

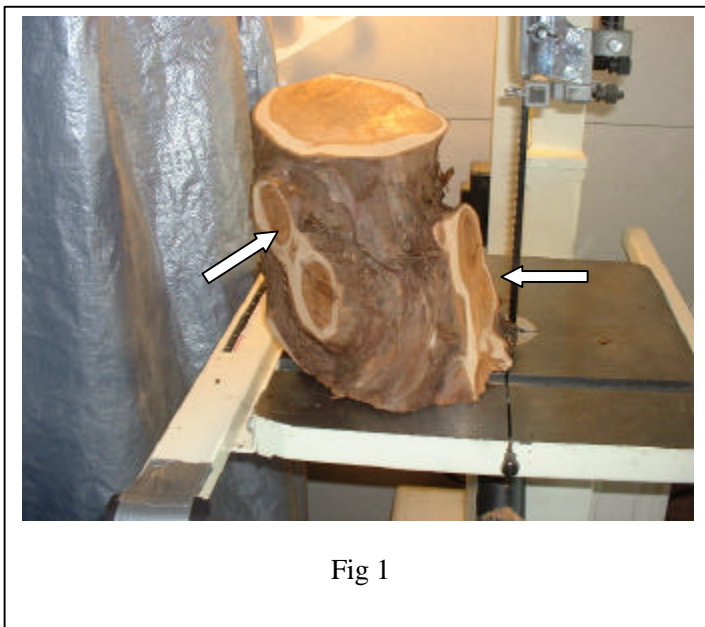
How to turn a crotch form By Dinyar B. Chavda (July 2003)

Turners often ask how to cut a piece of crotch wood so as to maximize the figure in it.

One way is by splitting the log in half along a line joining the piths (of the trunk and the two branches), so as to remove the pith, and use the two pieces for turning bowls or platters. Alternatively, one can create a tall vase out of the trunk, and additional vases or bowls from each of the branches.



Jon Schilling described to me another way of turning either a crotch piece or one with several major branches coming in. It involves leaving in the pith, and turning the log in faceplate orientation. This approach results in either a natural-edged bowl, like the one shown in CrotchBowl, or a closed form. The process by which I turn a crotch piece is described below.



I had a fairly dry piece of yew, and Fig 1 shows the log after I had cut off the branches. As you can see, they came in from both sides in front (at the arrows), plus there were small twig-like branches near the bottom of the side away from you. Now you have a choice in turning. You can either have the incoming branches towards the bottom of the bowl, or to the top of the bowl--- either form will work. I usually put them to the

top, and in this case, because the area between the two sets of branches is indented, putting the branches to the top is the way to go. In either case, I find that placing either the tenon (for the chuck) or the opening of the bowl between the branches ends up with a pleasing unusual, irregular shape.



Fig 2

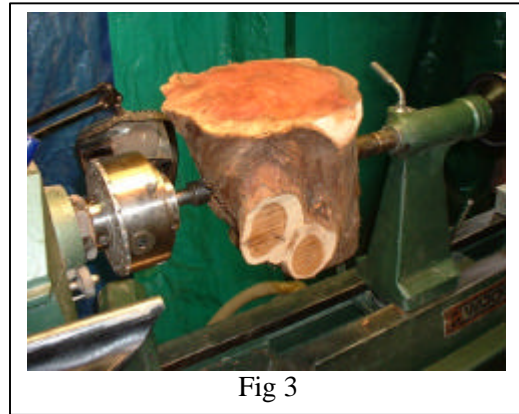


Fig 3

Figs 2 and 3 show the log on the lathe, set up so that the top will be between the two sets of branches. I usually turn it between centers, using a 4-prong spur (I have the spur in the jaws of a Vicmarc chuck, because the chuck was already on the headstock, plus I had a vacuum chuck attachment in the spindle). Others use a 2-prong spur. Be **VERY** careful when you do this!!! Use very gentle cuts. It is not unusual for the log to come off the lathe!!! Most of the time the log will fall away from you, so make sure that no one is standing in the line of fire. Sometimes, the log will fall towards you, so be prepared to jump out of the way. Make sure you wear face protection.

The log is also off balance, so your lathe will shake.

