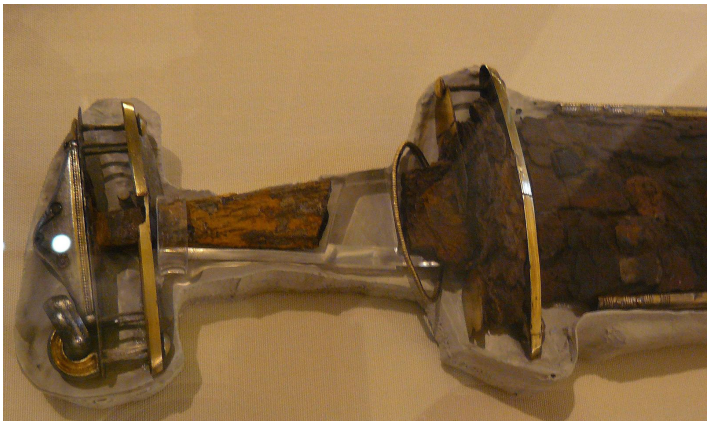
6th Century Saxon Ringhilt Sword

By Ulfgeirr Ragnarsson

As I was considering what sword I was going to make for this project I wanted to attempt a style of hilt that I had never done before. I came across this ring hilted sword in the British Museums' collection and it had all the qualities I was looking for. It was new, not overly complicated, yet still challenging and beautiful in its simplicty. The challenges that made this sword-different than what I have done in the past is that it has organic materials (wood) as spacers in the upper and lower guard, as well as the ring assembly on the pommel. I reached out to the British museum, where this piece is on display, and was given hoping to get some information about what materials where used in the creation of the handle. Unfortunately the information that was provided was heavily focused on the blade and existing parts of the piece and not traces of what was once there.

It is speculated by many that the addition of rings on the hilts of swords in the 6th century came about due to the significance of swearing oaths on both rings and swords. This would make a sword with a ring in the hilt most worthy for a lord to have his oathmen swear there allegiance on. Some swords show signs of having had their rings removed, and so it is possible that they were personal to a particular owner and where removed if the sword passed on to someone else. (Hawkes 1989)



Original source picture

In the making of this blade I started by making an eleven layer billet. Five layers were made of 15N20 and six layers of 1084. Historically this is not necessarily done with just two type of ferrous alloys. A late British Iron Age sword from Walthon Abbey, for example, was forge welded from at least 24 separate layers with different carbon contents. (Lange 1984) For the making of swords, spears, and seaxs, all the bars that make up the core are generally twisted before being stacked together and forged into the final bar that the blade will be made from. Circa 400 AD, the twisting became more complicated and true pattern-welding could be said to have started (Hawkes 1989).

After forge welding these together, I drew it out into three long square bars, about 1/2" thick. These bars were then twisted tightly, two to the right and one to the left. When these bars are place side by side, alternating between right twist and left twist, it creates a herringbone patter. This can be made with two, three, or four bars. I used three bars for the core of this sword. After the third century there are all manner of different types of twists and different numbers of bars used in this process.

To make the edge bar I created a twelve layer billet, half of 1084 and half 15N20, and re-stacked it six times to make a seventy–two layer stack. When looking at historical pieces you can see that the edge bar goes from one edge around the tip of the sword and back to the other edge. There are two ways to achieve this. One is to wrap the edge bar completely around the core, and the other is to cut the edge bar into two pieces and stack it on either side of the core. In order to make the bar connect at the tip, a wedge is cut out of the tip and then that gap is forge welded closed. This will weld the edge bar together at the tip so that the pattern continues all the way around the core. This is the method that I utilized.

Once the forge welding was complete, I began forging in my edge bevels. Traditionally the fuller down

the center of the blade is forged in, however I elected to grind it in with an 8" wheel on a belt grinder. This allowed me to get deep into the pattern of the twist. Now that the profile and shape of the blade is complete, it is polished by hand to 800 grit and etched in ferric chloride to show the pattern.

