An *Interpretive* Build of the Mordaunt utilising the supplied kit

4th. Rate English Vessel

Launched in 1681

Scale 1:60

Spars - 06

My interpretive build is based on the supplied drawings, the kit material – and an amount of extra material.

This work only illustrates how this ship might be built.The level of complexity chosen is up to the individual

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Chapter 1: GENERAL OVERVIEW

Masts

In constructing the masts, there are some significant variations possible. However, the overall visual impression will still project an authentic-looking ship so it depends on the skill of the builders as to how closely they will follow the drawings.

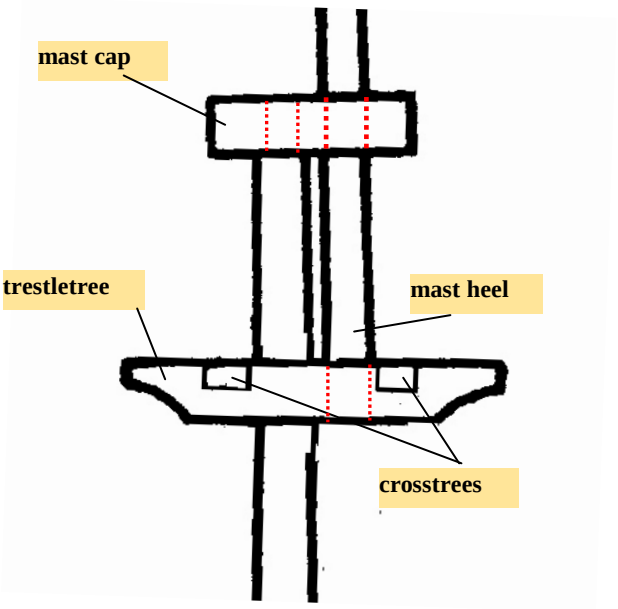

Figure 1: Mast Terminology

Figures 1 shows the heel of an upper mast and the top of an lower mast passing through a mast cap and a trestletree.

Exactly how this is produced depends on the skill of the builder.

Alternatives in Mast Making

Alternative 1

The basic approach is to use the wooden rods as supplied i.e. each mast section is rounded in cross-section along its entire length. In the overall scheme of things, this will not be a problem.

However, the drawings do show square cross-sections at various points and that is what one builder has achieved as shown in Fig. 2.

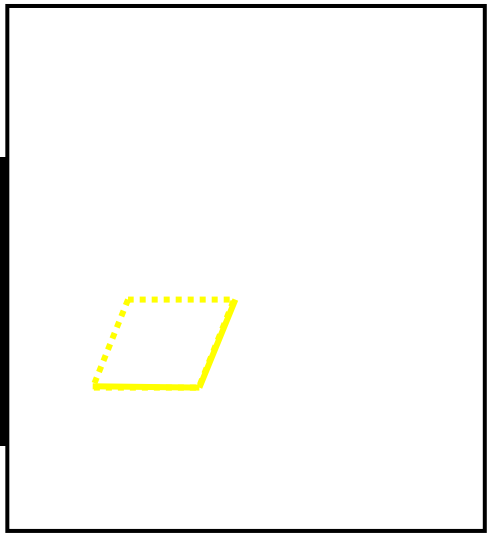

Figure 2: Squared Mast Section

Question: Can an 9 mm. square be formed from a 12 mm rod ?

Answer: Not really – depends on the actual size supplied

In Fig. 3 opposite, where a 9 mm. square is required for the Main lower mast, (using Pythagoras' Theorem) a rod with a 12.00 mm. diameter will not exactly produce that square … close enough ?

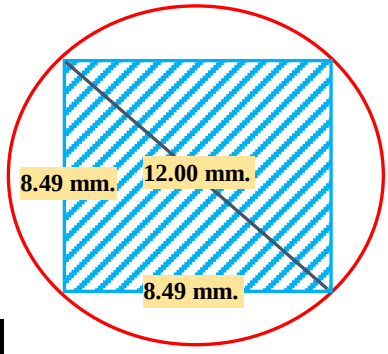

Figure 3: Pythagoras: Foremast

Reality is that these square profiles are beveled which then allows a larger square to be formed from the same round rod.

