

Marilyn Campbell  
October 18, 2008 - Demonstration  
By Bob Gunther  
Photos by Dave Vizard



#### Overview:

Marilyn Campbell comes to us from Kincardine, Canada, in southern Ontario on Lake Huron. She has been turning for 27 years except for a six-year hiatus after the birth of her daughter. Marilyn's main interest is the use of epoxy in forming dramatic wood-turned creations. She and her husband built a 36-foot sailboat thirty-five years ago and during the construction she was introduced to both the lathe and epoxy. She has taught and demonstrated around the world and her work is included in many noted collections.

#### Morning Session:

Marilyn has used epoxy her entire woodturning career. She has used it as if it was liquid wood and this has enabled her to attach, rearrange, and connect pieces to create her desired shape and form.



In this session Marilyn showed a collection of over 100 slides that depict the evolution and creation of her split vessels. She mostly uses one-inch thick wood, usually holly. She began creating her pieces using nature as her theme and then she turned to bolder, more geometric designs. These are not simply placed on a table or other surface but are raised up on various shaped pedestals she makes to complement each

individual piece.

Marilyn showed in detail the creation of a split vessel. She started by drawing on paper her plan for a piece, then she sticks with that plan throughout the entire process of creating the piece. She does this so that the graphics on one half of the vessel will match and line up with the graphics on the opposite side. The initial drawing depicts only one half of the vessel. Marilyn then draws the pattern for the entire vessel. She transfers the drawing to the one-inch thick holly blank using tracing paper and carbon paper. The blank is band sawed and the areas to be filled with epoxy are discarded. The pieces remaining will be used to create the form and are drum sanded so that each piece fits the pattern exactly. The pieces are then arranged on the pattern. This is done very carefully and accurately so that all lines in the final piece will line up. Double-sided tape is applied to fix the pieces in their proper positions. The entire unit is then turned over and tape is applied around the edges to act as a dam to prevent the epoxy from coming out prior to hardening.



The epoxy is mixed. (Note: Wear disposable gloves and use respiratory precautions when mixing, applying, and sanding epoxy.) Marilyn uses the West System consisting of a



resin (105), a hardener (205), and a filler material (410). Different hardeners and fillers are available depending upon the function of the epoxy. For accurate measurements of the correct ratio of five parts resin to one part hardener, West System has (available for purchase) pumps that dispense the exact proportions. One pump of resin is mixed with one pump of hardener. Filler is then mixed in to give the desired consistency. The West System describes the working consistencies in terms of food such as syrup, mayonnaise, and peanut butter. The filler is what makes the epoxy workable.

Tongue depressors are used to mix the epoxy. The consistency aimed for at this stage in the process is somewhere between syrup and mayonnaise. It should flow. It is applied to the spaces between the wood segments being careful to leave no voids. Because of the volume of epoxy (a larger mass of epoxy will set up faster and could possibly over-react) it is done in two layers. The first layer is allowed to harden before the second is applied. Once the piece is filled and the epoxy has hardened, the exact center of the piece is determined and a faceplate is attached.



The surface is then turned as a wavy platter or doughnut shape. Any voids found in the epoxy are back-filled with epoxy once the final shape is achieved. The piece is then sanded, removed from the lathe with the faceplate still on and covered with Saran wrap. As many wrinkles as possible should be removed from the



wrap. The wrap is attached to the form with blue painter's tape on the underside. The Saran wrapped form is then covered with epoxy of a peanut butter consistency. The epoxy is applied using a tongue depressor much the same as icing a cake. It should be applied uniformly and not too thinly over the piece except for over the center so it somewhat resembles an iced bundt or rounded angel food cake. The epoxy is allowed to set up overnight, then returned to the lathe and the

bottom is cleaned off using a scraping tool. Very carefully a small "lip" is turned around the bottom edge which will be used to allow tape to hold the overlay to the piece. The entire overlay can then be removed and the plastic wrap peeled from the inside. What remains is an epoxy "skin" that has the identical shape as the form. Using a Dremel cutting bit, a slit is made one-half way across the form on each side. One cut goes halfway across from the outer diameter in and the other on the



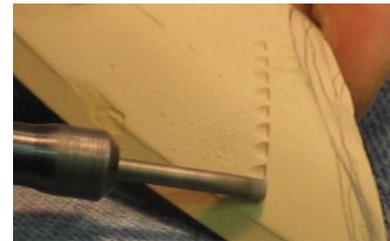
opposite side from the inner diameter out. The "skin" thus remains intact but its thickness across its entire surface can be seen and observed when it is turned. The "skin" is placed back on the form and taped around the bottom edge using the turned "lip". It is turned,



using a flat scraper, to a uniform thickness using the two slots as guides. The skin is set aside while the form is finished.

