

When I received an invitation to participate in AAW's fifth annual Professional Outreach Program (POP) exhibition to be shown at the symposium in Saint Paul, I was particularly pleased. The title for the show is "Roots—An Artist's Voice," and the theme rang all my bells: I often carve rootlike matrixes that surround the turned part of my work, and if I do have a personal voice, I like to think it expresses a love of the raw nature of trees.

It's a fine compliment to be asked to participate in such a show and the discipline of working to a theme is an interesting challenge, so I wanted to come up with a new idea. A friend once said to me that technical problems aren't really problems, because there is almost always a solution. "It's getting new ideas that are the problem," he said. I believe he was right and I brooded on this challenge for many weeks.

For the past fifteen years I have produced a series of Cyclops. I gave the series this name because the original Cyclops was a one-eyed creature of legend, and each of my pieces has a turned central "eye" with a turned and carved surround. I let the ideas of "eye" and "roots" bounce around in my head, waiting for an image to form. Thinking about my personal roots

# My Father's

# Eye

Terry Martin



In this way I learned almost everything I ever needed to know about grain direction and how to work with the wood, not against it.

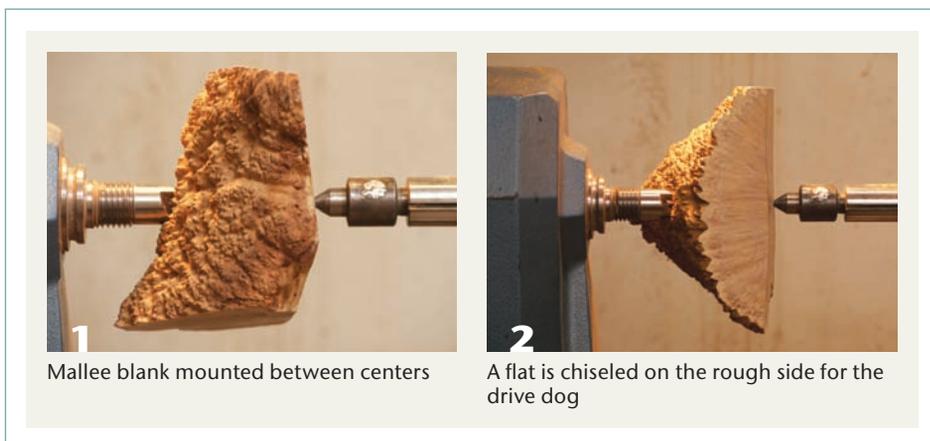
As I relived these moments from my childhood, an unexpected memory rushed back. Long

as a woodworker, I remembered how my father taught me to split mallee roots for the fire when I was a boy. Mallee is the hardest wood I have ever encountered and my father showed me how to examine each root carefully to find the sweet spot amidst the chaotic swirling grain. If I hit that spot perfectly, the root split like a watermelon. If I missed, the shock as the axe rebounded left my hands numb.

after I had left home, my father continued to split mallee. At the age of 75 he was chopping a monster root when the axe shattered and a piece of the blade imbedded itself in one of his eyes, permanently blinding him. Almost immediately I had my theme and knew exactly what I would do. I wanted to show the raw character of the mallee wood, highlighting its hardness and roughness. Also, for the first time ever, my Cyclops would represent a real eye, my father's.

With a half-formed design in my head, I selected a suitable piece of mallee from my stock. The exterior of the wood had already been water-blasted to remove the bark and dirt. I bandsawed a few blocks that fitted within the 6"- (15 cm-) square limits for the exhibition, eventually choosing one to mount between centers on the lathe.

I spent a lot of time moving the wood around on the points of the



1 Mallee blank mounted between centers

2 A flat is chiseled on the rough side for the drive dog

drive dog and the live center, visualizing how it would turn. I wanted the natural exterior to form a sloping front for the piece and the eye would be deeply imbedded in this surface. I mounted the wood with the natural surface facing the headstock (*Photo 1*) and when I was sure of the orientation, I removed the blank and chiseled a flat spot for the drive dog to grip (*Photo 2*).

