



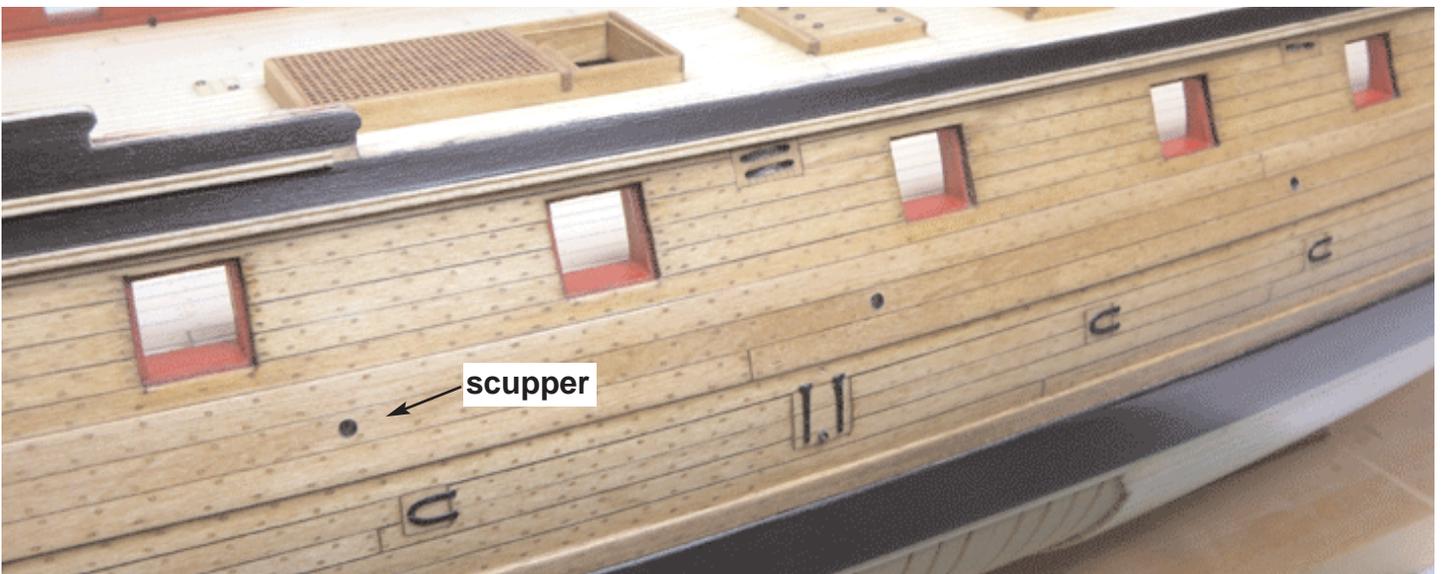
Chapter Eleven

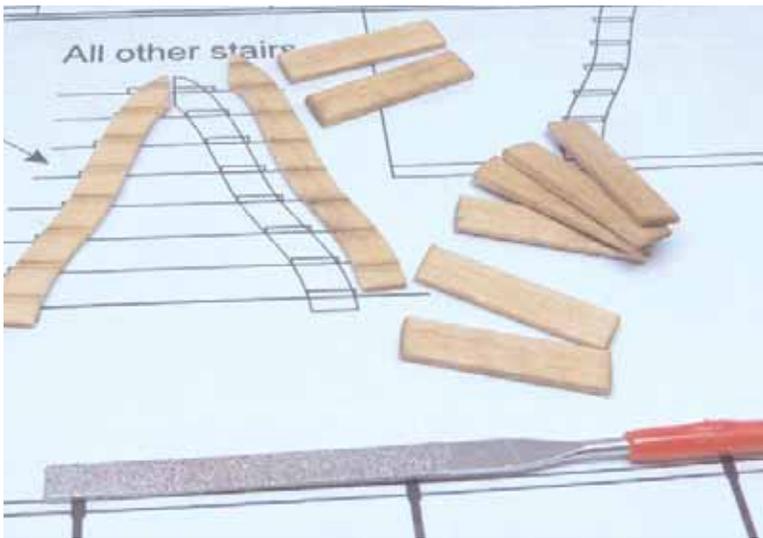
Building and Installing the 12 Pounder Cannon

