LINDOW MACHINE WORKS

Rose Engine News

The Lindow Rose Engine....Setting New Standards In The World of Ornamental Turning

Volume 7 — Spring—Summer 2016 — Number 21

John Tarpley, Editor

Homage to Sushi

Jon Sauer

In 2013 the AAW invited me to create a piece for the POP ceremony exhibition. I work better under some degree of pressure, so as usual; I waited until the last minute to start. We were at a sushi restaurant enjoying the food, and I recalled I had a few polymer clay canes that looked like sushi. I wondered how I could incorporate them into a piece of work for the exhibition.

I started making a container of African Blackwood about 3" X 5" tall, and shaped it into something pleasing to my eye. I decorated the outside with a 96 bump rosette, and phased it on the sloping sides from the top to the bottom. The 96 bump was also used on the container lip. The opening was cut using a 12 bump rosette at an 8° angle to accept a matching lid. Inside the container I cut the walls with the 96 bump, and on the bottom I used the 12 to match the opening. The lid was made with the 12 bump rosette and decorated on the top with the 96 bump along with a cabochon made from clay. A larger cut of sushi cane was placed into the bottom of the lid surrounded with a halo cut by the 96 bump.

Next, the small sushi cane was sliced, baked, and sanded flat on the side to be glued. A drill bit was ground to match the size of the sushi. On the sides of the container a white sticky substance was placed mapping out where the insertions would be. Small holes were then made where the clay was to later be glued into the container. The box was parted off the lathe. A jam chuck was made to hold the container for the bottom decoration. A large section of the clay sushi was inserted, and surrounded with cuts from a MW12 rosette. The MW12 is a rosette copied from an antique machine. It has 3 bumps spaced by one valley repeated 12 times. When used cutting left of center it resembled a M, and when cutting right of center it resembles a W, so I named it MW 12. I am not sure what

Polymer clay for Homage to Sushi container

Drilling holes for clay inserts

January 2015
American Art Collector

the correct name is, or should be. The container was finished with a coat of a lacquer and wax.

This piece was shown at the AAW Gallery of Wood Art, Landmark Center, Saint Paul, Minnesota. It was auctioned at the 2014 AAW International Symposium, Phoenix Arizona. This piece was also featured in the January 2015 American Art Collector magazine.

Homage to Sushi

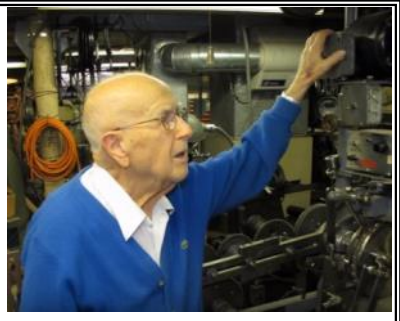
Container open showing detail of the lid attachment

Detail of the bottom of the lid and the bottom of the container decorated with the MW12 rosette.

Lindow Machine Works Website

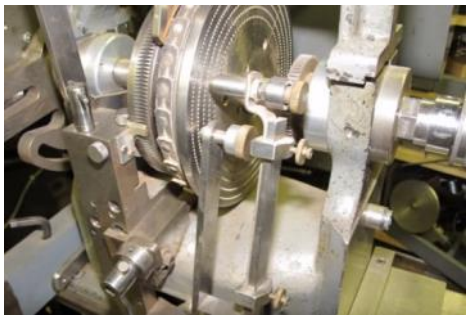
David has a new website at www.lindowmachineworks.com which combines his clock site and his rose engine website. If you haven't yet visited the site you'll find it updated and easier to navigate with a fresh new look. The MADE lathe now also has its own site which can also be accessed through the Lindow Machine Works site or at www.madelathe.com.

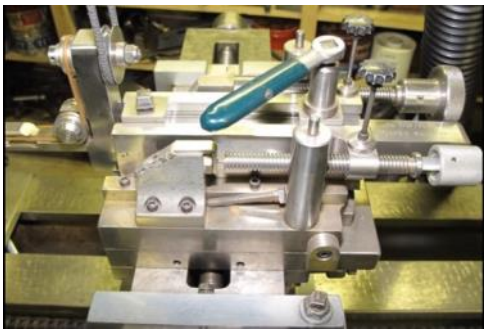
Walter Balliet, In Memorial



Walter Balliet, aged 99 passed away on January 5, 2016. Walter lived in West Collingswood, NJ. In 1931, Walter entered the Patton School at the Masonic Home in Elizabethtown, Pennsylvania where he began preparing for his career. For over 32 years he worked as a tool and die maker for Bridge Tool and Die Company in Philadelphia. Walter was also known in our community as a master of ornamental turning. He was a friend and contemporary of the late Dale Chase who described him as a man of few words and many talents. Using his table top lathe and his milling machine he built his ornamental turning system which he later fitted with a rose engine attachment. In an interview for the Center for Art in Wood, Walter said he got interested in building a Holtzapffel style lathe after reading an article about Frank Knox. Since the article give no dimensions for the lathe, Walter's lathe was three times larger than the original Holtzapffel that was described. He also made changes to incorporate modern materials.

Over the years Walter freely shared his ideas and knowledge with other ornamental turners. He often made cutters and lathe accessories. A check of the archives of the OTI Newsletter will yield several examples of his creative skills in articles where he shared ideas and drawings of ways to solve turning problems. In 2011 The Center for Art in Wood, formerly The Woodturning Center, in Philadelphia had an exhibition of Walter's work. You can see a YouTube video of this exhibition at https://www.youtube.com/watch?v=TNY_u41JB6U. Our thanks go to Jeffrey Schnell who recorded and posted this video along with another video of his visit to Walter's basement shop. You can see the shop video at https://www.youtube.com/watch?v=SBKLcz0Ji7E.





Clockwise from top left: Albert LeCoff and Walter, Jeffrey Schnell and Walter, Gearing on Walter's lathe, Lathe Slide, Rosette and Index Plate

A Letter From David

As always, I'm astonished when I read the draft copy of the newsletter; and with every issue my astonishment grows. It seems John does a better and better job of going out and pulling in the news of what's been happening along with useful information to help us all reduce the learning curve in our ornamental turning journey. I know that no one does this alone. Without the contributions from you it can't go on, so thanks to all who have shared in this issue and those who have shared in previous issues. If we keep giving John material I am certain he'll keep giving us a newsletter that will help ornamental turners far into the future.

After reading the review of the AAW meeting, I lamented not being there this year. I am very grateful to John Magill for handling the entire meeting including the Special Interest Night. From all reports he did an exceptional job. While I lament not being there, I got some badly needed time in the shop. Perhaps the best testament to the impact of his demos is that I have already seen a spherical slide being based on his ideas.

I never cease to be amazed at the adaptations and divergent uses that so many of you devise. In this issue we see Peter Gerstel using a curvilinear slide to automate the process of making finials. Clever as always, Peter gives us some great ideas and saves us the experimentation with motor speeds and other pitfalls. John Tarpley solves a couple of problems for the Hardinge adapter and speeds its setup for repeated operations. The rest of us who follow now begin with a head start to go more quickly to develop even more improvements.

Having Jon Spencer's cutters laid out in a concise and coherent order is a boon of great magnitude. With good photographs, charts, and a price list we'll know what's available and be able to communicate what we need. His cutters are magnificent, and I'm excited to have them included in one of our issues.

Even for more experienced turners, there are times when we need a less complex project. For those of us beginning, we need a project that is comprehensible and that lends itself to the type of success that is necessary to keep us moving forward. Brian Clarry provided just such a project with a perfume atomizer that was inspired by a series of atomizers developed by James Harris. James was kind enough to allow us to write and publish these instructions; although, somehow I think we'll all have trouble taking the project to his level. The issue also includes an article showing James' atomizers and a little of his design philosophy.

I can also say that I am quite pleased to read John's update on the African Blackwood Preservation Project. Last we heard James Harris had no small concerns about the project continuing; however, I think you'll be delighted to read that the project is continuing.

The OTI symposium is coming soon. I hope to see many of you there. Brad Davis has led the charge organizing this meeting, and as you will see at the end of this issue we once again have quite a lineup of speakers. It promises to be both educational and fun. Don't miss it.

I'd like to update all of you on the status of some of the new items that we have wanted to introduce for some time. I hope that you can appreciate that two major problems for a small business are adequate financial resources and labor resources. The past five years have been difficult on both fronts, but this year shows the promise of allowing me to move forward. I want to make another batch of the Step Chucks from Sherline, but I need a few more orders to make this possible so let me know if you want to order one for the next production run. The MADE lathe has consumed labor resources both in Mike Stacey's shop and mine, and my shop has been doing a lot of clock work. I hope to complete much of this work in the next few months which should allow more resources for development and production of items for the LRE. The two items that will probably be ready first are the worm drive indexer and the Hardinge slide ratchet feed. I look forward to announcing these items as soon as they are ready.

Many thanks again to John Tarpley for putting this beautiful newsletter together. I hope you enjoy it.

Warm Regards, David

Adding Polymer Clay to Ornamental Turnings

Jon Sauer

Polymer Clay is a type of molding clay based on the polymer polyvinyl chloride (PVC) that can be hardened. It typically contains no clay minerals; but like mineral clay, a liquid is added to dry particles until it achieves gel-like working properties. Similarly, it is hardened in an oven, hence its colloquial designation as clay. Polymer clay is soft until it is cured, for 20-30 minutes, at about 270° Fahrenheit. After the baking, the cured clay remains hard forever. Polymer clay is generally used for making arts and craft items, such as clay charms, and is also used in commercial applications to make decorative parts. Art made from polymer clay can now be found in major museums.

Some time back I met a jewelry artist that worked in Polymer Clay. I wondered if I could incorporate this material into my wood turnings.

The type of work that I was drawn to is called kaleidoscope clay canes. The kaleidoscopes are formed by stacking slices of clay; overlaying it with more clay, then wrapping and stacking it. The process is repeated by cutting and stacking again until all the clay is added. The cane is then pressed into a solid shape and rolled or shaped into your needed size.

I did not want to do the work of making the kaleidoscopes so I purchased some directly from other artists. You can locate clay canes for sale on Etsy, eBay, or from a local artist who is willing to part with their work.

While polymer clay is considered a safe material, you should always observe proper safety precautions. These include:

- Caution should be taken while sanding to avoid breathing any dust.
- Avoid breathing the fumes while baking.
- You shouldn't eat while working with the clay, and always wash your hands well after using it.
- Some common tools that are used for polymer clay are also kitchen tools (a pasta machine, garlic press, rolling pin). Never use tools that have touched the polymer clay for anything else in the kitchen. Once it has been used for polymer clay it is devoted to be a clay tool forever. This includes the oven used to bake the clay. A dedicated toaster oven works well. The temperature can be checked using an oven thermometer purchased at a local shop selling kitchen supplies.

