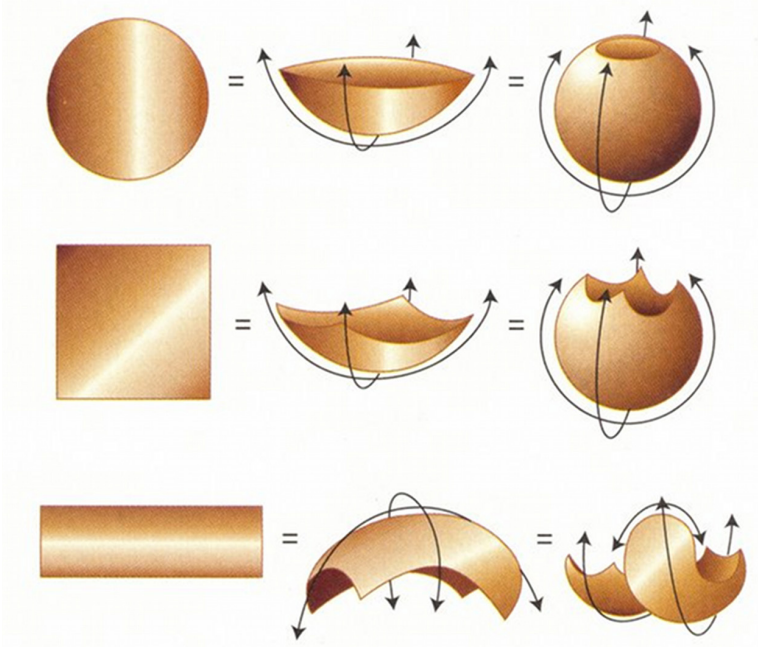
Diagram 1 In synclastic forming, flat sheet is shaped by compressing the edges and stretching the center, developing two curves at right angles to each other and moving in the same direction. This will cause the sheet to gradually form a dome.