The original turned form with the epoxy inlay is drilled with a series of holes spaced approximately every  $\frac{1}{4}$  inch from the center to the outer edge in the area that will be waste wood. These pilot holes are a predetermined depth and are used as a guide when turning the reverse side so that precise thickness

can be achieved. Once drilled these holes are filled with epoxy so that the piece can be turned on a vacuum chuck. If the holes are not filled, once they are reached in the turning process, the vacuum might be lost and could come off the lathe. The faceplate is removed and the epoxy where the holes were filled is sanded. The form is then centered on the vacuum chuck using the tool rest as a guide to center the piece. The inside is hollowed beginning with the outside edge. Turning continues until all the previously drilled and filled holes are located and the diameter of each is the same. This assures a uniform and known wall thickness.



The piece is then cut on the band saw to the previously determined shape. The center area with the drilled holes is discarded. Marilyn now has two halves and each is shaped to the predetermined pattern using a Dremel drum sander.



Next, the spine for the piece is made. A wood disc is used that has a diameter somewhat larger than that of the cut halves of the piece. This is turned on a faceplate. First, a recess the same size as a faceplate is turned into the blank so that the piece can be taken off the faceplate it is on and reversed onto the second faceplate and be perfectly centered. Before doing this, however, a groove about  $\frac{1}{8}$ <sup>th</sup> inch is turned into the blank which is the exact

diameter as the halves or "cheeks" of the piece. The cheeks will fit into this groove. The outer edge of the spine is shaped and the piece is then partially parted off just inside the groove. The spine blank is then reversed and put on the faceplate that has been centered previously. The groove to fit the cheek is also cut into this side. The spine is taken off the faceplate and cut in half with the band saw and the center waste area is discarded. Both cheeks are held to the spine to make sure of a perfect fit but not attached permanently. The length of the spine is



marked and cut to match the cheeks. Each cheek can be textured, pierced and painted.

Electrical tape is used to mask the areas to be painted. Holes require painting individually.



Once the two cheeks are completed, the skin (overlay) is marked out and cut to the predetermined shape. It is placed over the cheeks and any adjustments to the shape are made. Once the shape is correct the overlay is textured with a rounded stone bit and pierced using a pointed, cone-shaped burr. This gives a tapered edge to each hole. The reverse side of each hole can also be tapered with this burr. This makes the "skin" appear thinner than it actually is. Once all components are complete, they can be assembled for gluing. The two cheeks are aligned on the

spine and a single strip of blue tape is used for a hinge. Each cheek can be then opened and, using a syringe, tiny drops of thickened epoxy are applied to the groove in the spine. CA glue is also applied to act as an instant clamp. The cheek can then be pressed into the spine. Placement is exact because of the blue tape "hinge". The overlay pieces are applied in the same manner using the hinge idea.

A stand is made to hold the piece and to elevate it. First it is designed and drawn on paper, then the shape is transferred to the wood, cut with the band saw and shaped with an oscillating drum sander. The completed piece is covered with Saran wrap and epoxy is applied to the bottom to form a molding for the armature that will form the top of the stand and hold the piece. A curved piece of holly (same curve as the bottom of the completed piece) is embedded in the epoxy to add strength. When hardened, the molding is removed from the Saran wrap and shaped on the drum sander. A small block of wood is epoxyed to the bottom of the curved piece and will be joined to the base of the stand. This has to be precisely centered. Spot and glazing putty is used to fill any defects on the stand parts. The stand is painted with black bumper paint. The piece is placed on the stand and is completed. This concluded the power point, very detailed slide presentation.

