am a Mechanical Engineer by training. My wife Dottie and I have three grown children and four granddaughters. Except for several years in England, we have lived in Bucks County in Eastern Pennsylvania.

How did you get into ship modeling?

Ed: My uncle was an avid ship modeler beginning in the 1920's until his death at 102 in 2008. I was captivated by his work. Except for models built in my teens, I was not really active until the 1970's when I began to assist him with some drafting. I started my first "real" model, a 1:96 scratch built *Victory* in 1976 and finished, after many long breaks, in 2009. Next came *Naiad*, and now *Young America*. I would add that my father

always encouraged me to use tools and make things – from my early years. This lead to a variety of interests – usually involving making things – furniture, home improvements, model railroads, military miniatures and ship modeling.

Who are your inspirations in the modeling field today and why?

Ed: There are many people whose work I admire greatly having seen it online and/or read their books. I would start with late Dr. C. Nepean Longridge, builder of the beautiful *Victory* model that until recently graced the gallery in the London Science Museum. I would add John Franklin, whose framed model of the 74 gun *Egmont* was, until recently exhibited in the National Maritime Museum at Greenwich. Both are long deceased. David Antscherl has certainly had major influence through his books on the fully framed model and through personal contact. There are so many others.

How often do you model?

Ed: I work now almost every day for at least a few hours. This includes not only actual modeling, but also research, drafting, writing, and photography.

Many of our readers know of your *Naiad* and *Young America* Practicums. Can you summarize what drew you to each of these ships?

Ed: After adding my *Victory* model to the thousands already out there, I resolved to focus on lesser known subjects that require not only building but also drafting plans and lofting patterns. *Naiad* was chosen as a particular type during the evolution of the Royal Navy's heavy, that is, thirty-eight gun, frigates. Also, original drafts were available. *Young America* was irresistible once I decided on an American extreme clipper. I chose William Webb rather than the often-modeled McKay and what better subject than the ship he acknowledged to be his masterpiece.

What were the most important lessons you learned when constructing *Naiad* as a POF and *Young America* as a POB?

Ed: The *Young America* POB model was done purely to attract less experienced, or less adventurous, scratch builders to the book, and hopefully into the world of full framed modeling. It gave me an opportunity to experiment with and share a different approach to POB modeling – one that builds toward full framed modeling by using similar techniques. The main *Young America* model is, of course full framed like *Naiad*. Important lesson #1: Use modeling processes that will ensure quality.

Can you compare and contrast the two builds?

Ed: *Naiad* was a more complex model. It featured more complex joinery in the framing. The tradition-based practices used by the Royal

Navy were often rejected by the American clipper builders who were always in a hurry and who were apt to reject old world practices as a given, especially if more expeditious means could be found. *Naiad* also featured a mix of iron and wood knees that added complexity. On the other hand, *Naiad's* construction was more prescriptive. Documentation and construction standards are available to describe every detail. *Young America* required a search through many references and many design decisions and choices.

You recently published the first of a now likely three volumes on the extreme clipper ship, *Young America*. Tell us a bit about the practicum.

Ed: The most important idea that I had for all these books was to focus on modeling processes. To me, the learning curve can be drastically shortened by adopting a process-oriented approach to modeling, as opposed to relying largely on skill development alone. The relationship between final model quality and process is discussed in both *Naiad* and in *YA* Volume I. To me, this is the most important part of the books and to my modeling results.

What can we look forward to in future Volumes of *Young America*?

Ed: This is an interesting question, and one that the publisher and I have been wrestling with. The work between completion of the basic hull in Volume I and the beginning of masts and rigging has turned out to be substantial, potentially delaying the next volume. Also, the amount of the pre-rigging content is forcing us to consider cutting this material or perhaps adding another volume. Decisions will need to be made. We want to avoid a prolonged wait for a mega-volume that will be very expensive to publish, buy and ship. At the same time, we see that the current pre-rigging work is attracting a lot of online interest. Aside from these issues, my intention has always been to write what I hope will be a definitive work on rigging the mid-19th Century America Clipper. I also hope to present model rigging information in a new and better way. This may follow an intermediate book (Vol 2) on detailing of the decks: structures, machinery, anchors, boats and preparation for masts and rigging.

Much of your *Young America* build log on Model Ship World is truly instructive. How do you develop your techniques when approaching a particular part of a build?

Ed: A lot of my methods are fairly standard, at least as starting points. I will often look for short cuts or for ways to reduce tedium. I also try to think of modeling techniques – I prefer the term processes – holistically, and not as simply manual tasks. For example, the pin-indexing method of making *Young America's* frames saved tons of time, eliminated tedious sanding to fair the hull, and sped frame erection. This could not have been done without a different concept in drafting the frame patterns. I try to look at a task and decide how it can be facilitated and how quality can be assured not just by skills at the tried and true methods, but by deploying a range of support – drawings, materials, tools, and application of some key quality principles. A baseline of learnable skills is of course still

necessary. This is all discussed in the books.

Please share a little about your model building philosophy?

Ed: I don't know if I have one. I discussed my process orientation earlier. It is the key enabler for me and development of process keeps me interested. It also allows me to do reasonable work. I also like to focus on the entire package: research, drafting, lofting, and yes, modeling.

What ship modeling advice do you have for the landlubbers , the midshipmen, and the old salts among us?

Ed: For the landlubbers - Think big and do not let lack of modeling experience become a deterrence. Do not fall into the trap of thinking you have to start with kits and progress upward in baby steps. For the midshipmen - Get into scratch modeling as soon as you can. Learn to use chisels. Learn some drafting. And for the Old Salt - Don't be afraid to try new things.

What do you feel is the future outlook of the hobby?

Ed: The future concerns me. At conferences there are few younger people, very few women, and mostly people that look my age. I have thought a lot about this, but am not sure of the answer. If there is one, it is not clear to me.

After my interview with Ed Tosti, I gave some serious thought to his modeling philosophy and to what has made him such a successful modeler and author. I believe the root of his success has a lot to do with his approach to the hobby. Ed is methodical about his research, his drawing and his process. His goals are to achieve a standard for quality and then develop systems or practices that will allow him to achieve that standard. He then shares this information in his book books and to some extent online. If we were able to adopt some of his philosophy, we all might just be able to achieve the extraordinary from the ordinary.

One Eyed Willys Treasure Hunt

Welcome to One Eyed Willy's Treasure Hunt!

This months Treasure hunt prize is a practicum of your choice from One Eyed Willy's Treasure Hunt sponsor Lauck Street Shipyard LLC (excluding specials).

How to play

As the contest title suggests as part of the Treasure Hunt you will be required to go on a quest. This issue One Eyed Willy wants you to find five word. To find the words visit the various pages below on the Lauck Street Shipyard LLC website.

When you have located your words email your submission to:

submissions@msbjournal.com. In the Subject Field put: "OEW Spring 2016"

All entrants with the correct answers will be entered into a draw. The Treasure Hunter whose name is drawn from the list of contestants will be the winner of this months treasure. The winner will be contacted after the draw and announced in the next issue.

Website URL: www.lauckstreetshipyard.com

The Clues

1. You'll find this word on every page of my website. It's the first word of a sentence if you're looking down.
2. It's the 4th word in a sentence on the home page. Hint: You might want to launch something new.
3. It's the last place to shop for something on our website.
4. You might want to frame this product but it won't hang on the wall like a picture. Still, you should click ??? if you want to check it out.
5. If you want it to reach your destination in Canada, you'll need to know the cost of shipping.

Your Answers

1._____ 2. _____ 3. _____

4. _____ 5. _____

The Model Shipwrights Lumberyard

by Dave Stevens

In model ship building I have heard people say "I would not use some woods because they are fuzzy or wooly or they don't cut with a clean edge". This is true but if you know how to work with the wood this is not that much of a problem. When model ship builders are asked if Basswood is a good modeling wood the answer most likely would be no because its fuzzy, to soft and it does not cut clean and sharp. In time Basswood and woods in the same category got a bad rap as unsuitable for model building. Builders leaned toward the hard woods such as Boxwood and fruitwoods and some exotic woods. This is fine if your doing ultra fine carving or extreme delicate builds. These hard woods come at a high price and they do have some disadvantages like being difficult to cut, sand and carve. In some cases they tend to burn if your tool is under powered or the cutting edge is dull. Advantages to this group of woods is they will take a clean sharp edge and they are so hard they will take a polished surface. The woods we will examine in this part of the series is a group with very similar properties and are readily available at a reasonable price.

Fig. 1

The direction of the cut will determine your fuzziness of the edge. This group of woods have long stringy fibers and if you cut against the direction of the fibers they will rip and pull. Cutting in the red direction will rip the fibers but if you cut in the yellow direction you are cutting with the fibers and the cut is nice and clean .

