

Henry Morris Award Report - Building a Pole Lathe

by Sam Heald

What was my project?

My project was to produce a working pole lathe, from designing it to the building process. It also involved going to a craft fair to look at other people's designs for inspiration for my own, and demonstrating the finished lathe to the scouts group that I participate in.

A pole lathe is a traditional machine used to turn wood into cylindrical forms, such as bowls and chairlegs. These lathes consist of a frame for the work to rest on, a springy pole, a piece of twine or thin rope (such as paracord), a treadle, and something for the pole to rest on. Wandering craftsmen such as bodgers would walk from woodland to woodland, and, due to the simple design, they were able to set up a lathe using just the material around them, and a little extra such as fixings and basic tools. A bodger is a wandering craftsman that makes chairs.



Picture of two traditional bodgers from John Seymour's book, The Forgotten Arts

Weird and Wonderful Wood craft fair

Weird and Wonderful Wood is an annual craft fair based in Suffolk and held in May. I attended this fair on the 10th of May this year, with the purpose of looking at other people's pole lathe designs to influence and improve my own.

While there, I also saw many other traditional crafts, such as hewing. Hewing is the process of taking the sides off of a large log using axes with very large blades to create a square beam.



A hewn beam on the left, with a selection of hewing axes resting on other hewn beams on the right.

Although there were only two pole lathes at the show, they both had very good designs and I was able to take some of each to improve my design.



The picture on the left shows one design I saw. From this design, I noticed how there is a large 'A' shape holding up the pole, and how the end of the pole is tied to a large stake driven into the ground. This helped me improve my design because previously, I was going to use a singular stick with a 'Y' shaped fork at the end, which would not have been as stable. I was also planning on sharpening the end of my pole and ramming it into the ground, which would be impractical if the end of the pole were to lift out of the ground by pulling the lifted end downwards with the treadle.



This next picture on the left shows another design. From this design, I took the design for the body and legs of the lathe. It has a much stockier, sturdier design than what I had previously drawn out. Another thing that I noticed on this design that could improve my own is how the legs are fixed. It is unclear in the image on the right, but there is a piece of threaded rod using a nut or wingnut to pull a flat piece of wood up against the leg crossbrace and pulling the nut on the top inwards, therefore pulling the legs and the bed together.



These two designs helped me form a new design which, while it cost more for the extra wood, is stronger, sturdier and more practical in use.

An unexpected visit to Great Uncle Peter's workshop

Upon hearing about my project, my great uncle who has been working with wood for many years was incredibly interested and offered me a lesson or two over a weekend on his powered wood-turning lathe, in his workshop. This was an offer that I could do nothing but accept!



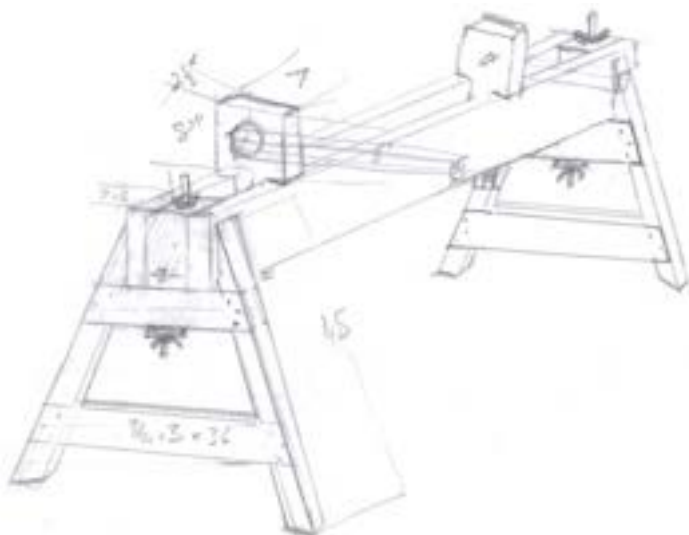
Finalising my design with Great Uncle Peter

Over the course of a weekend, he showed me many things, including how to use gouges, skew chisels, parting tools and other tools, how to make a chisel handle, how to sharpen edge tools and flatten a whetstone, and also how to make a cutting list! A cutting list is a list that has the dimensions of the wood that you would like. It includes the rough dimensions that you would like the timber mill to cut it to, as well as the finishing dimensions that you will cut it to yourself.



