

Shavings No 44 September 2018

The Ulster Chapter Newsletter

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Shavings - September 2018 By Brendan McAreavy

The demonstrator for September 2018 was Joe Laird, a long-time favourite of the IWG Ulster Chapter, and he didn't



disappoint.

After some entertaining anecdotes about his experiences teaching in China Joe proceeded to make a 'Sphericon Box'.

A sphericon is a **solid** that has a continuous developable surface with two congruent semi-circular edges, and four vertices that define a square. (For more info <https://en.wikipedia.org/wiki/Sphericon>)



Joe mounted a Cherry blank approximately 4" x 4" x 7" (100 x 100 x 180mm) between centres on the lathe. He advised that the minimum length to do the project would be 6" (150mm) because he was going to make jigs from the blank that would help with sizing later. The blank was rounded to a cylinder, a spigot was cut at the headstock end, and the tailstock end was cleaned up and trued.



The sphere diameter is 80mm so Joe made a template by marking an 80mm

ring on the tailstock face of the blank and then cut into the blank to define the internal dimension of 80mm. It is worth sneaking up on this measurement to get it true because the wall of the ring has to be square. When satisfied with the cut Joe then released the ring by parting into the side of the blank about 1/4" (6mm) from the end. The blank was then released from between centres and held in the chuck. A useful tip is to leave the chuck jaws slightly loose and use a revolving centre in the tailstock end to align the blank and push it against the jaws. This ensures that the blank mounts on centre when the jaws are tightened.

The inside of the sphere is 45mm in diameter so Joe set calipers to that dimension and cut the waste left by removing the ring on the tailstock end to 45mm diameter and parted the disc off. Having made the ring and disc to use as templates Joe then used a centre-finder to divide the ring in half and draw a diameter on the disc. The ring is cut in two and the cuts should be made at an angle to allow the points into tight spaces. The small disc is also cut in two across its diameter.

At this point we got a super tip. Joe showed us a little hole he drilled in one of the jaws that allows him to mark a point on a blank that lines up with it to ensure proper orientation if the blank has to be remounted. He has a hole drilled on one of every set of jaws he has so as to always have the option of marking any blank.

Now that the measuring jigs were made Joe was able to begin work on the sphere. He cut a spigot on the tailstock end and set his calipers to 82mm to allow for error when truing the blank.

With the blank true a 40mm measurement was taken from the end of the blank and a line was drawn. This is the equator of the sphere. Joe then used a thin parting tool to cut the blank at the 40mm line and set that piece aside to begin work on the inside of the sphere. The face of the blank was trued taking off as little material as possible. Joe explained how he had problems with wood moving after he had made some boxes but he discovered that by making an insert ring with a hardwood different to the wood being used for the sphere the boxes didn't move, so, in this instance, he made an Ash insert as the blank was Cherry.

An Ash blank was held against the Cherry blank in the chuck with the tailstock and, using calipers, Joe reduced it to a disc that was 52mm in diameter and parted a 6mm disc from that. He then ensured that the face of the Cherry blank was flat and cut a recess about 3mm deep for the hardwood insert. He sneaked up on the fit using the point of his skew to gradually increase the size of the recess. When satisfied that the recess was correctly sized Joe glued the hardwood insert into the recess orientating the grain at right angles to the grain in the Cherry.

When the insert had been glued in Joe set the height of the Ash ring and proceeded to take the bowl out of the centre of the sphere. This bowl is 45mm in diameter so Joe tested the fit ensuring that the diameter line on the template matched the surface of the Cherry, not the Ash ring because, otherwise, the bowl would not be deep enough and one side of the completed piece would be heavier than the other. When nearing the completion of the hollowing Joe

switched to a negative rake scraper to refine the inside of the bowl. The inside of the bowl was sanded and polished because the opportunity will not arise again.

At this stage one half of the inside is complete so the blank was removed from the lathe and the smaller blank mounted in the chuck. Joe removed the 45mm bowl and used the template to assess progress. When satisfied that the bowl was finished he cut a recess for the hardwood ring to fit into by easing up to the fit and testing with the finished side of the sphere. Joe advised using a skew to make a dovetail type cut and sneak up to dimension in order to ensure a tight fit. Whenever he was satisfied with the fit Joe sanded and polished the inside of the sphere.