Fig. 2

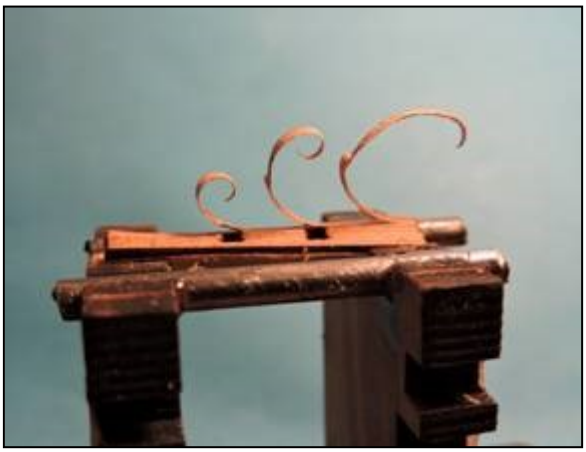


Fig. 3

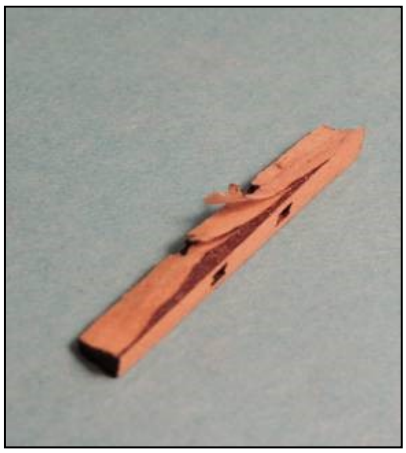


Fig. 4

The same idea applies when cutting with a knife, by cutting with the fibers you can shave off fine curls. Going against the fibers you get short gouges.

Willow

A rough cut piece of willow starts out with a wooly surface. Using 80 grit sandpaper sanding in the direction of the fibers significantly reduces the wooly surface. Willow is a soft wood and 80 grit will leave sanding gouges. Sanding willow requires using finer and finer grit until you get the surface down to a smooth luster (Fig.5).

Fig. 5

Willow takes extreme bending and makes an excellent hull planking as can be seen in the Matthew Model below.

Fig. 6

Fig. 7

Fig. 8

Both Basswood and Cottonwood have a wooly surface when rough cut but they can be sanded to a smooth surface.

An advantage to using these woods in model building is the fact they are easy to cut. In this example, cutting a notch would be much more difficult in a hard wood. You would never be able to push a razor blade into the wood to make a cut, also you would be chipping pieces out rather than cutting them out.

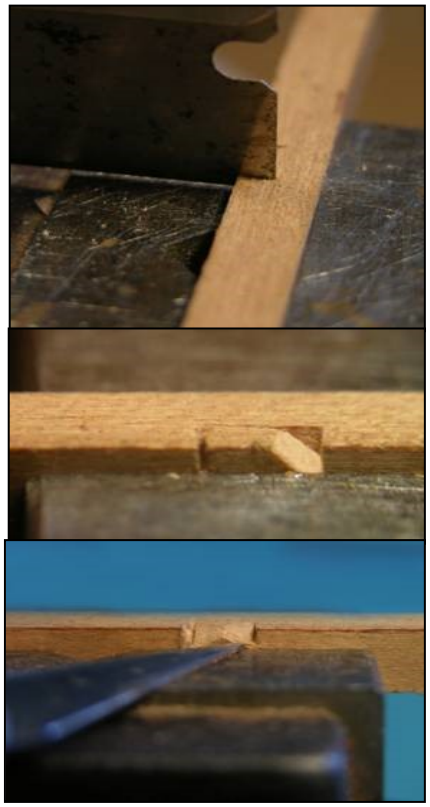


Fig. 9

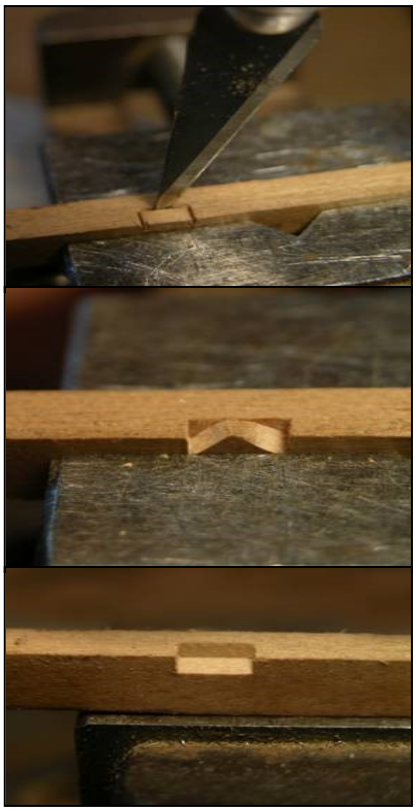


Fig. 10

POPLAR is in the Magnolia family and grows from New England to Florida and from the east coast to the Mississippi River. Poplar lumber is available in large straight grained boards due to the size of the trees. Poplars will grow up to 150 feet with trunk diameters of 8 feet. The trunk will reach heights of 50 feet before the first branches. The wood is light weight (26 pounds per cubic foot) and soft with a fine texture. When fresh cut the heartwood will have a lime green tint, which will fade to a light tan, you can speed up the color change by leaving the wood in sun light and within a few days the green will change to tan. This wood is stable in use and glues well. The wood takes paint well but staining is often blotchy.

COTTONWOOD is in the willow family and grows from Quebec all the way to Florida and as far west as North Dakota. The Cottonwood is slightly lighter in weight than Poplar (24 pounds per cubic foot) but grows to about the same size. When fresh cut the wood has a foul odor which disappears once the wood is dry. For its weight Cottonwood is quite strong and resists splitting, it has a uniform texture and usually straight grained making it a favorite among wood carvers. This wood can be stained to resemble other woods also takes paint and glues well.

BASSWOOD has the same range as the Cottonwood. It is heavier than Poplar and Cottonwood (32 pounds per cubic foot) and grows to the same size of both trees. Basswood has long been the wood of choice for carvers and model builders because of the fine and uniform texture of the wood. Although Basswood works easy sharp tools are needed for best results.

WILLOW, like the above woods, grows to about the same size and grows in the Eastern part of the United States. Willow is the heaviest of the woods at (36 pounds per cubic foot). The grain is interlocking making it easy to bend without breaking. During seasoning of the wood, a large amount of shrinkage and warping occurs but once dry it is stable and stays in place. Because willow resists cracking and checking it is considered a desirable wood for carvers.

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Price: $250.00 plus shipping
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Or give us a call at (540) 931-3918

Silver Soldering

by Bob Hunt

Have you ever tried soldering several metal parts together only to have one part come unsoldered the moment you try to solder a second part to the same set of parts. The problem is that the moment you heat the metal again so that the second part can be soldered to other parts, the solder heats up and melts causing the other parts to become loose again. The reason is that soft solder has such a low melting point. There's a solution to this problem - silver soldering.

Silver soldering does not involve a soldering iron as conventional soft soldering does. Silver soldering uses a small torch to melt the solder, because the solder used has a very high temperature melting point. Once the silver solder is melted, it fuses with the metal creating a more permanent bond than conventional tin solder.

I am going to start out by showing you how to silver solder using the Little Torch propane outfit by Smith Equipment. Photo 1 shows the tools and set I am using to demonstrate this technique.

Photo 1

Photo 2

The small black pad is a special asbestos cloth I purchased at a local welding supply store. Unfortunately I threw away the package before making note of the brand name, but Amazon sells the Steiner Carbonized Fiber Cloth in 18" x 18" format that is basically the same thing. Photo 2 shows this cloth.

You want to use this burn proof material on your work bench because the flame from the torch is very intense and hot and will easily set most anything but this cloth on fire.

On top of the black cloth is a small paintbrush used to apply the flux. Any small paint brush will do. A small cutter or metal cutting shears is used

to clip off pieces of solder from the silver sheet. Photo 3 shows a pair I used that can be purchased from Micro Mark (http://www.micromark.com) - item #80333.

Photo 3

A pair of needle nose pliers is helpful for holding parts as heat from the torch is applied to the joint. Photo 4 shows a pair I use which can also be purchased at Micro Mark - item # 80338.

Photo 4

The torch is called The Little Torch sold by Smith Equipment (http:// www.smithequipment.com). This is a miniature blow torch designed for jewelry making. It works using propane and oxygen fed through two separate tubes. The combination of propane and pure oxygen produces a very high temperature flame that will quickly melt the sold silver. Photo 5 shows this torch.

Photo 5

I chose the Little Torch because of the various tips that are available for it. The kit I purchased came with 5 different tips, including three small tips with synthetic sapphire orifices for improved flame characteristics and control. I found the torch with its connecting hoses, tips and other accessories on eBay for $112.00. I saw the same outfit at my local welding supply store for $174.00, so shop around. Don't pay retail for one of these torches.

