

Medieval Coin Making

Lord William de Kari, Barony of Unser Hafen, Kingdom of the Outlands
william.dekari@gmail.com

History

Prior to the introduction of coins, materials were traded based on their perceived intrinsic value. Even small lumps of metal which resembled the first coins, were traded, but they were not coins in the sense that they did not have any markings to identify them and fix their value.

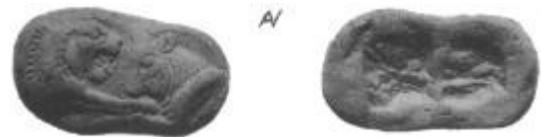
The Earliest Coins

Coins were first introduced by the Lydians (located in what is now Turkey). King Gyges (687-652 B.C.) created a mint in Sardis, the capital of Lydia, that produced coins in electrum, a naturally occurring alloy of gold and silver consisting of roughly 10 to 15 parts silver to 1 part gold. Lumps of electrum were softened with heat, then hammered with a punch to create an imprint.



During the reign of King Alyattes (610-561 B.C.), coin weight was standardized at 168 grains for a **Stater**, and the idea of creating coins that were a fraction of a Stater was developed. In addition, using a die for both the obverse (front) and the reverse (back) of the coin was introduced. Their method of production, using a trussel (lower) die held in an anvil and a pile (upper) die that was held on top of the flan (blank coin) and struck with a hammer is the same basic process that was used through the end of the Middle Ages.

The first official coins, which were issued by a state authority and guaranteed by the crown, were created by King Croesus (561-546 B.C.) They featured a lion's and a bull's head, facing each other. The quality of the dies was quite good considering the period. Coinage was standardized to pure metals, with a 168-grain gold Stater being worth ten 220-grain silver Staters.



When Persia conquered Lydia in 546 B.C., the Persians began striking their own coins, the **Daric**, which showed the king running with a bow. This coins saw the introduction of 3% copper to the gold to make the coins more durable, and were the standard of trade during the Persian's control of the region.



When Alexander the Great captured Darius III in 330 B.C., he introduced the Parthian system of coinage, based on the silver **Drachm** and the **Tetradrachm**. Notice the high relief, and the clear, high quality portrait. Ancient greek coinage was a very high mark in the level of quality and workmanship applied to coins. Quality levels would decline substantially over the centuries to follow.



An entire book could be devoted to following the divergent and interesting production of coins throughout the period leading up to modern times, but that is beyond the scope of this work.

English Coins

Anglo-Saxon Pennies

The earliest **Pennies** were introduced in England around 785 by King Offa of Mercia. They were between 20 and 23 grains (1.3-1.5 g) in weight, and the Penny would remain in circulation, without a change in value, until 1971. The name came from Old English “pennige”, and is related to the German “pfennig”. They were nearly equivalent to the **Denier** in use in Europe at the time, and this is the source of the **d.** abbreviation used for the penny. Modern-day carpenters still use the abbreviation, as in “10d” for a 10-penny nail.

A vast number of Anglo-Saxon pennies were used to pay off Vikings to prevent raids on English lands (the “Danegeld”), and so many of these coins have been found in Denmark rather than England. During the reign of Ethelred the Unready (978-1016), 40 million pennies were paid to the Danes, or nearly 150,000 pounds of silver.

The penny was the only coin circulated in England for 500 years, until the reign of King Henry III. If a smaller denomination was needed, pennies could be cut in half or quarters.

Norman Coins

At the start of the reign of William the Conqueror, the penny was well-established, with over 70 mints around England producing coins. Coins began showing a bust of the king on the obverse face. The reverse face would contain a cross, the moneyer's name, ON (of), and the name of the town the moneyer was from. For example, “+ WILLIAM ON UNSER HAFEN” might appear around the edge of the reverse face.

During the reign of King Henry I, coin quality declined, and moneyers were commonly creating underweight or low-quality coins and keeping the profit. In 1124 King Henry summoned 150 moneyers to Winchester, and tried them for issuing substandard coins. 94 of them were convicted. Their right hands were cut off and they were castrated. Coin quality quickly improved.



English Coins From the 13th through 16th Centuries

In 1279, during the reign of Edward I (1272-1307), the penny, which was now 500 years old finally ceased to be adequate. First, the weight of a penny was standardized such that one pound of silver would yield 240 pennies, and the groat (4d), halfpenny, and farthing (quarter penny) were created. All were minted in silver. At this point, the moneyer's name on the reverse was replaced by a “privy mark”, or a subtle change in the image on the coin to allow the identification of the mint producing the coin. Note that the weight of coins was not in any way consistent – as trade with continental Europe saw fluctuations of the relative value of European and English coins, the English coinage was reduced in weight several times (with pennies falling as low as 12 grains in weight) to make their value match coins on the Continent.



