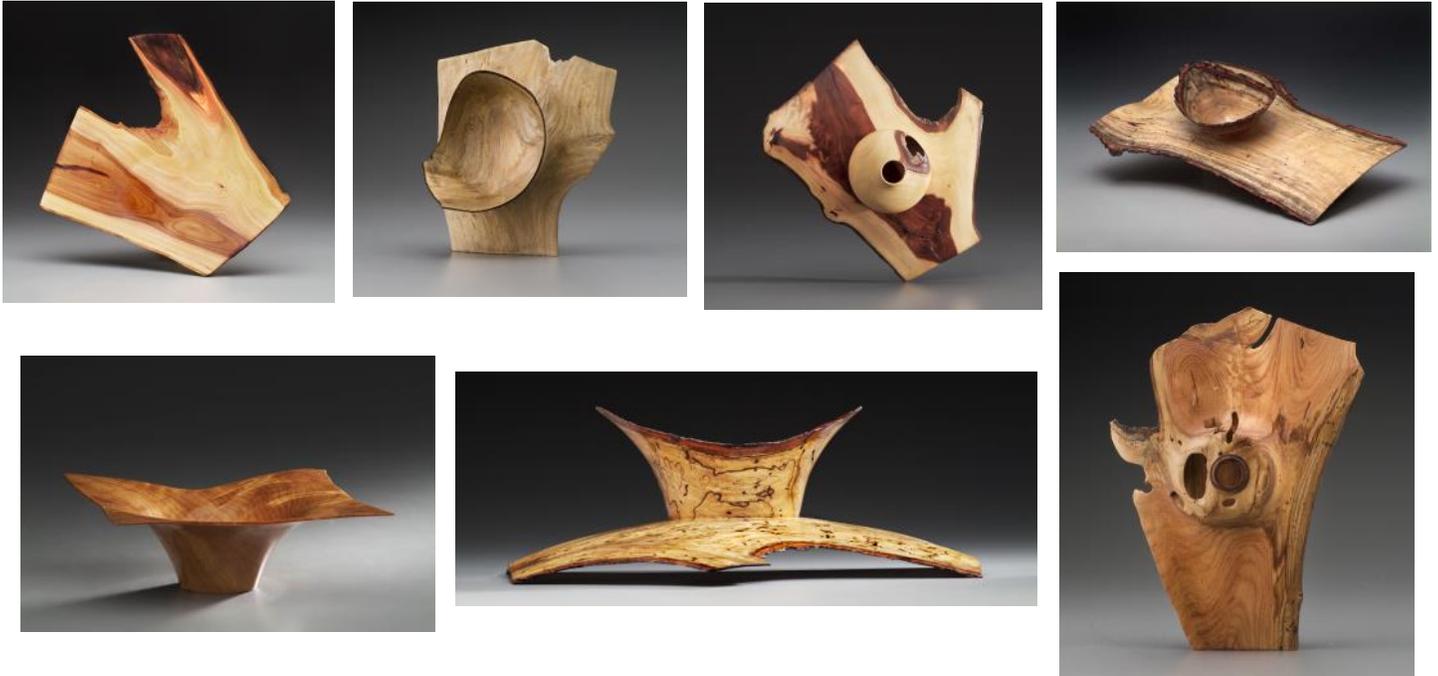


Wing Bowl from Log-section or Crotch

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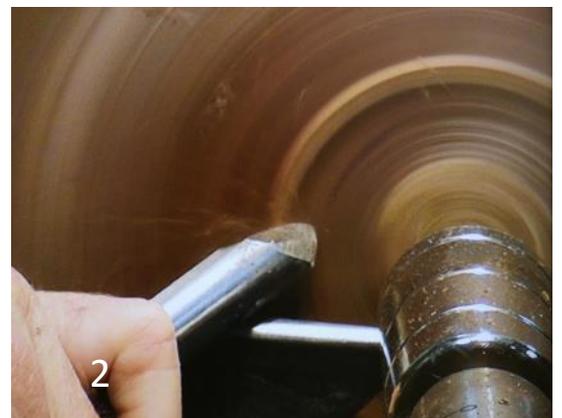
As in all of woodturning the design possibilities are endless. Many of the wing bowls I have done over the years have been made from scrap or discarded pieces of wood that no one else wanted. The most important thing I would like for everyone to learn from this wing bowl project is the technique and finesse needed to make controlled fine, light bevel supported cuts on thin intermittent wings and the importance of sharp tools. This will help in every aspect of your turning. Learn and use correct safe technique at all times and remember... "it's only woodturning" so have fun. (Sharpen tool)



Evaluate the log / Decide on design. Decide which side will be the top or bottom, whether to make a natural edge bowl or to keep or avoid any features or flaws in the log etc.