Photo 1 also shows the bottle of propane and a large green bottle with a regulator attached. The green bottle contains oxygen and was purchased at a local equipment supply store that specializes in welding equipment and accessories. The regulator was purchased from Smith Equipment where the Little Torch was purchased.

A flint is used to light the torch. This can be found at most home improvement stores such as Lowes and Home Depot. Photo 6 shows the flint I use.

Photo 6

Photo 7

A sheet of silver solder can be seen in Photo 7. Silver solder comes in different hardnesses. I generally use a medium hardness. The main difference is in the amount of heat that is required to melt the solder.

Silver solder in sheets like this can be purchased on any number of jewelry making websites. I like to use Fire Mountain Gems at http://www.firemountaingems.com.

Photo 8

Of course, in most cases the parts you will be making are made from brass wire. For this mini-practicum, I used a spool of 28-gauge brass wire shown in Photo 8. This wire comes in many different gauges and can be purchased at Fire Mountain as well.

Battern's Self Pickling Flux is needed to clean the area where the two parts will be joined. Photo 9 shows what this looks like.

Photo 9

These items make up the basic tools you will need for silver soldering. Later in this chapter, I'll show you the tools used for a simpler method of silver soldering .

Photo 10 shows a close up of the tools on the asbestos cloth.

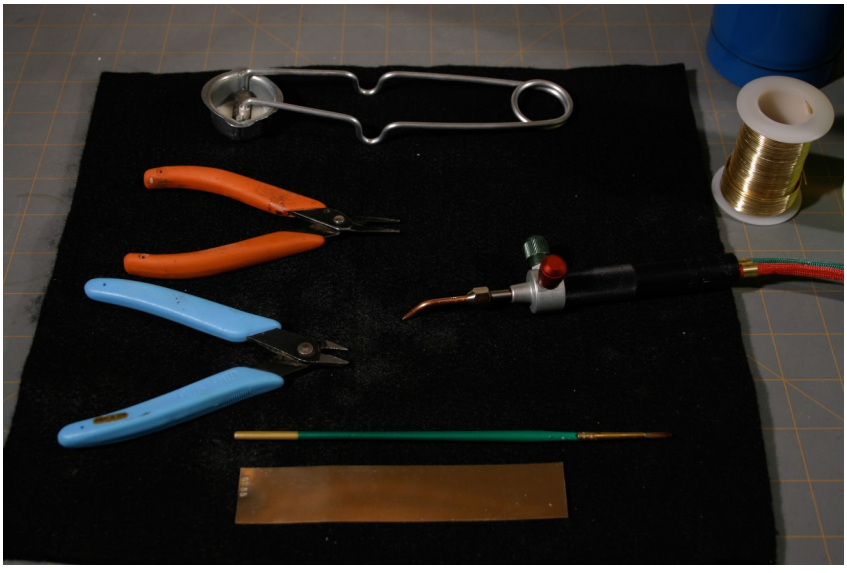


Photo 10

In addition to these tools and your tanks, you'll need regulators for the propane and oxygen tanks. I am using a preset regulator for the propane tank (Smith part number 249-500), but a high-pressure regulator

for the high-pressure oxygen tank (Harris part number 25-100C). Smith also makes a preset oxygen regulator that can be used on the small disposable oxygen tanks, part number 249-499. I'll talk more about the oxygen tanks in a moment. Photo 11 shows a close-up of the regulators.

Photo 11

Now let's look at the tools you can use for the simpler method of silver soldering. There are only two basic tools needed, and most of you will want to use these tools because they are considerably cheaper.

Basically there are two replacement tools for this simpler method -a micro-torch and silver solder paste. The cutter, pliers, and brass wire are still needed. The flint is not needed because these mini-torches have their own igniter. The flux and paintbrush are also not needed.

Photo 12 shows a micro-torch commonly available from any number of sources. This one was purchased from Micro Mark, and the item number is #82559.

Photo 12

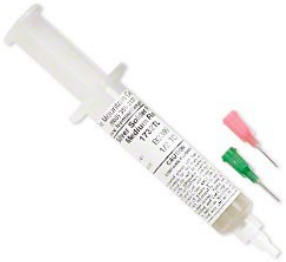


Photo 13

Photo 13 shows the solder paste which can be purchased at Fire Mountain Gems.

The paste comes with two different tips. I use the larger of the two. This is a thick paste which has the flux built into it. Basically you just

squeeze it out of the syringe tube into or onto the joint that will be soldered.

Earlier I showed you the tools that I used for this demonstration. Two items required for silver soldering are a fuel source and an oxygen source. I decided to use a small propane tank that is readily available at Lowes, Home Depot, Ace Hardware or any welding supply store. These are disposable tanks and contain enough fuel to last a fairly long time.

After doing some additional research, I decided not to use this type of oxygen tank. I found disposable oxygen tanks that are the same size as the propane tanks. These can usually be found with the propane tanks in your local hardware store. There is enough oxygen in these tanks to last about 15 minutes and the cost of a single tank is about $8.00 or $9.00.

As an alternative, you can purchase a high-pressure oxygen tank. These tanks can be refilled for about $12.00 and have 10 to 15 times the amount of oxygen in them. The draw back to these tanks is the type of regulator required. You'll notice in Photo 14, which shows a close up of the propane tank. The regulator on this tank is a Smith preset regulator. It is used on disposable tanks.

Photo 14

The regulator shown provides a constant pressure to the hose that is factory set. The regulator has no gauges and one valve, the black knob on the top, to open and shut off the supply of gas to the hose.

You'll also notice that the hose connected to the valve is red. Your Little Torch also has a red knob. The red hose always connects the fuel source while the green hose always connects the oxygen source. The Little Torch comes with these hoses, which are permanently attached to the handle of the torch.

Always read the documentation that comes with your torch, regulators, tanks and hoses before using this equipment. Propane is highly flammable, and improper use of the equipment could result in serious bodily harm!

When the Smith regulator is attached to the tank, it is tightened by hand as shown in the instructions that come with the regulator. The torch hose is connected to the regulator and tightened with a wrench. You must be sure that this connection is tight and that there is no gas leak at the connection. Read your equipment instructions. Failure to follow the manufacturer's instructions could result in serious bodily harm!

The regulator I am using on the high-pressure refillable oxygen tank is a Harris regulator as shown in Photo 15.

Photo 15

The gauge on the right shows the pressure coming out of the tank while the gauge on the left shows the pressure going to the hose. Typically the pressure coming out of the tank is around 2000 pounds per square inch. The pressure going to the hose is about 30 pounds per square inch. You can also see a valve handle on the gauge used to increase or decrease the hose pressure. On top of the tank is a knob used to open and close the oxygen tank itself.

The high-pressure tank comes with it's own valve connector that is already attached. The Harris regulator is connected with a wrench to this connector and tightened down to ensure that there is no oxygen leak. Read the instructions that come with your regulator to be sure that it is connected properly. Failure to do so could result in serious bodily harm!

The hose from the torch is connected to the valve and tightened as well by wrench. Don't over tighten it or you could damage the connector and render the hose and torch useless.

Once the oxygen and propane regulators have been mounted and the hoses from the little torch have been attached, you must bleed the hoses. You do this by opening the oxygen and propane valves with no tip attached to the torch. The valves are opened separately and then closed so that both valves are not opened at the same time.

Read your torch instructions carefully. They explain how to bleed the system. Do not bleed the system near a flame or heat source. Failure to follow the manufacturer's instructions could result in serious bodily harm!

Ok, I’ve warned you several times, and I'm going to warn you one more time. You are working with very dangerous equipment if not used properly. When used properly, this equipment will serve you well and do

exactly what it was designed to do with very little effort.

The combination of propane gas, the fuel, and pure oxygen results in a very intense and high temperature flame reaching 6300 degrees Fahrenheit or higher. Improper use of the equipment could be deadly. Please, read all of the instructions that come with your equipment and follow the equipment's directions precisely.

I am telling you now that you must operate this equipment by the instructions provided by the manufacturers and not by my instructions. I will show and tell you how to make these parts but you must follow the manufacturers instructions on how to operate the equipment. Now that I've scared the heck out of you, let's continue. (I am emphasizing this because I do not want someone holding me liable for misuse of the equipment, so I am telling you once again, read the equipment's instructions to learn how to use it).

Once you've bled the hoses per the manufacturer's instructions, you're ready to attach the tip and begin using the Little Torch.I used tip number 3, as recommended by the Smith instructions that came with the Little Torch.

The tips should also be tightened with a wrench. Photo 16 shows a close up of the torch with the #3 tip attached.