I use this approach as I am not very good at visualizing what the piece is going to end up looking like, and this allows me to move the piece around as I turn it. An alternative would be to hold the piece using a screw chuck, or to flatten an area (where the top will be) and use a small faceplate. This means you can't manipulate the log, but it is a lot safer, and is what I did in earlier attempts at this method.



Fig 4

Fig 4 shows the log as I start to round it. If you look closely to the left of the live center (where the arrow is pointing), you will see a spot where there is no bark. That is where the live center was originally when I started to turn, and I did not like the shape that it would have caused, and so I moved it around (I also moved the spur center). I cut from right to left (i.e., from the

tailstock to the headstock) until I reach the highest point, as this allows me to go from small diameter to larger. However, because of the number of piths that there are, the grain is constantly changing, so, to get smooth cuts, I try to use a shearing cut even when I am hogging out the piece. For doing the outside, I use either a regular bowl gouge or one of my Ellsworth/Irish Grind-type gouges.

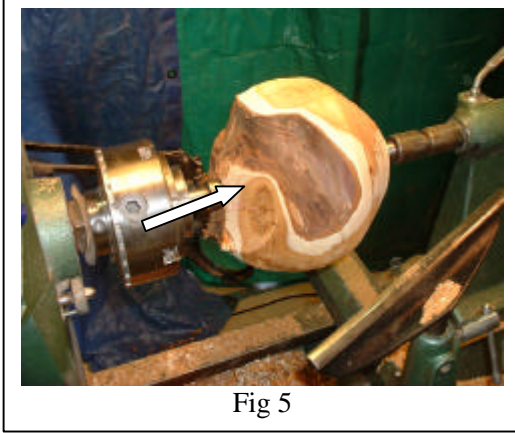


Fig 5

The piece is starting to take shape in Fig 5, although the top still has a lot of flat areas (at the arrow). You can see the indented part between the branches, and the piths of the branches.

When I had first started to turn this, I had meant to create a fairly open bowl (like CrotchBowl, above). However, when I got to this stage, I realized that a more interesting alternative would be to create a closed form, by rounding in the flat pith that you see nearest you (where the arrow

is pointing). Now you see why I use the spur, and not either a screw chuck or a faceplate—it compensates for my “visualization-deficiency”!

Thinking ahead, that means that the indented part could possibly become a hollow strip running between the branch piths. So, that is what I tentatively decided to do. Note that at this stage, I still had not turned a tenon for my chuck, as that allows me to change things for design reasons, or if I get a bad catch and a piece of the wood breaks off.

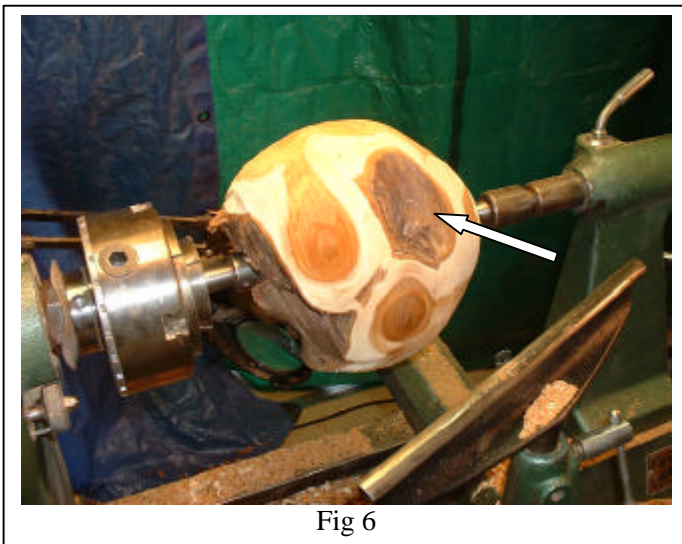


Fig 6

Fig 6 shows the bowl with some more of the top turned as described above. There is another indented part that you see towards the tailstock (see arrow), and could eventually be left as is (which would mean that the piece would be fairly thick), or it could be thinned to create a hole—we shall see what it looks like later, and decide.

Although you can't see it in these pictures, I try to get

rid of flat spots even in this stage. The reason is that it allows me to ensure that the piece I am creating looks good. I'd rather make a mistake and be able to correct it at this stage than later, when I have relatively little wood left to play with.