Turn between centers / Remove bulk / Cut tenon. Turning between centers (1) allows you to move the log around to adjust wing position and bowl location. Put the side you decided will be the bottom toward tailstock so you will have the live-center mark in the tenon for re-chucking later when finishing the bottom. I use a large 4 prong 1-1/2" drive spur and orient the spurs at a 45 degree angle to the grain for a better grip. Be sure to drill a hole through the bark on the natural edge side into solid wood for the spurs to bite into. Most of the time crotch pieces will not be very well balanced so extreme caution should be used when starting the lathe. With the lathe speed turned down or pulley's set to the slowest speed carefully start the lathe. If you are using a variable speed lathe try increasing the speed slowly. A faster speed makes cutting the intermittent edges much easier but you want to avoid vibration and stay safe. I will constantly check the tightness of the tailstock as I am turning to make sure everything stays tight between centers. Using a bowl gouge with pull cuts (2) slowly begin removing some bulk and begin shaping the wing, bowl bottom and tenon. As wood is removed and the piece becomes more balanced it may be possible to increase the lathe speed. (sharpen tool)

Hints: Always turn the lathe off when moving the tool rest or banjo. It is extremely difficult to see the thin outer edges of the revolving wings. Also after moving the rest and banjo make sure everything is securely tightened so vibration doesn't move the rest or banjo into the wing. Always slowly turn the bowl to make sure the wings clear the rest AND the banjo.



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Remove more bulk / Continue to shape bottom. With the bottom facing the tailstock it is easier now to mostly finish the bottom of the wing (3), the bottom of the bowl and the tenon (4). With a 3/8" - 40 degree bowl gouge using a bevel supported push cut I will make the final cuts to finish shaping the bottom of the wing and the bowl bottom(5). I always use a freshly sharpened gouge when making the final finishing cuts this will give you a much cleaner cut. If necessary I will use the negative-rake scraper to remove any tool marks or to level transition lines between cuts.

Image (6) shows a negative-rake scraper being used to clean up the wing and define the transition between the wing and the bottom portion of the bowl. Do not use a regular scraper on the wing as they are usually too grabby and could cause a catch.

Additional information on Negative Rake scrapers by Stuart Batty can be found in the spring 2006 issue of the AAW Journal "American Woodturner"

Hint: Don't sharpen the tool because it's dull... sharpen it because it's not as sharp as it could be!

Sand most of the bottom side of the wing. (7) While the wing still has the bulk of wood on top for support the bottom can be sanded easier now than after you have cut it to final thinness and it is flexible and more likely to be damaged. I lock the lathe spindle to hold the bowl while I use a GREX-RA (random orbit) pneumatic sander with a 3" firm pad to carefully sand the wings. Be careful near the edges of the wings when sanding so you do not round them over. (Sharpen tool)

Remember: When you put the blank in the chuck it may not run true and you will need to re-cut the bottom of the wing to true it up or the thickness of the wings will not be the same. So if you spend the time now to finish the bottom side you may need to do it again later. I usually do most of the finishing now and take my chances.... I get lucky about 50% of the time.



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Chuck Bowl / True Up and Finish Shaping bottom if necessary. Most of the time when the bowl is mounted from between centers into the chuck it will not run true. Once the bowl is mounted in the chuck you can check it by moving the tool rest up close to the bottom of the outside edge of the wing and slowly turning the bowl to check the alignment. If you take the time to cut a perfect tenon and mount it in the chuck carefully with some pressure from the tailstock, sometimes it does run true. If not it is important to true up the bottom of the wing and bowl bottom after putting the bowl in the chuck. Otherwise one side of the wing will end up being thinner or cut off all together. Remember some final shaping of the bowl bottom may be needed when the bowl is reversed and jamb-chucked to remove the tenon. (Sharpen tool).



Start Thinning the Wings In Steps. Begin removing some of the bulk on the outer edges on the top of the wing. Keep in mind if you are going to incorporate a natural edge bowl into the wing you need to visually project the shape of the bowl from the bottom through the wing and establish where the top edge of the bowl will be so you do not cut the top natural edge of the bowl off (8 right side of image). First using pull cuts as I did on the bottom I now reduce the thickness of the wing up to the outer edge of the bowl to about $\frac{3}{4}$ " thickness (8 left side of image where I am pointing). As wood is removed from the wing the piece will become more balanced and it is usually possible to increase the speed, this will help when making the fine finish cuts on the thin wings. Then using bevel supported push cuts (9), cut the wing to final thickness in $\frac{1}{2}$ " to $\frac{3}{4}$ " steps at a time leaving the thickness of the wing in front of the cut to give support to the thin part you are cutting (10). As you remove wood and thin down the wings the wood will begin to move due to both stresses in the wood and the wood losing moisture. You can help prevent some of the movement by moistening the bowl with a sponge or damp paper towels. To help prevent uneven cuts due to wood movement it is advisable to progress through thinning the wing as quickly as possible once you begin. **If necessary after each step as you progress in thinning the wings use a Negative Rake Scraper to remove any tool marks or to level transitions between cuts (11).**



Hints: Always sharpen your gouge before making the final cuts on the thin wings. It will give you a cleaner cut and will take less force to make the cut, thereby putting less pressure on the wing.