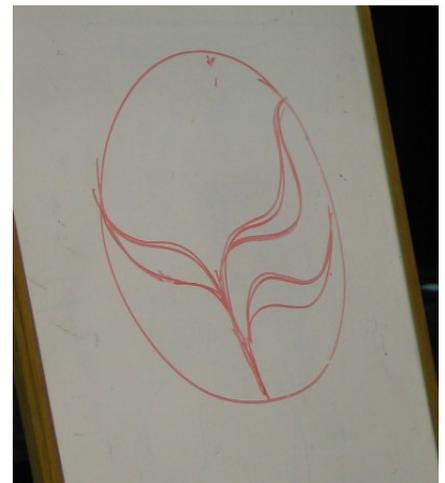
Marilyn then discussed design features. She uses the split bowl vessel format as her basic shape. It is necessary to know the exact centerline for design purposes. She draws the basic shape and the overlay shape. A strong focal point attracts a viewer's attention. The overall balance of the piece needs to be considered so that it is not busier on one side in comparison to the other. A center cleft or void can add appeal. Piercing can also add appeal because it lets one see into the piece. Asymmetry can add more interest than symmetry. Areas where nothing is happening give the eye a chance to rest.

This completed the morning session.

#### Afternoon Session:

The first portion of the afternoon was spent repeating some of the procedures already described for the split vessel during the morning session.

Next, Marilyn showed how to make a band saw inlay piece. A pattern for the inlay was drawn on paper and then transferred to tracing paper. The pattern was transferred





using carbon paper to the one-inch thick wood disc. The disc was band sawed and the waste areas removed. The drum sander was used to remove all saw kerf marks from the remaining pieces and to make the edges smooth and flowing. The pieces were reassembled on a layer of paper and the contours drawn on the paper. By doing this the shape of the insert pieces was determined. These shapes were cut out of the paper and glued onto

the wood to be used as the inserts (inlays). This wood was band sawed and the edges drum sanded.

At this point Marilyn showed slides of various band saw inlay treatments using various woods, shapes and even pure epoxy inlays.

Prior to glue-up, all wood edges are thinly coated with clear, unfilled epoxy to prevent color bleeding from the pigmented epoxy. Allow to set up. The blank can now be arranged with the inlay pieces in place. Memory lines should be drawn across the surface. The lines provide a definitive position of all the pieces and can be helpful especially when the epoxy obscures much of the surface area. The epoxy was colored with Artists oil paints. Trans Fast and Mixol can also be used. Do not use Trans Tint or acrylic pigments.



In addition to the band saw inlay techniques, an "easy inlay" can be done. For this demonstration a one-inch thick wood disc was used. A dado or groove is turned to a depth of about 3/16<sup>th</sup> inch. Various decorative pieces can be placed in the groove after filling it with epoxy. Pieces can be CA glued in first and the epoxy filled in around them.

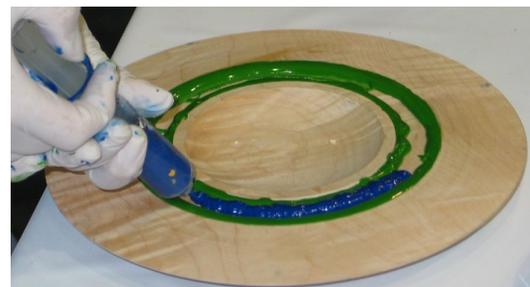


(The epoxy mix used here should be more like syrup, not thick like peanut butter.) This gives a more precise positioning of the pieces. Here again, the groove can be coated with epoxy or CA glue to prevent bleeding. If epoxy is used it needs to set up before proceeding. CA glue is faster.

For her final demo Marilyn mixed up two equal sized batches of syrup consistency epoxy and colored one green and the other blue. She sealed the dado (groove) with CA glue. The epoxy was loaded into two syringes. A rim of green was

applied around the outside and inside of the groove. The blue was applied in the center. A toothpick was used to swirl the colors which produced a dramatic effect.

This concluded an interesting and very detailed demo. I have made every effort to portray it in writing but pictures or a video or DVD would be a great improvement. These will be





available in the CMW library in November 2008.  
DVD's are also available from Marilyn.