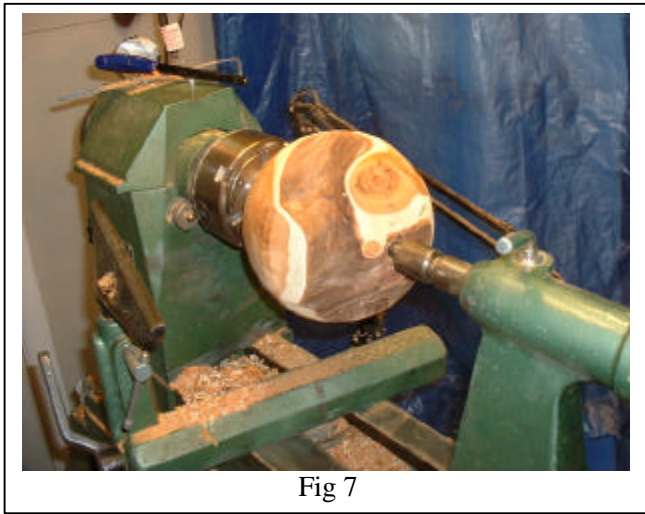


Fig 7

Note that my tailstock is up against the end for more support.

In Fig 7, the tenon has been turned, and the piece reversed and placed in my chuck. Now you can see what I meant by having the indented part become a hollow strip running between the branch piths (or, that's what I hope to accomplish!)—see Fig 8.

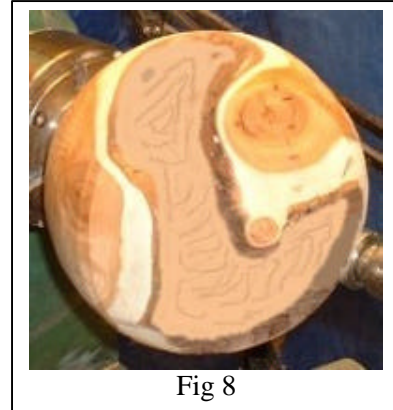


Fig 8

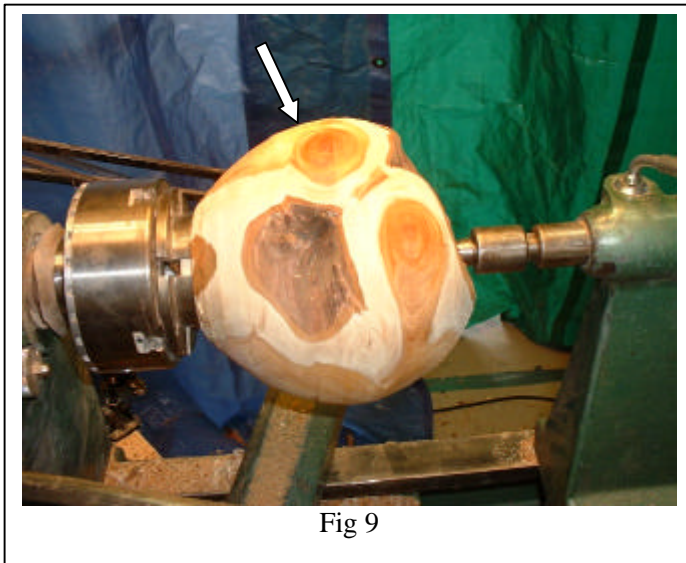


Fig 9

At this stage, I make sure that the piece is in round, and get rid of any flat spots I see, but still leave the base much thicker than it will end up being, to provide maximum support. This is shown in Fig 9. If you follow the downward curve from the top of the piece (at the arrow) you can see that the base at the chuck will later need to be taken down a lot. Note the tailstock, which will stay in place as long as possible.

If I had gone with my original design of an open bowl, I would use a bowl gouge to hollow out the piece. However, I could not use it given the shape I wish to create. So, I had to use my hollowing tools—in this case I used my ProForme tools, and used a scraper at the end to smooth things out.

