

An Anglo-Saxon Seal

Persona Pentathlon Category 3: Metal-Casting
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What is this?

This is a cast metal seal matrix and its wax seal, such as those that were used by important people in Anglo-Saxon England. It would have been used to make an impression in softened (but not melted) sealing wax. In the time of Edward the Confessor, the seal (that is, the wax bearing the impression of the matrix) would have been pressed and affixed to a narrow tail cut from a writ – generally, a legal document confirming a grant of land. It was not meant to make the document secure or secret, but rather to authenticate that it came from the lord whose name it bore.¹ The only surviving sealed documents bear the royal seal; no documents signed by lesser lords bear seals. Yet the seal matrices used to create them do exist. Experts don't know for certain what they were used for.² The obvious answer might be “to seal documents, but none of them were important enough to be preserved.” But in the absence of evidence, no one can say for sure.

It doesn't look like the seal matrices I'm used to seeing.

Not many seal matrices survive from Anglo-Saxon England. There are just four, plus two seal impressions, so we may as well take a quick look at each of them.

Aethelwald Seal



Aethelwald Seal

This is a ninth century copper alloy cast seal belonging to Bishop Aethelwald, found in Suffolk, England.³ It bears a “floriate cross” - a leafy-looking cross. The inscription reads + SIF EÐILVVALDI EP- . The cross marks the beginning of the inscription. SIF is short for 'sigillum,' or 'sigil.' EÐILVVALDI is the possessive form of Aethelwald's name. EP- is an abbreviation for Episcop..? So the transcription just says “Bishop Aethelwald's seal.” It is 2.7 inches tall; I estimate from the image that the seal is about half that in diameter (so approx 1.4 inches wide).

Aelfric Seal



This seal matrix is the one I most closely modeled mine on. It is thought to be late tenth century, and it was found in Hampshire, England⁴. The obverse (front) depicts a bearded man with a cloak pinned on his shoulder, holding a sword (a symbol of temporal authority). The reverse (back) has an acanthus design in the Westminster style. Its legend reads + SIGILLVM ÆLFRICI XX , with the 'XX' character possibly being an alpha and omega combined (a Christian reference). It translates to “Aelfric's seal,” and is thought to have belonged to Earl Aelfric of Hampshire. He died in battle in 1016, just at the beginning of the 11th century.⁵

This seal matrix has no indication of a handle. Possibly something may have been attached at the damaged edge. It is 1.7 inches in diameter and made of copper alloy.

Godwin and Godgyða Seal

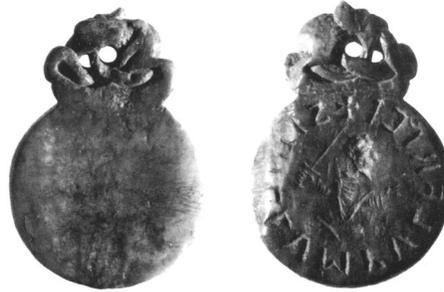


This is an 11th century seal carved from walrus ivory.⁶ The obverse, which is thought to be the original carving, shows another bearded man-with-cape-and-sword. This one has a handle, carved showing God the Father and the Son (the Holy Spirit possibly having snapped off the top) making thine enemies thine footstool (Psalm 109). The inscription reads + SIGILLVM : GODPINI MINISTRI : Godwin the Thegn's Sigil, or The Sigil of Godwin the Thegn. The 'w' in Godwin is represented with a wynn, a letter that looks like a sharper, more dangerous 'p'. The Ls in “Sigillum” are also stacked, one inside the other. It is not thought to have belonged to *that* Godwin, the powerful earl whose son, Harold, took an arrow to the eye at Hastings.

The reverse, originally uncarved, seems to have been later adapted. It shows a woman holding a book, and the inscription there reads + SIGILLVM GODEGYÐE MONACHE DŌDATE : The seal of Godgyða, a nun given to God .

The British Museum helpfully gives more dimensions on this one. It is 3.4 inches long, 1.8 inches in diameter, and 0.3 inches thick.

Wulfric Seal



This is another walrus ivory seal with a handle, dated by the lettering to the 10th or 11th century. Recovered in the late 20th century and now in private hands, the handle shows entangled beasts; the reverse is plain. The obverse has our now-expected bearded man with cape and sword, indicating temporal power. The inscription reads +SIGILLVM WVLFRICI – Wulfric's Sigil. The 'W' in Wulfric is again a wynne (p-shape). This seal is 2.2 inches long and 1.5 inches in diameter.⁷

Edith Seal



This is a 13th century impression (on a 13th century charter) of a seal matrix thought to have been made in the 10th century.⁸ It is the seal of St. Edith (c. mid-to-late 10th century), who rebuilt a church at the nunnery of Wilton, where she was a sister. The nuns continued to use her seal long after her death. It is much like Godgyða's seal, showing a woman holding a book, with a legend around the outer edge. Interestingly, the part of the seal that looks like it ought to be a handle one holds while making the impression is actually part of the impression here.

