There is usually more than one way to do a wood turning. This particular shape, what I call a long neck hollow form is one that I have always liked but don't often see in wood turnings. My process for turning these forms continue to evolve. Below are instructions of how I do them currently. There can be deviations from the order written down as there are a couple of things that can be done in a different order without affecting the outcome. A couple of things to keep in mind is to keep things as centered as you can. When the blank is removed and remounted multiple times it becomes important to keep things running centered. Otherwise you will end up doing a lot of sanding to blend surfaces together. In the end, it is about enjoying the process and producing an interesting form. Take your time, think about what you're doing and have fun.

1. Pick out a blank.
    a. The blank should be 2 to 3 times as long as it is thick with a roughly square cross section. Grain orientation should be parallel to the bed of the lathe. Spindle Orientation also called long grain. 3" X 3" X 9" is a good starting size. Peppermill blanks are a good size to start with.

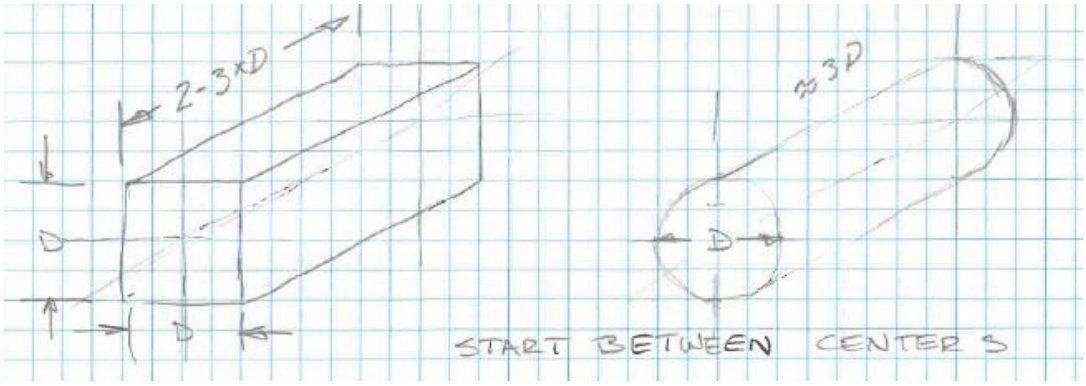

Figure 1, Blank

2. Mark the centers on the ends and mount between spur centers. The top of the vessel should be towards the head stock and the base towards the tailstock.