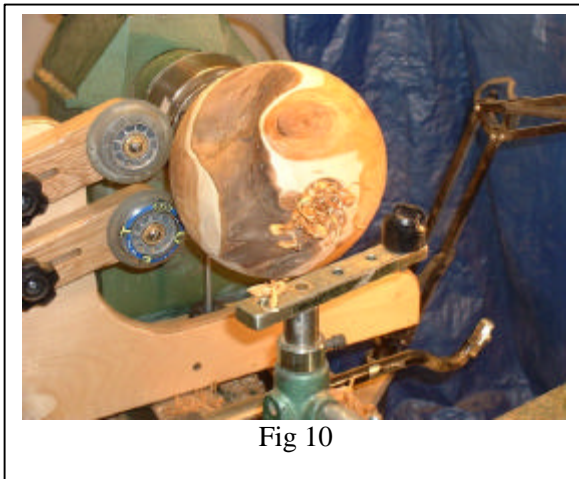
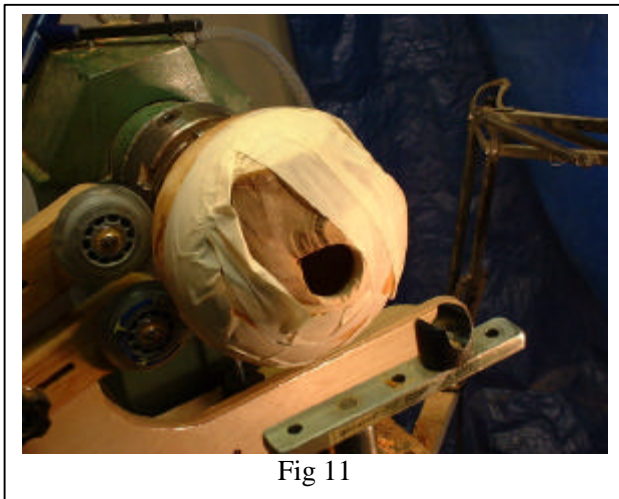


Fig 10 shows the bowl partway through hollowing. I had started by drilling a 1" hole about 2/3rd of the way down the bowl, and am hollowing through it (in the picture, it is filled with shavings). I usually keep my bowl steady on the side for more support. What you see in front is my Irons Toolgate, in which I rest my hollowing tools—it helps a lot!

I decided not to break through the indented parts as long as I could, because once I did that, the remaining part at the top would not

have as much strength.



In Fig 11, I had reached a point where I realized that I was close to breaking through the concave parts, and so, to give the piece as much support as possible, I taped it using masking tape (I believe duct tape tends to stretch). At this point, the bowl looks rather like a mummy!

As I continued to hollow, I started to break through some of the concave areas, but I left the tape on for the entire time I was hollowing. After I had it thinned down to the thickness I wanted, I drilled out the remaining 1" to 1.5" at the bottom, and smoothed out the interior. The bottom curve is fairly thick, because the outside has not been turned to final shape.



Fig 12

Fig 12 shows the hollowed-out piece from one side. As you can see, I have gone through the indented part on the top on the right side, but the left side is still solid (although thin). At this stage, I could have continued to hollow out the top more, or carved out the top left so as to make it a continuous wide hole all the way along the top. I decided to leave my options open for now.

At this point, I reversed the piece in a jam-chuck, brought back the tailstock, and turned down the base.



Fig 13

Actually, I ended up taking the base down too much. You can see it in Fig 13, which shows the final product (after I had “fixed” the curve as much as I could). If you look at the curve above the arrow, you can see that I should have continued it further down, resulting in a fatter base. But, I took it down too much, and ended up with almost an ogee curve at the bottom, which is also too small, and makes the piece a bit unstable

given how irregular it is. Ah well, next time!