I

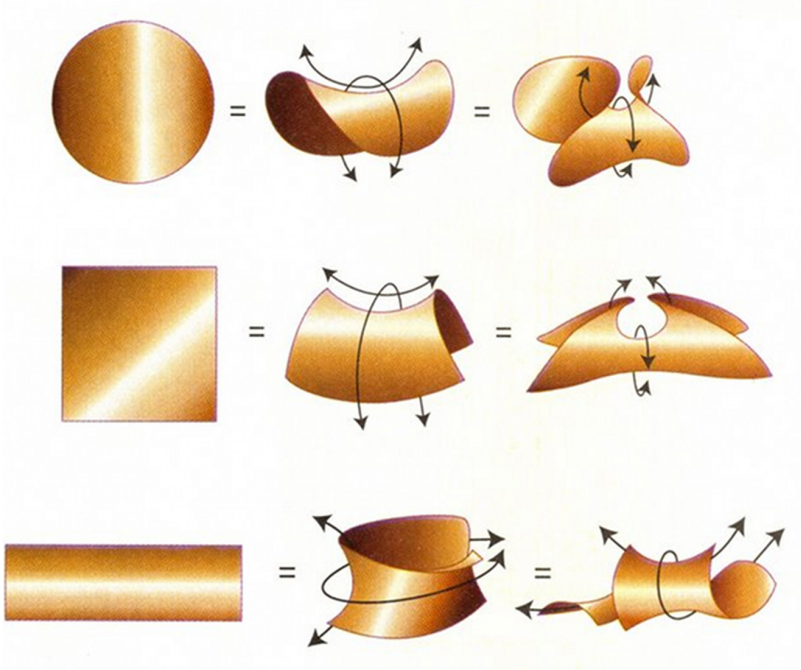


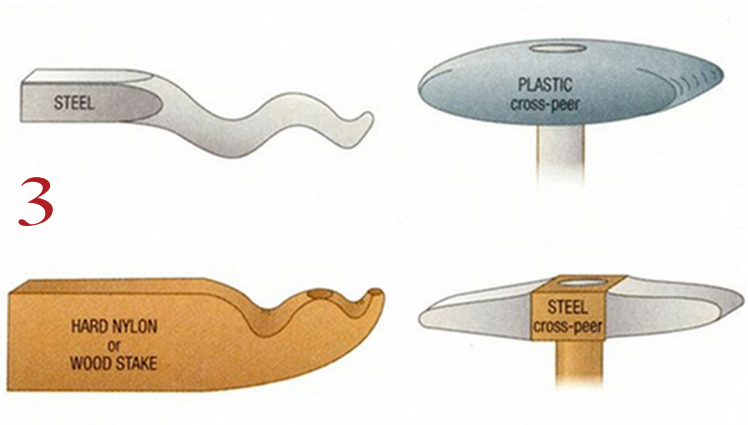
Diagram 2 In anticlastic forming, the center of the sheet is compressed and its edges are stretched, so the surface develops two curves at right angles to each other and moving in opposite directions.

2

Diagram 3 Anticlastic forming is done on sinusoidal stakes made of wood, hard plastic, or steel. With a steel stake, a wood or plastic cross-pean mallet is used. With a wood or plastic stake, a steel cross-pean hammer is used.

Use of a steel sinusoidal stake allows for swift but less easlily controlled anticlasting, so the piece typically requires additional planishing in the final stages of development.

A wooden sinusoidal stake allows for slower but more controlled anticlasting, and in some cases eliminates the need for any planishing at all.

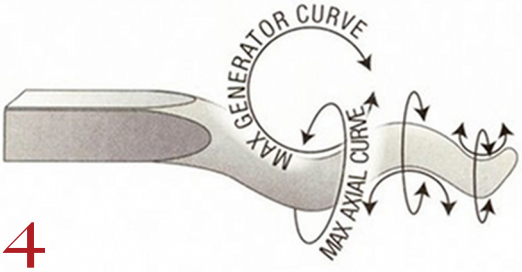


3

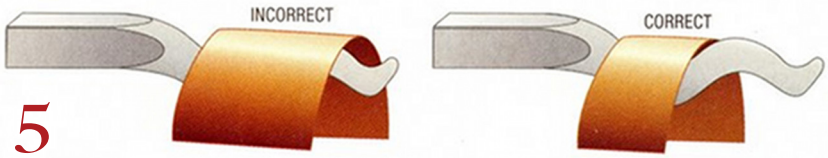
Choosing a stake and hammer

There are several considerations for choosing tools of the appropriate size to shape a piece, illustrated below.

Diagram 4 The dimensions of the stake determine the forming limits of the sheet. A cross-section of the stake at any given point determines the maximum axial curve, while each sinusoidal arc determines the maximum generator curve



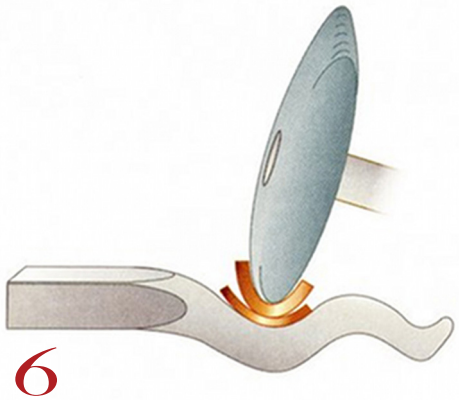
4



5

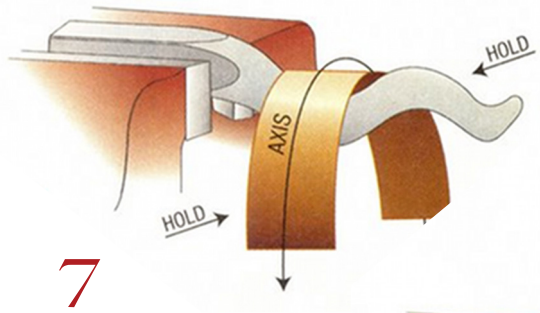
Diagram 5 For smaller patterns, the width of the pattern should not excveed the distance between the two crests of the sinusoidal stake.

Diagram 6 The arc of the cross-pean hammer or mallet should be slightly tighter than the corresponding stake curve.


6

Forming

Diagram 7 Secure the sinusoidal stake in the vice, and bend the annealed metal sheet around it so the edges are supported at each end of the curve. Hold the metal firmly so it doesnt straighten as it is hit with the hammer.