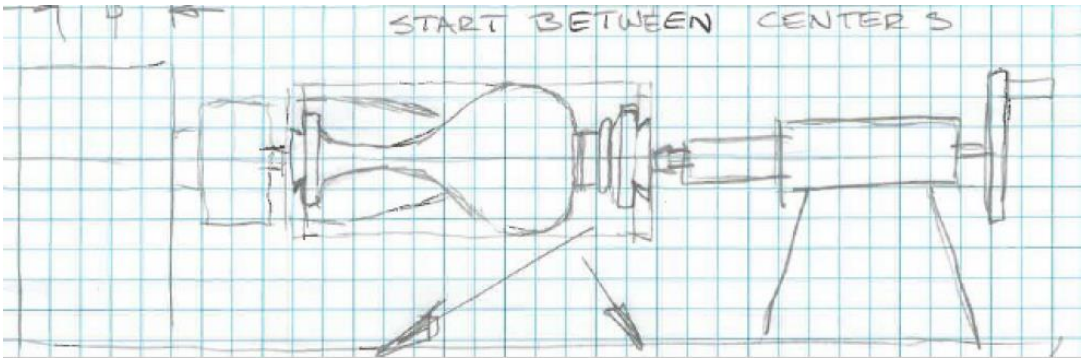

Figure 2, Mount between Centers

3. Turn the piece round and clean up the ends. Check for cracks in both the long grain and end grain. I use spindle roughing gouge to do the rounding. The surface just needs to be good enough to take pencil marks and allow the identification of any cracks this stage.
4. Cut a tenon on each end of the blank. I use dovetail jaws in my chucks when I turn long neck hollow forms as I get a good purchase on the blank that way.
5. Turning the tenons: The dovetails can be done a lot of different ways. I use a Bedan or an English beading and parting tool to rough out the tenon (which ever I pick up first). I then clean up the cuts with a detail spindle gouge. The goal is to have a very clean surface for the face of the chuck jaws to register against without the tenon bottoming out in the chuck. The taper for the dovetail should match the taper on the chuck. This is a bit more important if you are using a very hard wood. Softer woods are a bit more forgiving in this respect. It is perfectly fine to scrape these in dovetails in with a skew if you are so inclined.
6. On the TailStock end, leave around a ¼ to 3/8-inch shoulder for the chuck to register on. Then mark off the wood needed to make a foot for the vessel, then another ¼ to 3/8 inch for the tenon that will fit into the bottom of the vessel plus a little bit extra room for parting off the foot so that the vessel can be hollowed through the bottom.

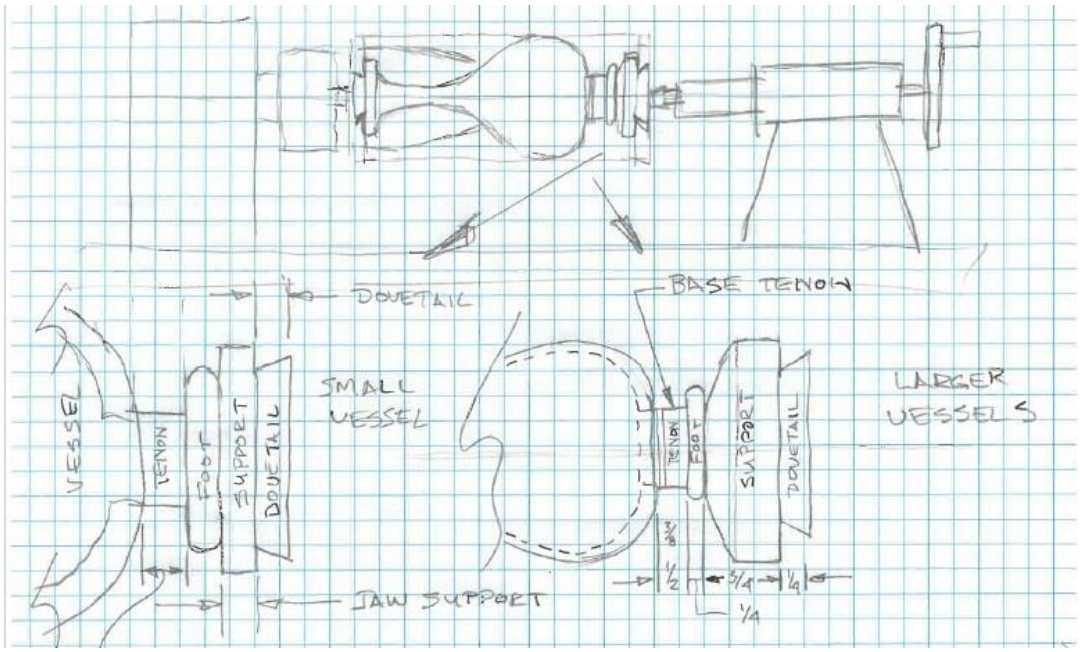

Figure 3, Tenon & Base Details

7. The last mark (furthest in from the tailstock) noted above will be the end of the vessel. Part the vessel down to about half the diameter at this line. Stay to the left of this line for the cut. Do not part more than halfway through the diameter at this point. The part line is just to give you a target for rounding over the bottom of the vessel and something to use as a guide.
8. The tenon that will go back into the base of the vessel after hollowing can be cut down at this point too, (just to clear some wood out of the way but don't cut in to far yet).
9. Start shaping the bottom half of the vessel. At this stage the intent is to remove material so that the shape will start to emerge from the wood. Listen to the cuts for the tell tail sound of a crack. Stop and examine the turning as well to be certain there are no defects that might pose a safety

issue. This can be done to some extent with the spindle roughing gouge or a bowl gouge. As the shape progresses either bowl or normal spindle gouges can be used.