In this chapter you will prepare the model so you can install the 28 twelve pounder cannon. A few other details can also be completed before you start. Then you can assemble the cannon and carriages so they can be placed on deck and rigged with their breech lines and gun tackles. First, drill the holes for the scuppers along the outside of the hull. Five scuppers are shown along each side of the hull. The scuppers are pipes that allow the water on deck to drain through the bulwarks. They can be drilled with any bit ranging from 1/16" thru 3/32". Once the scuppers are drilled, use a soft pencil to coat the

inside of each hole. This will simulate the lead lining of the scupper.

The scuppers don't need to be drilled all of the way through the hull. Just make them deep enough so they will look like they are drilled all of the way through. The same is true for the inboard side along the waterway. The opening for this end of the pipe should be drilled the same way. These openings are slightly higher than the outboard ends you just finished. The scuppers were angled downward as they worked their way through the bulwarks. Drill these five holes through the spirketting AND the waterway. The hole should straddle both. You can see this detail in the photo above. Use a pencil to simulate the lead lining on these as well.





There are also three 10mm cleats positioned along the bulwarks. You can check their exact positions on the inboard plan sheet. These will be painted red like the bulwarks. Clean up the Britannia metal castings and paint them before you glue them into place.

Adding the eyebolts for the cannon tackles and breech lines to the bulwarks - There are two eyebolts on each side of the gun ports. The eyebolts on top will be used for the gun tackles. The eyebolts below these will be used to secure the breech line of the cannon. You won't be gluing the eyebolts for the breech line into position at this time. Only the eyebolts for the gun tackles should be glued into position now. BUT, please do drill all of the holes for the lower eyebolts ahead of time. Make sure they are deep enough to fully secure them when we do add them later. Start by drilling the holes for all of the eyebolts as shown on the inboard plan. Then paint the eyebolts black that will be used for the tackles and glue them securely into the top holes. The lower holes for the breech line eyebolts should be left empty for now.

It would be difficult to seize the breech lines to the eyebolts if you glue them into position first. For the prototype, the breech lines will be set up and rigged on the cannon, "off of the model". You should read a few pages ahead to see those details. Then when you are ready to install the cannon, the eyebolts for the breech lines can simply be pushed into the pre-drilled holes.

Assembling the ladders for the gun deck companionways - This can be done at any time, but they were added now on the prototype. You may choose to do this as well and get this out of the way while the deck is less cluttered.

There are four ladders that need to be completed. The sides of the ladders have been laser cut for you (1/32" thick basswood). Building the ladders can be tricky. Most model builders develop their own technique for doing this that makes the process easier for themselves based on experience level. Some use jigs to glue each step into position between each side of the ladders. Others simply glue the steps to one side of the ladder first and then they add the other side afterwards. You can choose any method that works best for you. The method described below details how it was done on the prototype.

Step one - The two laser cut sides for the ladder were positioned on the plan sheet so the locations for the steps could be marked on them.

Step two - Using the edge of a file that was 1/32" thick, slots were filed into the sides to accept each step. They don't have to be very deep. The slots can be made 30% or 40% the thickness of each side.

Step three - the steps were cut from 1/32" x 3/16" strips. Care was taken to make sure each step was exactly the same length. Use the deck plans to determine their length. Some ladders are wider than others depending on which com-

panionway they are being used for. Make sure the ladders will fit into each companionway when you are ready to install them.

Step four - The top and bottom steps were glued into the slots you made on one side of the ladder. The two steps were carefully checked to make sure they were squared up with the side of the ladder properly.