With both inside sphere's complete Joe put the blank back together again and prepared to cut the external sphere which he described as 'just cutting a big bead'. He trued the cylinder to 80mm (remember the 2mm extra he left when truing the blank?) and then measured 40mm from the centre line to each side. Joe then used a parting tool to define the boundaries of the big sphere and proceeded to cut the sphere, relieving wood at each end as he progressed. Throughout the process Joe tested the curve with the ring template he made at the start and refined the final shape by shear scraping with a gouge. When satisfied with the shape the nub at the tailstock was removed by carefully cutting with a skew to prevent tear-out of the endgrain. With the sphere being held at the chuck side Joe sanded the sphere.

After sanding the sphere that is held on the waste side chucking point it was removed and a piece of wet Chestnut

was mounted to make a cup chuck to hold the sphere. Joe cut a tenon and mounted the blank in a chuck, after which he started to cut the cup chuck. He marked a 60mm diameter circle because he wanted to hold the sphere in such a way that more than half was extruding from the cup chuck which would allow access to all areas when the sphere was reversed. Joe hollowed the cup and undercut the rim to allow him to grab the sphere and cut a hole in the base of the cup to allow access for a knock-out bar if required later. While cutting and fitting, Joe sprayed the cup with water which expanded the wood and helped its gripping power. When satisfied that the fit of the cup was good Joe mounted the sphere in it and brought up

the tailstock to help secure the work. He carefully removed the chucking point, finishing with a skew to, once again, prevent tear-out in the endgrain.

Now the completed sphere is divided into four parts. This can be done by using mathematics and knowing that:

$$\text{Circumference} = 2\pi r \text{ or } \pi d$$

So, with $d = 80$, then $\pi d = 3.14 \times 80$ which is 251.2mm (80 π will give a slightly bigger number but, for this purpose 3.14 is near enough)

We divide that by 4 to get 62.8mm between points. Joe discovered that if he reduced that number by 9% it gave him the straight-line chord distance between each of the 4 points on the circumference.

So, $62.8 - 9\% = 57.148$, so, 57mm.

Set your dividers to 57mm and walk them around the circumference. If you

don't end up exactly on the first mark just adjust the dividers slightly to make up for the difference in spacing.

Alternatively, use the index system on your lathe and mark every 90 degrees.

When the four points have been marked on the sphere the box is opened, rotated by one mark, and realigned to the new marks. The sphere is then put in the jam chuck at 90 degrees to the original alignment, i.e. the 'equator' on the sphere is now horizontal. When mounting the sphere Joe used the pin on the tailstock to determine when the sphere was positioned exactly and then removed the pin so that he could support the sphere with the tailstock. Alternatively, a 'soft-touch' made of wood could be used if you are unable to remove the pin in your revolving centre.

Once the sphere was secure Joe cut a straight line from the centre to the tailstock to leave a cone-like shape like the bottom of a spinning top. When refining the line Joe shear scraped from the point of the cone to the top of the sphere to avoid knocking the piece out of the chuck now that the tailstock was removed. Because he wouldn't be able to access the back of the sphere when it is turned around Joe cut a slope on the back part of the sphere at right-angles to the slope just cut and used simple right-angle jigs to assess progress. When he had achieved a right angle the sphere was removed, turned around, and remounted in the jam chuck. If necessary you could tape the sphere into the chuck or wet the chuck to help it grip the sphere. The line that had been started on the back of the sphere was now accessible so Joe cut the same straight line towards the tailstock to, once again, leave a cone like the bottom of a spinning top.

When the cutting was complete the piece was removed from the chuck. If you are having difficulty knocking it out and don't wish to damage the finish just cut the chuck away to release the sphere. The sphere is opened and returned to the original marks on the circumference to give the unique shape of a sphericon. To finish the box Joe mounted a homemade sanding disc on the lathe and carefully refined the edges and joints. The piece can then be finished and buffed.



This was a very interesting project throughout which Joe gave us tips and advice and peppered it with wonderful anecdotes. Who knew Hong Kong people don't eat much rice?

At the start of the demo Joe mentioned Hans Weissflog (<https://kirstenmuensterprojects.com/pages/hans-weissflog>), one of 7 or 8 recognised 'Wood Wizards' whose work is definitely worth looking at, especially the prices!