10. Define the curve of the bottom of the vessel. This curve should be a nice smooth continuous curve that eventually turns far enough to have a perfectly flat surface extending to the tenon (which will be glued into the bottom of the vessel). At this stage, the tenon is still not turned to its finished size. You want to have a clean cut across the end grain to avoid any tear out and minimize the need for sanding here. I use a freshly sharpened detail spindle gouge to make this cut.
11. Now, back to the foot. The diameter of the foot should be close to 1/3 of the diameter of the hollow form. There is a little wiggle room here to play with and it is still OK to leave it a bit bigger, but try to get it close to the final size just to provide a visual of it compared to the vessel. With the dovetail tenon and its support material in the way it is difficult to get into the area where the foot will be turned. For now it is good just to get the proportions close and fine tuning can be done later. The height of the foot will also be fine-tuned later but is should be in then 1/4 inch range for now.
12. At this point, the vessel is still just roughed out at the top end but the material there is needed for support when doing the hollowing. This is a good time to do a little sanding on the bottom to ensure that there is no torn grain issues that would require excessive sanding later. Also check that the transition of the base to the tenon is clean and perpendicular.
13. Now it is decision time. See Figure 3. The final diameter of the base tenon needs to be turned. This is usually easiest to do with a 1/8-inch parting tool. The size of the tenon needs to be small enough to be hidden with the foot but big enough to be able to support the vessel when it is turned around to finish the top. Depending on the size of the vessel I like to keep the length of the base tenon ¼ to 3/8 inch long and about ¼ of the vessel diameter. The goal is to have enough support to hold the vessel for turning after the base is hollowed and the foot is glued back in.

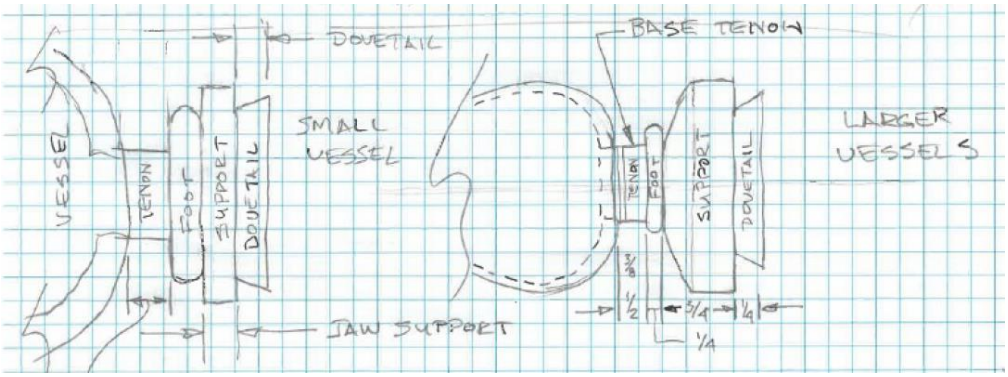

Figure 4, Base Details

14. Once the base Tenon is sized, the surface should be checked to ensure that it is straight and clean. The face of the foot (which will eventually mate up against the bottom of the vessel) should be checked for finish and perpendicularity at this time as well. This should be relatively clean at this stage and close to its final size although final tuning will be done at a later stage. It is a good time to take a long look at the foot to ensure proportions are close to what is intended. It is a good time to do a little sanding here as well.