Step five - The other side of the ladder was glued into position.

Step six - The remaining steps were slid into the slots of the ladder. Each step was carefully sanded if they were too long so the steps wouldn't force the sides of the ladder apart. Any steps that weren't a perfect fit were discarded and new ones were made to replace them.

Step seven - each ladder was cleaned up somewhat and stained with Golden Oak. Once the ladders are assembled they can be glued into each companionway. See the photos provided.

Preparing and painting the cast cannons

The castings for the 28 twelve pounder cannon should be cleaned up for painting. Any mold marks and surface problems should be addressed before painting them black. Drill a hole and insert an eyebolt for the breech ring. You can see one glued into the cannon in the picture provided. Paint the cannon black when you are finished.

As mentioned earlier, the breech line will be made and rigged to the cannon now rather than



rigging it after the cannon is positioned on deck. The breech line will be $3\frac{1}{4}$ " long when completed. Take a length of .028 tan rigging line that is about 6" long to start. Take the kit-supplied eyebolts and add a split ring to them as shown in the following photos. Paint them black. You will need four of these on each breech line. Seize one of these split ring/eyebolt assemblies to the end of the breech line. You can use some tan sewing thread as the seizing. Then...

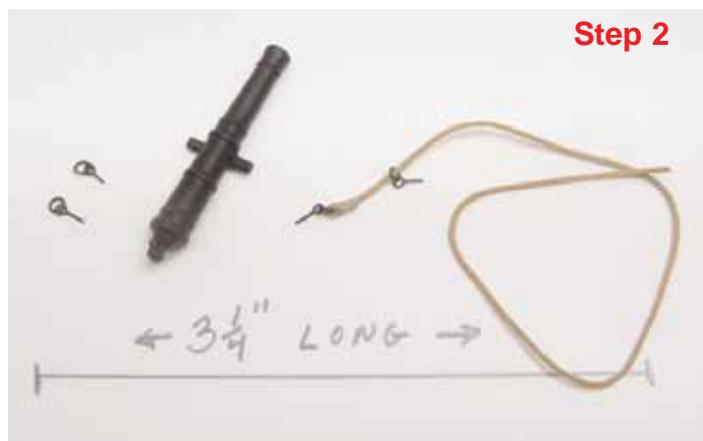
Step two - slide one more ring assembly onto the breech line. (See the photo called step two)

Step three - run the line through the breech ring of a cannon. Then slip the third ring assembly onto the loose end on the other side. (Photo step three)

Step four - Draw a line that is $3\frac{1}{4}$ " long on a piece of paper. Use this as reference to check that the completed breech line is as close to that length as possible. Seize the fourth and final ring assembly to the other end of the breech line.



Preparing the cannon for painting



Carefully determine the length of the completed breech line by holding it against your reference line before using any glue to make the seizing permanent. Make any adjustments if need be.