I remounted the blank, locked the tailstock firmly and wound the quill in as hard as I could to seat the drive dog. With a really hard wood like mallee, I find it helps to lock the indexing head and then rock the blank back and forth against the stationary drive dog to work the teeth into the wood and increase its purchase. After a final tightening of the tailstock, the wood was ready to turn.

Starting at a slow speed because the weight was out of balance, I first removed much of the bulk from the back of the piece. With an irregular blank, cutting is intermittent and can be dangerous if you push too quickly into the spinning timber. This is one case where the often-repeated mantra of “rub the bevel” can lead to problems. I always control cuts like this by bearing down with my left hand on the toolrest to stabilize the tool, then feeding the cutting edge into the work by starting with the handle low and lifting it to roll the tool forward into the spinning wood (*Photo 3*).

With the bulk of the off-center wood removed, I wound the speed control up to just below the point of vibration and shaped the back of the piece into a flowing curve. Next, I turned a spigot for mounting the piece into my scroll chuck (*Photo 4*), then parted the spigot off just long enough to clear the base of the piece when it was reversed and mounted into the chuck (*Photo 5*).

One time-consuming job for turners is removing evidence of how a

piece is held on the lathe. Sometimes it means remounting to turn off a spigot or recess, or perhaps a lot of carving and sanding is required. I prefer to hide the mounting method in plain view, so with all my Cyclops pieces the central “eye” is also the recess for expansion chucking. To create the recess, my first task was to clean up the center where I had already cut the rough flat area with a chisel. Using a pointed scraper, I opened out the area and removed the drive-dog scars so a sawtooth bit would run true (*Photo 6*).

With smaller pieces like this one, I use long-nose jaws on a Vicmarc VM100 chuck because of the deep recess. To establish a base for the recess to sit against, I turned a step in the jaws (see sidebar). I match a sawtooth bit to the diameter of the jaws when they are adjusted to be perfectly circular (*Photo 7*), so that when I expand the jaws into the recess, they have maximum grip.

With the drill bit in a Jacobs chuck, I drilled the recess in the front (*Photo 8*). When the recess was deep enough to hold the piece on the long-nose jaws, ▶



3 Hollowing the back



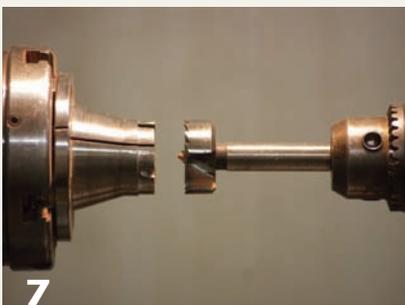
4 Turning a spigot for remounting in a chuck



5 Piece, remounted



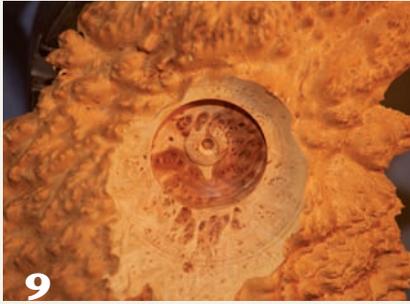
6 Roughing a flat spot in the center where a recess will be drilled



7 Long-nose jaws with turned step and matching saw-tooth drill bit



8 Drilling the recess using the saw-tooth drill bit



9 Center, donut shaped



10 Beginning of eye, rough grooves surround

I turned away some of the wood surrounding the recess, then started on the all-important eye.

Perhaps because I usually work with idiosyncratic wood, I am not one of those turners who carefully draws every piece before the wood is cut, nor do I work to set measurements and proportions. I usually follow the rule “if it looks right, it probably is.” For this piece, I was following a mental image that felt just right, so with a small scraper I quickly shaped a rounded eye in the center (*Photo 9*). Next, to reflect the rough natural surface, I used a pointed scraper to cut a series of rough grooves into the turned area around the eye (*Photo 10*).