Coenwulf Bulla



This is a bulla (lead seal impression) of Coenwulf, King of Mercia (796-821).⁹ It was found in Italy, where the king had gone to visit the pope. It is 1.6 inches wide overall. Its inscription reads “+ COENVVLF REGIS MERCIORVM,” or simply “Coenwulf, King of Mercia.” It is less artistically interesting than the other seals and is included for completeness.

Designing Wulfstan's Sigil

I knew I would be doing a single-sided casting, so a complex 3D seal matrix like the bishop's was right out. The reverse would also be plain, like Wulfric's and as Godwin's was before his sister got her hands on it. The diameter should be between 1.5 and 2 inches, roughly, and about a third of an inch thick. There should be an image of a bearded man with a cape and a sword, and an inscription reading + SIGILLUM WULFSTANI. “MINISTRI” or an abbreviation thereof was optional, and SIGILLUM could be abbreviated if necessary. I used the wynn for the W in Wulfstan.

Lacking a good source of walrus ivory, I thought I would cast my seal matrix. I would not be using a copper alloy, but a lead-free pewter that melts at more novice-friendly temperatures.

Because the letters and figures were cut into the seal matrices, I assumed that for cast metal pieces, there would be an incised original which would be used to create a mold for the metal. I don't have a source for this method from period, although Aethelwald's seal looks to me to be something that could only be made via a lost-wax casting method, indicating a soft mold of some kind – sand or plaster. There are casting molds that survive, but they are carved directly from soapstone or other materials. I couldn't get my mind around carving out stone and leaving little letters and lines for the figure sticking up, while making the surface beneath them smooth. Surely there was a firm original, around which a mold was poured or formed, and then into which the metal would be poured.

Making the Original, Take One

Although I would not need to melt out my original, I thought wax would be a great period thing I could carve into an original. I had a beeswax votive candle, and used a heated knife to cut off a slab about 1/4” thick. Into this, I carved the inscription and figure, using a mechanical pencil-tip of all things.

I was fairly happy with it, although I was worried about the wax crumbs that were still sticking everywhere. The major issue was the lettering – my inscription was a sort of thin, sans serif, Arial-esque lettering, whereas the inscriptions on the extant seals had wedge-shaped lines and serifs. You can see the original design if you hold the wax up to the light.

Making the Mold, Take One

I read up a bit on casting, and the thought of inadequately dried plaster of paris exploding all over the place gave me pause. I'd once taken a casting class where we used cuttlefish bone, but that leaves a scaly pattern I did not want. I decided to do sandcasting. I have no idea if this was done in Wulfstan's period, although I don't see anything prevent it. The Saxons would certainly have not used “Petrobond,” an oil sand meant to be a Delft replacement. Delft clay casting kits were running \$80 and up; I got a pound of Petrobond for \$11.

I cut both ends off of a can of cat food for my form. Placing the original face-up on a table, I put the form around it and packed in the Petrobond. I covered the top with aluminum foil, flipped the form so the foil was now the bottom, and carefully lifted out my wax original.

The Petrobond stuck to it. All over it. Because beeswax is sticky.

Making the Original, Take Two

I needed an original that would be non-sticky. Clay might be an option. Having small children, I didn't have clay around, but I did have Play-Doh. I rolled out a slab, estimating the thickness to around 1/4" – 1/3" and used the Play-Doh container to cut out a round. (This has resulted in a seal matrix slightly larger than the existing, non-royal examples. Mine is 2.1 inches wide, wider than the Godwin seal by 0.3 inches. Edward the Confessor's royal seal was nearly 3 inches wide.) I used a screwdriver to make straight-line impressions for most of the lettering, and some small, round implement to do the curving lines.

The Play-Doh dried over several days. There is one fine crack on the front, but many cracks on the back. I think the inscriptions on the front opened a bit as it dried, preventing too much cracking. The back was not so lucky.

Making the Mold, Take Two

It took several tries to get a good mold from the original. Sand got stuck in some of the finer lines, which I then tried to open up with small files. In the end, the "S" in Sigillum is a little off, but overall, it seems to have come out well.