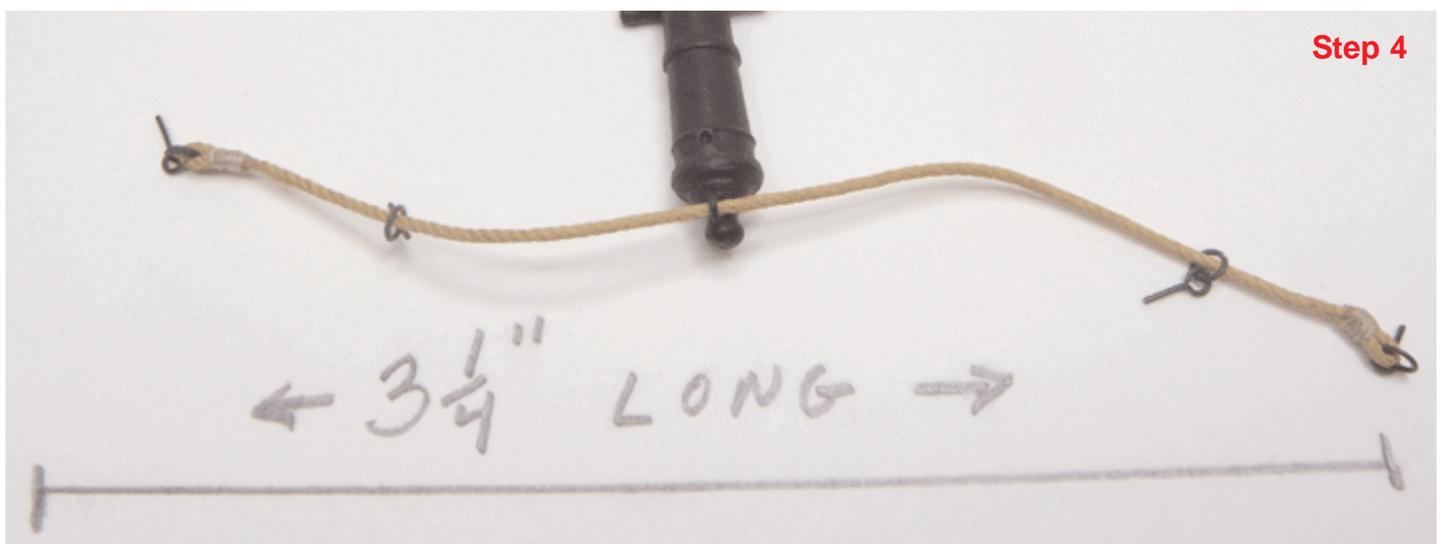
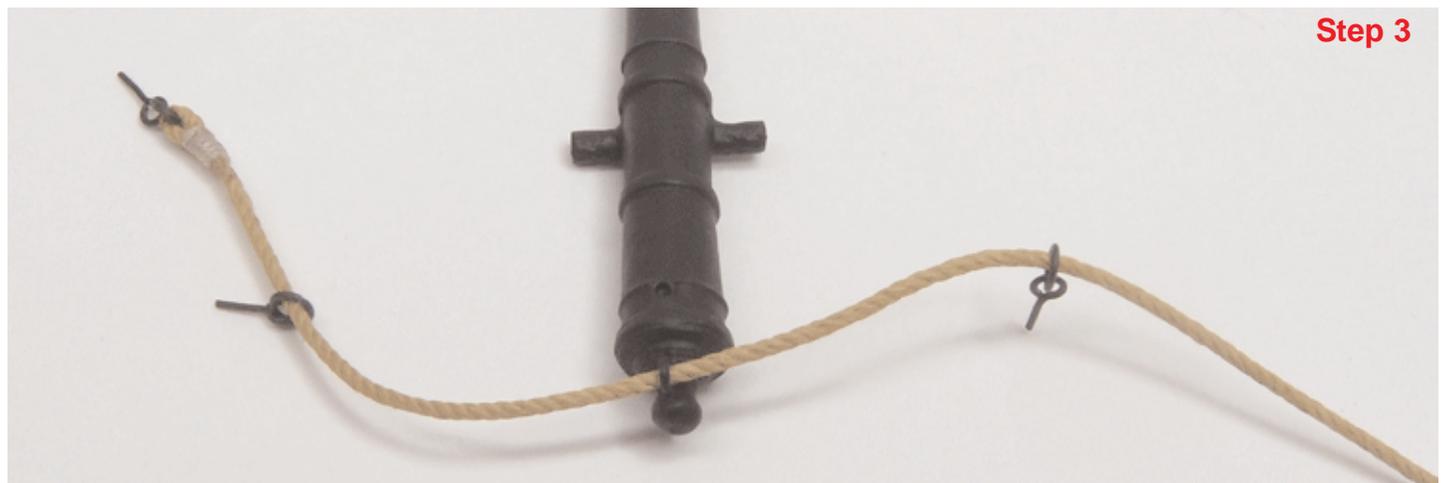
The final picture shows a completed breach line rigged to the cannon barrel. The two inner eye-bolts that are "sliding-free" at the moment will eventually be inserted into the sides of each gun carriage. You will do this after gluing the cannons onto each gun carriage later. For now, complete all 28 cannons as just described and set them aside while you begin building those carriages.

