

Pewter Buckle and Belt End Set with Integral Hollow Plates

1400-1450 – England

Materials and Tools Used

Soapstone
Lead-free Pewter
Wood strips
Woodworking and Jewelers carving tools

Summary

This buckle and belt end set is a reproduction of a matched set of belt fittings showing the dish and crosshatch pattern; buckle, grommets and belt end. My goal is to recreate all of the items in this set. They all show an advanced casting technique leaving a hollow in the finished piece. When all of these things are done, I will use them as examples to teach an Advanced Casting class focusing on creating hollows.

Many might think that these items seem small for a belt, however these are an accurate size to the original. Belts in the middle ages, especially this period, were often much thinner than those worn in the SCA today. Belts also, contrary to current popular SCA practice, *did* have buckles with tongues, rather than just a ring.

For each item, I used a two-piece registered soapstone mold. The items are carved most of the way into one side and then a small amount into the reverse and the front side gets an additional slot carved down from the bottom of the plate where a carefully shaped piece of wood rests, extending into the hollow plate area itself. When the pewter is poured, it will pour around the wooden insert. After the item is removed from the mold, the wood insert can be removed, leaving a hollow!!

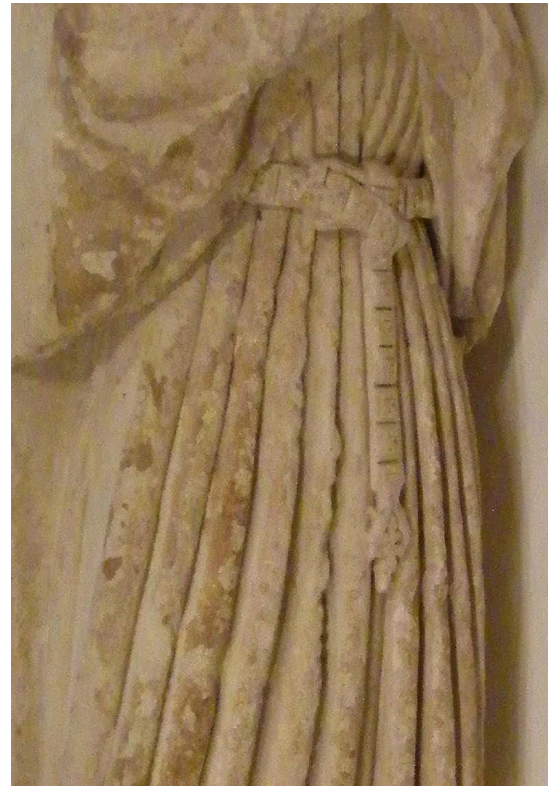


Figure 1 - Belt Detail
From Effigy of John Golafre
1396 - Old Cleeve, England



Figure 2 - Belt set picture
Museum of London Dress Accessories

Hollow Plate Buckle

Buckle Concept

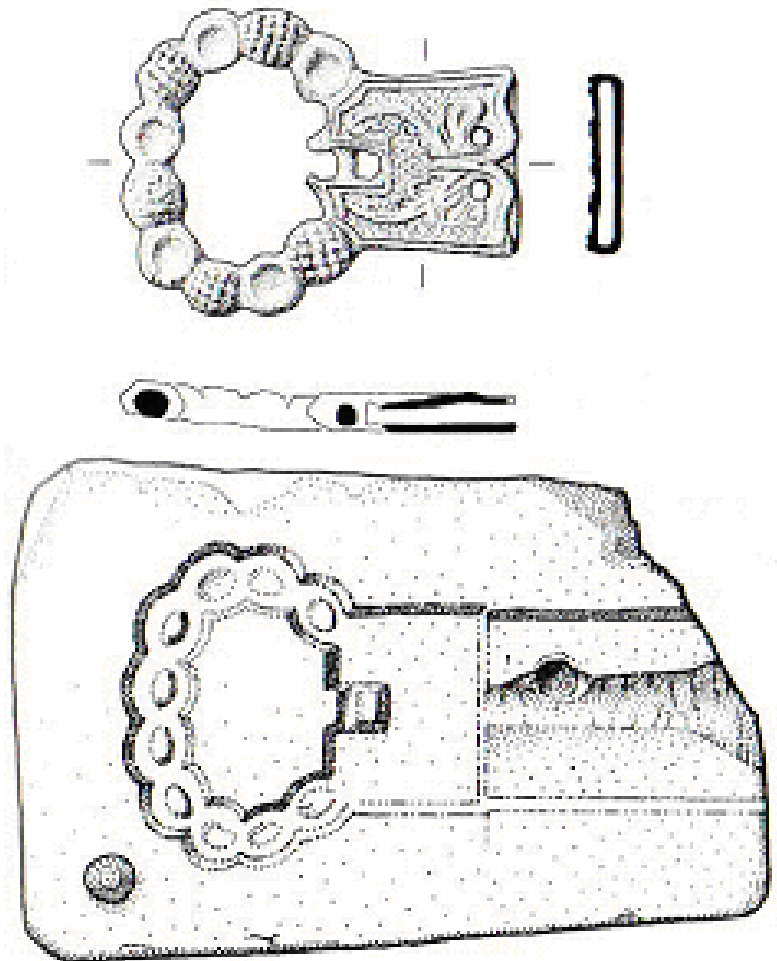
A buckle needs to have space for the belt to go through, an area for the tongue to attach, and a way to attach the buckle to the strap (belt, garter, harness, etc). Attaching the strap can be as simple as looping the strap around the tongue bar (with a slot cut out for the tongue) and sewing the belt to itself. Other options include a separate plate that goes around the tongue bar and rivets to the belt strap and a 3-piece forked spacer plate that is soldered together to insert the belt into. The concept of an integral hollow plate buckle is that, with no finishing work at all, the belt can be inserted into the hollow plate and riveted into place. It is quick and extremely sturdy!