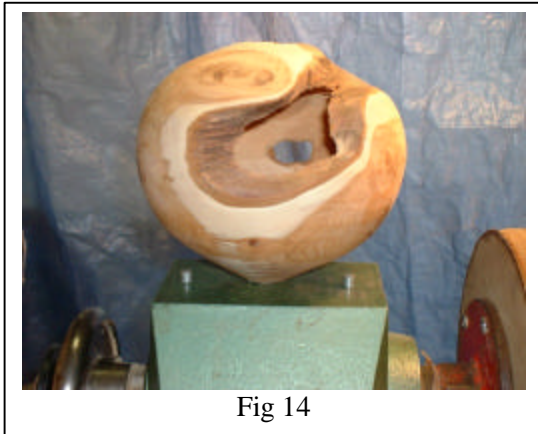


Fig 14

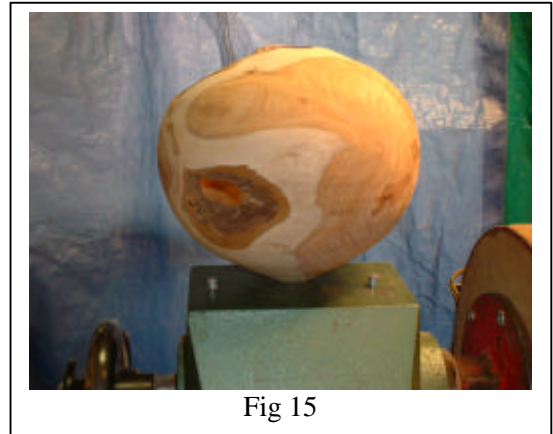


Fig 15

Figs 14 and 15 show the piece so that you can see the hole at the top, and the one towards the bottom. (The piece had been disc and hand sanded while on the lathe up to 320 grit).

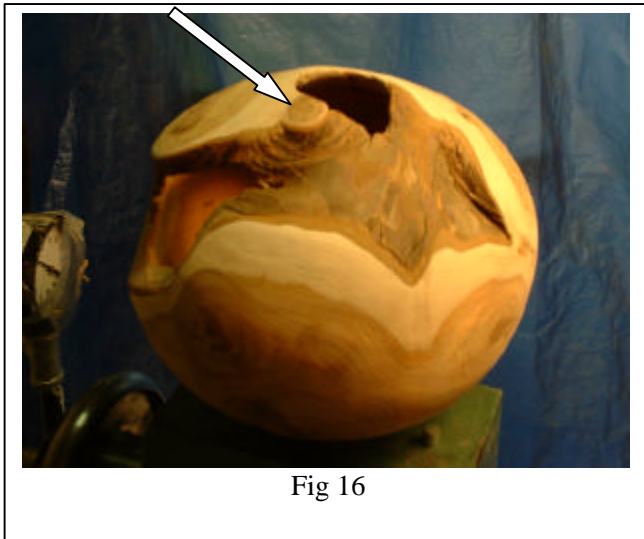


Fig 16

Still not done, as we have to decide what to do about the top. Fig 16 shows what it looks like, and I still have my options, i.e., carving away the entire indented part, leaving it as is, or doing something else.

What I decided to do was to connect the hole at the top (which I went through for hollowing) with the hole in the indentation on the left of the piece, making sure I did not lose the knot at the top (arrow).

I used a fine coping saw blade to cut through the indentation. The holes were too irregular to allow me to use the actual saw. Fortunately, the area I was cutting was thin, and so I was able to do so holding the blade in my hand. I had expected the part with the knot to spring up a bit when I cut through, so I held it in place to give it support. However, it did not move at all when I finished. The results are shown below Fig 17, with a closeup in Fig 18. Needs a little bit of cleaning up to give it a smooth curve at this stage.



Fig 17



Fig 18

Fig 19 shows the flow between the top opening and the opening in the indented section with better perspective.