Making the gun carriages

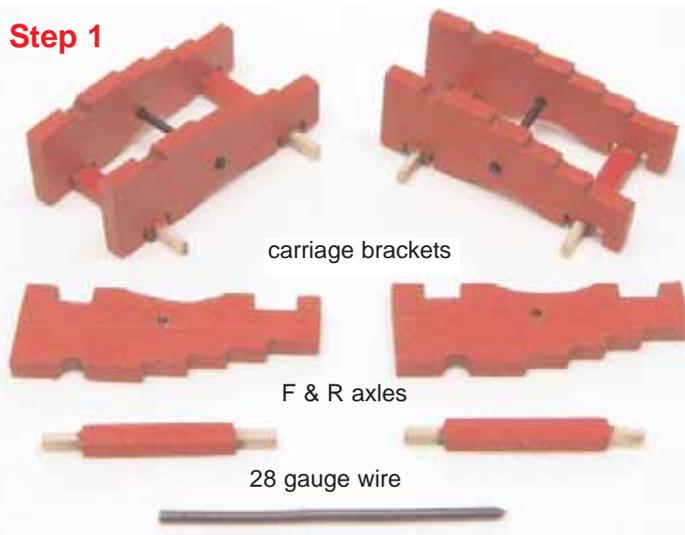
The gun carriages in this kit will be made using several laser cut pieces. All of these elements are laser cut from 1/16" thick basswood. Carefully remove ONLY the pieces you will need for each step to avoid losing any. Some are

quite tiny. Sand and paint each piece before you glue them together. This was not done in the photos that will follow because it made each piece easier to see. You will also need the 22 and 28 gauge black wire supplied with the kit for some of the stages of the carriage construction.

Step one - You will need two carriage brackets (sides of each gun carriage), the front and rear axles and a small length of 22 gauge wire for this step. Paint the axles and carriage brackets RED as shown in the first photo. Use the diagram shown on the plans for the twelve pounders to help you assemble these five pieces. The rear axle is longer than the front. This makes the carriage narrow towards the front. When you glue the brackets and axels together be sure to check that it is assembled symmetrically and evenly by checking it against the plan. Finally, slide the 22 gauge wire through the holes laser cut on each carriage bracket. Snip off the excess with a good pair of flush cutters on both sides. You should



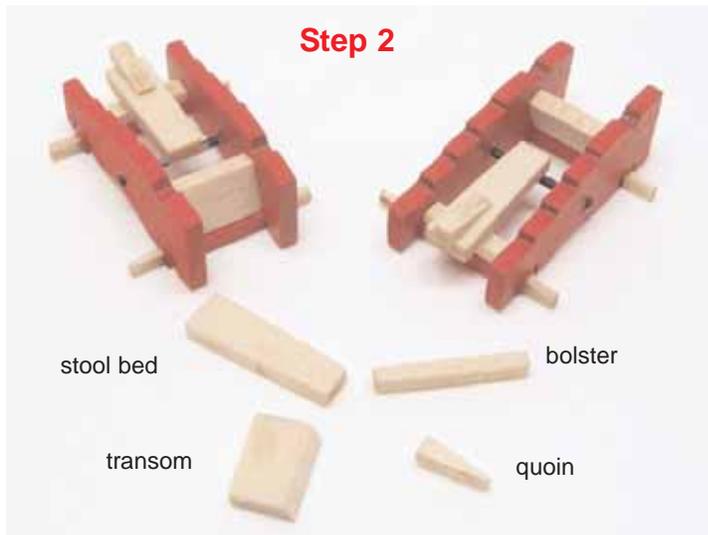
Step 1



leave the ends of the wire just a little long so they stand proud of each side by about 1/128". Make all 28 of these and proceed to step two.