15. This is being repeated as It is important to have enough tenon length on the plug to make a good connection to the vessel when the plug is glued back in. It is also important to have enough diameter on the foot to cover the joint where the plug will be glued back in.
16. If there is extra material at the drive and revolving centers, now is the time to minimize the extra material so that it is not in the way when the piece is mounted in the chuck. It is also a good time to make sure that the dovetail tenons are still true. This can be done using a skew as a scraper.
17. Before parting off the base, mark the vessel and the foot to help with alignment later on. Marks should be located where they will not be mistakenly sanded off. I use a soft pencil for this so as not to indent the wood.
18. Check that the base of the vessel is sanded to a fine finish up to the edge of the base tenon. Touch up as needed and make sure you do no obliterate your alignment mark.
19. Part off the base using a 1/16-inch parting tool. Leave a very small amount of the tenon on the bottom of the vessel as a guide for fitting the plug later. Do not part all the way through, just far enough to hold the parts together. How much to leave is dependent to some extend on the type of wood you are using. Error should be on the side of caution. Finish cutting through with a hand saw with the lathe turned off.

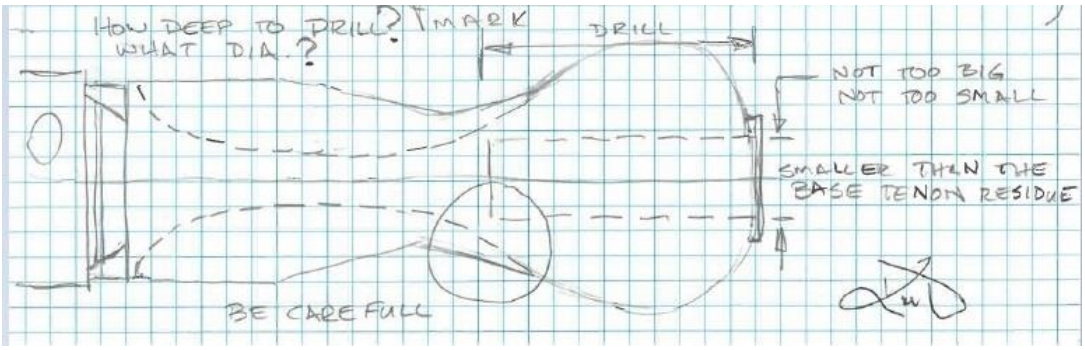

Figure 5, Foot Parted Off

20. Remove the drive and live centers and install your 4-jaw chuck. We will be mounting the vessel into the chuck first although you can turn the base plug / foot piece first if so desired.
21. I try to keep the drive center marks available for convenience. These come in handy for remounting the parts during later turning processes. However, if the small amount of material that was left from turning interferes with mounting the vessel into the chuck, then it will need to be removed. When this occurs, I try to save the center by drilling down through the center mark deep enough to provide a mark after the removal of the offending wood. As long as this is just a short distance it seems to work out OK. Just be sure to drill straight.
22. Once the vessel is mounted in the chuck I center it so that the base is turning as close to center as possible and then I lock it in place with the tailstock and fully tighten the chuck jaws. Remove the tail stock and ensure that the vessel is still turning true. It does not have to be perfect but the closer it is to turning true the better off things will go with later steps. You can use a live center with a cup center to help get things centered.
23. Once the vessel is centered mark the dovetail between the number 1 and number 4 jaws.
24. The next step is to prepare the vessel for drilling. At this point you need to decide what size Forstner bit to use and how deep the hole needs to be drilled. I typically just eyeball this. The

Forstner bit diameter can be sized to be just smaller than the base tenon and the depth can be determined by the flow of the vessel and the wall thickness you are shooting for (usually around ¼ inch on larger vessels but can be thinner on smaller ones). On the outside of the vessel, I mark the depth that the hole will be as well as the diameter of the Forstner bit for future reference. See Figure 5.