Once you have a cane, within limits it can be rolled to a smaller diameter, or pushed together to make it a little larger. If the cane is manipulated too much, distortion might happen. The raw canes are cut by slicing like bread into about ¼" thick slices. The pieces are then baked on a ceramic tile or cookie sheet. I bake my slices for about 18 minutes at about 265°. They are still a bit soft until

they cool. They should not be over cooked. There are fumes during curing so it is important to practice good ventilation and not inhale the fumes. *[Ed. Note: Different manufacturers recommend differing times and temperatures for curing. Read the package directions. If purchasing canes consult the polymer clay artist for suggested curing time and temperature.]*

The baked slices can be easily stored until needed.

After the baked pieces have cooled for an hour or more I flatten one side of a disk on a power sander and mount it onto a dowel held in the lathe. I round the disk, turn it to the desired diameter, and part off. It is then mounted into my work using high grade CA glue.

I then turn it to the desired shape, sand to 600 grit, and finish with a coat of thin CA glue. If needed, I seal again with thin CA glue and sand again with only 600 grit to smooth the surface. I then apply a coat of lacquer, followed by a coat of carnauba wax, followed by a final buffing to bring out the beauty of the clay. The work piece with finished clay work is now moved to the ornamental lathe to be decorated. Care must be taken not to damage the completed polymer clay section.

All clay work is almost always completed prior to any ornamental turning or rose engine turning. It is difficult to do the clay work after the turning without damaging the turning patterns. Also, if an insert is finished prior to assembly, it will be off center and not true to the piece so all the clay inserts are built up on the turning one piece at a time. As with all rules there are exceptions. The cabochon on the Homage to Sushi container was built from several different canes and then the finished cabochon was fitted to the container lid. Since the small sushi slices on the side of the container were designed to be proud of the turned surface they were placed after turning.

I have used polymer clay in my work for many years. It has added colorful new designs to my ornamental turnings of buttons, pendants, boxes, and even in a few turned finials.

Raw Polymer clay canes can last for years if properly protected. They should be wrapped in a plastic wrap. I use plastic food storage bags that are cut into small pieces, and wrapped all around the cane. Saran wrap will not work; the polymers will react with it and in a year the cane will go bad. The canes should also be kept cool and out of sunlight. I have some canes that are 7 years old and are like new.

When polymer clay is used in tops it can require lots of tweaking. The clay causes them to become unbalanced, so the layer of clay in a spin top must be very thin. If you cut it too thin you can ruin the clay. The pieces are all turned flat on the ends that are to be glued in, then all are given a slight taper, of 8° or less, on both the male and the female pieces. I set them in so they are true. This is the best way to keep them balanced.

Top PC5
Satin Wood, African Blackwood, Amboyna Burl, and Polymer Clay

Side detail of the box in the opening photo. Note how the ornamental pattern works with the polymer clay which was applied before the pattern was cut.

The lid of the box from the opening photo showing the large piece of polymer clay shaped to fit the curve of the lid.

Pendants—African Blackwood and Polymer Clay

The bottom of the box in the opening photo showing the rose engine work. Also note that the wood of the box side is slightly proud of the polymer clay band.

The inside of the lid which also contains a polymer clay insert.

Spinning Top
African Blackwood and polymer clay

Buttons
African Blackwood and Polymer Clay

Editor's Chips

—John Tarpley

In October 2015 the British publication *Woodturning* magazine from the Guild of Master Craftsmen celebrated its 25th anniversary of publication. As a part of this important event the first issue from Autumn 1990 was reproduced and included with the October issue to subscribers. The initial issue included articles by an all-star lineup of turners such as James Prestini, Cecil Jordan, Dave Register, Ron Kent, Richard Raffan, Reg Sherwin, Ernie Conover, Bert Marsh,Vic Wood, and Keith Rowley. It was very interesting to read this initial issue. From an editor's viewpoint it reminded me of what it took to produce articles for publication when computers were not readily available and graphics were still done using film. I can remember taking weeks to months to produce the figures required for one scientific article which required a team of people including photographers and graphic artists as well as we humble scientists. Now everything can be done in a matter of hours. The first editor of *Woodturning* was Mr. Bernard C. Cooper. Several of the initial authors for the magazine were invited to submit their remembrances of that time. Many of them recalled that Mr. Cooper always responded to his correspondence in longhand in a wonderful and elegant Copperplate script. Some even noted that they kept his letters on file just to admire his handwriting. Today most people don't even write in simple cursive, much less in a hand as elegant as that.

A publication doesn't stay alive for that length of time unless it is printing something that its readers want to purchase, has good management, and continues to evolve with the times. It was interesting for me to find that the first full length article in that first issue was, "The Lathe of the Ornamental Turner" by Cecil Jordan. He began his article with some history stating that the lathe may have been invented around 3,000 years ago, because a lathe is a machine that belongs to civilization and not a nomadic people. He then gives highlights of lathe development through the years until OT lathes were developed. He states that this development required the involvement of the Engineers. As he said, "men of immense practical ability and vision who also mastered mathematics and geometry." He included photos of Holtzapffel illustrations and equipment. He also attempted to define the difference between plain and ornamental turning. He said, "The difference between plain and ornamental turning, then, is that in the latter the tool rotates instead of the work. The work is plain turned before ornamentation. A thorough understanding and capability for plain, hand-turning is a very great advantage to all who wish to understand the complexities of ornamental turning." While some of us might disagree or want to add to his statements, I think he did a good job of trying to define a wide-ranging field in a limited space. My only disappointment with the article is that he stayed true to his title and focused only on the ornamental lathe and did not show any photos of the work an ornamental lathe produced. I think that all of us should be flattered and honored that the first article in a publication as well known and respected as *Woodturning* was devoted to ornamental turning.

In this issue we present a project article by Brian Clarry based on work originally done by James Harris. He shows us how to make a perfume atomizer. This project does not require a lot of equipment so it is a good introductory to intermediate project. Additionally, it shows several ideas which can be adapted to many other projects. When I lived in California perfume atomizers were one of my best selling items, especially when I made them in an unusual shape and did not conform to the standard kit cylinder. Perhaps this project will get your creative juices working to develop some new ideas.

Also, we are honored to print an article by Jon Sauer. Jon uses polymer clay in some of his work and is willing to share this information with our readers. I've always liked Jon's work. I first learned of ornamental turning from a magazine article that featured Jon's pieces. I'm also an advocate of collaborative work involving more than one turner or work that incorporates several media. I want to thank Jon for sharing with us and hope that you enjoy these interesting and beautiful pieces.

A FINIAL LATHE AND MORE

Peter Gerstel

I make a lot of finial boxes with either the Gorst-style 3 or 4 stem finials, or with a 5-6" tapered main finial and an additional shorter tapered section at the top of the finial. The finials I make are thin and many have the smallest diameter of around 0.100" or less just below the tapered section on the top. While I have turned these finials by hand I find that it is not practical as my eye-hand coordination is not what it was. I wanted a lathe that would allow me to make the tapered finials using my curvilinear and a cutting frame. I have a small Jet lathe to which I can attach my curvilinear, but it only allows me to use a single point tool, and the curvilinear cannot be powered with this lathe. This works well for some projects but not for thin finials. I really wanted a machine that I could use with the curvilinear, attach an overhead drive for my cutting frames, use a full size tool post, and power both the headstock and the curvilinear. I did not want the rotation of the headstock to control the speed of the curvilinear as it does on the rose engine.

I purchased a Jet 1221VS lathe and built a stand. I removed the belt from the headstock pulley allowing the machine to freewheel. Since I do not use the motor supplied with the lathe for this setup, I placed the power cord under the controls. I installed two 90 rpm dc motors and attached Sherline controls. I did not use Sherline motors because, although they are the same voltage, they run faster than required. I mounted both motors on slides for easy adjustment and machined 4" diameter pulleys for both motors.

One motor was placed at the rear headstock area of the lathe with its pulley in line with the rear of a Vicmarc chuck. I removed the dividing head on the chuck and machined a 4"pulley that I attached to the back of the chuck. I made the chuck pulley narrow enough that it would not interfere with using the tommy bars to remove the chuck from the lathe. I made an idler arm with an attached pulley mounted on a slider on the lathe bed to adjust the belt tension. I aligned the motor pulley, the idler arm pulley, and the pulley on the back of the chuck.

The other motor drives the curvilinear. The idler pulleys shown in the picture are designed to allow some adjustment in the position of the curvilinear, to keep the belt from rubbing on the stand, and to keep the belt tensioned. Since this motor is also on a slide along with the idler arm, it is easy to position the curvilinear to fit the diameter of the work. The idler pulleys are sliding door hardware and need to be lubricated on occasion.

I installed an overhead drive similar to the Lindow Rose Engine using the same basic fittings to hold the supports. The overhead is supported at both ends. The overhead drive is also controlled by a Sherline unit and run at the same speed as for the rose engine overhead. The motors that control the chuck and the curvilinear are run at approximately half speed or less depending on the cut being made. I have found that running the chuck at full speed puts pressure on the rotating cutter and does not help the cut. I generally run the headstock motor at 40 rpm and the motor running the curvilinear at 60-70 rpm because it is running the worm drive. It is necessary to keep the worm drive well lubricated.

I have made a tailstock for the finials as I found that some chatter will occur just below the tapered section on the top which is the thinnest section. The tailstock almost always eliminates this problem. I have used both a cup and a taper point in the tailstock. The cup and 60° point, both shown in the upper photo, are made from blackwood and lubricated with walnut oil. The lower photo shows a finial being cut with the flying saucer cutting frame. Since the finial requires some hand turning, the chuck is removed with the finial still attached, and the finial is then hand turned on the smaller jet lathe. The tenon for the finial and finishing is done at this time.

[Ed. Note: For more information on Peter's Finial Tailstock, see Lindow Rose Engine News 5:1, p12.]

Here are several of the tapered finial boxes made with my finial lathe.

As I mentioned in the title, this lathe can be used for more than making finials. I am still exploring the possibilities for other ways to use this lathe. One of the additional uses I have found is for making goblets. I use it with the curvilinear to cut the inside of goblet bowls and to cut the goblet stems. The outside of the bowl is easy to turn on a regular wood lathe. I made a template for the curvilinear from flat brass stock that works well. Once the goblet is shaped I can move the goblet to the rose engine to decorate the bottom inside of the cup.