Step two - You will need these four laser cut parts... the transom, quoin, bolster and stool bed. Paint all four pieces red after cleaning them with sandpaper to remove the laser char. The bolster is glued on top of the rear axle. Then the stool bed is glued on top of that and spans across to the 22 gauge wire. Examine the photo for this step. The aft end of the stool bed should be even with the back of each carriage bracket when viewed from above. It is also centered between the carriage brackets. The quoin is glued on top of the stool bed. The wider back-end of the quoin should hang over the stool bed about 1/32". The quoin was used to change the elevation of the cannon. A handle on the back of

Step 2

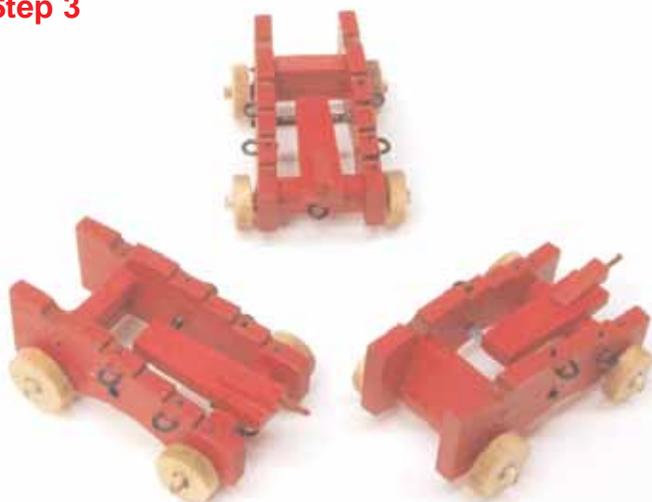


the quoin was used to move it forward or back. This will be added in the next step.

Finish off step two by adding the transom to the front of the carriage. The bottom of the transom should be beveled as shown on the plans. The transom should be a snug fit when inserted between the brackets. It should be angled as shown in that diagram as well.

Step three - The wheels for the carriages (called trucks) are added next. The front trucks are larger than those on the rear of the carriage. This was done to compensate for the camber of the gun deck. They are laser cut from 1/16" thick basswood. Sand off the laser char carefully while maintaining the round shape of each wheel. Glue the trucks onto the carriage. These will be stained.