Groat (Edward III)
4 pence value
27 mm diameter
96 grains



Penny (Edward III)
1 pence value
19 mm diameter
24 grains



Halfpenny (Edward I)
½ pence value
17 mm diameter
12 grains



Farthing (Edward I)
¼ pence value
12-13 mm diameter
6 grains

In 1344, Edward III introduced several new denominations of coin. He first introduced coins called the Helm, Leopard and Florin, at 18, 36 and 72 pence values, respectively. These were quickly abandoned and replaced by the quarternoble, halfnoble, and noble, valued at 20, 40 and 80 pence. He also introduced the halfgroat.



Noble (Edward III)
80 pence value
20 mm diameter
30 grains



Halfnoble (Edward III)
40 pence value
19 mm diameter
24 grains



Quarternoble (Edward III)
20 pence value
17 mm diameter
12 grains



Halfgroat (Edward III)
2 pence value
21 mm diameter
6 grains

In the 1470s, there was a revaluation of coins, reducing the penny to 12 grains weight, and revaluing the Noble to 100 pence. A new coin, the Angel was introduced at 80 pence value, since the 80 pence value was familiar. Shortly thereafter, the Noble/halfnoble/quarternoble were discontinued, leaving the Angel and Halfangel at 80 and 40 pence, respectively.

The sixteenth century saw great upheaval in the coinage of England. Henry VII added the Testoon (12 pence or 1 shilling), the Ryal (120 pence) and the Sovereign (240 pence, or 1 pound). In 1526, Henry VIII then revalued the Angel, Halfangel and Sovereign to 88, 44, and 264 pence, respectively, then a few months later, revalued them again to 90, 45 and 270 pence. At the same time, he added the Half Crown (30 pence), Crown (60 pence), George Noble (80 pence), and Half Sovereign (135 pence).

By 1600, during the reign of Elizabeth I, the situation had reached the height of complexity, with the following coins in circulation:

<i>Coin</i>	<i>Value</i>	<i>Material</i>
Farthing	¼ penny	Silver
Halfpenny	½ penny	Silver
Threepenny	¾ penny	Silver
Penny	1 penny	Silver
Halfgroat	2 pence	Silver
Twopence farthing	2 ¼ pence	Silver
Threepence	3 pence	Silver
Groat	4 pence	Silver
Fourpence ha'penny	4 ½ pence	Silver
Sixpence	6 pence	Silver
Shilling	12 pence	Silver
Half Crown	30 pence	Minted in both silver and gold
Quarter Angel	30 pence	Gold
Crown	60 pence	Minted in both silver and gold
Half Angel	60 pence	Gold
Angel	120 pence	Gold
Half Sovereign / Half Pound	120 pence	Gold
Ryal	180 pence	Gold
Sovereign / Pound	240 pence (£1)	Gold
Fine Sovereign	360 pence	Gold

The Moneyer's Craft

Moneying was restricted to guilds or authorized mints authorized by the monarchy to produce coins. They took raw metal (typically silver) and produced coins of particular weights and sizes, and with markings that generally identified both the reigning sovereign, and the moneyer that produced the coin. The value of the coin was not stamped on the coin itself – its weight in silver defined its value. In fact, people sometimes cut coins into pieces to make change.

Tools

To mint coins in the manner of English moneyers around the 13th to 15th century, some basic tools are necessary.

- Hammers
- Shears
- Facilities for melting silver
- Scales
- Punches for engraving
- Files for shaping dies and punches

Raw Materials

In addition to the silver used to create the actual coins, moneyers require steel to create punches and engraving tools and iron for dies.

Engraving Tools

If you examine English coins closely (like the example below), you can see that the patterns and words on the coin are made up of a relatively small number of simple shapes, like lines, arcs, triangles, dots, lozenges, and so on. These shapes are made by punches that create dents in the face of the die used to stamp the coin. Before creating coins, a moneyer has to create a set of punches that can create all the shapes and letters needed to make coin faces.



A basic punch set might include these shapes:



We make our punches from 1/4" steel rod, filed to a point then shaped to get the punch we're going for. The tip should wind up flat in the desired shape. The steel should be a type that allows hardening (not mild steel). TO harden the punch, grip it by the unshaped end with some pliers, heat the tip end to a cherry red glow in a flame (a propane torch works well), then quench it in oil (water quenching would result in a more brittle tip). For portable demos, we use a can of Crisco for quenching, stirring the punch around as it melts the fat to keep cooling it.

If you have hardened a punch and want to rework it, soften it by heating it again to cherry, then setting it aside to cool slowly rather than quenching it. Once it cools, you can reshape and re-harden it.

Dies

Coins are stamped between two dies, one with the obverse (front) image, and one with the reverse (back) image. These dies were made from iron, and were rarely hardened. The diameter of the die matches the size of the coin to be made. A typical lower die might be able to produce 36,000 coins, while an upper die could produce 20,000.