The making of this buckle takes a bit more care, however. This is a two-piece registered soapstone mold. The buckle and plate are carved most of the way into one side and then a small amount into the reverse side to both provide a finished look to the back and to leave room for the back side of the hollow plate.

Then the front side gets an additional slot carved down from the bottom of the plate. This slot should be roughly the width and depth of the belt strap. Into this slot, a carefully shaped piece of wood rests, extending into the hollow plate area itself. When the backside of the mold is pressed to the front, this will keep the wood from slipping. When the pewter is poured, it will pour around the wooden insert. After the buckle is removed from the mold, the wood insert can be removed (leaving a hollow!!) and reused a number of times, though it will eventually shrink enough to need to be replaced.

Carving and Pouring the Buckle

In the middle ages, pewterers would have used woodworking and jewelers tools to carve their molds. I hand carved this mold using woodworking tools and other finer bits. The picture must be carved in reverse, both left to right as well as depth-wise. I used modeling clay to help see what was being carved. The details are very small. It helps to take off my glasses and use my near-sightedness for all it is worth. The amount of detail that the soapstone can capture is really very amazing. I also used quite a lot of very fine sand paper to try and get a very smooth finish.



*Figure 3 – Belt Buckle and Mold
Museum of London Dress Accessories*

Getting this mold to pour fully (and yet, leaving a hollow) involved some complicated problem solving. Somehow in carving my mold, the registration of the top and bottom pieces got off a bit and the pieces no longer sat flush with each other. This is a huge problem as there will be tons of excess flashing and it mostly just wouldn't pour correctly. I got to undertake the very finicky (and generally unadvised) process of melting out the registration nubs and re-pouring.. while not messing up the top/bottom matching. Also, getting the wood insert to fit correctly was touchy. I ended up buying and shaping shims from the department store. It is not advised to cut/shape this insert from WET wood from your outside wood pile due to risk of **Horrible Foundry Accidents** (whoops!).

I also had a problem with an air pocket on the front of the belt plate that wouldn't go away! This can happen when the air is trapped in the middle of the mold with all avenues of escape cut off. The natural air venting is along the sides of the mold, but this pocket was far, far away from a side. I had to use the technique of creating an air vent in the middle of the mold. I needed to drill a tiny hole *through* the mold from the area that was trapping air (like those seen in Figure 4). Bits of straw (from a broom that I now keep as a casting aid) were shoved in to let air out but block the metal in. This was complicated by a huge crystalline inclusion in the middle of the rock that broke my drill bit and made the hole larger than ideal. *Çe la vie*.

With all of these changes, the buckle now pours like a pro!

Hollow Plate Belt End

For the belt end, I modeled it after a similarly designed item in the Dress Accessories book. It is from a private collection so we do not have a more detailed picture of it. The belt end item was done exactly like the buckle. It was a bit simpler since it didn't need to have the whole buckle ring on it.

By the time I did this mold I was completing the project in order to take on an apprentice so I opted to have a small tree (part of my arms) on the backside of the strap end (to prove ownership of the talented lady!). I had absolutely no trouble getting this piece to pour!