25. Before drilling cut a taper into the bottom of the vessel. This taper is to guide the Forstner drill bit entry into the bottom of the vessel. This is a Lyle Jamison recommendation that I have been using successfully for these vessels. The taper guides the OD of the Forstner bit to provide a nice entry of the bit into the end grain. I cut the taper into the bottom of the vessel with a detail spindle gouge. Gouge must be presented with the flute at 90°, facing away from the wood (bevel will be riding the wood) and entering at the centerline of the turning. Start towards the center and start cutting a tapered surface into the end grain. Continue until the taper OD is larger than the Forster bit diameter.
26. Using a Forstner bit bore a hole into the vessel through the bottom. Make this hole smaller than the base tenon that will be glued back into the bottom later in the process. Bore the hole as long as the chips come out. If the chips stop coming out stop boring and back the drill bit out to clear the chips. Repeat until the hole is drilled to the required depth. Remember to mark the hole depth and diameter on the outside of the vessel for later reference.
27. Remove the drill bit and the tailstock so that hollowing can begin. I do my initial hollowing in reverse as this makes it a bit easier to see and control the hollowing process. Be sure that the set screws in the chuck are tightened down on the spindle shaft. Hollowing while the lathe is turning in reverse allows the hollowing tool to be better supported instead of having to reach across the lathe bed to angle the tool into the wood. Hollowing is started with a straight hollowing tool to start with. The regions to hollow in the order that they are hollowing are shown in Figure 6 below.

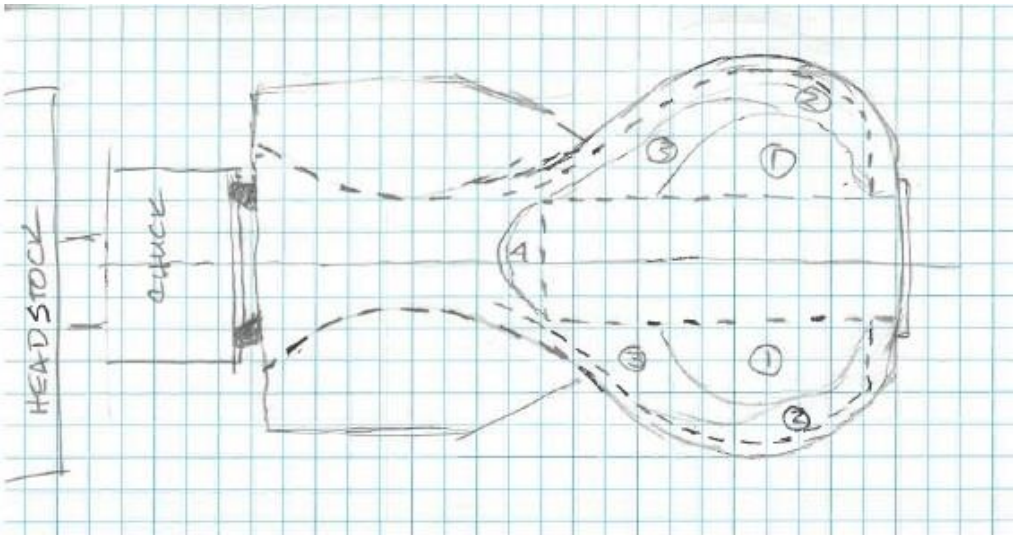

Figure 6, Hollowing

28. Hollowing is done with light cuts. I use both carbide tools as well as high speed steel tools depending on the wood and the size of the project. The carbide tools that I use are Mike Hunters no. 1 tools which are for smaller projects. For bigger projects I use boring tools made

by both Trent Bosch and John Jordan. Both style tools have small pieces of high-speed tool steel that are captured in the boring bar. If the vessel is large enough, I install a steady rest to support the vessel during this process. However, you can still hollow a good size vessel without the steady rest. The size is wood related too. It just depends on how well it cuts.