The upper photo shows the lathe setup to cut the stem of a goblet. The middle photo shows a stem turned on this lathe now attached to the decorated goblet base. The lower photo shows the setup for turning the inside of the goblet cup using the curvilinear with the template I made.

A few of the goblets made using this lathe.

The woods I use for my finials are blackwood, mopani, and hard eastern maple. All work well with no breakage using my machine. The stems and cups for the goblets are either mopani or blackwood. The bases for the goblets are either mopani or blackwood. My work is usually finished with walnut oil or a tung oil.

The project cost for the lathe, motors, and overhead, was approximately $1,200. The project took about a month to complete. On a good day I can do 7-8 finials while I also work on the rose engine or do other work in the shop. The machine has achieved its design purpose. I can also place a Hardinge slide on the lathe and use any of the cutting frames in a regular tool holder. I can also still use it as a regular wood lathe.

Turner Profile

For the past several newsletters we have included a Turner Profile of one of our turning friends. David or I have asked turners to be interviewed for these articles. We would like to further open this opportunity by asking all of you to volunteer for a future article. The interview is just a Word file of questions that I will send you that you can complete at your convenience. We would also like to have photos of your shop and of your work. I take the responses and photos that you send and develop an article. You will receive a proof before publication so we can make corrections and changes together. We all benefit from each other's ideas and these profiles are an excellent way to convey ideas. If you are willing to participate in a future profile article just email me at the address on the last page of this newsletter. —John Tarpley

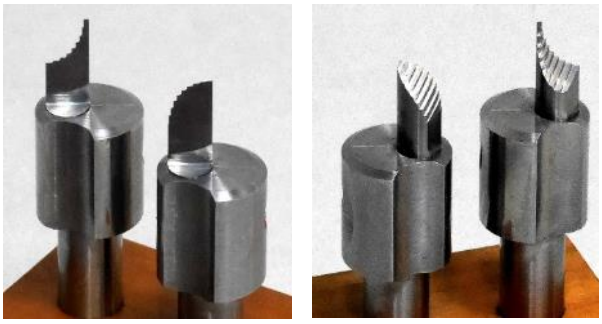
Spencer Drills and Cutters

Drills and cutters have long been important tools for ornamental turning as evidenced by the beautiful surviving cabinets of shapes and sizes from historical makers such as Holtzapffel. During that era both drills and cutters were available to turners in an amazing array of shapes and sizes. Until recently contemporary turners either needed access to surviving antique tools or had to make their own drills and cutters if they wished to produce work using these tools.

In recent years some toolmakers have offered a limited number of shapes and sizes in varying materials, varying quality of sharpness, and varying availability. Now Jon Spencer is offering us both drills and cutters made to the highest standards from modern materials in a variety of shapes and sizes not available commercially since the time of Holtzapffel.

Jon's tools are made from high quality micro-grain tungsten carbide. He shapes the tools using a specially modified single-lip grinder. The grinder modifications allow him the needed control, geometry, and accuracy to produce consistent shapes with the proper relief. After shaping on the grinder, the cutters are given a high polish by sharpening the flat and straight edges on an Accufinish using a ceramic wheel with 1/2µ diamond dust. For the bottom edge of the contoured cutters such as concaves and s-curves, he uses the same diamond dust on a piece of drill rod spun in a small lathe, maneuvering the cutter by hand. Of course, ornamental turners know that just as with ornamental turning, a quality cutter or drill not only requires accurate equipment; but it also requires experience, skill, an accurate eye, and the artistry of the person producing the tools. Jon's cutters are filling an important need to help ornamental turners grow and expand the range of work they can produce.

Drills and cutters are available individually and in sets. Currently if you order three or more of the same profile drill or cutter in any size, each will be discounted $5.



Set of Stepped Contour Drills
Front and Back Profiles

1/4" with 3/16" shank special fly cutters
Ogee cyma recta, Ogee cyma reversa, and Triple bead

1/2" pearling drills
Nested pearl, Standard pearl, and Low amp. pearl

1/2" ogee drills
Cyma recta (low amplitude), Cyma recta, and Cyma reversa

OT Cutting Tools by Jon Spencer

101 Short Lane, Greentown, PA 18426
570-766-9876 jspencer.co@gmail.com www.facebook.com/otcuttingtools

Drill Profile Shape	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"
Square	$30	$30	$35	$40	$50	$60
Angle, 45, 60, 90, 120, & 150 Degree	$30	$30	$35	$40	$50	$60
Ball	$30	$30	$35	$40	$50	$60
Large Radius Ball	$30	$30	$35	$40	$50	$60
Gothic	$30	$30	$35	$40	$50	$60
Blunt Nose	$30	$30	$35	$40	$50	$60
Ovolo	$50	$50	$55	$65	$75	$85
Low Amplitude Ovolo	$45	$45	$50	$60	$70	$80
Double Ovolo	X	X	$65	$75	$85	$95
Tripple Ovolo	X	X	X	$85	$95	$105
Pearl	$50	$50	$55	$65	$75	$85
Low Amplitude Pearl	$50	$50	$55	$65	$75	$85
Nested Pearl	X	$55	$60	$70	$80	$90
Square &Pearl	X	$50	$55	$65	$75	$85
Ring & Pearl	X	X	$60	$70	$80	$90
Ogee Cyma Recta	X	$65	$75	$85	$95	$105
Low Amplitude Ogee Cyma Recta	X	$50	$55	$65	$75	$85
Ogee Cyma Recta with Filet	X	X	$65	$75	$85	$95
Ogee Cyma Reversa	X	$65	$75	$85	$95	$105
Ogee Cyma Reversa with Filet	X	X	$65	$75	$85	$95
Ball Stepped Contour	X	X	X	X	$105	$115

Drills Cont.

Drill Profile Shape	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"
Ovolo Stepped Contour	X	X	X	X	$105	$115
Two Step Large Radius Ball	X	X	$60	$70	$80	$90
Step Drill in High or Low Amplitude						
Two Steps	$45	$45	$50	$60	$70	$80
Three Steps	X	$50	$55	$65	$75	$85
Four Steps	X	X	$60	$70	$80	$90
Five Steps	X	X	X	$75	$85	$95
Six Steps	X	X	X	X	$90	$100
Seven Steps	X	X	X	X	$95	$105

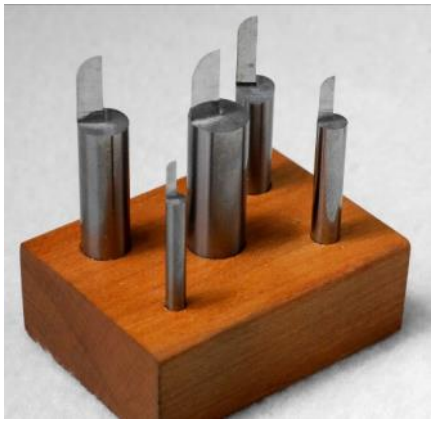
Save $5 per drill on orders of 3 or more drills of the same profile in any combination of sizes.

Set of four 3/16" angle drills
60, 90, 120, and 150°

1/4" with 3/16" shank concave fly cutters
Quarter-round, Three-eighths round, Half-round, and Cissoid

1/4" with 3/16" shank convex fly cutters

Set of five ball drills
3/8, 5/16, 1/4, 3/16, and 1/8"



OT Cutting Tools by Jon Spencer

101 Short Lane, Greentown, PA 18426
570-766-9876 jspencer.co@gmail.com www.facebook.com/otcuttingtools

Fly Cutter Profile	Shape	1/8"	3/16"	1/4"	1/4" with 3/16" shank
Square-Straight, 0.050"		$30	X	X	X
Square-Straight, 0.075"		$30	X	X	X
Square-Straight, 0.100"		$30	X	X	X
Square-Straight, 0.125"		X	$30	X	X
Square-Straight, 0.150"		X	$30	X	X
Square-Straight, 0.175"		X	$30	X	X
Square-Straight, 0.250"		X	X	$35	$45
30, 45 or 60 degree Single Angle		$30	$30	$35	$45
60, 90, or 120 degree Double Angle (V)		$35	$35	$40	$50
Convex (Half Round)		$45	$45	$50	$60
Convex (Quarter Round)		$40	$40	$45	$55
Convex (Scotia)		$50	$50	$55	$65
Concave (Half Round)		$50	$50	$55	$65
Concave (3/8 Round)		$50	$50	$55	$65
Concave (1/4 Round), Ovolo		$50	$50	$55	$65
Double Ovolo		$55	$55	$60	$70
Triple Ovolo		X	$60	$65	$75
Cissoid		$50	$50	$55	$65

Fly Cutters Cont.					
Fly Cutter Profile	Shape	1/8"	3/16"	1/4"	1/4" with 3/16" shank
Double Bead		X	$55	$60	$70
Triple Bead		X	X	$65	$75
Ogee Cyma Recta with Fillet		X	$60	$65	$75
Ogee Cyma Reversa with Fillet		X	$60	$65	$75
Ogee Cyma Recta		X	$65	$70	$80
Ogee Cyma Reversa		X	$65	$70	$80
Stepped Contour, Convex Quarter Round		X	$70	$75	$85
Stepped Contour, Concave Quarter Round		X	$70	$75	$85
Step Cutters in High or Low Amplitude					
Two Steps		$35	$35	$40	$50
Three Steps		$40	$40	$45	$50
Four Steps		$45	$45	$50	$60
Five Steps		X	$50	$55	$65
Six Steps		X	$55	$60	$70
Seven Steps		X	X	$65	$75

Save $5 per cutter on orders of 3 or more cutters of the same profile in any combination of sizes.

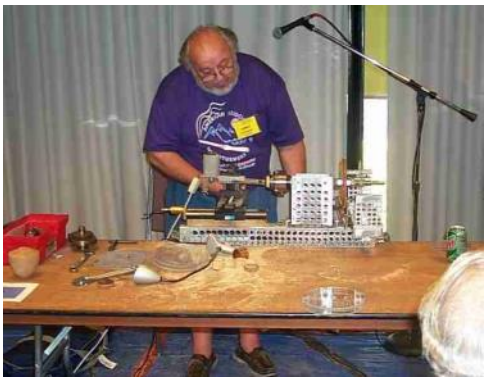
Ornamental Turning at the 2016 AAW Symposium

John Tarpley

The 30th anniversary American Association of Woodturners Symposium was held in Atlanta, GA on June 9-12, 2016. The ornamental turning presence at this meeting included pieces shown in the Instant Gallery; and, as a chapter of AAW, the Ornamental Turners International had four rotations devoted to OT as well as a session during the Special Interest Night. This year Jon Magill traveled all the way from Oregon and shipped equipment for these sessions. Jon did two different talks, both of which were repeated giving more turners an opportunity to attend. Jon's rotations were all day on Saturday which is a monumental task so he is owed a large Thank You! by all of OTI for representing the chapter at this meeting. Presenting OT information at AAW is a very different challenge than presenting at an OTI meeting. At AAW people attend sessions because they do ornamental turning, have seen the type of work being discussed and want to know more, or they attend because they are curious about the topic and want to decide if it might be something for them.