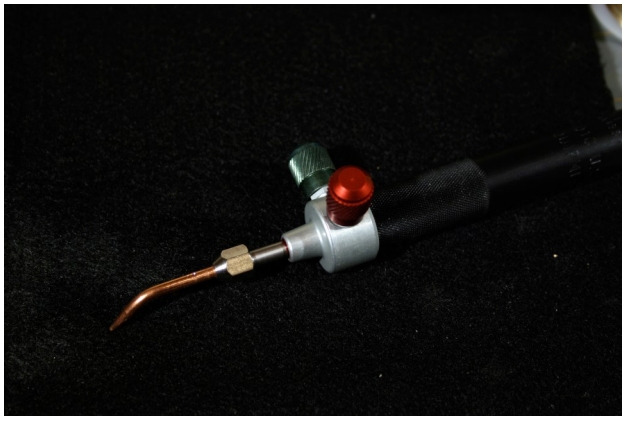


Photo 16

The red knob opens and closes the fuel source while the green valve open and closes the oxygen source. You always open the fuel source first, light the torch, and then open the oxygen source. You always shut off the fuel source first and then the oxygen source. Again, read the instructions that came with your Little Torch and make sure you understand the procedures for turning the torch on, lighting it and turning it off. Failure to follow the manufacturers instructions could result in serious bodily harm!

With the regulators attached to the fuel and oxygen, the hoses and torch attached to the regulators, the hoses bled, and the tip attached to the torch, we're ready to solder.

Making Chainplates

To make chainplates using silver solder brazing mentioned earlier For demonstration purposes, the part made for this mini-practicum is not of any particular scale or for any particular ship model. The part was made large to make photography detail clearer. The construction was based on a typical chainplate found on ships of the 18th century.

The tools used in this demonstration consists of the primary tools outlined in Chapter Two. However, you can just as easily perform the silver soldering using the simpler tools -the micro- torch and silver solder paste.

To make the first part of the chainplate, I used 28-gauge brass wire that came on a spool that I bought at a local arts and craft store.

The parts for our chainplate consist of a deadeye strop, a chain and a mounting chain or bracket. Each of these parts is made from a piece of wire that has been bent in a circle to form a ring. One of the steps for this process is to determine how big this brass ring needs to be. The best method for this is the reliable trial and error method.

There's no simple way to determine the size of the ring. Most plans are too small to measure the shape from a starting point, around the deadeye and back to that starting point. Experiment! You could start with a piece of string and attempt to shape it over the plans to determine the approximate length needed. Then cut a piece of wire to that length and bend it with needle nose pliers to approximately the finished shape and see how it compares to the plans.

Once you've got an idea of the length of a single ring, you'll need to find a dowel with a circumference equal to the length of the wire that will make the ring. This isn't rocket science. Unless you're a purist, it doesn't have to be within .0001" or even .001". Photo 17 shows how I wrapped the wire around a dowel to make a group of these rings.

Photo 17

I've cut a notch in the end of the dowel and I drilled a small hole near the edge at this notch.

Before you proceed, you must stretch out a length of about 12" to 18" of the brass wire and give it a good rub down with #0000 steel wool. This cleans the wire and removes and residue left from the manufacturing process. If you don't do this, you'll have trouble getting the silver to bond with the brass when it melts.

The wire was bent to fit into this hole and into the notch. It was then wrapped around the dowel tightly and clipped off. Once wound, remove the wire and clip it as shown in Photo 18 to create a batch of rings.

Photo 19 shows the rings after cutting.

Photo 18

You'll notice that the ring ends do not meet but are angled slightly. This is due to the wrapping, and you will have to straighten them out with

Photo 19

your needle nose pliers before soldering.

You can also use a small file to clean the ends of the wire so that they are flat. The cutter I used will leave the ends with a slight bevel in them. It

is best that this bevel be removed but I have gotten satisfactory results with a very slight bevel so long as the two ends meet and are touching each other when soldering.

Now we're ready to solder, but first let's review what we've done so far. The wire was cleaned with #0000 steel wool. It was then bent around a dowel to form a ring. The spring like winding was removed and cut with clippers leaving us with a batch of rings. The ends of the rings were cleaned up a little with a small file. The ring was bent straight so that the ends met and were touching.

Now lay the ring on your asbestos cloth, and take your paintbrush and dip it into the Battern's Self Pickling Flux. If you are using the micro-torch and soldering paste, this step is not necessary.

You don't want a lot of flux on the brush. Too much and it will powder up on you when the torch hits it and the silver won't bond. So keep a paper towel handy to wipe the brush with. The brush should be damp, not dripping.

Touch the joint of the wire ring with the flux brush and just wipe the wire down all around the joint. You can use tweezers to turn the wire over if you want and wipe down both sides. When you heat the silver, the wire should not be wet.

Let's talk about the solid sheets of silver. There are two types of silver solder; sheet silver and wire silver. Both are suitable but the sheet is much thinner and easier to place onto the joint of such small parts.

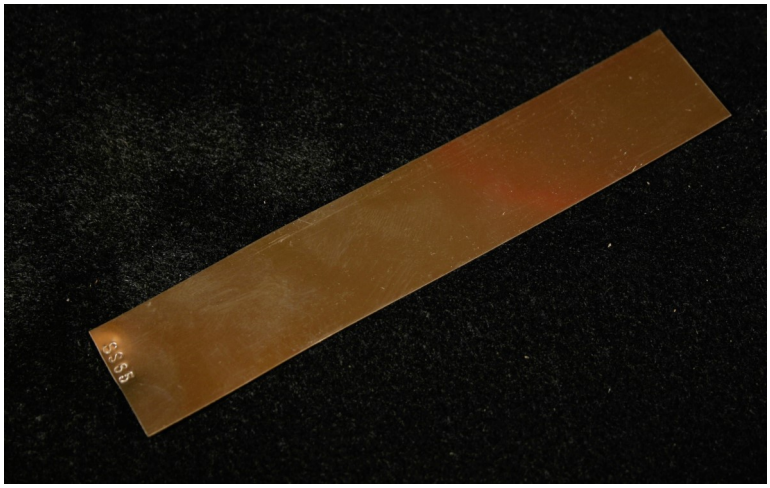


Photo 20

This silver comes in varying hardnesses. I'm using what is commonly called "Easy". I found my silver on eBay, and it's about $8.00 a sheet. A sheet will last you a very long time. Photo 20 is a close up of the sheet solder I used for this demonstration.

The sheet is about 6" long, 1" wide and very thin. I use my cutters to snip off a fragment as shown in Photo 21.

You can see that the ring ends meet and are ready for soldering. They've been fluxed. Using the flux paintbrush, I pick up the sliver of solder

Photo 21

Photo 22

and place it on the joint as shown in Photo 22.

Now we're ready to solder. Following the manufacturer's instructions for lighting the torch, the fuel regulator valve is opened and the oxygen regulator valve is opened. The hose side of the oxygen regulator is set by the valve to around 30 lbs of pressure. The torch fuel knob (red) is turned on very slightly and the flint is used to light the torch. Then the torch oxygen knob (green) is open slowly and the flame is adjusted to produce a cone of about 1/4" in length. You can vary the propane and oxygen to obtain this approximate setting. Photo 23 shows the cone produced when the oxygen is added.

Photo 23

Now slowly move the torch towards the silver and the joint. It only takes a few seconds for the silver to heat up and melt into the joint, and once it does, remove the torch. Shut off the torch fuel knob (red) and then shut off the torch oxygen knob (green). The ring should cool quickly and look like the one in Photo 24.

If you have a good joint, it will be stronger than the wire itself. Now using your needle nose pliers, wrap the ring around your deadeye and

Photo 24

crimp it as shown in Photo 25.

I used a piece of the wire at the end where the small eyelet at the bottom is to close and crimp the strop around. The chain, which we'll make next, fits through this little eyelet.

Photo 25

The chain is made in exactly the same fashion, however, you must consider the length of the chain, and you may find that you need a smaller dowel to make the ring that will become the chain. After cutting your ring, slip one end through the small eyelet of the strop. Make sure that the two ends meet as they did when you made the strop. The only difference is that this ring is threaded through the eyelet in the strop.

Silver solder the chain ring as shown in Photo 26.

Now we'll stretch the ring into the shape of our chain. Use your needle nose pliers to stretch the ring into a chain as shown

Photo 26

in Photo 27.

Notice that I have positioned the soldered joint of the chain on the long side.