I removed the piece from the chuck and reversed it, mounting it in expansion mode on another chuck with long-nose jaws. With the rim of the recess seated against the step in the jaws, the piece was guaranteed to run true. A dense wood like mallee

lets me expand the jaws as hard as I need to without any risk of splitting. Also, because the jaws are perfectly circular, they leave no indentations in the wood. I used the sawtooth bit to drill from this side, leaving only ¼" (6 mm) thickness of wood in the center, checking with calipers (*Photo 11*). When I was satisfied with the thickness, I drilled a ⅛"- (3 mm-) diameter hole right through the pupil of the eye (*Photo 12*). Lastly, I shaped the eye to mirror the other side.

Because I thought this was the last time the piece would be on the lathe, I power-sanded the back to a fine finish. Power-sanding an irregular piece is just like turning it: you should not apply too much forward pressure, because the sanding pad will enter the spaces as they intermittently pass. It will either damage the pad, or tend to round over the leading edges of the voids. I hold the drill as firmly as I can and allow

the pad to “float” over the wood at a flat angle, letting the lathe do all the work. With this piece I sanded at the same speed as I had turned it and worked my way through from 120 grit to 400 grit, sanding in both forward and reverse directions with every grit (*Photo 13*).

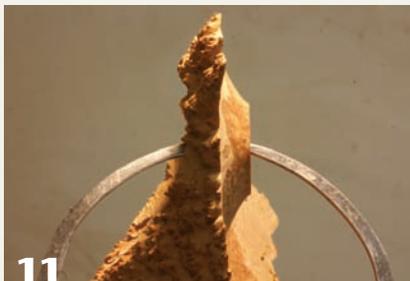
### Shaping the eye supports

I used a pen to outline the two arms that would support the eye, then drilled out the waste wood around the arms using the drill press (*Photo 14*). It was quick work to clean up the drilled portion with a small burr mounted in my Foredom flexi-shaft tool (*Photo 15*). I then used a series of fine files, rifflers, and strips of sandpaper to carefully reduce the diameter of the supporting arms and to round the eye. This was the most painstaking work. I wanted it to look fragile, but I didn't want to push too hard and snap the arms.

I wanted to lighten the heavy base, so I used a larger burr in the Foredom to carve away more wood, leaving only three fine points as support. I like the feeling of weightlessness that comes from light and air showing under a piece (*Photo 16*).

### Design improvement

After all this work, I sat back and looked at the piece under strong light, but I was not happy with it. The grooves around the central eye needed



11 Checking the thickness



12 Drilling the center of the eye



13 Power sanding the back



**14**  
Drilling away the wood around the arms and eye (Note the black marks indicating the arms.)



**15**  
Using a small rotary burr to clean up the drill cuts



**16**  
Shaping the base



**17**  
X-Y axis vise



**18**  
The piece is remounted so that the grooves can be improved



**19**  
The author's signature

to be stronger to emphasize their cascading nature. Luckily, because of the Cyclops mounting system, I was able to reseat the piece against the stepped long jaws.

If you are tempted to try this method, here's a tip: you may find that the turning or sanding you have done has rounded the rim of the recess and the piece no longer centers accurately on the chuck. If this happens, put the sawtooth bit into the tailstock again and wind the tailstock up gently to the work to avoid scratching the wood. Loosen the piece in the chuck and carefully maneuver the bit into the recess. Once it is inside the recess, retighten the chuck and carefully withdraw the bit. You will find that the piece runs true once more.

To enhance control of the cutting that needed to be done, I decided to mount a cutter in my X-Y axis vise (Photo 17). I have attached a post to the base of the vise so I can mount

the vise directly into the banjo to function much as a simple metal lathe would. I angled a strong light across the piece as it spun and used the shadows to gauge depth and spacing, feeding the cutter in slowly to obtain a clean cut (Photo 18). I did not make the grooves too uniform and I wanted to maintain the impression of raw irregularity. Next, I lightly sandblasted the grooves to soften them. I also sandblasted the rest of the front to bring out the natural whiteness of the sapwood.