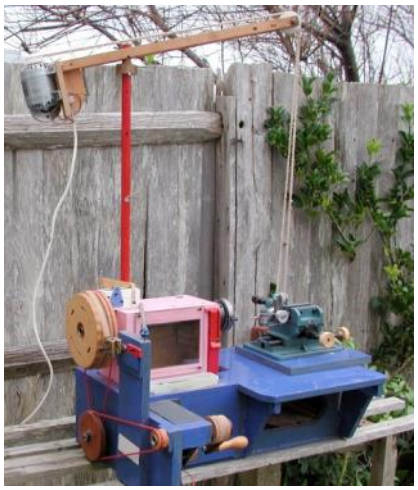
The meeting began on Thursday evening with the Special Interest Night. I usually think of these sessions as being for turners who, as the name of the session implies, have a special interest in the subject and therefore have some level of experience with the topic. This usually makes this meeting the closest to the type of presentation typically prepared for an OTI meeting. This was not the case for this year's meeting. At least 45 people attended this meeting with their level of knowledge varying from none to well-known names in the ornamental turning field. Jon did a great job of keeping all these knowledge levels involved and engaged in the meeting. This year, the meeting room used for the Special Interest Meeting and the four regular rotations was sponsored in memory of Gorst duPlessis who passed away in April of last year. The sign misidentifies the lathe for the other demonstrations. It was actually a Oneway 1236SD which is a sit down lathe.

Jon began his presentations by relating that he got into ornamental turning after seeing a vase and flowers that Gorst had turned and hearing an explanation, that he did not understand at the time, from Gorst about how they were made. After this he knew ornamental turning was something he wanted to do.

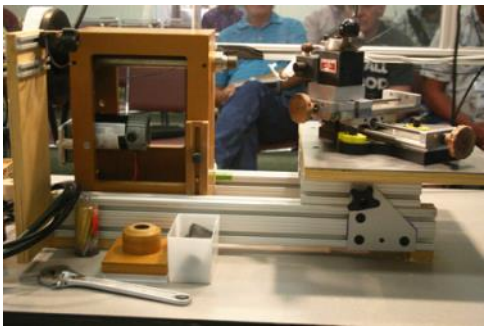


Gorst wanted to see more turners become interested in OT and not be limited by available equipment, lack of information, or mentors. As we all know OT equipment is not easy to transport so demonstrations can be difficult. In 2003 Gorst built a transportable metal Rose Engine so he could demonstrate at the AAW Symposium in Pasadena, CA. All three of his rotations were standing room only, which showed the interest in OT among AAW's regular, plain turning members. This RE has since become known as the Holey Rose Engine because

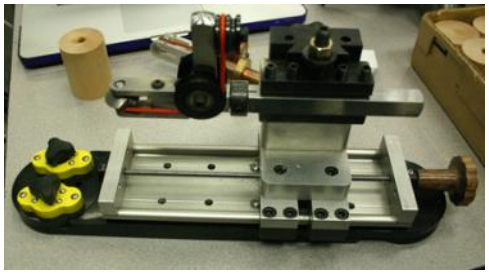
of the holes drilled in the frame. Since Gorst had to fly the RE to the meeting, weight was an important consideration. He thought that using aluminum would make the lathe light enough to ship as baggage on the plane, but it came in slightly over the weight limit. Therefore, he bored holes in the lathe wherever possible which lightened the lathe just enough to ship it as baggage.

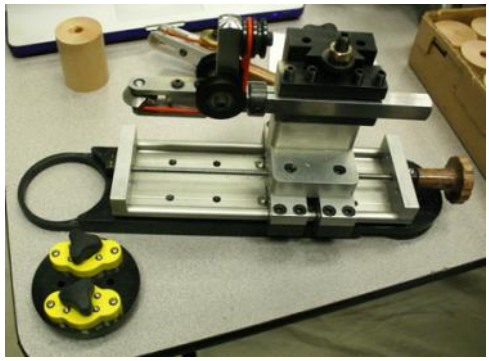


Jon is well known for the MDF lathe. The idea for a RE made from MDF originated with Paul Fletcher. Jon saw this lathe when he visited with Paul. After discussions with Paul and others, Jon applied for and received an Educational Opportunity Grant from AAW to purchase the rights to publish the plans in *American Woodturner*. Many turners then found it possible to try OT with a minimal expense thanks to the work of these two turners. This is a photo of Paul's MDF lathe setup in his garden in England.



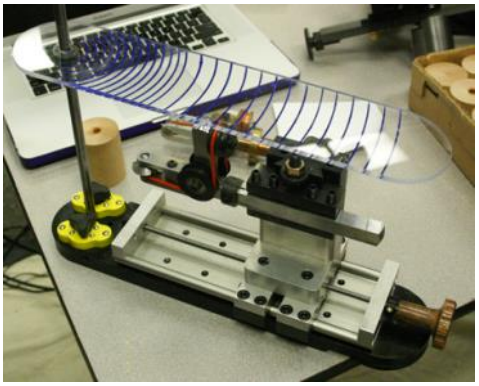
At this year's meeting Jon used a newly modified version of the MDF RE incorporating a sliding gap bed design. This modular design allows him to pack the lathe more easily for shipping and allows more versatility for various types of projects. The lathe is built using aluminum extrusions from 80/20 inc. (www.8020.net) which allow the table for the sliderest and cutting frame to be slid in or out as desired. Also, the table is covered in steel. Jon has made plastic bases for his sliderests that contain switchable magnets (MagSwitch) to position the sliderests anywhere on the table.





Jon's topic for the Special Interest Night was the spherical sliderest. You might say that Gorst was in many ways an unconventional ornamental turner. While classic ornamental turning tends to be rectilinear or geometric, Gorst was interested in work that was much more organic with flowing shapes and features such as his flowers, his pod forms, and many of his finials. Some of this work was produced using a spherical sliderest. Jon demonstrated a rest of his own design. The slide was built using commercially available metal linear slides and other bits of metal so that he could mount a quick change toolpost to hold the cutting frame. In the photos he is using a Lindow Universal Cutting Frame (flying saucer). You can also see the ornamentally turned knob to move the cutting frame. To make it a functional spherical sliderest he extended the plastic base of the rest and cut a circle in the extension. He then machined a stepped puck that fits the hole and contains two of the switchable magnets. With the magnets engaged the sliderest can now rotate about this fixed point and the two

magnets provide plenty of holding power to keep the rest in position during cuts. On the underside of the plastic base Jon machined a curved groove and a pocket for a pin. This allows him to attach a knotted cord through the groove and around the pin. The ends of the cord are attached to a stepper motor. Much like moving a venetian blind, the stepper motor pulls on the cord and smoothly swings the sliderest in the desired arc. For the demo Jon did not bring the motor attachment and simply moved the sliderest manually.

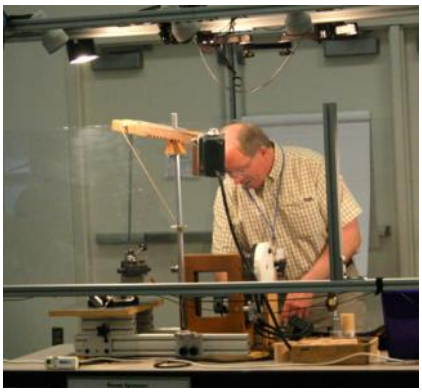


With the sliderest designed the next problem was determining where to position the pivot point of the sliderest to obtain the desired curve on the workpiece. Jon drilled a hole between and in line with the center points of the two magnets. This allowed him to mount a vertical rod with a stop collar set just above the tool post. He then made a clear plastic template that simply drops onto the rod marked with arcs that are parts of circles at various distances from the pivot point. Unfortunately I did not get a photo of the template in use. In this photo it is shown above the cutting frame. In use, the clear plastic template would be above the workpiece, allowing the user to see the portion of an arc that will be cut. The entire assembly can then be moved until the desired curve is positioned above the workpiece and angled as desired. The sliderest is locked into position by switching on the magnets. Once the sliderest is positioned, the template and rod are removed before cutting the piece. Then the cutter is advanced on the rest until the desired profile is cut.

It seems to me that this idea could also be useful for other setups on a rose engine such as adjusting an eccentric cutting frame. It is an easy to make, yet elegant solution to positioning a cutter to produce a desired curve without doing a lot of trial and error testing.

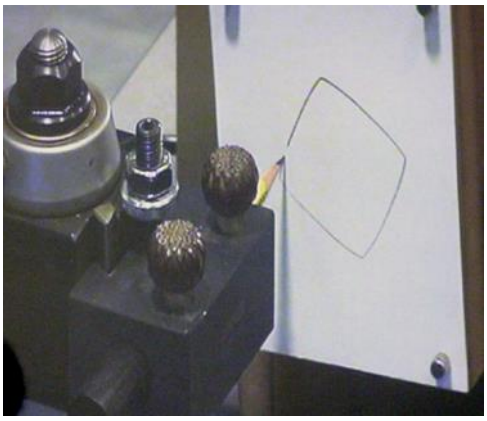
Jon demonstrated his spherical sliderest, but I was unable to get good photos of the demonstration. Instead I am showing a selection of Pods that Gorst showed at the 2013 AAW Instant Gallery. These organic forms were made using his spherical sliderest.

Jon finished the Special Interest Group evening by using a paper chuck to demonstrate how rosette patterns could be altered using phasing and fading of the rosette. This portion of the demonstration was especially interesting to the attendees who were either new to OT or were just trying to decide if this type of turning might be for them.