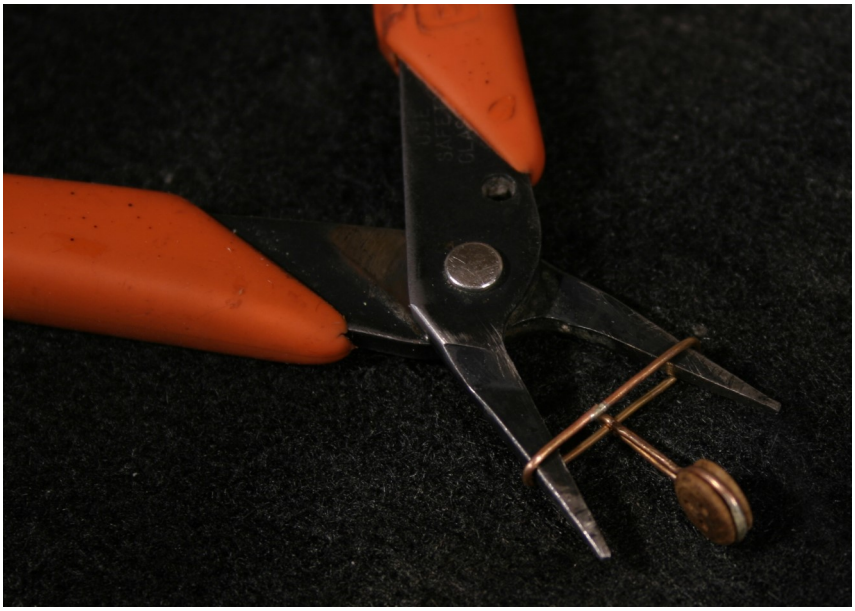


Photo 27

Now only one more part to make, the mounting bracket, which is threaded onto the chain part. Again, consider the size of the ring and use a dowel that will produce a ring of an appropriate size. Thread the ring onto the chain, line up the ends and solder that joint as shown in Photo 28.

Here you can see that a small piece of silver solder sits on the joint. Using the same procedures for soldering the previous joints, light your

torch and heat the joint. Once soldered, bend it as shown in Photo 29.

Photo 28

You can see that the mounting bracket is smaller than the chain. The joint is on the side. The strop was bent inward, and it will fit into a notch in the channel. The mounting bracket has a small eyelet at the lower end where a nail will pass through and into a hole drilled into the chain wale of the ship.

That's all there is to it. You could try to silver solder the joint in the strop where the metal pieces are crimped, but you run the risk of burning the deadeye with the heat of the torch.

Photo 29

You would generally paint these metal pieces black or treat them chemically to turn them black. You can also use a small file to clean the joints where the solder may protrude slightly (which you can see in the photo above as I have not cleaned the joints).

It is hoped that this article will enable you to silver solder your own fittings for your ship models. The one item I again want to emphasize to you is to follow the instructions that came with your equipment to ensure that you safely operate the equipment and do not cause harm to yourself, to others or to your work area. If you follow the manufacturer's instructions, and use these instructions, you should have no problems. and you will have added another technique to your shipbuilding arsenal.

Thanks,

Bob Hunt

On the Cover

Scale: 1:16. A working model of a fictitious 75-foot motor fishing vessel 'Ocean Harvester' (1946) of a type built during the Second World War for the Admiralty as a fleet tender and subsequently sold to the fishing industry. It is built from scale drawings and information contained in the Transactions of the Royal Institute of Naval Architects, 1946, and is the fruits of three years' research and seven years of building. The trawl winch, made from original construction drawings, is fully working and the trawl itself has been made to scale. It was also built as a working pond model though the engine and radio receiver was removed by the previous owner. The years of research and construction produced results as in 1974 the model won the Model Powerboat Association prototype cup for the best scale working model. On balance it is very competently made with some nice touches, like the realistic ageing, scuffs and partial 'repainting' of the hull.

Date made: circa 1980
Maker: Graham Caird
Place made: Bickley, Kent, England

Source: rmg.co.uk

Turning Belaying Pins

By Bill Edgin

Ed Tosti described a great belaying pin turning process in his build log of the Extreme Clipper ship Young America on the NRG forum. Ed used a clever jig that allowed one to reproduce the same profile time and again. Those unfamiliar with Ed's work would do well to look him up. He is very active on the NRG forum and has published a number of books/practicums available through SeaWatch Books (http://www.seawatchbooks.com). Ed is currently working on volume 2 of a practicum to build the Extreme Clipper ship Young America. Regardless of the model you are building his books and build logs presents unique practical solutions that are applicable to ship modeling across the board.

To make the belaying pins we will first need to make the Jig. The jig is a simple affair made out of brass round stock that is significantly larger than your belaying pins. A hole is drilled into the center of this stock that exceeds the length of the finished belaying pins. The size of the bore should be the diameter of the brass stock used to make the pins themselves. The exact size is depending on your scale.

After the hole is bored through the center, the side of the rod is removed leaving the profile of the belaying pin through the center. This sounds more complicated than it really is. I will explain it in more detail with photos below but first, let me describe the equipment set up I used.

You might remember from my previous article on turning brass cannon barrels (Winter 2015 issue), I have an old Delta wood Lathe. For this effort I used two ¾" drill chucks. One mounted in the headstock, and one in the tailstock.

Mount the brass rod blank into the headstock. A drill bit was put into the tailstock. This was used to bore the center of the jig. First the end of the jig was squared and the center dimpled slightly. This is easily done with HSS turning tools and or files. The very slight dimple was created by the corner of a parting tool and is used to center the drill bit for the hole.

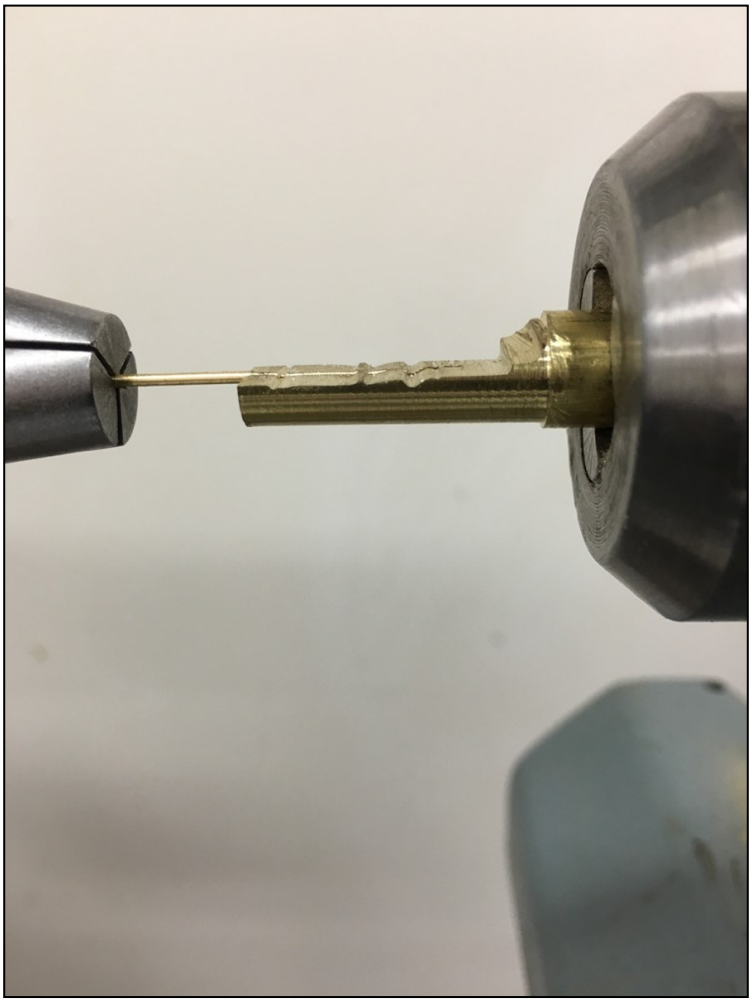
As the blank is spinning gradually move the tailstock/drill bit into the blank. As you slowly bore down the center periodically pull the bit out of the hole to keep it cool and to keep any shavings from becoming impacted around the bit. The is a small bit and it can quickly heat up and damage the bit if the hole is drilled too fast, or the shavings are not allowed to flush out of the bore.

The final hole needs to be deeper than the length of the desired pins. Once the hole is done, turn the lathe off, and remove the drill bit and the blank. Test the hole by inserting the brass wire for your belaying pins into the hole. It should slide in easily without any slop. This is important. If the hole is too tight, the stock can't turn freely - too large and you will be una-

ble to accurately turn the pins.