As an exploration of how patterns of twisted damascus changes, I took a 12 layer bar and cut into it at 5% increments. This shows a drastic change from the surface of the bar to the center. The surface show a diagonal line, as you go deeper into the bar you can see those lines begin to split at the ends and create "X's" Eventually in the center of the bar the pattern turns into crosses.

In the creation of this blade, I used modern steels. I chose 1084, which is a high carbon steel that becomes very dark after etching. The second steel I chose for this project is 15N20, which contains a high amount of nickel, which resists etching and stay bright in the pattern. The high contrast patterns that I achieved in these blades cannot be obtained with historic materials. By using these high contrasting materials, I was better able to highlight the the results of the process to illustrate the technique for the casual observer. In period pieces, much of the metal used in pattern welding was a combination of steel with 0.4% to 0.25% carbon and phosphoric Iron (Anderson 2012). The Phosphorus in the iron makes it appear darker next to the steel.

Pommel with gilding

The original sword has gold plates on the guard and pommel, this is out of my price range, so I chose to go with bronze and explore gilding, something I have never done before. Looking into this a bit I found that it was usually done by mixing mercury and gold, then applying that to the surface you wanted to plate and then evaporating the mercury. Though this sounds extremely interesting, I deemed the risks of mercury vapor to be too hazardous. Therefore, I looked into applying gold leaf with a size(adhesive). Though initially it seemed to go well, I ended up removing all of the leaf because of durability issues. The size that I was using seemed to be having difficulty setting up. I ended up stripping it all off with acetone and just going with the bronze.

For the construction of the rings and more specifically the "riveting" ring I sculpted it out of a thick piece of plate. It was likely cast in period, though it is hard to tell from the pictures that I was working from and no additional data was availible from researchers. The hollow in the ring is the only place that I left the gold gilding, which is the only part of the original that was gilded.

Attempt of handle with cow bone

For the organic components of the hilt and handle I was going to use a piece of cow bone, but after splitting it down the center it revealed an incredibly thin portion of bone. It was an unusable piece, so I chose to go with black walnut, in order to complement the color of the bronze. To add some contrast to the handle I added a moose antler spacer to the center of the grip. Though there are next to no surviving organic handles (these materials are the first to decompose), we can infer the general shape and assembly from swords of the same time period which maintain a similar form, regardless of materials.

The final assembly of the sword was done with peening and epoxy. In period it would have been cutlers resin. One difficulty that I ran into was that the original must have been made with a split handle, because my two pins coming off of the hilts bottom

interfered with the handle. My solution was to texture them and glue them in. With the addition of the mechanical connection of the "ring" rivet, the construction is solid.

Upon reflection there are many ways that I would approach my next ring sword differently, but all in all am pleased with how this one came out. This was a great learning experience.

References

Hawkes, S.C. (1989). *Weapons and Warfare in Anglo-Saxon England*. Great Britain: Oxford University Committee of Archaeology.

Lang, J.R.S. (1984). The Craft of the Blacksmith. *Symposium of the Comité pour la Sidérurgie Ancienne* Belfast).

McGrath, J.N. (1973). A report on the Metallurgical Examination of 5 fragmentary Early Iron Age sword blades from Llyn Cerrig Bach. *Journal of Arms and Armor Soc.* 71.

Object type	sword-sheath
Museum number	1963,1108.751
Description	Two silver edge-bindings of sword-sheath on sword 1963,1108.751; U-shaped section, with four groups of ribbed lines at each end.
Culture/period	Early Anglo-Saxon
Date	6thC(late)
Findspot	Excavated/Findspot: Buckland, grave C cemetery; (Europe,United Kingdom,England,Kent,Dover,Buckland (Dover))
Materials	silver
Location	On display: G41/dc6/sC
Exhibition history	Exhibited: 2002 13 Mar-26 Sep, Woodbridge, The National Trust-Sutton Hoo Exhibition Centre, Warriors
Acquisition name	With contribution from: Christy Fund Purchased from: Corporation of Dover
Acquisition date	1963
Acquisition notes	Excavated 1951-1953
Department	Britain, Europe and Prehistory
Registration number	1963,1108.751

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