7

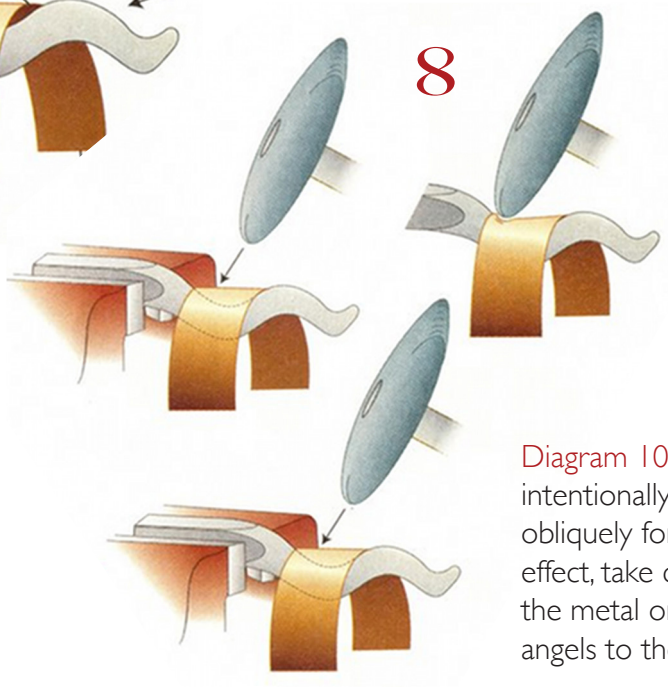

8

Diagram 8 Direct the hammer blows to just below the point where the stake and metal meet, so a small amount of metal is curled at right angles to the axial curve.

Diagram 9 When hit obliquely, the metal will twist either to the left or to the right, depending on the angle at which it was struck.

9

10

Diagram 10 Unless intentionally hitting obliquely for special effect, take care to strike the metal only at right angels to the stake.

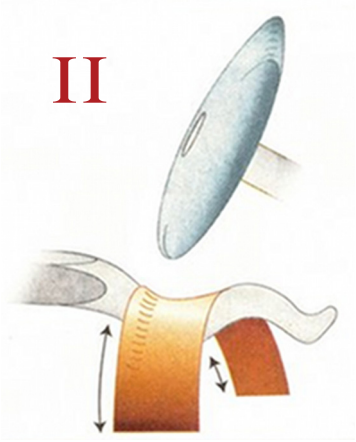


Diagram 11 Rotate the piece along its axis so that each successive blow slightly overlaps the previous one ~ producing an even furrow along the edge.

If the final form is to be tapered, more hammering will be required at wider sections to maintain the uniformity of the axial curve.

Diagram 12 Turn the work 180° on the stake so the unformed edge rests on the curve closest to the vice. Repeat furrowing to complete the first hammering pass over the metal.

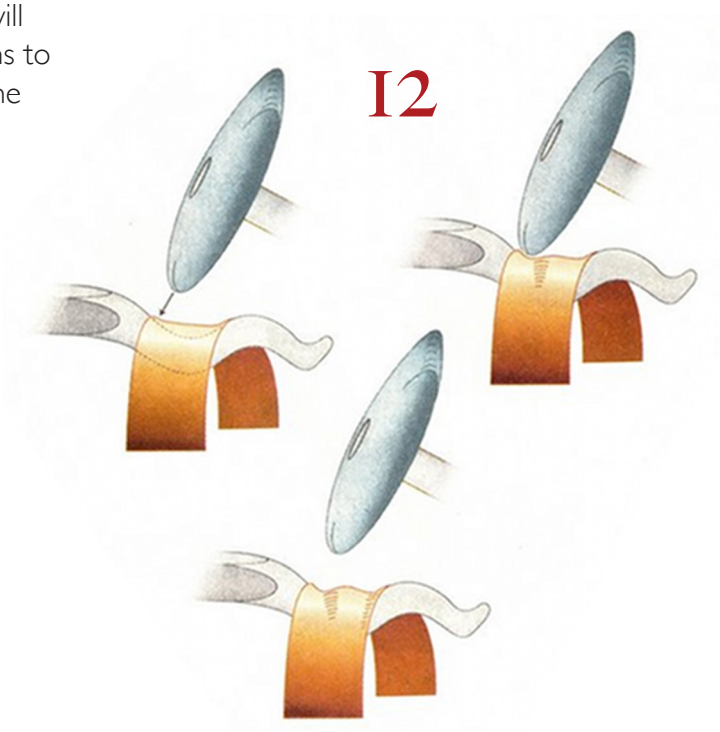


Diagram 13 Return the furrowed piece to the sinusoid, so the point of contact between the metal and stake will be at the base of the first two furrows.