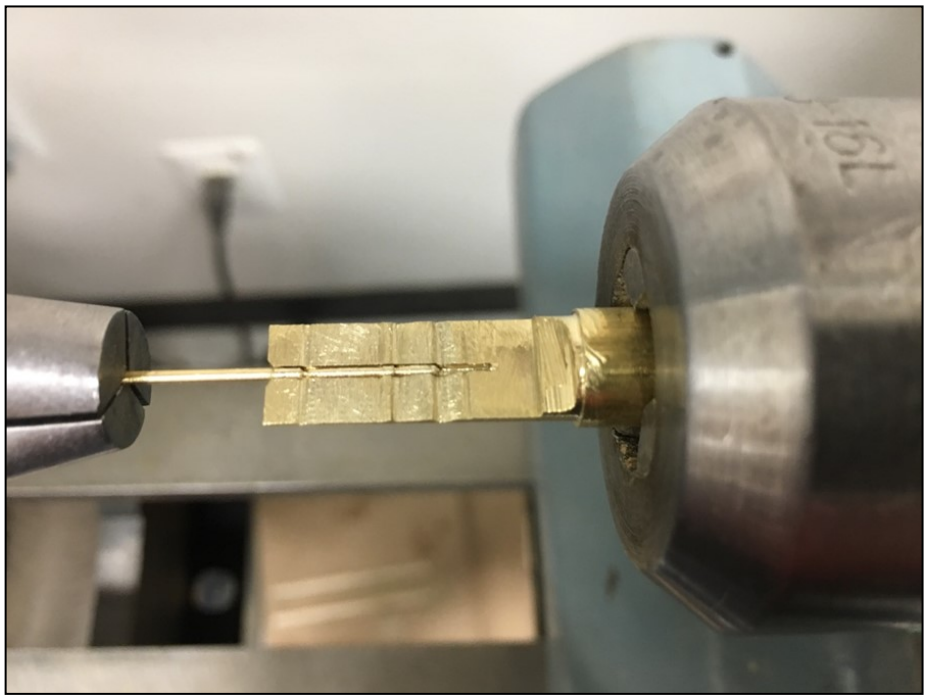
Now comes the trickiest part of the entire process. With a grinder, and files remove one side of the blank until the bored hole is reached. You will know this has been reached when an even fine line shows down the center of the blank. This is the extreme side of the hole you just bored. Now use fine metal rifflers to carefully cut the profile of the belaying pin into the blank. Your profile should only not extend as deep as the center of the bored hole except at the top of the end. Do not remove too much material in this step. If the profile is overshot, then the blank is trashed and you will have to start over.

The photo below shows my completed jig blank mounted back into the lathe. The live head is holding a brass wire in the process of being made into a pin - the chuck to the right holding the jig is mounted in my tail stock. The wire is mounted in the headstock.



The jig from the side with a new belaying pin in the process of being turned. The profile is clearly shown here.

As you can see in the photo below, the wire is mounted in the headstock, then the end stock is moved until the wire fills the bored profile. In this case, the top of the pin has already been rounded off before sliding the jig into position.



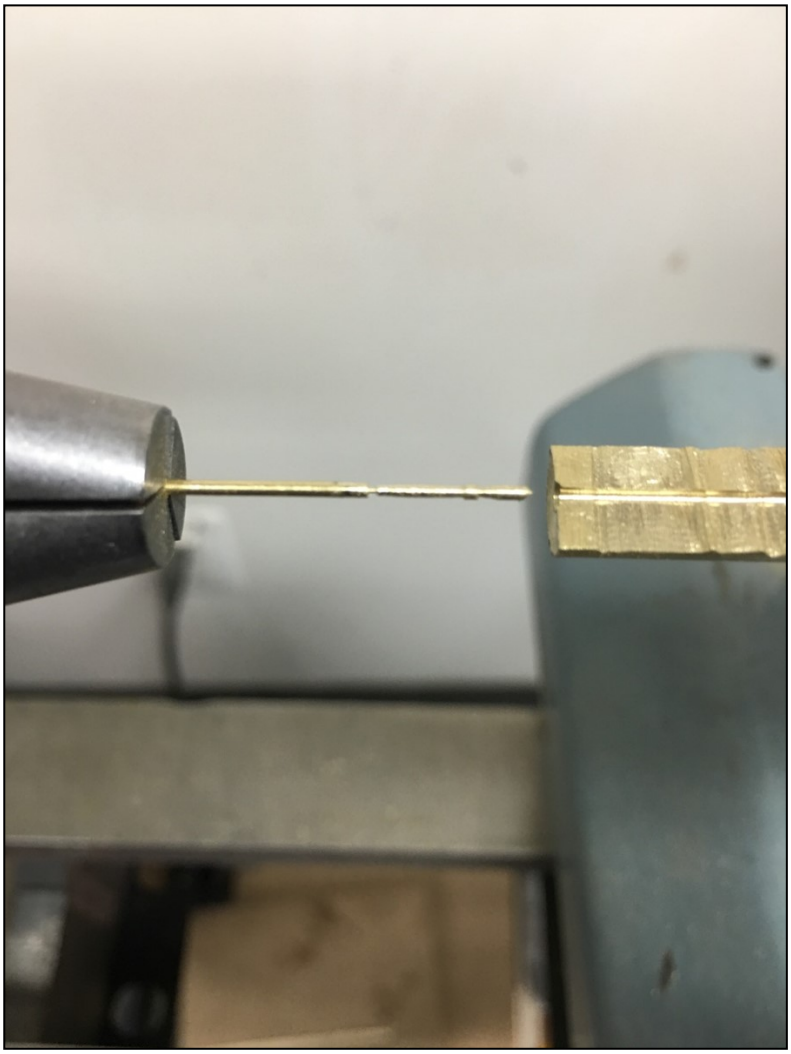
The view from the top showing the bored center hole and the side cut for the profile.

Once the profile is cut the blank can be mounted into the tailstock so the belaying pin profile is horizontal to the lathe bed. Cut a short piece of the brass stock for the belaying pin at least as long as the pin plus that necessary to mount it in the headstock. I have found that it can be several pins long. This allowed me to cut more than one pin before having to reload the stock into the headstock. Too long and it is too flimsy to be stable. Your ideal length will take trail and error to find what works best for you. Believe me, you will know once you start. Start short and gradually increase the length until you find it to unstable to turn effectively then back down a bit.

Turn the lathe on and round the end of the stock with a file before moving it into the jig. This rounded part becomes the top of the pin.

With the rounded brass stock mounted in the headstock and the lathe turned off gradually move the tailstock holding the jig toward the headstock. Once the brass is seated into the jig and the rounded top aligned with the jig's pin top, turn the lathe on. By placing appropriately shaped rifflers to the jig you can follow the profile to cut the pin. Once the first pin is cut confirm the shape is correct. Small adjustments can be made if the pin is too large in spots. If it is too small, then a new jig will have to be made.

Once you are satisfied with the shape of the pins, then it is simply a matter of inserting the stock into the jig, cutting the pins profile, remove the shaped pin from the stock and insert the fresh rounded end back into the jig and repeat.



A turned belaying pin ready for removal.

One further note from Ed Tosti regarding this process. He found that as he made pins, the jig tended to become worn from the rifflers. As a result the pins gradually became smaller as the jig wore down. He corrected this by redoing the jig blank in tool steel and tempering it after shaping. Ed uses a mill to cut the profiles in the blanks. I did not have access to a mill for this so used grinders and files. Although I could see a small and gradual change to the pins as the jig was used, I found that if you were gentle with the use of the files and let the lathe do the work; the jig would last through about 120 pins. As you can see below, the main area where the changes occurred was in the shaft. Since this will be unseen below the pin rail and covered in line, I felt this was acceptable for my process. If you want to make many repeatable exact copies, following Ed's directions in cutting and tempering steel would provide an easy solution.

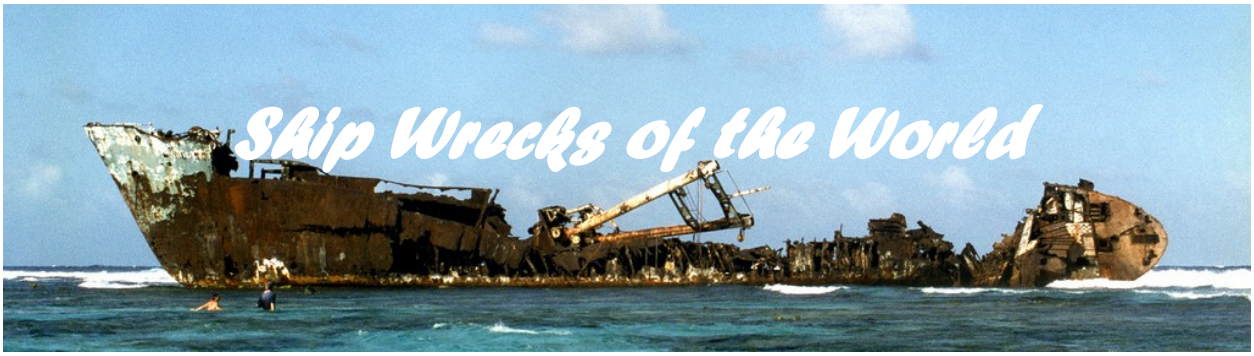
Completed Pins

For further reading I highly recommend Ed's practicum The Naiad Frigate (Seawatch books). In addition to a plethora of advanced modeling techniques, Volume 1 includes an appendix on making your own custom tools, clamps etc, and how to temper tool steel to use in the process.