My completed chisel handle, still connected to the wood I turned it from

My design



The main frame of my lathe is based on the second design I talked about earlier. However, I adapted it slightly by cutting grooves in the legs for the crossbraces to sit in, for extra stability and strength.

Making the lathe



To make the lathe, I started by making the bed. I did this by cutting the two rails to length, then screwing them together with blocks between to make a gap for the stocks to sit in.

After this, I made the legs and the cross braces, which hold the legs together to make two A frames for the bed to sit on.



Next, I cut grooves in the legs for the cross braces to sit in before I could put the A frames together.



My project was now freestanding!



Now I needed to fix the legs to the bed. I did this by cutting two lengths of threaded rod, and drilling a hole at both ends of the bed, then putting the rods down the holes where they fell between the crossbraces beneath. I then drilled through another couple of pieces of wood to put over the bottom end of the rod, and put washers and nuts over the ends of the rods so that when the nuts are tightened, it pulls the pieces of wood below the braces against the braces and towards the top washer, pulling the braces to the bed.



Next I needed to make the stocks, which are what the work sits between. I did this by cutting out the shape, then shaving down the thin part until it fitted neatly between the two bars of the bed. After this, I cut mortises for the pegs to sit in to pull the stocks towards the bed to stop them from moving.





Afterwards, I made the spikes that the wood, or work, sits between. These are fine points, and allow the wood to rotate freely due to the small area of contact between the wood and the points. I made two of these spikes, and fixed them in the stocks.

A spike freshly made on the left, and a stock on the right with a spike fixed in position.



Now all that I had to do was make the treadle and the triangle to hold up the pole, and cut a pole from the local woods.



Making the treadle and triangle was relatively simple, as they did not have to be an exact size, and I could use any wood within reason. To make the treadle I made a simple, primitive-like triangle with three short rounds of hazel, and to make the triangle I tied three pieces of relatively thin hazel together with some string.

(middle left) Cutting a satisfactory pole from the local woodland, after having been given permission to do so from the man who manages Lower Wood.

(right) My finished lathe at work, with the triangle in the foreground, supporting the pole,

(middle right) Lathe in action, with the treadle at my feet. The treadle pulls on a piece of string, which is wrapped around work between the stocks, and attached to a springy pole at the top. When pushed, the treadle pulls the string, rotating the wood it is wrapped around, and pulls the pole. The pole then pulls the string in the opposite direction as it springs upwards, raising the treadle again. This means that I can only cut wood on the 'push' stroke.



My pole lathe project was now completely finished! All that I had left to do was demonstrate to the scouts group that I attend.

Demonstrating the lathe

I demonstrated the lathe to my scout group on Friday the 25th of September. It was a great success. They helped me set the lathe up, as well as asked many questions. I told them about the different types of tools and their uses and about the different parts of the lathe and their functions. I also told them a little about the history of the pole lathe.



While I was hoping to let the younger scouts have a go, they were unfortunately unable to because of safety reasons. However, the leaders were fortunately able to have a go, so I spent a few minutes showing one of them how to use the lathe!

Things that went wrong

While making my project, I made many mistakes and some unexpected things happened. Different problems arose, such as damage that I inflicted and had to be fixed, unexpected occurrences that needed solutions, and some design problems that had to be accepted and worked around. Some examples could be one of my mortises chipping out at the back, finding a way to stop the points or spindles from rotating when the work rotates, and the tool bar being too far away from the work.

From this project, I not only learned how important it is to plan, but also how it is important to accept that mistakes will arise in even the best plan, and to be able to adapt and work around them.



Acknowledgements

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