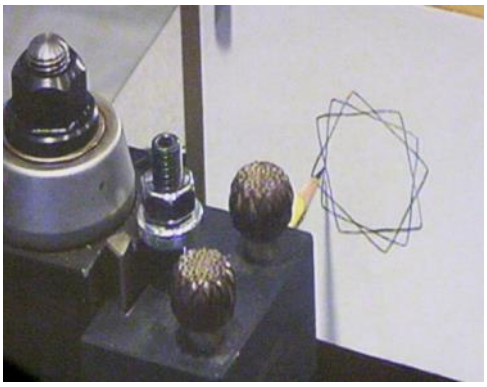


Jon's first rotation on Saturday discussed the Universal Cutting Frame (UFC). He began by discussing the flying saucer cutting frame with carbide triangular inserts. Since a part of his focus in these rotations was helping turners new to OT he emphasized how much can be done just using a basic cutting frame and only a few rosettes. In both

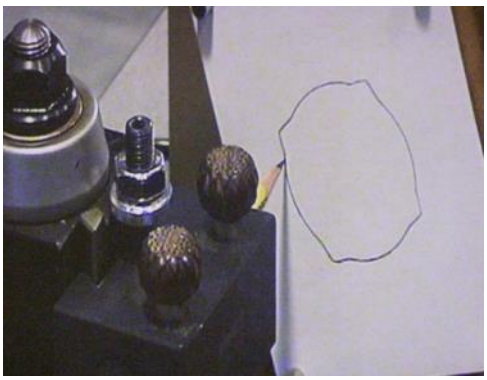
rotations he only used a four sided puffy polygon (P-4) and a 24 lobed sine rosette (A-24). As an introduction he showed slides documenting the development of cutting frames and how they have been used.



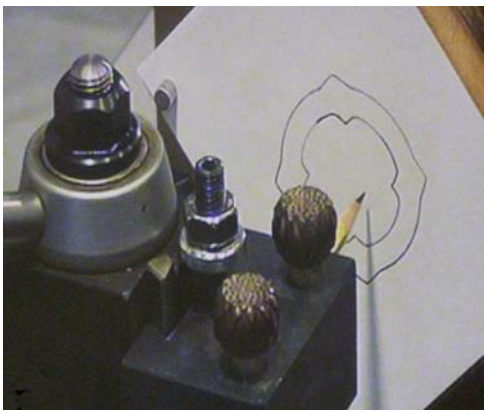
Before anyone can understand using a universal cutting frame, the turner must be able to understand how a RE works and the relationship of the cutting frame to the rosette. He illustrated this using a paper chuck to show patterns. You might note that even the knobs on his tool holder for the spring-loaded pencil, are ornamentally turned. Starting with a puffy polygon he showed that at two inches the rosette produces a square, but the pattern distorts as the size moves away from this dimension. He then moved to the other side of center to show that the pattern inverts and changes to a cloverleaf. He went on to describe how this applies to every rosette, giving two patterns "for free" from every rosette.



He moved on to discuss phasing, various ways phasing is expressed and how phasing can produce a more complex pattern without changing the rosette, cutter, or rubber. He briefly described "skip patterns" produced using a select number of the phasing holes, instead of all of them sequentially. These are the types of patterns he pointed out, that make the paper chuck and the resulting "recipe cards" a valuable reference.



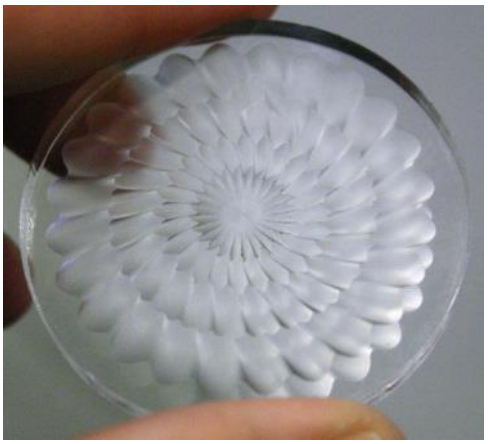
Using the same rosette he introduced the concept of fading showing what happens when the rubber is only allowed to contact a portion of the rosette and showing how the pattern changes when the cutter is moved to the opposite side of center.



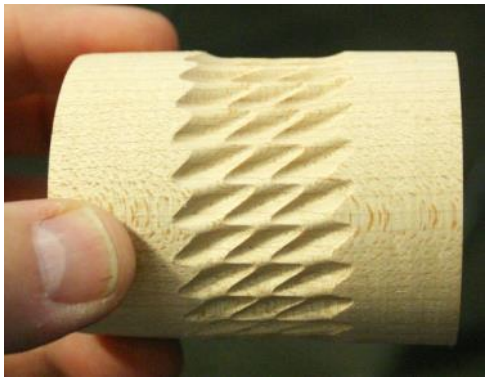
Jon also showed how two rosettes could be combined to produce a new more interesting pattern. To try to help the audience make the transition from tracings to actual cutting he cut some patterns on maple disks that he had painted black to increase the contrast to better show the patterns.

Although this first session was intended to focus on the UCF, up to this point most of the presentation was showing the basics so that the majority of the attendees wouldn't be left confused.

Now to show the capabilities of the UCF, Jon tipped the cutting head and cut what he calls a "pseudo-spiral," a pattern you get for free just by using a UCF.



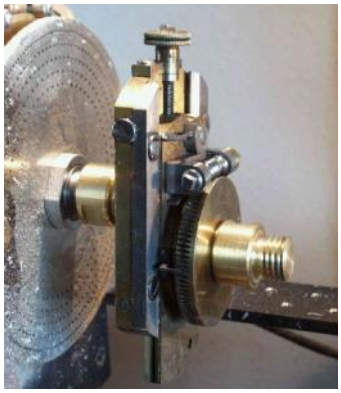
He also illustrated how plastics such as Plexiglas can be useful both as learning aids and to produce usable work. For anyone who has not cut plastics like this, a good tip is to leave the protective paper on the plastic and cut through it. The paper will help protect the disk until cutting is complete. Jon mentioned tricks to get a better quality cut, including reducing cutter speed, removing one triangular insert (if using a "flying saucer" type UCF), and using lubricants on the final passes.



Jon also showed how patterns can be varied using a universal cutting frame simply by tipping the frame to an angle between 0 and 90°. In this piece he produced a variation of the "chicken wire" pattern by cutting multiple rows at the same angle.

The UCF talk finished with some additional slides of related historical items that Jon characterized as "Esoterica", since they were not strictly related to the topic of the rotation. We all know that during the Victorian era of ornamental turning there were far more ornamental lathes available than rose engines. Some turners wanted the capabilities provided by both without having to own two lathes. At right is a rose cutting frame which could be fitted to an ornamental lathe to allow it to cut rose engine patterns.

Jon's second rotation in the set covered another important and basic need of the ornamental turner, Chucks. As before, for the benefit of the plain turners and beginners in the audience, he opened with a bit of history, then moved on to the chucks.



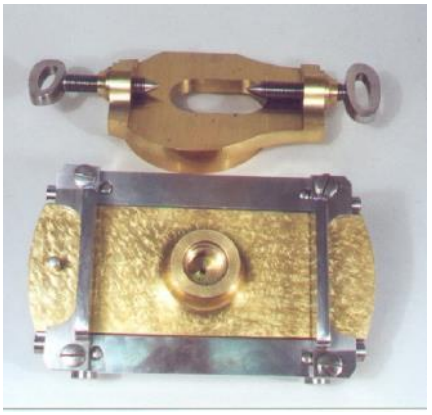
He began by discussing eccentric chucks and showing both an antique eccentric chuck as well as a homemade one for the MDF Rose Engine from plywood and metal track. Jon emphasized the benefits of DIY components saying, "Like the Victorians, if you have an idea for a new chuck or widget, make one and try it out."

He then showed that an eccentric chuck not only allows shifting a pattern off center, but it can also be used to create new patterns. This was illustrated by using a domed blank and shifting a sine rosette pattern off center enough that the cutter only touched the blank during a portion of each rotation of the rosette, cutting in air the rest of each rotation. This results in a shell pattern.

Then building on the idea that chucks can be stacked in ornamental work he demonstrated a Lindow Double Eccentric Dome Chuck and created a wave pattern on the workpiece which might be used on the side of a square box. He also talked about the indexing capability of chucks like this and the addition of an oblique chuck to tilt the work.

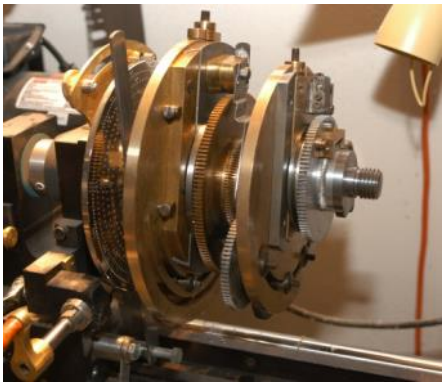
Ed. Note: I want to thank Jon Magill for providing some of the photos and for reviewing this article.

As in his other session, Jon wrapped up with some “Esoterica” in the chucking domain. He showed a photo of an interesting form of an oblique chuck appropriately named a crescent chuck shown attached to an eccentric chuck and a dome chuck.



He also showed an oval chuck which allows turning an oval or ellipse form. On the Lindow Rose Engine we typically use oval rosettes rather than an oval chuck. A few years ago at a Gathering I was watching Al Collins turn an oval box on a Lindow RE. He commented that this was the first time he had tried making an oval box using a rosette because he always used an oval chuck on his rose engine.

This photo is by John Edwards and is used by his permission.



Last, but certainly not least, he showed photos of an antique geometric chuck. The photo on the left is one in its box and the photo on the right is a two stage geometric chuck. If you have used a Spirograph, then you can understand a geometric chuck. Basically it creates patterns that are loops within loops. A two stage chuck would create a loop within a loop within the main circle. Some geometric chucks allowed stacking several stages to create very complex designs. These chucks had their heyday when bank notes and other types of security papers were still printed from engraving plates. The chucks allowed the creation of the complex background security patterns required for printing these types of documents, since the patterns could not be duplicated without this type of equipment.

For the new ornamental turner who attended these rotations, they provided solid, valuable information to fill in knowledge gaps and proceed on the OT journey.

For the plain turner who is thinking about OT these rotations provided clear information to provide a basis for further study to determine if this is a journey worth beginning.

For the experienced ornamental turner these sessions provided a good review of some basic facts that sometimes become lost or clouded with time. Additionally, they provided a good example of how an experienced ornamental turner can begin to teach a new turner about our art so that the student is not lost by terminology or confused by the complexity that is possible with a Rose Engine.

Cherry Box
Mike Chalifoux

Ornamental Turnings
2016 AAW Instant Gallery

As has become common, this year's Instant Gallery contained several hundred pieces. Here are the ornamentally turned pieces that I was able to photograph. My apologies to anyone whose pieces I may have missed. I welcome your submission of photos for publication in a future issue.