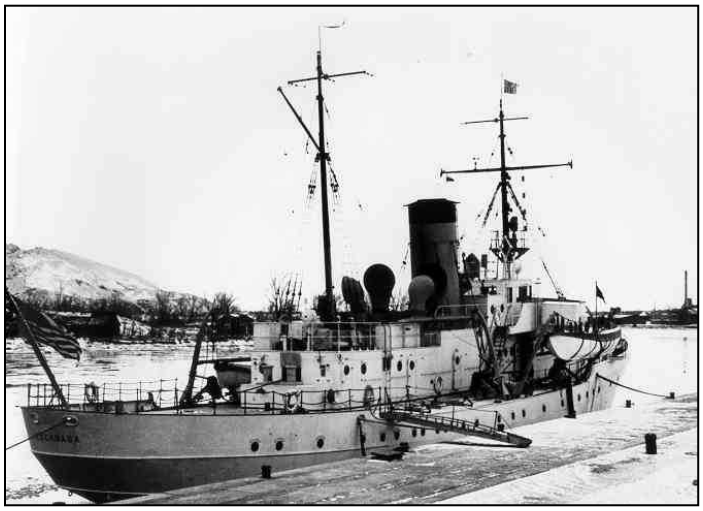
The Modelers Tool Chest

Magnification

From hand held, hands free, to clip-on or desktop mounted, magnifiers are a handy tool for any model builder to have at hand when working on small parts. Magnifiers with lights can be especially helpful and are well worth the small extra cost.



USCG Escanaba



USCG Escanaba prior to World War II

The USCGC Escanaba (WPG-77) was an 165 ft (50 m) "A" type United States Coast Guard cutter stationed on the Great Lakes from her commissioning in 1932 until the start of U.S. military involvement in World War II in 1941. With the outbreak of war, Escanaba was redeployed to participate in the Battle of the Atlantic, during the course of which she was ultimately lost with nearly all hands. Struck by either a torpedo or mine in the early morning of 13 June 1943, while serving as a convoy escort, Escanaba suffered a fiery explosion and sank within minutes, leaving only two survivors and one body out of her 105-man crew to be found on the surface by rescuers.

On 10 June 1943, Escanaba began escorting her last convoy, GS-24 from Narsarssuak to St. John's, Newfoundland, in company with the Mojave (Flag), Tampa, Storis, and Algonquin. The vessels they were tasked to escort were USAT Fairfax and the tug USS Raritan.

At 0510 on 13 June, a large sheet of flame and dense smoke were seen rising from the Escanaba, though no explosion was heard by the other ships in the convoy. She sank at 0513, going down so quickly that she did not have time to send any distress signals. Storis and Raritan were ordered to investigate and rescue survivors while the rest of the convoy began zigzagging and steering evasive courses to avoid enemy submarines. Although Storis and Raritan were able to arrive on the scene within ten minutes, only two survivors and one body could be found. At 0715 the two vessels returned to the main body of the convoy, having rescued Boatswain's Mate

2nd Class Melvin A. Baldwin and Seaman 1st Class Raymond F. O'Malley, Jr., and having found the body of LT Prause. The entire crew of 13 officers and 92 men was lost to the explosion or to rapid hypothermia in the 39 °F (4 °C) water with the exception of Baldwin and O'Malley, whose survival was attributed to their soaked clothing having frozen their unconscious bodies to floating debris, which prevented them from following their shipmates to the bottom.

The exact cause of the explosion could not be determined at the time, but was commonly attributed to a torpedo fired by one of several U-Boats which were in the area at the time. However, no U-Boats claimed the kill, and, according to Browning, it is now considered more probable that the cutter was sunk by a drifting mine.

General Characteristics

Class & type:	"A" class cutter
Displacement:	1,005 long tons (1,021 t)
Length:	165 ft (50 m)
Beam:	36 ft (11 m)
Draft:	12 ft (3.7 m)
Speed:	12.8 kn (23.7 km/h; 14.7 mph)
Range:	5,079 mi (8,174 km)
Complement:	105
Armament:	2 × 3"/50; 2 × 20mm/80 (single mount); 2 × depth charge tracks; 4 × "Y" guns; 2 × mousetraps

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Heraldic Ship Badges

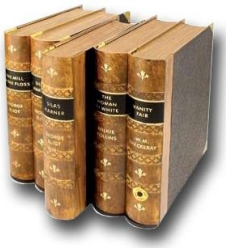
HMCS Ville de Quebec (FFH332)

Canadian Navy

Motto:
Don de Dieu feray valoir (I will be worthy

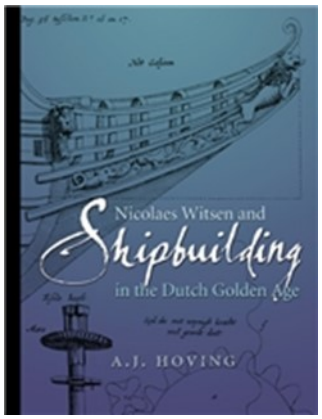
Azure a bison passant Or.

The badge design is derived from the civic devices of the Winnipeg, a crest above a shield. The shield displays three wheat sheaves, over which is a "chief showing a locomotive engine." Above the shield, or crest, is a bi-son. In the ship's badge, the colours gold and blue have been used, and in support of this, one may refer to those used by the Winnipeg Football Club, the "Blue Bombers" whose members wear these colours. They are good fighting colours on the "Gridiron" so therefore should appeal to Winnipegers on the high seas.



The Book Nook

Books of interest for the Model Ship Builder and nautical enthusiasts



Nicolaes Witsen and Shipbuilding in the Dutch Golden Age
by Ab Hoving
Translated by Allan Lemmers
Foreward by: André Wegener Sleeswyk

Published by Texas A&M University Press, 2012

8 ½"x11", 310 pages, hardcover (also available for eReader)

ISBN-13: 978-1-60344-286-2

SCHEEPS-BOVW en BESTIER, that is, NAVAL ARCHITECTURE and CONDUCT; by N. Witfen, printed at Amsterdam, 1671. in Fol.

The Ingenious and Industrious Author of the Work having considered with himself, that his Country-men, though so flourishing in Navigation and naval Architecture, had yet published nothing of that subject, except what De Heer □ja□□ens had written of the Politie of Shipping, did resolve with himself to break that silence, and to communicate unto the World a History both of the Ancient and Modern way of Building, Equipping, and Governing of Ships; which design having been by him put in execution in this Book, he therein largely treateth not only of the Manner of the Naval Architecture used by the Greeks and Romans, together with their Naval Exercised, Battles, Discipline, Laws and Customs; but also of the Method and Way used at this day both in his own Country, England, France, and the Indies, together with the difference there is between the Manner of Building Ships, practiced by Others, from that of the Dutch, and particularly of the Indian way of Equipping their Ships, and the manner of Building Galleys: All inriched with an ample Seamans Dictionary, and a great number of Illustrating Diagrams.

This 1671 review was published in the Philosophical Transactions 6, no. 69-80: 3006–3018. http://rstl.royalsocietypublishing.org/content/6/69-80/3006, and provides an apt overview of the original work by Witsen.

Nicolaes Witsen's Aeloude en Hedendaegsche ScheepsBouw en Bestier of 1671 is the first comprehensive treatise on shipbuilding in the Netherlands. In many ways Witsen's book compares well with the contemporary 17th century treatises on shipbuilding, including lengthy sections on shipbuilding in ancient times and sections on practical shipbuilding and technology along with other discussions on seafaring. Perhaps the most unique aspect of ScheepsBouw en Bestier, however, is the background of the author.

Nearly all of the 16th and 17th-century treatises on shipbuilding contain a mix of description of what is usual and of what should be done, though most emphasize the latter. The contemporary English treatise by Anthony Deane (1670) offers a clear demonstration of this contrast. Deane was an engineer designing ships; Witsen was not. Nicolaes Witsen was unique among the treatisers of his time, being neither a shipbuilder nor mariner, but rather a well-connected observer and compiler of information. In that sense, Witsen was more like Samuel Pepys (1633–1703), who wanted to learn and encouraged Deane to describe how to build ships. Rather than leaving it to a technician, however, Witsen did the writing himself. Deane offers a description which is not so much an observation of how things are or can be done, but a reasoned explanation of how he thought a ship should be built, using a 'third rate' man-of war with a keel length of 120 feet as his example. Deane's text is proscriptive, whereas Witsen described what happened and what he observed using a merchantman, a pinas of 134 feet overall, as his example. His book is not meant to determine or advocate what should be done.