Direct the hammer blows just below the point of contact, rotating the piece a little so that each blow slightly overlaps the previous one.

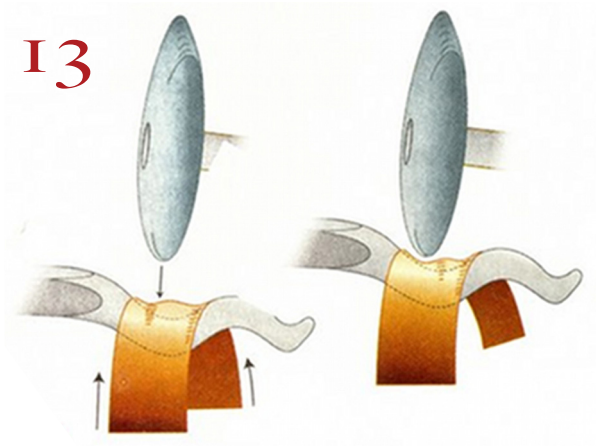


Diagram 14 Turn the piece 180° on the stake and repeat hammering on the opposite edge until the second pass is completed.

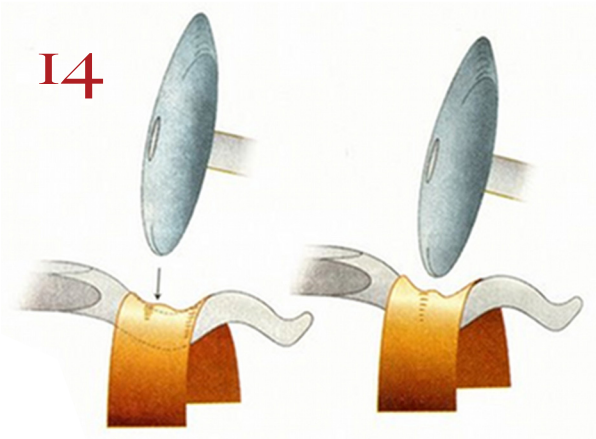


Diagram 15 As with the first pass, work toward the center ~ as the metal contracts, it will tend to leave a toroidal lump along the axis. To avoid excessive lumping, and a possible fold in the work, take care not to work too quickly.

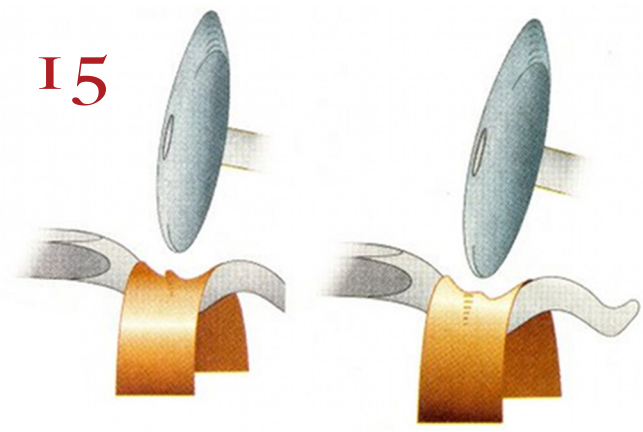


Diagram 16 Continue raising, with each suceeding pass slightly overlapping the previous one, and moving systematically toward the center until the first anticlasting course is complete.

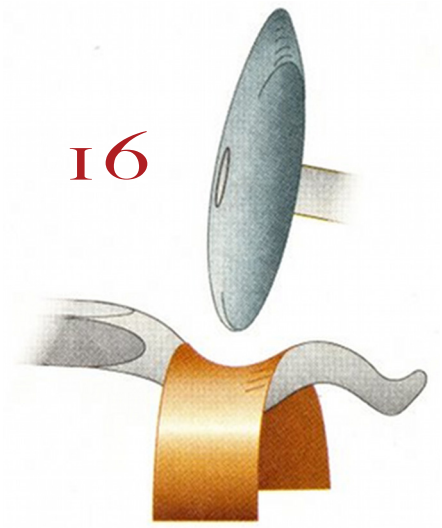


Diagram 17 Anneal the work-hardened form carefully as required by the type of gold alloy or other metals used.