### Signing the work

After sanding the base with a sanding disc mounted in a Jacobs chuck on the lathe, I prepared for the signing. It always amazes me how many wood artists will work for weeks to create a

masterpiece and then apply a signature that is completely illegible or, even worse, downright ugly. I ►



suppose it is because they believe that their signature has to be...well... their *signature*. Most personal signatures have evolved over our lives into something that is quickly scrawled. My own signature is dreadful, so years ago I designed another signature, just for my woodwork. First, I use a fine-point indelible black pen to draw an arc on the wood, using any appropriately sized curve as a template. Kitchen jars and containers provide a limitless range of sizes. Then, I sign my name using the arc as a crosspiece to link the two Ts in my

name (*Photo 19*). I am not saying it's wonderful, but it is legible and more attractive than my regular signature.

### Applying the finish

I wrapped a cloth around my finger and dipped the end into finishing oil, then squeezed off any excess. I carefully ran my cloth-covered fingernail in each of the grooves, avoiding the surrounding wood. This emphasized the contrast between the unfinished soft surround and the angular grooves. After several coats of oil, I buffed the back and base to bring out the wonderful grain.

I am not prone to sentimentalizing my work, but I still cringe at the memory of my father sitting in the car with one hand clamped over his eye, trying to drive himself to the hospital so he would not have to worry my mother. So *My Father's Eye* pays homage to my dad Charlie and how he taught me to chop wood. I'm still chopping. ■

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## Truing the chuck jaws

One problem with chuck jaws is that they are usually made out of soft metal. Some manufacturers are even making jaws out of aluminum now. Repeated changing of such jaws on a chuck can make them go out of true (it's one reason why I own several chucks—so I can leave commonly used jaws on dedicated bodies). Also, years of use and wear can damage the edges, or you may have nicked the jaws with a badly placed cut.

If you are not sure whether your jaws run true, put the chuck on the lathe and run it very slowly. It should be clear if they are not true as a wobble will appear at the edge or, you can firmly place a piece of wood on the toolrest and gently advance the wood up to the jaws to hear if there is an irregularity. If there is, the solution is simple: re-turn the jaws on your lathe.

The wood lathe is the immediate ancestor of the metal lathe and there was once very little difference between the two. We can turn soft metal on our wood lathe, as long as we are careful. I used this method to cut the step on my long jaws, but it is also very useful for truing general-purpose jaws.

To illustrate this I used the standard jaws on my Vicmarc VM120 chuck. They are many years old and have had an amazing amount of use. First, I cut four small fillets of wood to fit the gap in the back of the jaws when the jaws form a perfect circle. If you place the chuck flat on a table and wind the jaws open and closed, it is easy to see when they form a circle and then you can measure how thick the fillets of wood need to be. Drop a fillet of wood between each

pair of jaws and close the chuck very tightly. This will ensure that there is no chatter in the jaws when you cut them on the lathe. Do **not** try this without securing the jaws in this way first!

Remount the chuck on the lathe and bring the toolrest up close to the faces of the jaws. Set the lathe to around 500 rpm and use a small square-ended scraper to true the jaws (*Photo A*). Feed the scraper in very, very slowly while pressing firmly down onto the toolrest. Let the lathe do the work. I find it easiest to start with the scraper flat on the toolrest and the cutting edge very close to the jaws, then I raise the tool's handle so the edge of the tool rolls inward to start cutting.

Next, you can true up the outside edge of the dovetail (*Photo B*) and the inner edges of the jaws. Once the metal is cleaned up, the improvement will be obvious (*Photo C*) and there will now be much better contact between the wood and the jaws. Now that your chuck jaws run true, you can turn a step in them.

Not all jaws are made of soft metal. I certainly would not try this with an old engineering chuck. To test the hardness of your chuck's jaws, remove a jaw and try scratching its back with a turning tool. If it easily leaves a mark, you will know your scraper is harder than the jaws. If you have an X-Y axis vise like I used to cut the grooves in *My Father's Eye*, you may feel more secure if you use it to maintain control while turning very slowly. Truing chuck jaws this way only applies to jaws that are smoothly circular, not to ribbed banana-shaped jaws.



**A**  
*Scraping the front of the jaws*



**B**  
*Cleaning up the sides of the jaws*



**C**  
*Newly turned jaws (Note the fillets of ply that stabilize the jaws.)*