Vase
Maple Burl, Maple, Ebony
Bill Ooms
Photo Courtesy Bill Ooms

Faux Ivory Box
Bill Ooms
Photo courtesy Bill Ooms

African Blackwood Closed Pen using no kit parts
Bill Ooms Pocket Gallery
Photo courtesy of Bill Ooms

Egg
African Blackwood with Sterling Silver Flowers
Bill Ooms
This piece was chosen for the Instant Gallery Critique Panel.
Photo courtesy Bill Ooms

Yo-Yos
David Piper

Perfume Atomizer

by Brian Clarry

This article describes the steps to make a perfume atomizer. The completed container has the perfume atomizer fitted in a wooden base fluted on the outside. Acknowledgement and credit is given to James Harris for the basic design and inspiration behind this project.

The rose engine used in this project is a Lindow Rose Engine using the following equipment:

1. Leveling Chuck, If your LRE has been fitted with the Morse Taper shaft a leveling chuck may not be necessary, but is used here to maintain accuracy and to explain its use for lathes without a MT shaft.
2. Holding Chuck
3. 2" Expansion Chuck with 1" x 8 thread
4. 15 mm. Expansion Chuck with 1" x 8 thread
5. Universal Cutting Frame (UCF) with the triangular carbide cutters
6. Drilling Frame with eccentric cutter head and an end mill
7. 18mm Forstner Bit and a 15mm Drill Bit
8. 24 sine Rosette
9. ½" Radius Rubber
10. Perfume Atomizer, available from several woodturning suppliers.

African Blackwood is used for the perfume atomizer base and top and Pink Ivory is used for the side and top inserts.

I also refer to the *Lindow Rose Engine Alignment Procedures* available from Lindow Machine Works.

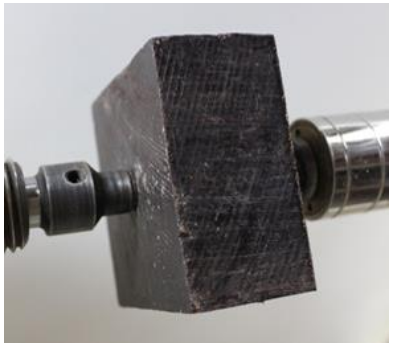
Hints: *1. During this project the alignment of the base and base inserts are checked several times ensuring that the patterns are cut to a consistent depth, and in correct alignment. Ensure the axial adjustment is made before the radial adjustment.*

2. The sliderest is moved many times in this project. Each time use a square to ensure it is aligned with the edge of the LRE base.

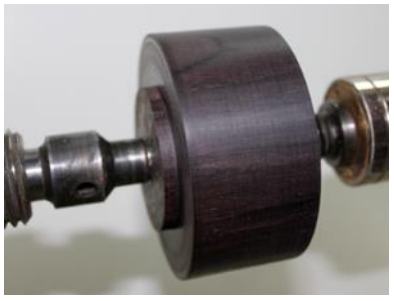
The Perfume Atomizer Base

1. Preparing the base blank.

Cut a piece of wood just over 3" square and 1 1/2" thick.



Cut the wood round to its largest diameter, which should be just over 3". Cut a 1 ¾″ diameter x 3/16″ wide tenon to fit into the holding chuck.



2. Setting up the Lindow Rose Engine.

a. Insert the tenon of the base into the holding chuck and tighten.

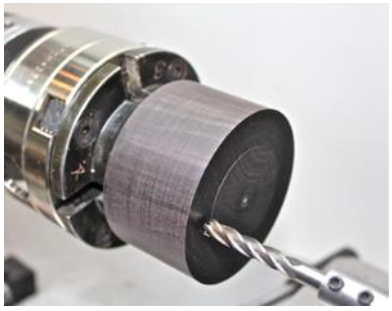
b. Move the sliderest inline with the holding chuck which is attached to the leveling chuck and use a square to ensure the sliderest is 90° to the RE base.

c. Lock the headstock at top dead center so the spindle does not rock. Refer to *Lindow Rose Engine Alignment Procedures* **Section—1 1.1**.

d. Use a dial indicator against the base and check the blank both axially and radially. Refer to **Lindow Rose Engine Alignment Procedures Section—3 3.4a**.
e. Check the correct height of the Drilling Frame eccentric cutter head on the side of the cylinder to ensure a consistent pattern is cut in Section 7. Refer to *Lindow Rose Engine Alignment Procedures* **Section—2 2.3**.

3. Squaring the outside of the base.

a. Install the Drilling Frame with a 1 ½" long, ¼″ 4 flute single ended end mill in an end mill holder and screw into the Drilling Frame.

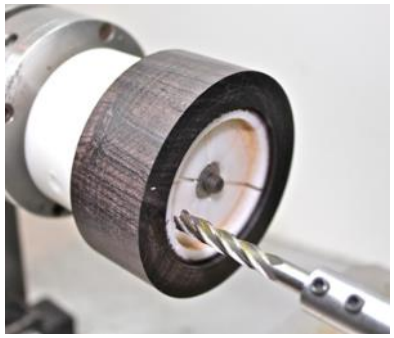


b. Use the side of the end mill to cut the outside of the base to a diameter of 3″. Rotate the base as slow as possible to get a smooth finish.
c. Use the bottom of the end mill to face the side of the base by about ¾″ from the edge.

4. Boring the inside of the base.

a. Use the end mill to bore a 2" diameter hole 1 1/4" deep. Check the diameter of the hole frequently by using the Expansion Chuck to ensure a tight fit.

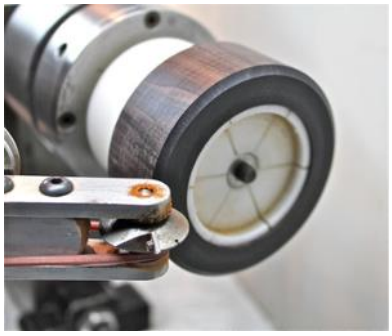
b. Remove the base from the holding chuck, and insert the Expansion Chuck into the base. Remove the holding chuck from the lathe and screw the Expansion Chuck onto the Leveling Chuck.



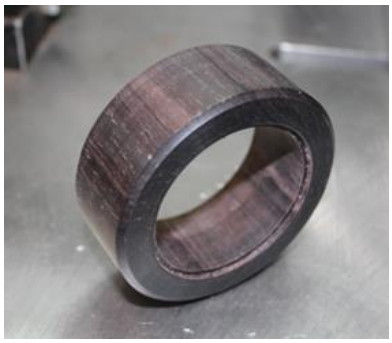
c. Use a dial indicator against the base and check the blank both axially and radially. Refer to *Lindow Rose Engine Alignment Procedures* **Section—3 3.4a**.
d. Use the end mill to remove the tenon and a small portion of the base leaving the base 1 1/4″ wide.

5. Preparing the outside of the base.

a. Use the side of the end mill to slightly cut the outside of the base. The base should rotate very slowly to get the best finish. Use calipers to check the diameter of the front and back of the base. If the diameters are not equal, slightly move the sliderest and cut the outside again.
b. Use the bottom of the end mill to reface the side of the base. Cut a recess as in c. below, and also to remove any splintering of the grain cut a chamfer as in d. below.
c. To cut the recess for the insert move the end of the end mill against the face of the base. Set the sliderest dial to 0. Move the end mill to the inside of the base by a depth of 0.060", and cut a recess 0.060″ deep.



d. To cut a chamfer around the outside of each face install the UCF with the triangular carbide inserts on the sliderest, and move the sliderest 90° to the base. Move the top slide to 30° on the sliderest. Cut a chamfer until the cut is 0.070″ wide.



e. Turn the base around on the Expansion Chuck. Cut a recess as in c. above, and a chamfer as in d.

f. On a traditional lathe sand the outside of the wood blank to 400 grit.

6. Cutting grooves around the outside of the base.

a. To make it easier to accurately cut the 21 grooves mark the outside of the Index Wheel.

i. Use a marker to highlight every fourth hole.

ii. Mark one hole with a heavier line to identify the starting hole (S).

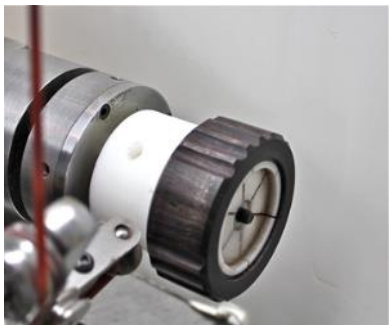
iii. Mark another hole that is 16 holes away from the starting hole. This is the finishing hole. (F).

iv. Find the middle hole between the starting and finishing holes and mark (T). This is the top of the base.

v. Find the hole 180° from the top hole (T), and mark with a heavy line with an arrow marked 'bottom'.

b. Using either detent holder or the index stop, move the stop into the starting hole (S).

c. Install the UCF, with the triangular cutters, at 90° to the spindle. Twist the cutting head so that the cutters are at 60°.



Note: *Moving the cutting head into this position cuts a wider groove.*

d. Use the following steps to set the depth of cut and cut the grooves around the base.

i. Move the cutting head against the base and set the sliderest dial to 0.

ii. Move the UCF slightly away from the base, and turn on the UCF.

iii. Move the sliderest in towards the base so that the cutter touches the base. Move the sliderest so the cutter moves sideways along the width of the base. Repeat going backwards and forwards moving the cutting head into the base each time. Move the cutting head slowly during the final cuts.

iv. Move the cutting head away from the base and stop the cutting head. Release the index stop, and move the index wheel to the next mark.

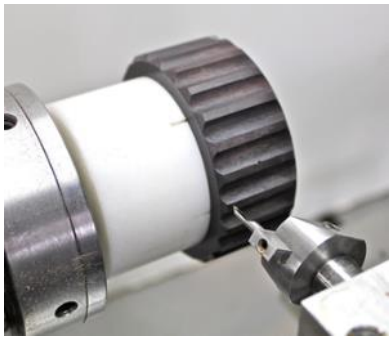
v. Repeat the process in iii. and iv. moving the index wheel between the first and second mark on the index wheel. When the depth of the grooves are satisfactory note the depth on the sliderest dial. In this project the depth of the groove is 0.070″.

vi. Move the cutting head away from the base and stop the cutting head.

vii. Move the index wheel to the mark of the next groove to be cut. Repeat the process in iii. above until the sliderest dial reads the correct depth.

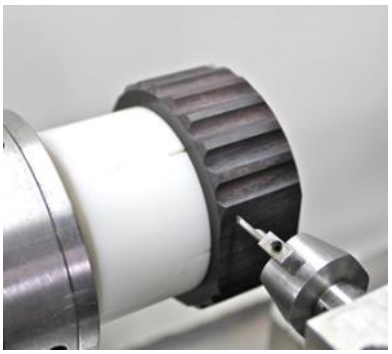
viii. Cut 21 grooves in total. The last hole should be marked F. The remaining three grooves will not be cut, as this will be the top of the base.