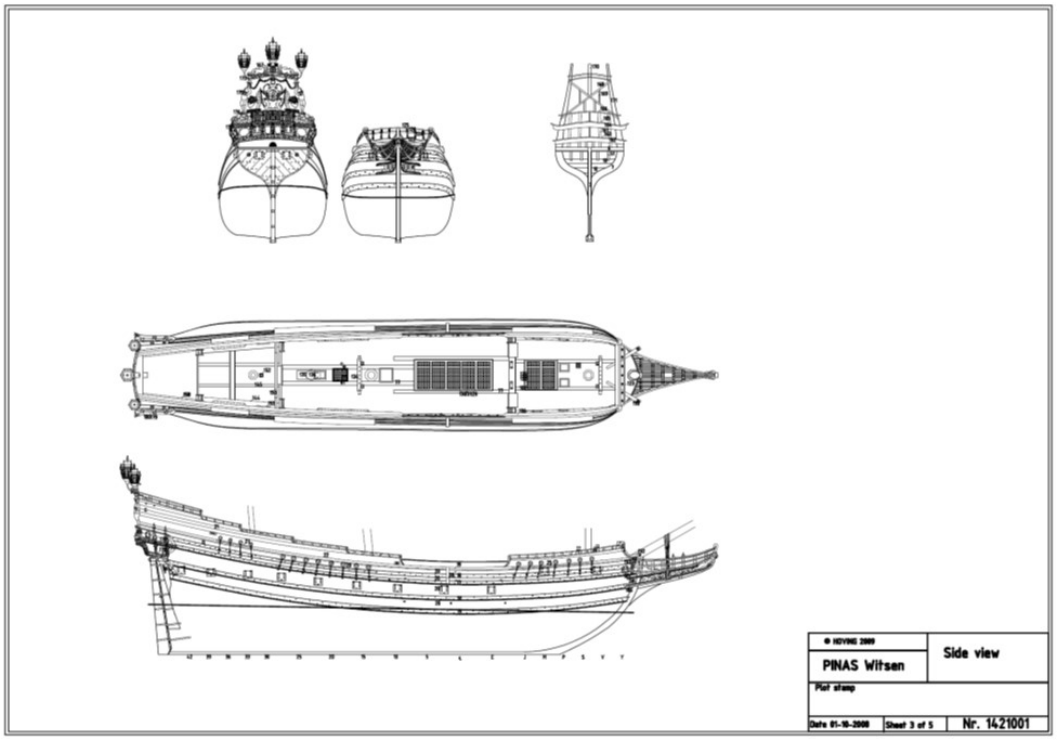
In this work, Hoving has accomplished the admirable achievement of reorganizing and explaining, in modern terms and a logical sequence, what was scattered throughout the original work. He has included not only the information from Witsen, but also provided new illustrations and drawings to accompany the narrative.

Contents

The book opens with a forward by André Sleeswyk which provides the historical context to understand the time and era. The introduction includes a biography of Witsen and a brief history of the 1671 edition of Scheepsbouw in Bestier, as well as descriptive information concerning the nature of Dutch shipbuilding process, tools and techniques. Hoving also emphasizes that this is not a translation of the full treatise, but rather only of those parts relevant to gaining an understanding of Dutch shipbuilding. In the

main body of the book, Hoving provides the reorganized translation, along with his detailed narrative and explanations. This section includes enough detail that, should pone be so inclined, a model of a pinas could be built. In the remaining sections, a number of contracts (charters) for Dutch vessels are presented, thoroughly annotated, along with tables comparing the work of Witsen to that of van Yk, who offered his first treatise some 25 years later.

Hoving includes a series of plans for a pinas, created from the narrative by Hoving, and converted to AutoCAD by Cor Emke. These detailed drawings provide the model builder with the information necessary, when used in conjunction with the text, to create an accurate model of a pinas. Larger scale versions of the drawings are available at the publisher's website (http://nautarch.tamu.edu/shiplab/AbHoving.htm).



In summary, Hoving and his collaborators have provided a resource which is both relevant, readable, and of historical accuracy for the use of those interested in 17th century shipbuilding. The level of detailed information on methods of construction but also scantlings and design methods can only aid the modeler in creating an historically accurate re-creation. I would recommend this to anyone interested in the period as a most useful reference.

Get the help you need to build that model ship!

The Lauck Street Shipyard Presents
The College of Model Shipbuilding

The College of Model Shipbuilding is a series of instructions that teach you every aspect of model shipbuilding. These instructions are progressive in nature and are based on a specific kit. You will learn techniques that can be carried over to other model ships you might wish to build. Here are some of the detailed courses available:

Prep School Course, Bluenose
Freshman Course, Armed Virginia Sloop
Freshman Course, HMAV Bounty
Freshman Course, HMS Pegasus/HMS Fly
Sophomore Course, Constitution
Sophomore Course, Vanguard
Junior Course, Rattlesnake
Junior Course, HMS Victory
Senior Course, Hannah

Check out our website for more information
www.lauckstreetshipyard.com
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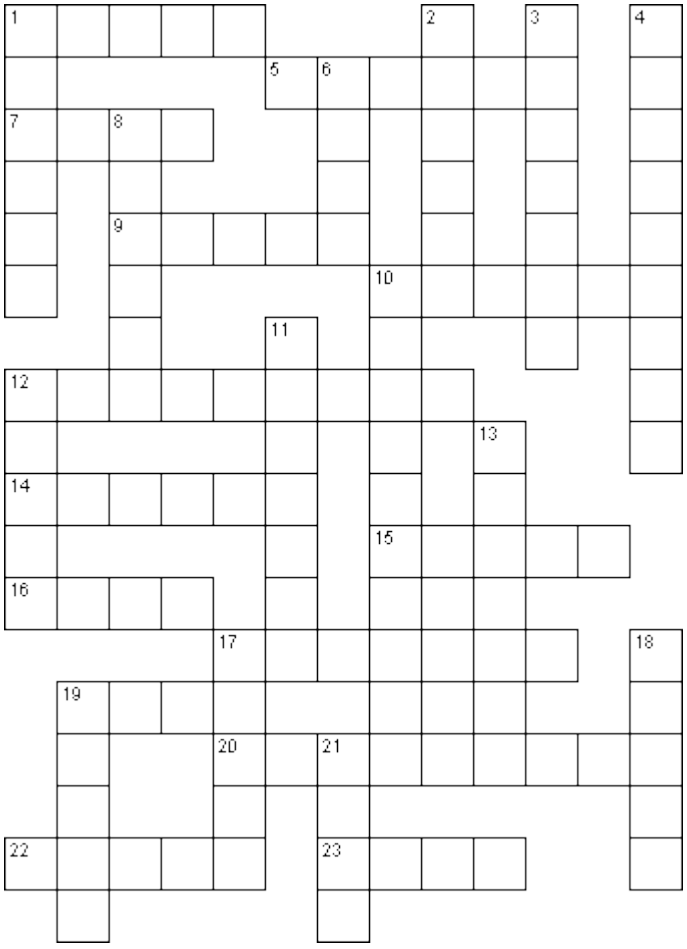
Freshman Course
Armed Virginia Sloop

Gene's Nautical Trivia

Capitols



Across
1. Vietnam (5)
5. The Philippines (6)
7. Italy (4)
9. Bulgaria (5)
10. Turkey (6)
12. Nepal (9)
14. Colombia (6)
15. Jordan (5)
16. Togo (4)
17. Venezuela (7)
19. Fiji (4)
20. Pakistan (9)
22. Ecuador (5)
23. Maldives (4)

Down
1. Zimbabwe (6)
2. Portugal (6)
3. Iraq (7)
4. Iceland (9)
6. Samoa (4)
8. Oman (6)
10. Ethiopia (5,5)
11. Indonesia (7)
12. Afghanistan (5)
13. Uganda (7)
17. Egypt (5)
18. Liechtenstein (5)
19. South Korea (5)
21. Peru (4)

Testing Your Nautical Knowledge

1. How can you tell a ship from a boat?

A. A ship relies on wind transport, a boat is rowed
B. A ship can carry a boat, but a boat can't carry a ship
C. Ships travel on the ocean, whereas boats travel on rivers
D. Boats can carry up to seven people, ships carry eight people or more

2. What do these four sailing terms mean?

A. Port—right, Starboard—left, Stern—back, Bow—front
B. Port—left, Starboard—right, Stern—front, Bow—back
C. Port—left, Starboard—right, Stern—back, Bow—front
D. Port—right, Starboard—left, Stern—front, Bow—back

3. Which of these is not a nautical term?

A. Mutiny
B. Maroon
C. Mayday
D. Musketeer

4. What's the difference between flotsam and jetsam?

A. Flotsam is the bulk of a wreck, jetsam is the debris
B. Jetsam is wooden parts of a wreck, flotsam is made of any other material
C. Flotsam is the floating wreckage of a ship, jetsam is the material purposefully thrown overboard
D. Jetsam is parts of a wreck that sinks to the bottom of the sea, flotsam is wreckage that floats

5. What's the origin of the phrase "son of a gun"?

A. Childbirth at sea often took place between the cannons, as it was the place with the most privacy
B. Women at sea gave birth next to the cannons, and the sailors would fire cannons to make her push during contractions
C. Any child born on board a ship with uncertain paternity would be listed as "son of a gun"
D. All of the above are strong theories

Answers

Test Your Nautical Knowledge

1. B
2. C
3. D
4. C
5. D