* Note that in the following discussion, Figs. 3 and 4 both have the same diameter circle of 12 mm.

If bevels are 1.2 x 1.2 mm., the effective diameter is 12.00 + 0.7 + 0.7 = ***13.40 mm***.

This allows an overall square profile width of 8.49 + 1.2 + 1.2 mm = ***9.89 mm.*** (greater than needed).

This then allows a square profile of '8.0' mm. to be created within *most* of the 12.0 mm. circular profile.

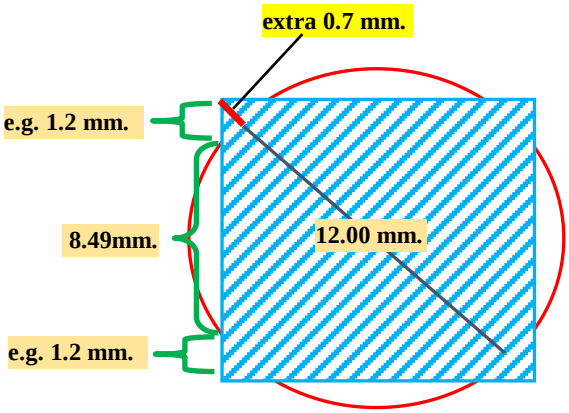

Figure 4: Enlarged Square in Same Circle

Alternative 2

Lower Masts

The supplied 12 mm. rod for the Lower Foremast and the Main Lower Mast *will allow beveled square profiles of the required dimensions* from within the rod diameter.

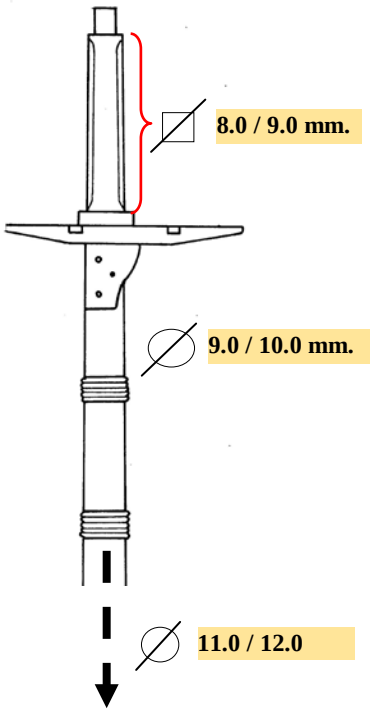

Figure 5: Squared and Cicular Sections for the Foremast / Main Mast

Alternative 2 (cont.)

Top Masts

The supplied ***5 mm.*** rod for the Fore Topmast and the supplied ***6 mm.*** rod for the Main Topmast *will also enable the required square profiles to be produced.*

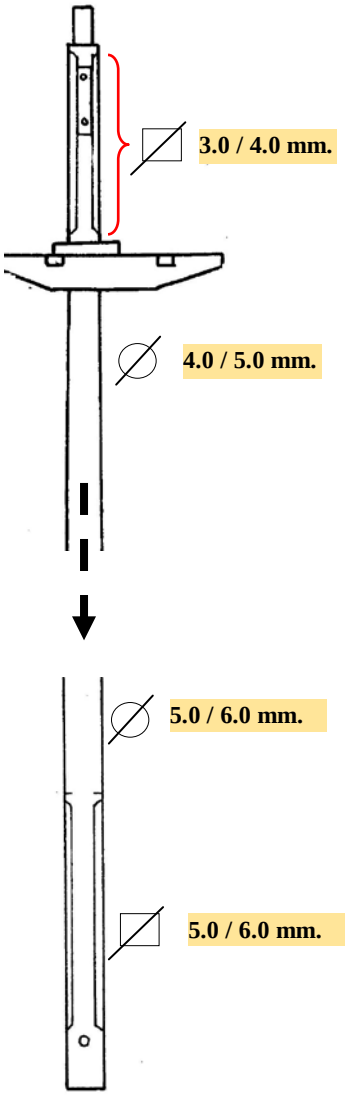

Figure 6: Profile for the Foremast / Main Mast Topmasts

Neither of the squared topmast heels would fit inside the supplied rod diameters. The choices are to ignore the squared heel altogether or add on a separate squared piece (Fig. 7).