7. Cutting a flat bottom on the base.



a. After the 21st groove has been cut, turn off the cutting head and move the index wheel two more marks. This is the top of what will be the base.

b. On the index wheel find the mark, which is 180° opposite the top hole, marked with an arrow.



c. Rotate the index wheel until the mark with the arrow is level with the cutting head. Lock the index wheel with the index stop.

d. Replace the UCF with the Drilling Frame and install the eccentric cutter head with a 60° cutter. Move the 60° cutter to a diameter of just over 1 ¼″.

e. Turn on the eccentric cutter head and move it in just touching the base. Move the eccentric cutting head sideways in each direction until a satisfactory flat area is cut.

f. Completed base.

8. Drilling holes in the top of the base.

a. Mark the center on the top where the holes will be drilled, and clamp the base in a drill press vise.

b. Turn a 2″ insert from scrap wood to support the inside of the base.

c. Install an 18 mm Forstner bit in the drill press and position the base directly beneath the Forstner bit to drill a recess for the collar on the atomizer kit. Drill approximately 1/16″ deep.

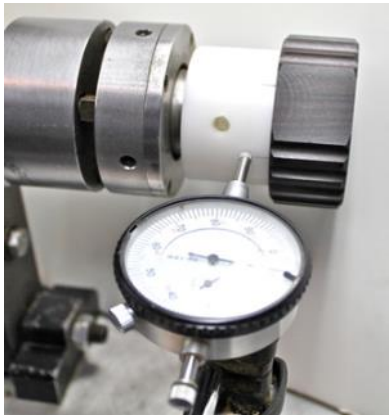
d. Replace the Forstner bit with a 15mm drill bit and drill through the base to place the lower portion of the atomizer kit. The lower portion of the atomizer kit with its collar should now fit flush as shown in the photo.

9. Ornamenting both sides of the base.

The final step for the base is ornamenting both sides with two grooves cut with the UCF. To cut the grooves to the same depth and centric on the faces, it is important to first check each side of the base before ornamenting.

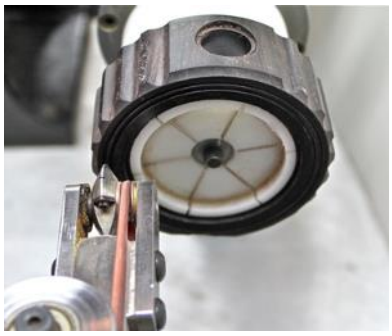
a. Install the base on the Expansion Chuck and screw the Expansion Chuck on the Leveling Chuck.

b. Set a dial indicator against the face and rotate the base. There should not be any appreciable movement of the indicator. If there is, adjust the leveling chuck axially. Refer to *Lindow Rose Engine Alignment Procedures* **Section—3 3.4a**.



c. Set an indicator against the side of the expansion chuck as close as possible to the base and rotate the base. There should not be any appreciable movement of the indicator. If there is adjust the Leveling Chuck radially. Refer to *Lindow Rose Engine Alignment Procedures*

Section—3 3.4a.

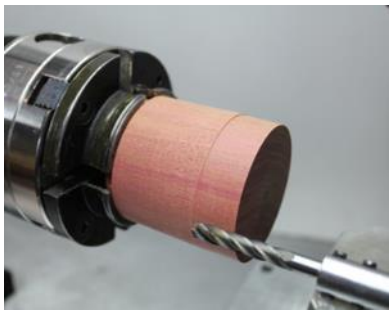


d. Install the UCF with the triangular carbide cutters on the sliderest and align the sliderest so that the UCF is inline with the spindle.
e. Move the cutting head to vertical.
f. Calculate where to cut the two grooves. In this project the grooves are spaced 0.080″ apart starting from the edge of the chamfer.
g. Move the cutting head an additional 6°. This will make a small groove.
h. Move the cutting head against the face and inline with the chamfer, and set the sliderest dial to 0.
i. Move the cutting head in by 0.080" and cut a groove to a depth of 0.035″.
j. Move the cutting head a further 0.080″, and cut the second groove to the same depth.
k. Turn the base around on the expansion check and repeat the whole process.

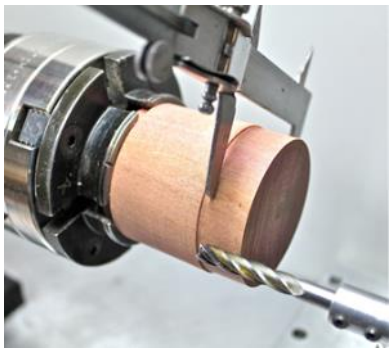
10. Ornamenting the Inserts

The two inserts are ornamented and inserted into each side of the base. A 24 sine rosette and a ½″ radius rubber are used. The ornamentation is a very basic design. Other designs are shown in *Ornamental Turning* by T D Walshaw, page 89. The patterns are cut on the end of a cylinder of pink ivory cut using the Drilling Frame with the Eccentric Cutter Head. To create the pattern:

a. Set the correct height of the Drilling Frame eccentric cutter head on the end of the cylinder to ensure cutting a consistent pattern. Refer to *Lindow Rose Engine Alignment Procedures* **Section—2 2.3**.
b. Install the 24 sine rosette and a ½″ radius rubber.
c. Cut the pink ivory to just over 2 ¼″ square and 2″ thick. Round to just over 2 1/8″ and cut a 3/16″ long tenon to a diameter to fit into the holding chuck.
d. Install the holding chuck on the Leveling Chuck and insert the rounded wood into the holding chuck.
e. Set the headstock at top dead center, and check the base both axially and radially. Refer to *Lindow Rose Engine Alignment Procedures* **Section—1 1.1** and **Section—3 3.4a** respectively.
f. Move the sliderest inline with the holding chuck and use a square to ensure the sliderest is 90° to the RE base.
g. Install the Drilling Frame on the sliderest. Install a ¼″ 4 flute single ended end mill in an end mill holder, and screw the end mill holder into the Drilling Frame.
h. Measure the outside diameter of the insert in the base. Move the side of the end mill in by about 3/8″ and cut the outside of the insert blank to slightly over this measurement. Rotate the insert blank as slow as possible to get a smooth finish.

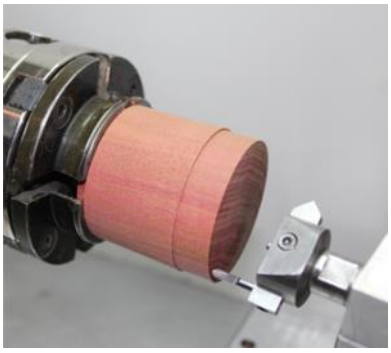


i. Move the bottom of the end mill to the face of the insert blank and surface the face. Recheck the alignment of the insert blank. Remember to check the face (axially) first, then the side (radially).
j. Repeat h. above using calipers to get nearer the final diameter.



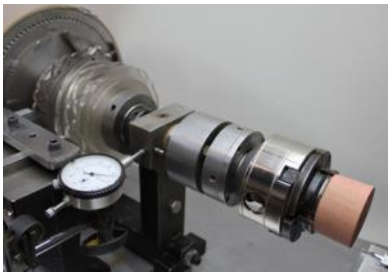
The next two steps dome the face of the insert blank.

k. Replace the end mill with the eccentric cutter head, and install a 45° cutter. Move the cutter out just over the radius of the insert blank. Move the top slide of the sliderest to 5°.



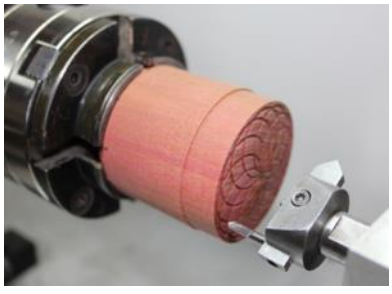
l. Rotate the insert blank and start the eccentric cutter head. Move the eccentric cutter head in until the face of the insert blank has been cut. To get a smooth finish rotate the insert blank slowly on the last cuts. In the center leave the smallest point possible. This will help in aligning the pattern.

m. Move the ½" radius rubber into the 24 sine rosette and align the headstock so there is equal movement of the headstock both sides of top dead center. Refer to *Lindow Rose Engine Alignment Procedures* **Section—1 1.2**. Leave the indicator against the headstock, as it will be used to check that the rubber is in the valley of the bump during ornamentation.



n. Place the rubber in a valley of the rosette and use the dial indicator to establish this point.

o. Replace the 45° cutter with a 60° cutter. Move the cutter in so that at one side the cutter's point touches the point in the center of the inset face and also touches a point about 3/32″ from the outer edge of the insert blank.



p. Start the eccentric cutter head and move the cutting head in until the face is just staring to be cut. Set the dial of the sliderest to 0.

q. Move the cutting head in until a full circle is cut. In this project the depth of the circle is 0.025″. Move the cutting head out.

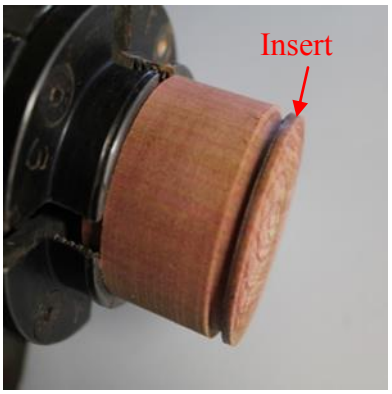
r. Move the rosette two valleys using the indicator to establish lowest depth and repeat cutting the groove as in q. above. Repeat until all 12 grooves are cut.

Note: *As an alternative to the rosette the Index Wheel can be used to ornament the same pattern.*

s. Use the Lindow RE or a traditional lathe to fit the insert into the base.

i. Place the base against the ornamented side of the insert blank, and carefully cut the diameter until the insert fits snugly in the base. The thickness of the insert should be slightly thicker than the depth of the recess in the base.

ii. Measure the diameter of the inside rim of the base. Cut the insert blank to slightly less than this diameter.



iii. Finally, cut and separate the insert from the insert blank.

iv. Sand the perimeter of the insert so the edge meets the face of the base.