When cutting the wing to final thickness it is better to error on leaving the wing a little too thick than too thin. It's hard to recover from too thin, but you can always sand down thick areas.



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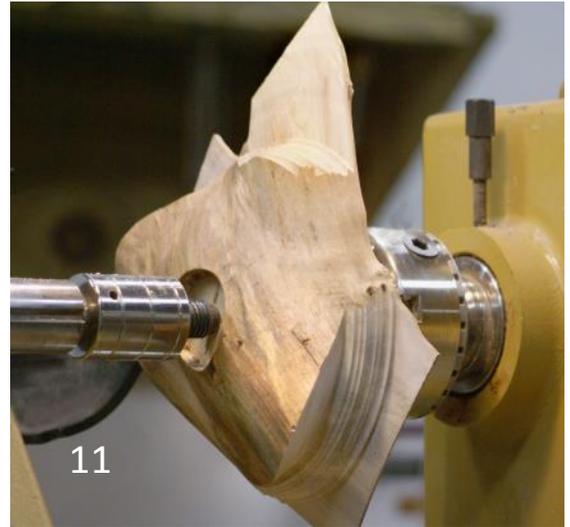
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Establish the outside of the bowl down into the corner where the bowl meets the wing and match it up with the outside bottom portion of the bowl below the wing. You will need to move the tool rest back and forth from parallel to the wing to parallel to the outside of the bowl to make safe cuts down the wing then down the side of the bowl into the corner where the bowl meets the wing and aligns with the portion of the bowl below the wing. Take your time and be extremely careful when cutting into the corner, this is a difficult area to cut and the most likely place to get a catch. (Sharpen tool)

Image (11) shows the longer wing (top of image) cut to final thickness and the steps being cut down into the corner where the outside of the bowl meets the wing (bottom of image).

Image (12) shows the Negative-Rake scraper being used to clean up and finish the wing in the corner where the wing and outside of the bowl meet. If the bowl shape is a more open form this corner can become very tight and require the use of a small 25-30 degree spindle gouge to make a clean corner transition. Go slow and be very careful... this is where it can all go wrong very quickly! The Negative-Rake scraper is being used to finish the final portion of the side of the bowl (13) notice the fine shaving on the edge.

With the wing and the outside of the bowl finished (14) the wing can be carefully sanded by hand or using the GREX-RA (random orbit) pneumatic sander with a 3" firm pad. This sander is available from The Sanding Glove (www.thesandingglove.com). It is sometimes easier to sand the wings now while the bowl is held in the chuck and you can use your hand to support the thin wing (15).



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Cut the inside of the bowl. Now begin cutting the inside of the bowl (16), starting with a shallow bowl in the center work your way out to the edge but leave some mass in the middle of the bowl (17), this will reduce the warping of the bowl and allow for a more consistent edge thickness. Establish the final thickness of the bowl to match the thickness of the wing. I make the thickness consistent in the wing and the bowl so the drying is equal throughout the piece which reduces the possibility of cracking (18). The inside of the bowl and some of the wing that is not intermittent can now carefully be sanded.

I do most of the final sanding off of the lathe when the bowl is completed, again using my GREX-RA (random orbit) pneumatic sander and by hand.

Reverse / Jamb Chuck and finish bottom. Remove the piece from the chuck and with the previously established center point in the tenon from when you first turned between centers, reverse and jamb-chuck the bowl (19). Cut away the tenon and finish the bottom of the bowl (20). I like to use a "No-Nose Chucky" made by Rubber Chucky (www.ruberchucky.com) but a homemade jamb-chuck of wood can also be used. If using a homemade jamb chuck I use a thin piece of leather or a couple of layers of paper towels to pad the bowl. I would suggest not using a soft or rubbery pad that will allow the wing bowl to wiggle or move on the jamb chuck as this will make it more likely for the bowl to not align properly and cause an uneven bowl bottom. Be sure to have the jamb-chuck fit the inside center contour of the bowl to reduce the possibility of cracking the bowl with too much pressure.