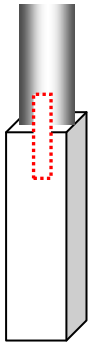

Figure 7: Round + Square

Similar concepts as discussed will also apply to the topgallant masts.

Tops

The tops (‘coffe’) as shown in the drawings offer immense detail that would delight even the most demanding of scratch builders. However, this manual is directed at kit builders and so some variation on the drawings would be expected.

Having cut out the platform disc from the supplied plywood, scrap second planking was used to cover both upper and lower surfaces. Sanding both surfaces afterwards was used to reduce the thickness (shaded green) back to approx. 2 mm.

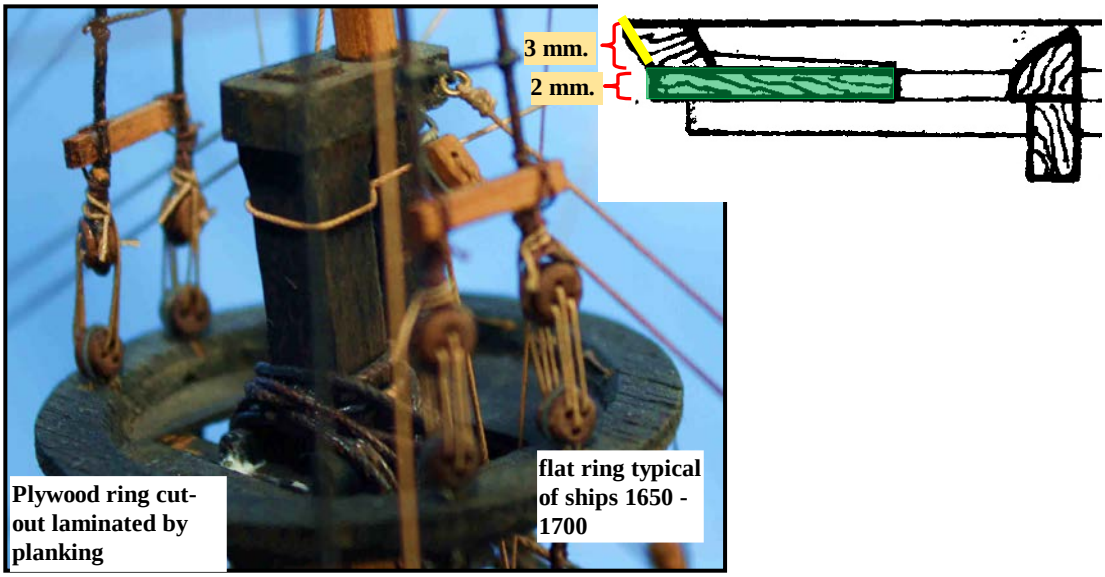

Figure 8: Top Thickness

Ring Construction

- a double-layer ‘mat’ was created from some scrap 1 x 5 mm. planking material – a fairly extravagant method of construction but short of a single piece of solid timber being used, I felt this was a best approach.

- after drying, a disc slightly larger than the top was formed. This then allowed for the edges being tapered (yellow line in Fig. 5).

- a small curved cutting blade was used to cut out (slowly and painfully) an inner disc leaving a ring approx. 5 mm. in width.

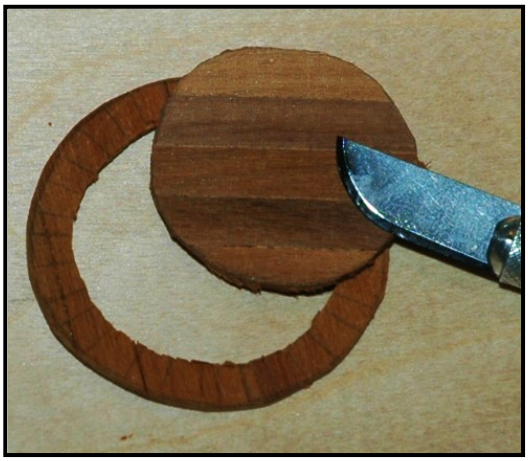

Figure 9: Creating the Ring

The trick here was to create a ‘thousand’ small cuts into the surface with the blade before attempting any serious cutting.