For a 1-penny coin, the die is $\frac{3}{4}$ " diameter, while for a 2-penny coin, use a 1" diameter rod. Any sort of steel will work, but don't get some really hard steel that you won't be able to engrave. The steel is much harder than the coin material, so the dies will last, even though they aren't hardened. In period, dies were around 4" long, to give a person enough room to get a gloved hand around the top and bottom dies while the coin was struck. We use a treadle hammer and don't hold the dies during striking, so we use much shorter dies (about 1 $\frac{1}{2}$ " or 2" tall).

To prepare dies for engraving, you want to get the face of the die as flat and square as you can (by square, I mean at right angles to the axis of the die). The period way to do this is to run the die face along a file for a long time, checking and tuning the face as you go, until it's flat and square. Then you want to polish the die face so you get smooth and shiny coins – we do this by placing fine sandpaper face-up on a flat surface and rubbing the die face on the paper until it's polished.

Engraving the Dies

The first and most important thing to remember when engraving a die is that you're working in reverse! Anything you create on the die will appear in mirror-image on the coin (the term for this is that the die is engraved "in intaglio", meaning reversed). It is not uncommon in medieval coins to see mistakes made in this process – a letter reversed, for example. From personal experience, I know the letter "S" is very easy to get wrong!

A coin die generally starts with a line of pellets (dots) around the outer perimeter of the die. These were imprinted on period coins to prevent people from trimming the outer edges off and reducing the value of the coin. The obverse face typically had a rendering of the king, and the king's name or some slogan, while the reverse identified the moneyer or mint that produced the coin. We follow this convention in most of our coins, unless we're producing a site token or prize medalion where both faces have meaning.

To engrave a die, we use a piece of steel several pounds in weight with a hole drilled in the center just large enough to hold a die upright. This gives us a very stable base and keeps the die from moving as we're working on it, while still allowing us to rotate the die easily as we work our way around the coin face. Place a punch on the die face, align it carefully, then tap it sharply with a lightweight hammer to get a good clean imprint.

Now, one of the measures of your skill as a moneyer is how well you deal with an error in engraving! It's inevitable that at some point you will strike your punch then realize that you just put a line, dot or arc in the wrong place, or you got a letter backwards (forwards, on the die, that is). You have two choices in this case – you can leave the mistake (mistakes were period), and move on, or you can come up with a creative way to make it look like you "meant to do that".

After some time, you will have two dies made – one for each face of the coins, and you're ready to begin the coin making process itself.

Making Flans

A flan is a blank disk of metal that will be struck to make a coin. In period, silver was melted down, poured out into molds and hammered into sheets of a measured thickness, then cut into circles (flans) with shears. The flans were weighed, and any that were under-weight were melted down again and the process was repeated until a supply of accurately weighted flans had been produced.

When we make coins, we use pewter rather than silver, because of cost and ease of working the cooler-melting metal.

For high-value coins (like those made from gold), the flans would be made intentionally too heavy, then after the coins were struck, they would be filed or trimmed to the exact weight, which allowed the final appearance of the coin to be adjusted before it left the mint.

When you're hammering out the sheets of metal, use a light sledge hammer with a polished face so the metal keeps a smooth surface (you can polish the hammer face with a sander).

To cut out the flans, I use a circle template and a scribe to scratch a circle outline the size I want on the metal, then cut out the flan with shears, and clean up the sharp edges left by the shears with a few light taps with a small hammer.

Striking Coins

You're finally ready to strike! When striking by hand, we use the same steel anvil that we used to engrave the dies, placing one of the dies in the anvil, face-up (it doesn't matter which one you use, but be consistent, because the top die will get hammered on and over time it will mushroom out enough that it won't fit down into the anvil anymore.

Place a flan on the bottom die, and place the top die face-down on the flan. Now, with a leather glove on, wrap one hand around the dies so you hold the top die vertical and keep the dies centered on the flan (or for the fainter of heart, find a pair of tongs built for gripping round stock, and hold the dies together with those.

Finally, have a trusted associate strike the top die sharply with a sledgehammer, and you have a coin! Rinse. Repeat. 120 of these makes a pound (if you're doing 2-penny coins), or 240 if you're doing 1 penny coins.

Exchequer Counting Cloth

A handy thing to have is a counting cloth, which is essentially a checkerboard pattern that's 12 by 20 squares. Then two pence per square makes a pound. This eliminates the need to count as you go. You can also check each coin as it gets stamped as you move it to the cloth to see if it was struck well enough.

Suppliers

Pewter – Hallmark Metals Corporation (97.5% tin, 2% bismuth, 1/4% copper, 1/4% silver, melts 428°-446° F)

Punch stock – Typical hardware store (1/4" steel rod)

Die stock – Various metal suppliers (1" steel rod)