



NORTH WILTSHIRE WOODTURNERS ASSOCIATION

Turning a 2" diameter Hollow Sphere the Dave Appleby Way – written by Vernon Hughes

Introduction: The aim here is to describe David's way of making a hollow sphere as demonstrated at the Club Meeting on 15th May 2013, particularly in case it will help Members who are contributing to Ian H's 'Mystery Spheres Project'. This was a test of the quality of my note-taking on the night - BUT the crucial point to keep in mind throughout is that David made two hemispheres that clicked together perfectly (no need for messy glue and cleaning up!).

This is emphasised to give readers the ability to think their way into the project as they go, and to cover inadequacies in my reporting on the method demonstrated. The push fit was achieved by undercutting a narrow strip (say $\frac{3}{16}$ " wide) at the leading edge of each half, one on the inside and the other on the outside surface to give an overlap or push fit joint at the point of contact. Basically, it's the classic turned 'box joint'

Method: Start with a blank of perfectly dry, lightweight timber 2" square plus a tad (say $\frac{1}{16}$ "). The wood used for the demonstration was Yew. The length of the blank must provide for the 2" diameter of the sphere, plus around $\frac{3}{16}$ " for the overlap at the centre, plus $\frac{1}{8}$ " to cover loss in parting the two halves and sufficient to create spigots at each end of the blank. He worked with very short spigots. Driving the blank between centres - rough down to a 2" (plus a tad) diameter cylinder. Turn short spigots at each end to match the spigot jaws of your (4-jaw) chuck. Mark off just under half the measurement from each end to allow for parting off, then part off at dead centre. Remove the headstock centre and replace it with a 4-jaw spigot chuck – 'C' size jaws? Mount one of the 'halves' in the chuck. Decide on the wall thickness ($\frac{1}{4}$ " in this case) and mark the inside line on the parted face by pencil (i.e. leaving $1\frac{1}{2}$ " to be hollowed out). Remove the outside half of the wall thickness to a depth of $\frac{3}{16}$ " as described above; then hollow out the centre using a spindle gouge. Optionally, the inside can be finished with a half-round scraper if you wish. Use a pre-made cardboard template cut-out semi-circle of $1\frac{1}{2}$ " diameter to check the inside size and shape for accuracy.



Remove the first half from the chuck and mount the second. Remember that the matching **outer** lip of the 'push fit' joint has to be formed. This will be $\frac{1}{8}$ " wide by $\frac{3}{16}$ " deep. David used a parting tool for this and made the point in passing, that this tool has **two** cutting edges (not just the tip but the bevel edge also). At this stage push the two halves together to check for fit. Refine as necessary (he got it dead right in three goes!). Then hollow out and check with the card template as for the first half. With the two halves fitted together he marked the centre line accurately and then measured 1" either side. Removing the 4-jaw chuck and re-mount the piece between centres – David then parted down to small 'stubs' at each end. He advised keeping the marked centre line for as long as possible and then removed most of the waste wood at each end making a nice curve towards, but not quite reaching, the final sphere shape.



At this point he then introduced the modified hole-cutter described in the report on the May Club Night meeting. Applying this almost completed the sphere except for the stubs.

Those lacking a hole-cutter will have to form the sphere shape more conventionally using whatever turning tools with which they are comfortable.

Now, make a jam fit chuck held in your usual 4-jaw chuck and mount the nearly complete sphere in it (he achieved a magnificent fit, but initially brought the tailstock up for support) having fitted a hardwood cup centre to it complete with leather pad. The stubs were cut down as short as possible with a fine-toothed saw prior to mounting in the jam chuck – and were then finish turned off and the final sphere shape achieved. He applied a little soft wax before sanding and relied on the jam chuck alone for the sanding phase (i.e. no tailstock support). He moved the sphere in the jam chuck a number of times during sanding and ended up with a very fine perfectly shaped ball. For decoration, David used his own-design bead forming tools to complete the project.

