



## Tools & Materials

<h4>Finishing</h4> <ul style="list-style-type: none"> <li><b>Brass Brush</b> Brass-bristled brush, used for cleaning metals, and for giving a matte finish. They were also used to prepare the surface of gilding before a burnisher was used.</li> <li><b>Burnisher</b> Smooth, hard tool used for compacting the surface of metal and making it reflective. The tool must be highly polished, and materials include iron, haematite or agate.</li> <li><b>File</b> Metal bar with regular teeth, used for grinding materials into shape, or smoothing rough edges</li> <li><b>Graver</b> Handheld cutting tool, used for scraping or removing material. Must be very sharp. The names Burin and Scorper are also used. They must be precisely ground and polished.</li> <li><b>Scribe</b> Sharp pointed tool used for marking and drawing directly onto metal.</li> </ul>	<h4>Vessels</h4> <ul style="list-style-type: none"> <li><b>Crucible</b> Ceramic or metal vessel used for melting metals or heating chemicals. Shape varies depending on function; a small neck or a lid will reduce absorption of oxygen. Tongs are needed to handle crucibles, due to extreme heat and potential fragility. Cuppels are a sub-type</li> <li><b>Mold</b> Molten metal is poured into moulds to give the metal a predefined shape. Molds can be open, eg. A two-part mold, or closed, like a lost-wax mold. Various materials can be used, including stone, metal, sand and plaster. Ingot moulds are also used, generally resulting in a bar or disc that can be forged into another shape.</li> <li><b>Pestle &amp; Mortar</b> Vessel used for grinding and mixing materials, including amalgams of gold and mercury. Both pestle and mortar are usually made of the same substance, so that one does not damage the other. Ceramic and stone are commonly used substances, as are bronze and iron, each with their own properties.</li> </ul>	<h4>Lever</h4> <ul style="list-style-type: none"> <li><b>Shears</b> Cutting tool, best used for sheet metal (side cutters are better for wire). Either made from two pieces riveted together, or from a single piece bent in half and hammered flat to act as a spring.</li> <li><b>Tongs</b> Various types, used for holding work while hammering, or for lifting hot crucibles. Pliers are a sub-type of tongs, made in a wide range of different shapes, depending on their function.</li> <li><b>Tweezers</b> Tool for fine manipulation, these are sprung for easy picking and releasing of objects. While large tweezers exist, work like filigree requires very small, precise tips for manipulation of delicate wires and similar objects.</li> <li><b>Vice/Clamp</b> Various types, used for gripping small objects while pressure is applied, eg. during engraving. Unlike modern vices, wedges would generally be used to fasten the clamp.</li> </ul>	<h4>Impact</h4> <ul style="list-style-type: none"> <li><b>Anvil</b> Supporting device, any shape, any size. Usually made from ferrous metal, other materials are possible depending on the work, but the anvil must always be harder than the objects placed upon it. This category includes large, static blacksmiths anvils and smaller stakes. Also includes portable plates or blocks on which objects can be hammered. Surfaces should be kept in good condition.</li> <li><b>Block</b> This refers to an additional anvil-type object, used when the work must be pressed between two anvils. Material requirements are the same as for anvils.</li> <li><b>Chisel</b> Used for cutting openwork patterns in metal, and for cutting bar and sheet. In the modern era, these have largely been replaced by the piercing saw. Some decorative work may have used chisels, as done in the Far East.</li> <li><b>Hammer</b> Tool with a small, hard head, used for shaping metal by deforming cross section, and for striking punches...etc.</li> <li><b>Mallet</b> Tool with a large, soft head, used for shaping metal without deforming the cross-section. Wood, horn or hide were used.</li> </ul>	<h4>General</h4> <ul style="list-style-type: none"> <li><b>Acid</b> Various acids and other corrosive chemicals. Strong acids were probably uncommon in the early medieval period. Weak acids like citric acid and vinegar will remove oxides slowly; abrasion was probably a more common method for removing oxides.</li> <li><b>Charcoal</b> Used as a fine abrasive and as a chemical in its own right. It is also the most common fuel for metallurgy</li> <li><b>Clay</b> Refractory material, used for molds, crucibles and hearth linings. When fired and ground, also used as an abrasive.</li> <li><b>Dividers</b> Used for marking and measuring. Can be used with a straight-edge for geometric construction</li> <li><b>Drawplate</b> Used for drawing wire, usually into a round cross-section. Usually made of metal, but wood and stone are also used.</li> <li><b>Die</b> Cut or punched pattern for Pressblech and stamping. May have one or two parts</li> <li><b>Hammer</b> Tool with a small, hard head, used for shaping metal by deforming cross section, and for striking punches...etc.</li> <li><b>Mallet</b> Tool with a large, soft head, used for shaping metal without deforming the cross-section. Wood, horn or hide were used.</li> <li><b>Mandrel</b> Rod or bar, used as an anvil for shaping sheet, or as a form for making chain links. Various shapes are possible, including round, oval and square.</li> <li><b>Organarium</b> A type of swage, used to bead wire. The wire is placed between the blocks, and the top is struck with a mallet or hammer. These objects represent a high level of technical ability during the medieval period.</li> <li><b>Punch</b> Used with a hammer, a punch applies a symbol or pattern. Smooth punches are used for chasing and repoussé</li> <li><b>Pump Drill</b> Hand-powered drill with a flywheel. This has several advantages over the bow drill. References to these tools are rare.</li> <li><b>Soft Brush</b> Used for painting and applying glues and gold leaf. Usually plant fibre or hair</li> <li><b>Touchstone</b> Abrasive stone, used for assessing gold content by comparing it to a sample of a known fineness - several samples of different alloys are needed for this.</li> </ul>	<h4>Elements</h4> <table border="1"> <tr> <td>Au Gold</td> <td>Pb Lead</td> <td>Ag Silver</td> <td>Sn Tin</td> </tr> <tr> <td>Cu Copper</td> <td>Fe Iron</td> <td>Hg Mercury</td> <td>S Sulphur</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Zn Zinc</td> </tr> </table>	Au Gold	Pb Lead	Ag Silver	Sn Tin	Cu Copper	Fe Iron	Hg Mercury	S Sulphur				Zn Zinc
Au Gold	Pb Lead	Ag Silver	Sn Tin														
Cu Copper	Fe Iron	Hg Mercury	S Sulphur														
			Zn Zinc														

# Medieval Jewellery Technique Flowchart

Version 4.0

Read the Primitive Method Blog at: [primitivemethod.org](http://primitivemethod.org)  
Follow the Primitive Method on Twitter: [@primitivemethod](https://twitter.com/primitivemethod)

© Jamie Hall 2011