Diagram 18 For the second course, the form is bent along its axis around the sinusoidal stake. When the axial curve is tightened, the generator curve opens, causing the edges to rest at each end of the curve of the curve of the stake. If the limits of the first curve have been reached, it might be necessary to move the work to a tighter curve on the stake. Except in the case of exceptional hammership, it usually takes two courses of hammering on the first portion of the stake before this becomes necessary.

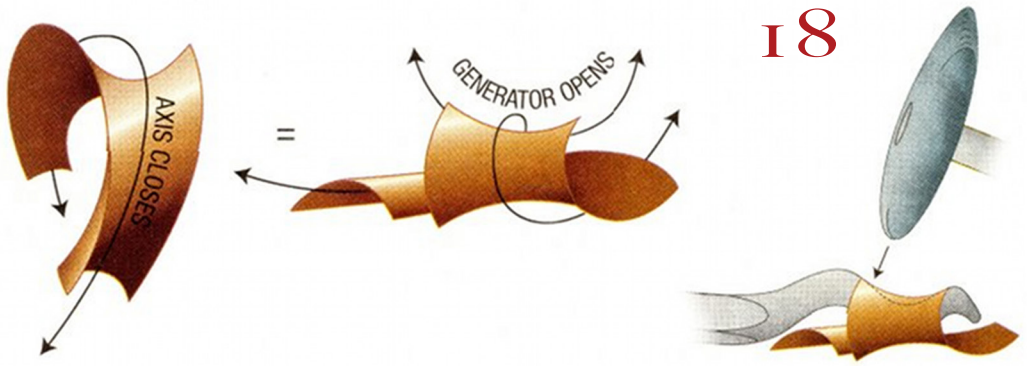


Diagram 19 The anticlasting should be continued until the desired axial and generator curves for the final piece have been obtained.

Further development of the form

Diagram 20 An anticlasted strip has several interesting characteristics ~ while it has great structural strenght, it nonetheless moves freely about its axis and can be easily twisted in both directions. By doing this, the axial curve will open out and the generator will close.

By systematically bending and twisting the anticlast, it can be directed to evolve in any direction. The concave side of the anticlast will always remain on the outside of the curve ~ adding strength and definition to the final form.

20

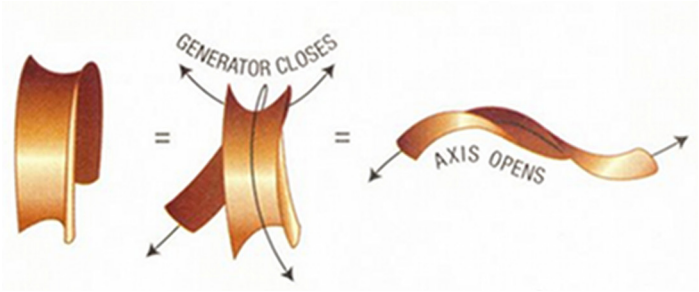
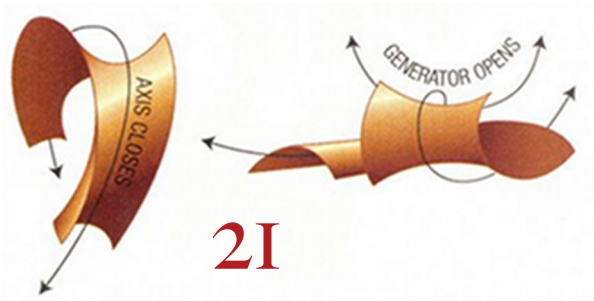


Diagram 21 By bending the anticlast along its axis. the opposite situation will occur ~ as the asix is tightened, the generator curve will tend to straighten.



21

22

Diagram 22 Once a direction for further development of the anticlast has been chosen ~ usually after the first course ~ the piece is returned to the stake for further anticlasting, while maintaining desired form until the final shape is obtained.