Pyramid / Sphere Box Procedure

1. Overlength piece of accurately planed timber (Hornbeam) selected;
2. Mounted between centres to create tenon at each end then cut in half;
3. Hollow out one section allowing extra 5mm at the open end to form a male outset;
4. Hollow out other section with an inset to receive the previous hollowed section;
5. Rejoin top and bottom for external shaping;
6. Mark out (*getting top and bottom in the right place to avoid any inclusion disaster*);
7. Using MDF backplate, angle blank so that centre of sphere is in line with centreline of lathe and the face to be cut is parallel to backplate. I used screws to secure it, making use of the overlength blank - this also helped to hold the box together during turning but I did use some hot glue to be sure. I used a square to centre it and a piece of card cut to ensure backplate and marked line were parallel. Three hands needed!
8. Take time and small cuts when turning as odd angles are flying around. Whilst a bit of lathe speed might be preferable, you are limited due to the MDF backplate;
9. First two adjacent sides can be cut as shown in photo #1 but then adjustment of the tip holding is needed because the side resting against the higher wedge has been partially turned away. I used hot glue rather than screws to secure the tip to the frame. Ensure sphere is central and cutting plane parallel to backplate. (Takes some fiddling).
10. Mount pyramid in chuck using base tenon, secure two halves with hot glue - I did this on the inside of the sphere so I could turn unhindered (and then separated using warm air to soften the glue.
11. This last stage is crucial as it ensures the inside / outside are concentric. A fair bit of hand sanding and fettling needed to get a consistent surface, especially the arcs where the sphere meets the pyramid flanks.
12. Part off the base, remount using lid recess to finish bottom.
13. Normal sanding and finishing routine to microcrystalline wax finish.

NOT for the faint-hearted!.
Two workshop days to complete, including all backplate prep and mistakes.