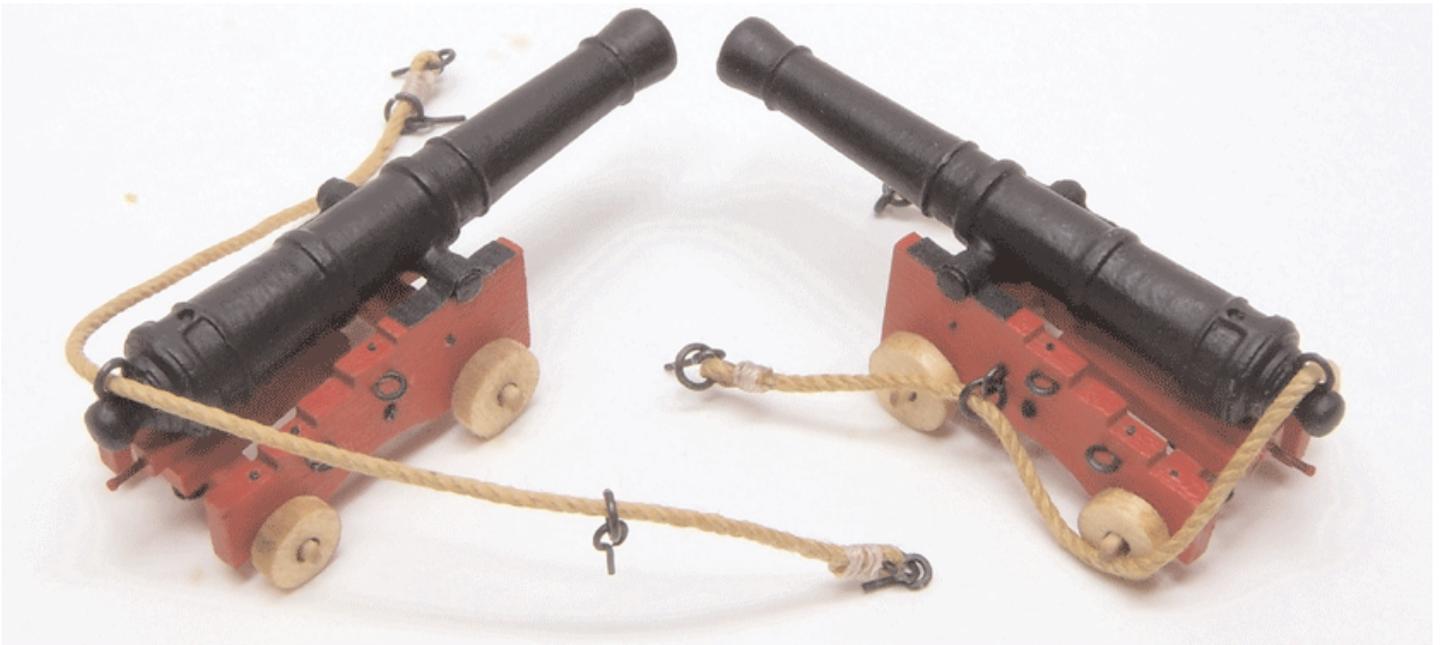
Step 3



You can examine the plans and the photos carefully to find the ironwork details needed to complete each gun carriage. Some of these small features are optional. The bolts along the top of each carriage bracket for example are optional but add an interesting visual detail.

This is a complete list of the ironwork on each gun carriage.

-Bracket bolts - There are three bolts on the top of each bracket. You can locate them on the top of each "step" of the brackets. To make these, simply drill tiny holes into the top of each bracket where the bolts are shown. Examine the plan for



their exact locations. Then insert a length of 28 gauge wire into the hole. The holes don't need to be very deep at all. Then snip off the exposed wire with a pair of flush cutters. The wire should stand proud of the surface a little to simulate the bolt head. You may need to touch up the bolt heads with some black paint when you are done. These don't have to be glued into each hole. Especially if the holes are made so the wire fits snugly into them.

- Transom bolts - There is another bolt that goes through each side of the carriage into the transom. These are made the same way as the bracket bolts. Use 28 gauge wire.

- Quoin handle - The quoin handle would have been made from wood. But for our model we can use the 28 gauge wire. Drill a tiny hole into the end of the quoin. Glue a small length of wire into the hole. Snip off the exposed end creating a handle about 3/16" long. The handle should be painted red to match the carriage.

- Five eyebolts - There will be five eyebolts inserted into each gun carriage. Two are glued into each side of the carriage. The last eyebolt is glued into the rear axle. This one should be centered under the stool bed as shown in the photos. Refer to the plans for their exact locations. Each eyebolt should be let into the side of the carriage if possible. You can see this in the photos as well. In actual practice this prevented

the eyebolts from twisting around. You can add this detail if you would like to more accurately display the eyebolts on the carriage.

NOTE: The two eyebolts for the breech line shouldn't be added. But you will still need to drill a hole for them through each side of the carriage. Remember, we added the breech line to the cannon barrels already along with their eyebolts and split rings.