We thank Joe for coming to visit us, for his wonderful demo, and assure him that he will be contacted again.

Good luck with this project. I look forward to your seeing your boxes.
Brendan

Joan Henderson

**writes to all members of
the Ulster Chapter**



The meeting at the Woodshed on Saturday 25th August made me think more about the Ulster Chapter and its future.

We are a growing chapter and regardless of the “in or out” of the IWG we need to ensure we continue to grow and remain a strong cohesive organisation.

The office bearers and committee members in the Ulster chapter have been doing an amazing job in the background for years, but can this go on indefinitely. The secretary, Peter Lyons, who has been in the post for many years, is a mine of information, as well as seeming to have an abundance of energy and time which he devotes to the our chapter.

The chairman, Stephen Dowie, has also worked on the committee for a number of years and brought knowledge of grants and applications from which the Ulster Chapter has benefitted enormously.

The treasurer, Paul Finlay, fulfills an important role, keeping track of the money we now have to spend.

Our extensive library continues to flourish. Is there any other chapter with a resource like this? Bob Cunningham has been managing this on his own since Norman took sick

Where would we be if all our office bearers took sick, or just resigned. Is there any way we can ensure continuity by having a deputy in each major role, who can learn from the vast knowledge of the person in post and so be able to step in after a year or two, or in emergencies. The deputy could shoulder some of the responsibilities these individuals have held for a long time.

How many of our members have the time, energy, skills and willingness to contribute to the continuing growth of the Ulster chapter. It is as a result of our hard working past and present committee that we have the resources and the high standard of demonstrations we are used to receiving.

Every member has a duty to support their chapter and ensure it stays strong and united. Food for thought for our December AGM.

Chapter Info.

- The Next chapter meeting will be 20th October (1 week later due to National Seminar in Limerick) at 2.00pm
- The Committee has co-opted Eugene Grimley who will act as Secretary until the AGM.
- Following the successful series of community demonstrations this year the committee has agreed that those who participated will receive £10 from the money received at Bangor as a contribution towards Petrol etc.
- A letter resulting from the special meeting on 25th August has now been circulated to the IWG Executive and Chapter Officers.
- The Ulster Chapter will be making an application to Awards For All to get support for lathes and equipment which can be used at next years Community Demos.
- There is a possibility that Joss Naigeon may return to the chapter in the spring if Joe Laird is successful in organising a tour for her.
- Members are asked to give their thoughts on the library to Bob Cunningham or Ricky McDonald as it will be discussed at the next committee meeting
- A list of competition themes for 2019 is being compiled by Michael Dickson who will consider any suggestions from members. This list will be available in December.
- The competition theme for the October Meeting is a "bird box" for both Cat1 & Cat2.
- Eugene Grimley is currently working on demonstrators for 2019. He will consider any requests.
- The Roy McKay Trophy (for the member who has contributed the most in the past year) will be discussed at the next committee meeting. Any nominations should be forwarded to Stephen Dowie before 20th October. The trophy is presented at the AGM in December
- The possibility of new Chapter Logo and headed paper will be discussed at the next committee meeting.
- The committee is exploring if there are any better ways to exhibit competition pieces. Any suggestions should be given to Ian Keith.
- The committee is exploring how we could compile a photo catalogue of members' best work.
- The dates of the annual Ballymoney Exhibition are now 28th Feb to 13th April 2019

Diary Dates

- Oct. 20th Next Committee Meeting 11am at the Woodshed
- Oct. 20th Monthly Demo - Eugene Grimley, 2pm. at the Woodshed
- Nov. 10th All Day Demo - Jason Breach, 9:30am, Cost £25 (Bring Packed Lunch)
- Dec. 8th AGM 12.00 noon - Christmas Lunch, Monthly Demo 2pm David O'Neill.
- Dec Pay Annual Subs to Treasurer
- Feb 28th Ballymoney Exhibition Launch Evening

September's Competition results

Category 1

1st Jim Neil



2nd Gerry Leddy



Category 2

1st Keith Hylands



2nd Dermot Doherty



3rd Eugene Grimley



**October's Competition
A Bird Box**