Figure 4 – Gertrude of Nivelles Badge Mold showing Air Vent holes. 1400-1499 – Brussels Bruxelles, Musées Royaux d'Art et d'Histoire, F 1194

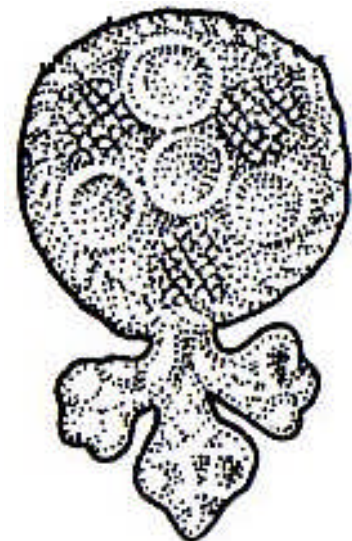


Figure 5 – Strap End
Museum of London Dress Accessories

Pewter Casting In the Middle Ages

Pewter Casting

The earliest pewter that has been found was in an Egyptian tomb dated to 1450 B.C.E. Pewter was used by the Romans and was introduced to Britain in the 2nd century C.E. Significant pewter production did not begin until the 13th century. Many industries sprang up around the casting of pewter badges, plaques and other items that had to do with pilgrimages. Pewter was also used in many household items. It was known as the “poor man’s silver”.

Pewter in the middle ages is difficult to define. It was often a mixture of lead, tin, and traces of other metals. There have been mainland pewter mixtures found with over 50% lead and some found with no lead at all. For example, one Canterbury bell was made with 97% tin, 2% copper and traces of bismuth and antimony. Most pewter mixes did contain lead. Melting points varied with the metal composition ranging from around 350°F to 600°F. I do not care to use lead in my pewter for all the obvious brain liquefying reasons. The pewter that I am using closely matches the Canterbury bell metal; mainly tin with some copper and antimony and it has a melting point of about 425 °F.



Figure 6 - 15th century Canterbury soapstone ampullae mold

Note on use of pewter: The London Girdler’s Guild sought to ban the use of pewter as belt fittings throughout the 14th century. In 1391 a statute was passed acknowledging that pewter had been in use for belt-fittings for quite some time and allowed that it could continue.

Soapstone Molds

Materials used for the casting mold ranged from wood to baked clay to cuttlefish bone to soapstone. Soapstone, or steatite, is almost entirely composed of talc. Good soapstone is very easy to carve, holds intricate detail and will last through hundreds of castings. Good soapstone has an even consistency with few inclusions and should not be crystalline. Soapstone was quarried in many places, including Norway and Iceland and was used by various cultures throughout the middle ages.

Soapstone has been used for casting various types of metal since before the Vikings. It was used to cast pewter, lead, bronze and other metals. Soapstone was itself also used to make many items, as it was so easy to carve but held up well to heat. Pots, bowls and lamps are only a few examples.

For this mold I used a two-piece mold made from Brazilian soapstone. I like the quality of the soapstone (and have no source for European soapstone). It has an extremely even consistency and the coloration (or lack thereof) helps to see

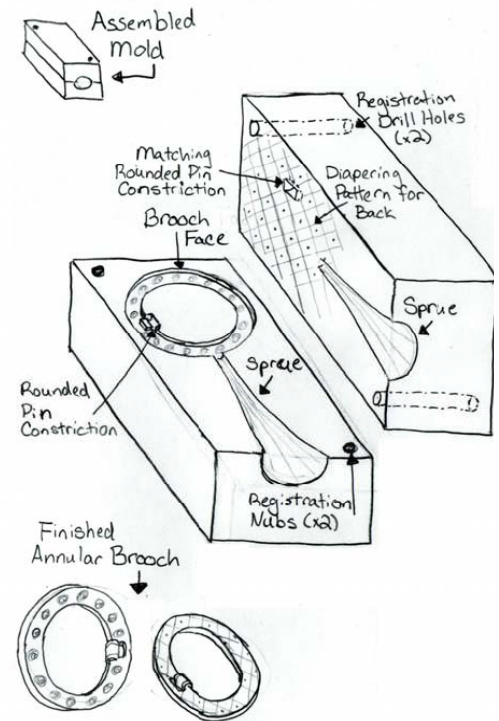


Figure 7 – Example of a two-piece registered mold - Michele Wolf

the carved mold. The sprue, or funnel, is used to get the metal into the mold. The metal is poured from a seam between the two or more upper pieces of stone. Sometimes multiple sprues, or funnels, are needed to fill the entire mold.

Because the front and back of the pieces need to line up, I had to first register them together as seen in Figure 7. Mold registration is used to get the mold pieces to line up the same way each time. I used a drill press to drill straight down through one piece of mold and slightly into the next piece. Once I drilled the holes, I lined them up and poured pewter into each hole. This leaves a pin through the stone with a nub on the end that fits perfectly into the hole in the other piece.

Finishing the Belt Fixtures and Assembling the Belt

Once the pieces were poured, I cleaned them up with various files and drilled the rivet holes all the way through. I also carved and poured rivets to attach the items to the belt and a tongue for the buckle. All items were polished with walnut shell.

I stained the belt and used a skiver to thin it a bit on the ends, as the belt that I had was a bit thicker than my buckle. I used a leather punch to create the holes in the leather and then riveted the buckle and strap end to the belt with a ball peen hammer. I measured my husband and punched the appropriate hole for the buckle tongue to go through.

References

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