29. Leave a good 3/8 in of material for the bottom thickness of the vessel. This can be thinned a bit later using the Hunter tools or a negative rake scraper, but you want to leave a bit more thickness in the bottom of the vessel for stability. Starting with a straight tool material can be removed starting at just inside the drilled opening.
30. Hollow in such a way that you are always cutting with the grain. The cuts should follow the curvature of the exterior surface of the vessel. Start at the opening and work towards the largest OD of the vessel. All cuts should go from the smallest diameter towards the largest. That means that the cuts that are past the largest ID must start deeper in the vessel and proceed outwards towards the opening while following the exterior shape. Cuts should be light in touch while being smooth and continuous in motion. This will lead to a much smoother interior. Yes, no one will see it but you will know how well the surface finish is within the vessel.
31. Stop and check your progress regularly. Getting too thin is easy to do and one wrong move you will have a new opening out the side or two separate pieces if it is a big catch! Depending on the size of the turning I try to go for ¼ inch wall thickness (bigger pieces) to as little at 1/8 inch for smaller pieces. I try to make this as consistent as I can but there is no need for it to be perfect unless it keeps you awake at nights.
32. The last thing I check with the interior is that there is a smooth transition from the end of the Forstner bit hole to the side wall of the vessel. I leave this area a bit thicker since I will be removing more material from the outside of the vessel when I turn the neck. The other area of attention is the very bottom which I will leave a bit thicker than the sides. This provides a good gluing surface for the base tenon as well as a little bit of heft to keep the center of gravity low.
33. If you are so inclined, you can now sand the inside of the vessel if things like that bother you.
34. Once the interior is hollowed out to your satisfaction it is time to fit the base tenon into the bottom of the vessel. Since we left the hollowing opening smaller than the diameter of the base tenon there is still room to work. The other thing we did is leave a bit of the base tenon on the vessel to act as a guide. What you do not want to do is to open up the bottom hole until the residue from the base tenon goes away. That will result in a hole that it too big. This is because the likelihood of the vessel to be spinning on center is pretty slim.
35. Too open up the bottom hole diameter I use a detail spindle gouge and cut from the ID out. You need to keep this cut square so that the tenon fits snug in the opening. Take small cuts and check the fit often. I put a chamfer on the corner of the of the opening just to use as a measure of my progress. You do not want to get this too big although if it is a little over size there are some methods of fixing it when doing the gluing.
36. Once the base is opened up to fit the base tenon it is time to do the final sanding on the bottom of the vessel. Once the plug is glued in it become very difficult to do a decent sanding job on the bottom so now is the time to do it.
37. Remove the vessel from the chuck and install the base plug into the chuck. Mark the position of the number 1 and number 4 jaws for helping to align this again later in the process. Cut the face of the plug (what will be the inside bottom of the vessel) using a detail spindle gouge to provide a nice clean cut across the end grain. This cut is done with the flute of the gouge facing

away from the surface and the tool bevel lined up in the direction of the cut. This end can be scraped using a scraper asl but with a little bit less quality of cut although perfectly acceptable. A little chamfer on the edge of the tenon will help with assembly and leave a nice location for the epoxy to sit.