The carriages for the 12 pounder cannon are now completed. It's time to mount the cannon onto each of them. A photo provided shows a cannon glued onto its carriage. Once the cannon are glued into position, push the eyebolts from the breech line into the holes you drilled through the sides of the carriage. To finish up this step, use some thick black paper or black tape to make the cap squares. The cap square is the little iron strap that is placed over the trunnions of the cannon to secure it in the carriage. The trunnions are the small protrusions on both sides of the cannon which should sit in the notches of the carriage brackets. The cap squares can be made from any material, but using black card stock or artist tape will make the job easier. The cap squares are 1/16" wide to cover the thickness of each carriage bracket.

You can also adjust the breech line so it hangs naturally at this point. Adjust the breech line so



Cannon lined up as seen through the stern windows.

you have an equal length on both sides of the carriage. Then drape the aft portion of the line as shown in that same photo. On the prototype, the breech line was actually glued to the rear trucks under the axle so the "natural swag" in the line can be locked into shape permanently. Leave the front of the breech line as shown because that will make it easier to insert the eyebolts into the bulwarks.

Positioning the cannon on deck - Glue the cannon on deck with the guns run out. You shouldn't push the carriages right up against the bulwarks but instead, back them off by about $1/32$ ". Once they are secured, insert the eyebolts on the ends of the breech line into the lower set of holes you made (on both sides of each gun

port). This could be tricky at first, but try using a long needle nose pliers or tweezers to make this procedure easier.

Gun tackles - As you probably just found out, setting up the breech line on the 28 twelve pounders can be challenging. The same can be said of the two gun tackles rigged to each gun. Although challenging, it is far from difficult. At this scale, rigging the gun tackles is optional. You will need to shape 112 - $3/32$ " single blocks for the gun tackle. A photo provided shows four unshaped blocks in the top row. The blocks should be rounded off to better reflect their true shape for the period. You can see in that same photo how the blocks were held with an alligator clip and sanded to shape. The shaped, "round-





ed" blocks are shown in the second row. You will also need to create 112 small hooks from the 28 gauge black wire supplied with the kit. These can be made using a pair of needle nose pliers to bend the wire into a hook shape. The hooks are inserted into a small hole that must be drilled into the top of each single block. Glue them into position being careful not to clog the sheave hole in each block that the rigging line will pass through. These tackles can be set up off the model and then installed. They will actually be working tackles (albeit with a non-working sheave); therefore you can set up the 56 tackles ahead of time. See the photo provided. The gun tackles will be set up using .008 tan rigging line. Use a generous length of rigging line for each gun tackle.

Simply hook the tackle to the bulwark eyebolt and the rear-most eyebolt on the gun carriage. Then carefully pull the loose end to work the tackle and tighten it up. At this stage you might even place a drop of glue on the sheave of the block hooked to the bulwarks. This will ensure the tackle stays taught. Don't pull the tackle so taught that it might pull the eyebolts out of the bulwarks and the gun carriage. It only needs to be tight enough that it hangs naturally and stays securely hooked in place. Then take the loose end and glue it to the deck beside the gun carriage. Trim off the excess line and glue a rope coil on top of the loose end. The final photos in this chapter show the guns rigged with their tackles. Rope coils have been made and neatly glued on the deck. They were positioned in such a way that they didn't look too perfect or too

"evenly" distanced from the bulwarks or carriages. The distances and positions were varied a just a little bit from gun carriage-to-gun carriage.

To finish up this chapter, split rings were secured into the deck behind each carriage for the train tackles. The train tackles won't be shown but the eyebolts w/split rings should be glued into pre-drilled holes on deck. Refer to the deck plans for their locations directly behind each gun carriage. To make these, some 28 gauge wire was bent around a split ring and squeezed tight with some pliers. See the photo for details.

You might have noticed that a few other deck fittings are shown in some of the photos. You can see the capstan and the stove. Building and rigging 28 cannon may get repetitive and tiresome. If you want break up the monotony, simply skip ahead to build some of the other deck structures. But don't glue them into position permanently. Just set them aside so they won't interfere with the rigging of the guns. They may get damaged while you rig the guns.

