

FORMING METAL – BEATING

Beating is probably the oldest method of shaping metals and relies upon metal’s malleability (being squashed and bent without splitting and cracking).

HOLLOWING

Hollowing is a procedure used to produce shallow bowl shapes from circular sheet metal blanks.

1. A circular blank of metal (copper or brass etc.) is prepared by **annealing** it to make it more malleable.



Annealing

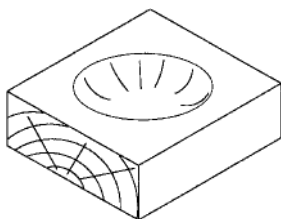
Annealing is carried out by heating the metal to a dull red. The metal is now more malleable, so it will not split when it is hit with the mallet.

The surface will now be black (burnt tarnish) and this needs to be cleaned off before hollowing. Either emery cloth can be used to clean it, or the still warm disc can be placed into a bath of dilute sulphuric acid.

Note: If the metal is aluminium, it cannot be heated to red heat because it never glows red. Soap should be rubbed onto the surface, and the metal heated gently until the soap turns a dark brown, the correct temperature has now been reached for annealing. The burnt soap can be washed off with water.

To form the hollow shape, either a hollowed hardwood block, or a leather sandbag can be used.

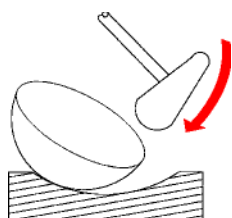
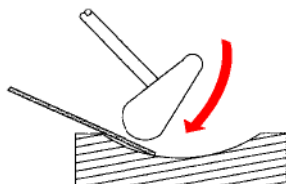
Forming block



Sandbag



2. The metal disc is placed at a shallow angle as shown and is hit with an egg shaped **Bossing Mallet**.

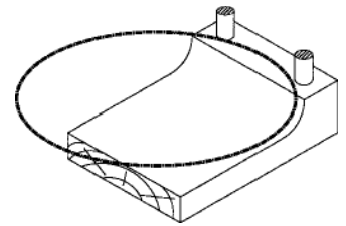


3. After each blow the disc should be rotated one space, so the next blow lands beside the first. Starting from the outer edge, spiral into the centre. The bowl shape will form automatically.

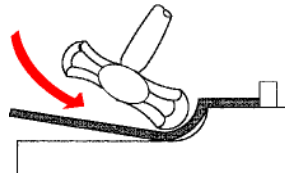
SINKING

Sinking is a procedure that can produce a shallow bowl with a lip around the top edge and a flat base.

The metal disc, shown in the diagram in transparent form, is placed against both dowel pegs. The edge on the top surface of the **sinking block** remains horizontal



and produces the lip.



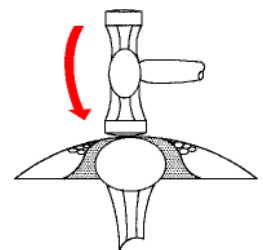
A **blocking hammer** is then used to create the hollow shape.

PLANISHING

Planishing is a procedure that is carried out after hollowing or sinking, it is used:

- a) to remove any unwanted bumps and to correct the overall shape.
- b) to harden the metal and make it more rigid.

A cut away view of a **Planishing Hammer** being used. The bowl is placed over a **Mushroom Stake**. Starting in the centre, the bowl is revolved one space after each blow. The blows should spiral outwards to the edge.



The surface becomes covered in little indents that can be left to give a textured finish, or removed, by smoothing the surface with an abrasive stone.

KEY WORDS Hollowing: Bossing Mallet: Sinking: Planishing:

1. Describe how metal should be prepared for hollowing.
2. What tools can be used to form a bowl shape?
3. Illustrate the hollowing procedure.
4. What is the difference between hollowing and sinking?
5. Sketch a product made by hollowing and a product made by sinking.
6. Why should a hollowed product be planished?
7. Give an illustrated description of the planishing process.