- a Dremel tool was used to smooth and taper the inner edge.

- the ring was glued to the surface of the top.

Crosstrees

- Crosstrees and trestletrees were horizontal pieces that came together in a frame around the mast.
- They served various functions such as supporting the mast tops and rigging.
- There were two trestletrees and two or three crosstrees.

Figure 10: Typical Crosstree/ Trestletree Frame

Top Openings

In this time period, platforms known as tops were fitted on the lower masts and generally painted black. The central opening – termed the '*lubber's hole*' – allowed for both rigging and masting to pass through the top.

shaded red = masts
yellow = trestletrees
blue = lubber holes for rigging
green = crosstrees

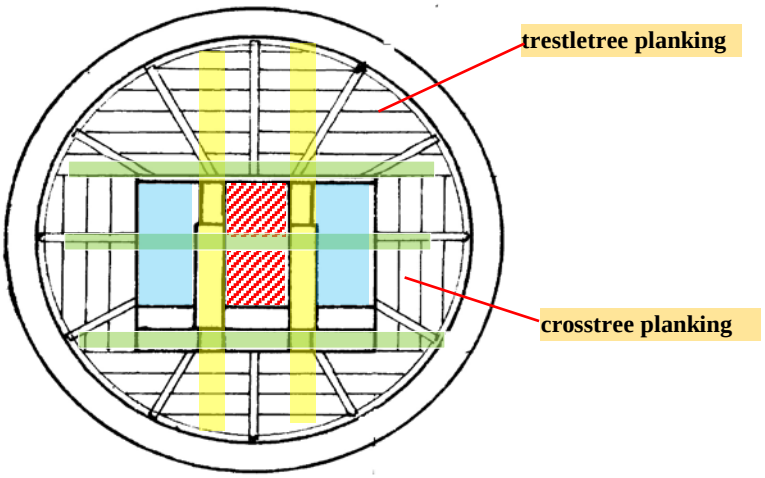

Figure 11: Top Detail

fid hole

In the heel of the two topmasts (fore and main), the *'fid' hole* was created. A fid (wooden or metal peg) is fitted into this hole and its projections from the hole rested on the trestletrees to stop the mast from sliding through. Not all builders include them.

- Fig. 9 shows a mast heel from the Mordaunt *without the fid*.
- Fig. 10 is from another ship where the fid has been included.

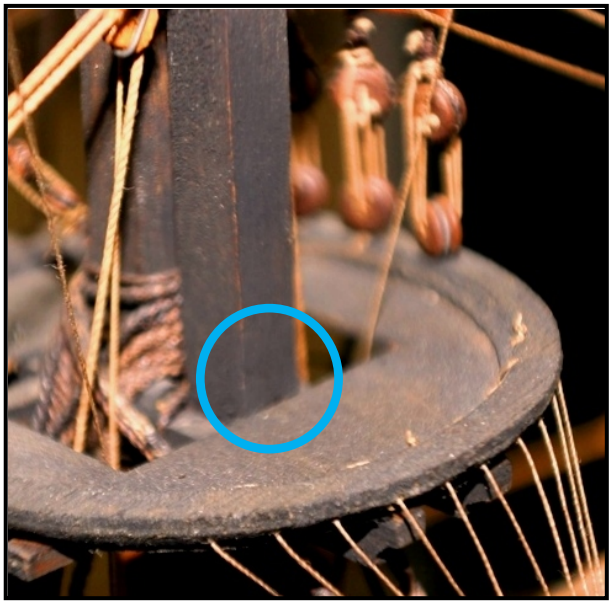

Figure 12: fid Omitted (Mordaunt)

Figure 13: fid Added (different ship)

Woolding Dimensions – conflicting comments

- James Lee (1984) … the rope woolding width on all masts was ***12 inches*** which on this scaled model equates to ***5.08 mm.***

- Mondfeld (1989) … the woolding width was the same as the mast diameter.