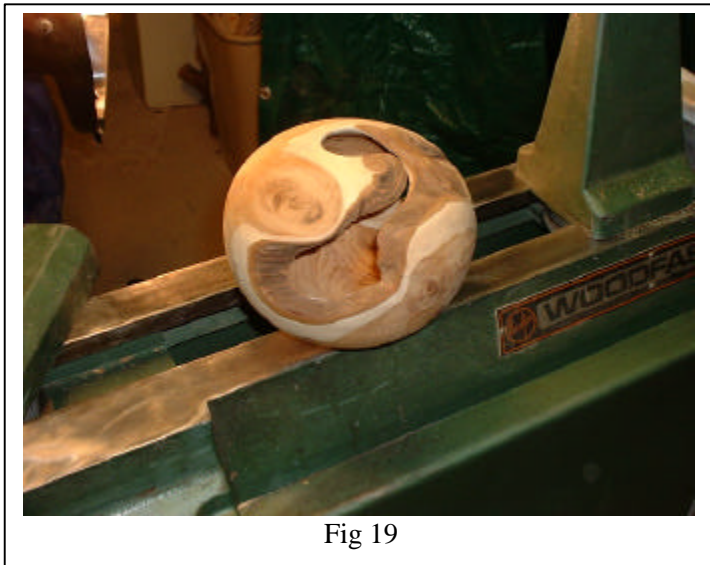
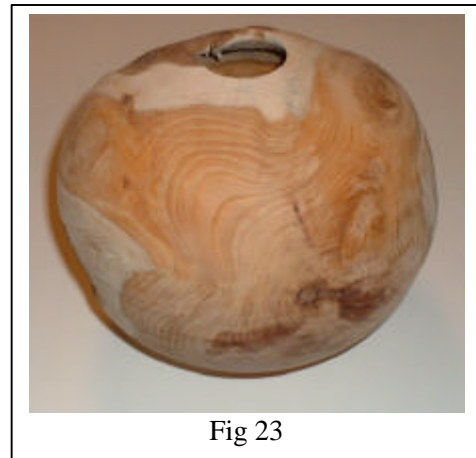
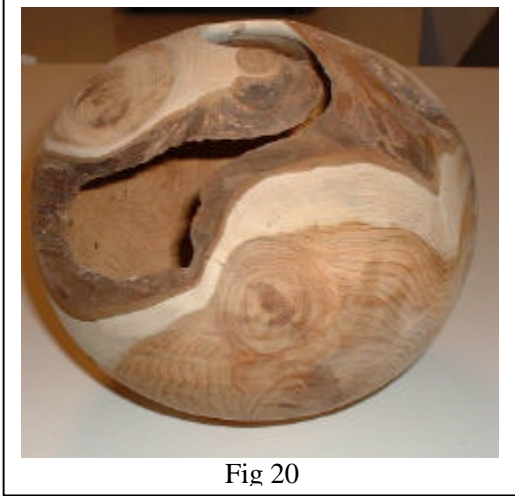


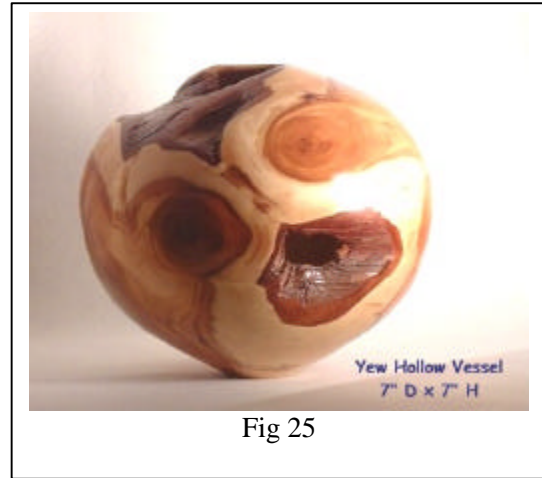
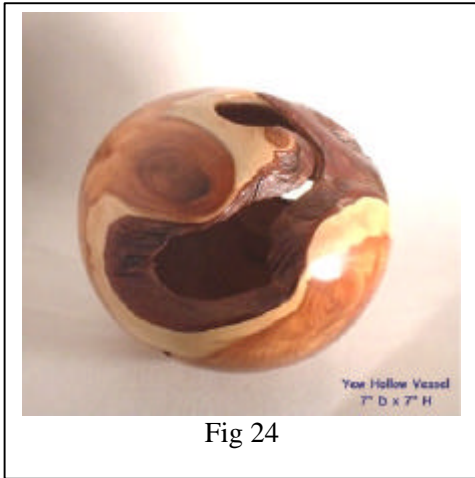
Fig 19

The final object is shown in Fig 20, with views from different sides in Fig 21, Fig 22, and Fig 23. There are about 7 or 8 knots, which are shown in these pictures.

Needs a little more sanding by hand, and then finishing.



The final product, finished with Danish oil, is shown below:



I hope that this has been informative, and enjoyable. I had a great time taking these pictures, and it may have forced me to think a little bit more about what I was doing, and not just rush through it.

Thanks for letting me share this with you. If you have any suggestions as to how I could make this better, or any questions, please let me know at dinyarchavda@hotmail.com.