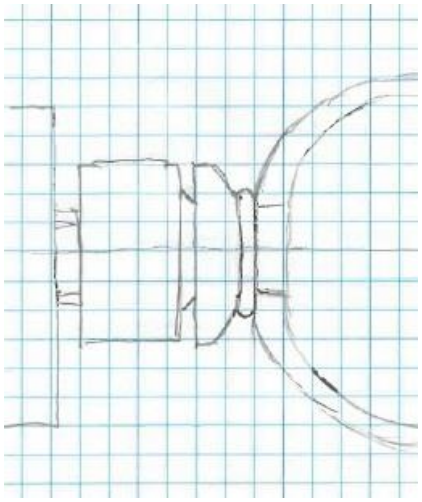

Figure 7, Base Plug Installed

38. While the bottom plug is still in the chuck it is a good time to form the foot of the vessel. Part of the intent of the foot is to hide the opening that is in the bottom of the vessel. This means that the foot needs to be a bit bigger than the tenon on the base plug. The bottom of the vessel should be square to the opening, and you want the top of the foot to match up nicely with this surface (bottom of the vessel). That means that the mating portion of the foot should end in a right angle to the tenon as well. The foot itself can be a bead, an astragal or whatever you determine to be attractive. Be careful not to make it too big, you do not want it overpowering the bottom of the vessel. Once it is turned be sure to do the sanding prior to it being glued into the bottom of the vessel.
39. I use a flexible epoxy to glue the foot into the vessel. This takes longer to cure but provides a strong ductile joint that is not going to be brittle. This is important because once it is dry it must support the turning while the neck is hollowed out. If the joint is loose, mix a little bit of saw dust into the epoxy to act as a filler. I spread the epoxy on the inside of the vessel and slide the base plug into it. I make sure that the grain is aligned using the pencil marks that I put on earlier to get me close and then examine the grain to ensure that it matches up. I mount the vessel in a vertical orientation with the foot down in a bar clamp to ensure that the epoxy stays local to the joint providing the best structural joint possible. This is left to dry for a day or two minimum.
40. If you want your vessel to be waterproof, you can coat the inside of the vessel with epoxy before you glue the base on. I have done this but not tested it for robustness. I tend to stick to dry arrangements.
41. Remount the vessel into the chuck by the bottom of the vessel. Align the dovetail tenon using the marks that were placed between the number 1 & 4 jaws. The tailstock can be brought up and centered on the top of the vessel. This may or may not be turning centered depending on

how the foot was glued in and how the wood has moved during the turning process. Adjust accordingly to get the neck turning as true as possible.

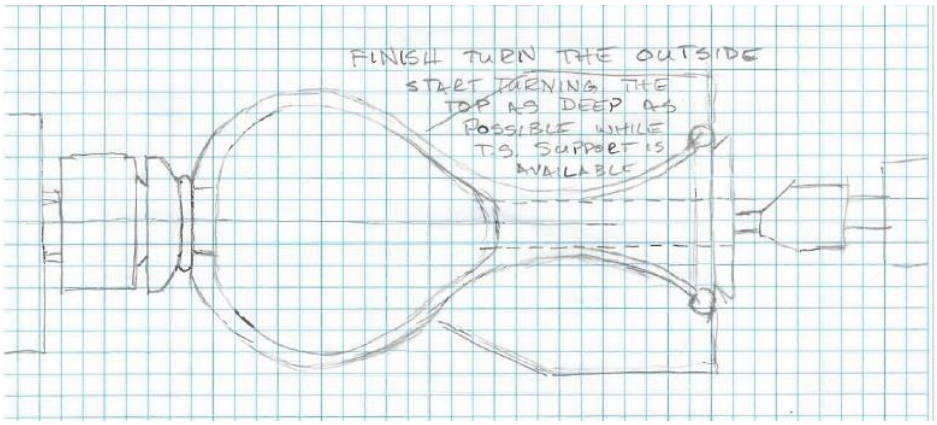

Figure 8, Finish Turn the Outside

42. Finish shaping the outside of the vessel working the neck into a pleasing shape. Cut away as much of the dovetail tenon on the stem opening as the tailstock will allow. Shape the lip of the vessel top. I personally like to have a flowing bead here. The goal is to have something that fits the shape of the rest of the vessel as well as being appropriately sized for the vessel. There is room for latitude here so make it pleasing to your own eye.
43. Finish sand the outside of the vessel. I typically sand up through the grits and finish with Merka Abralon thorugh 4000 grit.
44. Back the tailstock out of the way and install either a Jacobs chuck or a boring tool in preparation of drilling out the neck.
45. Check that the chuck is tight and will hold the vessel securely.
46. Clean up the end of the vessel top so that it can be drilled cleanly. Depending on your type of drill bit there can be some latitude in this preparation. For Forstner bits I will cut a tapered concavity. However, for these holes I like to use a Japanese F style auger bit. These are designed to cut very cleanly and stay centered.
47. Pick the size drill bit needed to ensure that you will have approximately 3/16 in wall thickness in the neck region. Bring up the bit slowly and let it register on the wood to ensure that it can get started without any wobble. If necessary, you can use a centering bit to start the hole and then bring in the drill bit. These bits are excellent at removing waste so as long as material is being ejected out of the hole you can continue boring. If the material stops coming out, you need to back the bit out and clear the chips. Repeat until your hole has reached the hollowed-out section of your vessel. Remove your drilling components as well as the tailstock.
48. Shape the interior of the vessel neck using a detail spindle gouge taking very gentle cuts. It is possible to cut against the grain at this point which allows the pressure of the cut to go towards the foot of the vessel. These are light cuts! Work from the rim in towards the center. As the rim is finished up move deeper into the neck. Cuts deep into the neck can be done using a pull cut with the spindle gouge with the flute pointed at 9:00 within the neck. Again, light cuts with a continuous motion as you pull the tool up the inside of the vessel.