- Another reference found suggested '**half the mast diameter**'. ***This latter comment strongly confirms Lee's comment***. The drawing in Plan Sheet 1 indicates the nine/ eight wooldings on both the Main Mast and the Foremast to be approx. ***6.8 mm.*** which equates back to approx. ***16.06 inches*** – greater than both half and even the diameter itself. On the balance of things I erred on a lesser measurement of approx. 6.0 mm.

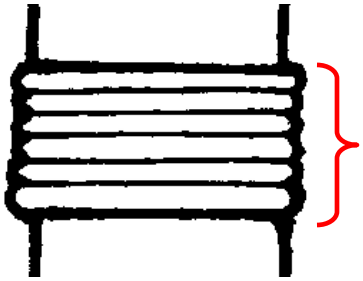

Figure 14: Woolding Interpretation

- Lee (1984) states that approx. ten turns of rope were used in each woolding. I used ***0.6 mm***. black rope – with ten turns (***14.2 inches*** at this scale) ….. but …

- Mondfeld (1989) describes rope thickness as ***1 inch*** which becomes ***0.42 mm.***

These comments highlight how research can be …

useful,
distracting, and
confusing.

On the basis of all these comments, approx. ten turns would seem appropriate to produce a theoretical width of 6.0 mm – but not close to the shown dimension of 6.8 mm.

Adding Wooldings

- The wooldings were evenly spaced along the mast length.

- When serving the woolding on an actual ship, the beginning of the rope was attached to the mast with three nails with a leather button under each. For this kit build, I used the following method …

One end of the rope is bent into an extended loop and then served over as shown in Fig. 8.

Figure 15: Beginning Woolding Serving

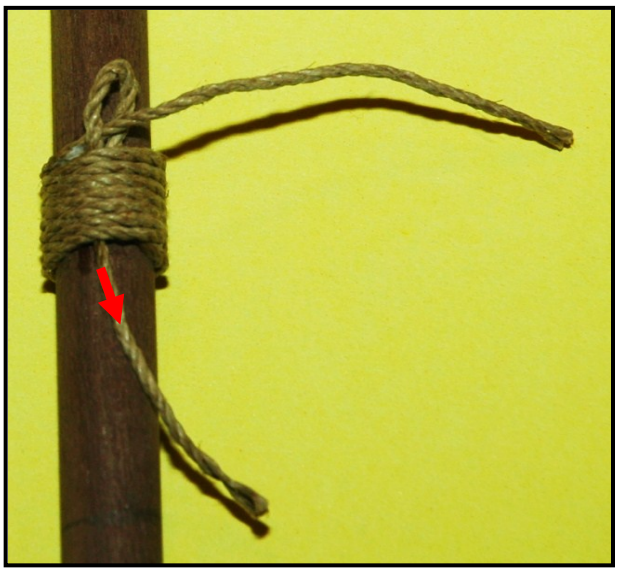

Figure 16: Finishing Woolding Serving

After creating the correct number of turns, the end is inserted through the loop and pulled tightly underneath the top few turns (Fig. 9). Any conspicuous bulge is gently tapped down with a hammer. The ends are cut off.

- The number of wooldings is eight on both the Foremast and the Main Mast.
- Wooden hoops (***1.5 inches*** equating to approx. ***0.64 mm***. on this model) were nailed above and below each rope woolding. This is something extra that ***could*** be incorporated.

Partners

The masts were held in position by a circular series of mast wedges or partners between the decking and the mast itself and frequently covered by a canvas fairing called the ***mast coat***.

Figure 17: Mast Wedges

Photos, both of the ***Batavia***, were copied from MSW and reproduced by courtesy of Tadeusz43.

Figure 18: Mast Coat

Opposite is a mast collar from another build of the Mordaunt..

Figure 19: Main Mast Collar

Mast Raking

According to Goodwin (1987) …

- Foremast & Main Mast generally set at 90^{o} to the keel but sometimes inclined aft at an angle of 1^{0}.
- the Mizzen Mast was inclined aft somewhere between 4 - 5^{0}.

> In reality, the situation was a little more complicated with the ship's master adjusting the rakes to his own wishes in order to gain a small advantage in speed and manoeuvrability.

Figure 20: Determination (in degrees) of Mordaunt Raking