Casting

Wearing gloves, goggles, and an overcoat, I melted a 1-pound lead-free pewter ingot in a butter warmer over high heat on a camp stove. I poured directly from the pan into the mold. I overpoured a little, but surface tension kept the melted pewter from dribbling over the surface of the sand.

The piece cooled for an hour and a half. I cleaned out the sand that stuck in some of the cracks, and it was done. I overpoured slightly, without channels for flash, resulting in a bubble-like ledge at the bottom edge. I used a bristle brush to clean out the burnt oil sand stuck in some of the crevices.

Sealing Wax

Having a seal, I figured I needed some wax. The earliest English seals were just beeswax; later, resin could be used to temper it.¹¹ Since the first surviving wax seal is 11th century, pure beeswax would be appropriate. I did want to try a resin/wax blend as a test, however.

The early surviving seals are mostly white wax, with a single brown one that could be discolored red or green. After the Conquest, red and green seals join white as typical. Red would have been produced by the use of vermilion. Vermilion is mercury sulfide, and I did not want to use that for something I might be holding in my hands to soften. I purchased madder lake pigment from the Limners Guild; madder is a period pigment.

I purchased natural beeswax pastilles, and bleached them to an ivory white by leaving them in the sun. I melted them in a double-boiler and poured the wax into molds made out of aluminum foil (pressed into the recessed lid of the Play-Doh container). Molds were not really reusable - peeling the wax out pretty well destroyed them.

After I had poured three rounds, I added approximately 1/2 tsp. of the madder lake pigment and stirred it into the wax. It resulted in two rounds of a spectacular deep red color that looks just like the red sealing

wax sold in modern stationary stores.

For the resin-tempered wax, I measured on a kitchen scale one ounce of powdered pine resin, then added beeswax until I had three ounces of stuff. (I had found advice on the Internet that a 2:1 wax:resin ratio was good.) I melted it all together in the double-boiler, and I poured it out into new molds. This batch was distinctly pink (some madder remained in the double-boiler).

After cooling, the beeswax rounds were good – very stiff and sturdy. They need to be softened with heat to take an impression. Softening with my hands didn't work – the seal impression was patchy. Holding the wax 6-8 inches above a candle flame softened it, but there still seems to be something of an art to getting the right level of softness – soft enough to take a good impression, but not melting. My best efforts are displayed on the table.

The resin-tempered wax was a gooey, sticky mess when I thought it had cooled. Maybe Georgia pine resin (what I purchased) has different properties from medieval European pine resin. But the resulting mixture has a consistency close to Silly Putty. It stuck to the mold, and when separated, pulled in taffy-like strings. A few days later, when the rounds had completely cooled, I was able to get one out more easily. But it wouldn't take a good impression cold, and I was worried that if I warmed it, it would turn to taffy again.

Results

It's not bad! Definitely a first effort, but not bad. The seal needs sharper edges and cleaner lines overall – a bone original seal is probably the way to go, if I continue to sand cast. The wax rounds should be poured larger. The lettering around the edges of the seal didn't imprint well in the wax, although they look fine when pressed into Play-Doh. I think this is from not having enough wax out at the edges of the round. I had to stretch each one as it softened to make it large enough, and the edges ended up thinner than the center.

Resources

¹P.D.A Harvey and Andrew McGuiness. *A Guide to British Medieval Seals*. University of Toronto Press: Toronto, 1996, p. 1.

²Ibid., p. 3.

³British Museum. “Aethelwald Seal.”
http://www.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=88388&partId=1

⁴British Museum. “Aelfric Seal.”
http://www.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=88957&partId=1

⁵R.A. Smith. *British Museum Guide to Anglo-Saxon Antiquities 1923*. Anglia Publishing: Ipswich, England, 1993 reprint.

⁶British Museum. “seal impression / seal / die”.
http://www.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=95268&partId=1

⁷Robert Baxter. "Anglo-Saxon Seal found near Sittingbourne." *Kent Archaeological Review*, Issue 50, Winter 1977, pp. 235-236. Accessed online at http://cka.moon-demon.co.uk/KAR050/KAR050_Sittingbourne.htm

⁸"Paleography Exercises." Accessed online at <http://medievalwriting.50megs.com/exercises/wilton/flseal.htm> . Edith's seal was mentioned in Harvey and McGuiness without any details; this was the only online source I could find with a picture. Wish it was more credible.

⁹British Museum. "Coenwulf Bulla."
http://www.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=88914&partId=1

¹¹Harvey and McGuiness, p. 17. All the assertions about the wax comes from that page.