49. If there is any vibration encountered during these cuts you can stabilize the vessel with your left hand as you take light cuts up the inside of the neck. Your goal here is to have a uniform thickness and as smooth as a surface as you can get on the inside of the neck.
50. Sand the inside of the neck. I do this using a stick with some hook and latch material on the end. This allows for quick and easy sanding of this area of the vessel. Do not stick your fingers into the opening! Start with 80 grit and work up though 800 grit. Finish with Abralon up to 4000 grit.
51. Now it is time to remove the dovetail tenon at the baes of the vessel and to finish turning the foot. Remove the vessel from the chuck and remove the chuck from the lathe. Install a reverse mount jam chuck which has a post that extends to the bottom of the vessel and a cone that centers the vessel opening on the drive shaft. Bring up the tail stock to support the base so that the final turning of the foot and removal of the mounting tenon can be carried out. Rubber chucky makes a version or you can make your own with a bit of wood and a dowel rod. The dowel rod can be mounted in a scroll chuck or a collet chuck depending on the size of your vessel.

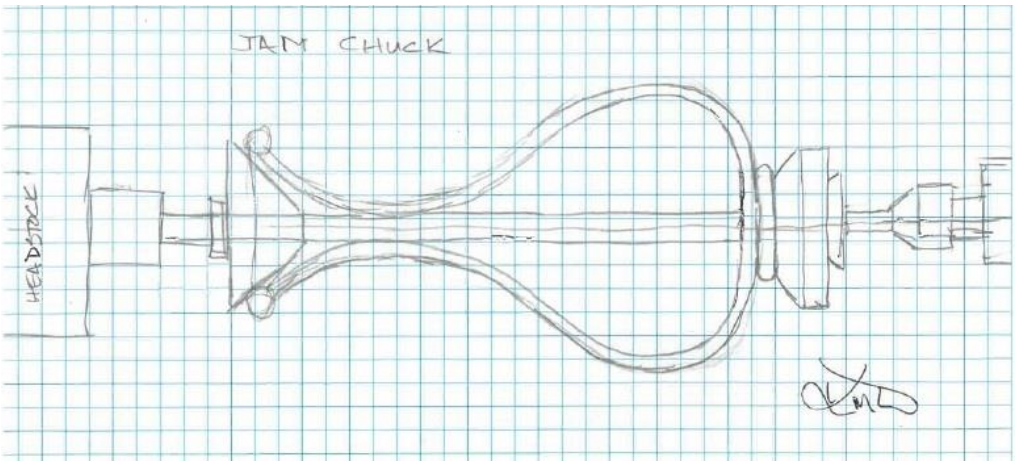

Figure 9, Reverse mount in a Jam Chuck

52. With the vessel now reverse mounted check that it is reasonably centered. Adjust as needed and once centered start to remove the dovetail tenon on the foot. Finish shaping the foot and turn the bottom as far as the live center will allow. Sand the bottom and the foot.
53. Remove the turning from the lathe, cut off the small stub that is left from the support and carve away what is left. Sand accordingly, sign and finish.