11. The Top of the Perfume Atomizer

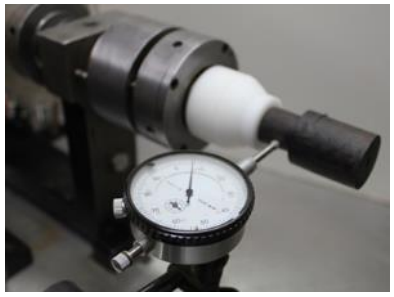
The final part of the project is the top of the perfume atomizer. The pattern on the outside of the top is the same as on the outside perimeter of the base. Many of the processes are repeated so refer to previous sections.

a. To match the base a 1 3/8″ square x 2 ½″ piece of African Blackwood is used. Drill a hole 2 ¼″ deep with a 15mm. drill bit. Fit the drilled blank on the 15mm Expansion Chuck and turn the wood round. The first 7/8″ of the top should be turned to a diameter of ¾″. This length is

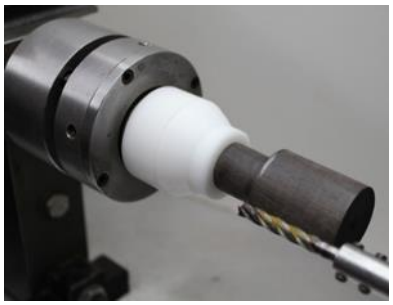
required to ornament the base of the top. The rest of the blank is turned to 1 5/16" diameter.

b. Install the Expansion Chuck on the Leveling Chuck.

c. Set the headstock to top dead center, and check the base both axially and radially. Refer to *Lindow Rose Engine Alignment Procedures* **Section—1 1.1** and **Section—3 3.4a** respectively.

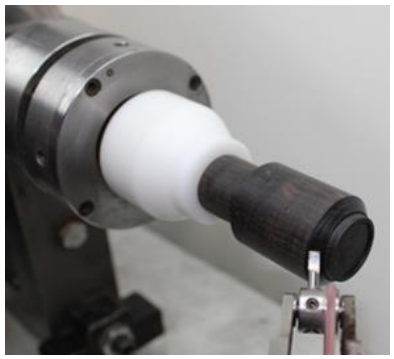


d. Install the Drilling Frame with the end mill and reduce the diameter from 1 5/16″ to 1 ¼″. Use the bottom of the end mill to face the end of the wood.

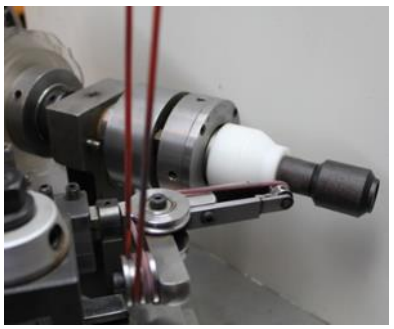


e. Move the end mill to one side of the face and down 3/32″. Reduce the diameter of the wood from 1 ¼″ to ¾″. Move the bottom of the end mill back to the face and remove wood 3/32" deep leaving a rim of about 1/16" thick.

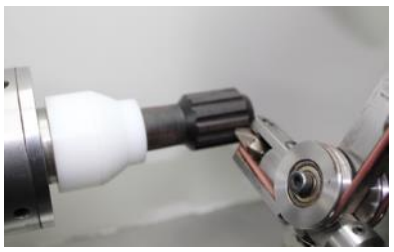
f. To cut the top chamfer install the UCF with a 1/8″ flat cutter, and move the sliderest to 45°. Cut the chamfer.



g. Move the sliderest to the location for the bottom chamfer and angle the sliderest to 45° on the other side. Repeat the same process to cut the bottom chamfer.



h. Use the UCF with the carbide cutters to cut 12 grooves as described above for the base moving the index wheel every two marks (8 holes).



i. Cut a piece of pink ivory to fit into the recess in the top.

Completed Perfume Atomizers

This perfume atomizer was completed using the same instructions. However, there are 29 grooves cut around the perimeter of the base, and 16 grooves in the top. The base is African Blackwood, and the inserts are eucalyptus burl.

Perfume Atomizers by James Harris

In Brian's article on perfume atomizers he credited James Harris for the design idea. We thought you might like to see some of James' atomizers.

Perfume Atomizer No. 3
Ebony, African Blackwood, Amboyna Burl, Turquoise cabochon. (2008)

Perfume Atomizer No. 5
Ebony, African Blackwood, Pink Ivory wood (2008)

Perfume Atomizer No. 2
Ebony, African Blackwood, Pink Ivory, Rhodonite Cabachon (2008)

On his process of design James says, "All my pieces are first designed on ¼"-square graph paper to scale. Here I can work out the details of appearance and proportioning, considering the interplay of different wood mixes." When asked about his design inspiration for the perfume atomizers, James replied, "The designs are inspired by some work I once saw done by Jon Sauer in the early 1990's. The round shape lends itself to a circumferential patterning resembling gear teeth. From earlier work with inlays, I sought to find contrasts with blackwood, so the inlaid disks of various burls like Amboyna, Thuya and so on made for a nice contrast against the black border. The disks are similar to a miniature decorative turned plate of fine burl wood. The small blackwood center disks are simple rose engine patterns and the tops were so designed to carry out the continuity of theme for edge decoration to tie in to the base, with a plug on top of the same wood used for the center disks." He draws inspiration from many sources ranging from classical shapes to natural ones. A quote he uses is from an Italian monk, Luca Pacioli, who wrote a book in 1494 entitled, *Everything about Arithmetic, Geometry, and Proportions*. Pacioli said, "without mathematics there is no art." The Golden Section is one of James' design principles and utilizing those proportions can produce work that has a pleasing balance to the eye.

James describes important design points as:

Perfume Atomizer No. 1
Ebony, African Blackwood Amboyna Burl, Red Jasper cabochon (2008)

Perfume Atomizer No. 6
Ebony, African Blackwood, Camphorwood Burl, Mother-of-Pearl cabochon (2008)

Perfume Atomizer No. 10
Ebony, African Blackwood, Bocote (2008)

- Balance of mass, form, and texture—
  James says, "Warmer colors like red/pink/orange/golden brown have more visual weight in a workpiece, so those areas 'pop out', in contrast to the darker background colors of black/purple/dark brown of the base wood." In his atomizer design the mass of the piece is in the base which gives the piece stability while the curve of the base gives it lift, so it seems to sit lightly on the surface. His use of multiple textures and colors gives life to the design.
- Rhythm—
  "swirling curved rhythms are particularly dynamic, and the repetition of patterns can be soothing." The atomizers certainly have soothing shapes and ask to be handled.
- Emphasis—
  "A focal point or points is some element that attracts the eye and acts as a climax for other sections of the composition." In the atomizers James includes a color, pattern, or texture that acts as a focal point.

James also practices restraint in ornamentation. Just because a surface is available for ornamentation does not mean the piece will be better for ornamenting. He adds enough ornamentation to make the piece interesting, but also leaves areas where the wood can speak for itself. He also uses ornamentation to add functionality. The groove patterns on both the body and the lid of the atomizer allow the user a good grip on the parts, and add to the ease of use of the atomizer.

Images are used by permission from James website, http://www.ornamentalturner.com/index.htm. Additional information on ornamental turning and additional photos of his work are available on his site.

Update on the African Blackwood Conservation Project

In the 2013 issue, V4N1 we published an article on the African Blackwood Conservation Project whose goal is to preserve and perpetuate the growth of African Blackwood and other trees in Tanzania. James Harris and his wife Bette have been major US advocates for this project. In Tanzania the project supported the work of Tanzanian botanist and conservationist Sebastian Chuwa. Unfortunately, Sebastian died on April 8, 2014 which left the future of the Project in question. James Harris has sent the following update:

"Sebastian's wife, Elizabeth, her four children, and Dismas Macha, Elizabeth's brother, are continuing Sebastian's conservation work. Elizabeth is a school principal at Sungu Primary School and Dismas works for the Ngorongoro Conservation District. They continue to maintain the ABCP nursery which grows seedlings from seeds and then moves these seedlings to planting sites at schools and other areas where the ABCP has planted trees in the past. An earlier planting project, for instance at Makuyuni village, had a large area of mpingo trees (African Blackwood) planted plantation style. That is, it was a planting of just that species spaced apart with just enough room for each tree to get adequate sunlight and nutrients from the soil. Those early trees, some 7-8 years old, are now up to 5 meters in height. So, the work continues even though Sebastian is no longer with us."

You can help this work financially by going to http://www.blackwoodconservation.org/ to make a contribution and to learn more about this worthy project. Amazon also has a charitable support system that allows Amazon shoppers to designate that 0.5% of their purchases are donated to a charity registered with their Amazon Smile program. A link to register your Amazon account to support the ABCP is at the top of the ABCP homepage. The image of the mpingo tree is from the ABCP website showing a well formed tree growing alongside seasonal farm land. Hopefully the ABCP will be able to help secure the future of this species for the benefit of future generations of the Tanzanian people and for people like us who benefit from this marvelous wood.

Using the Hardinge Adaptor

John Tarpley

As some of you know I am basically a production turner and over the past few months I have been using my Hardinge cross slide on my Rikon mini-lathe for several projects. I really enjoy the flexibility and accuracy it brings to some of the projects I do. I can set it up for an operation and make as many items as I need using that setup before proceeding to the next setup.

I did find two problems when using the adaptor. The first problem occurs when I want to use my tailstock with the cross slide. I had difficulty properly positioning the adaptor to allow for sufficient reach of the tailstock ram and movement of the tailstock. The adaptor is clamped into the bed ways using a cam clamp that provides a very secure fixing for the adaptor, but once the Hardinge is attached to the adaptor the cross slide must be removed to reposition the adaptor. I would place the adaptor onto the bed where I thought it should be and attach the Hardinge only to find that it was not positioned correctly which required me to remove the cross slide to move the adaptor. This was frustrating and time consuming.

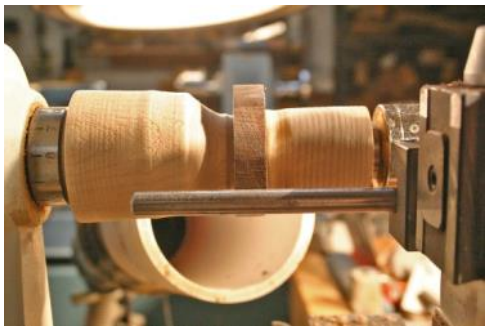
At the 2015 AAW Symposium in Pittsburgh I learned about Roy Lindley's now famous stick used for threading and other uses, [*LREN*, v6, n2, p24-26.], so I decided I needed a block. Once I correctly positioned the adaptor for the project I just cut a piece of scrap wood to use as a spacer between the lathe headstock and the adaptor. Now when I want to install the adaptor I simply position the block on the lathe bed and slide the adaptor in place so I can quickly and easily positon the adaptor. Other projects may require different spacing so different spacer blocks are made for different projects as required.

My second problem was that while I use the Hardinge with a tool post and tools on the Rikon, since I am also a hand turner I sometimes want to do something I can do quicker and easier with a traditional turning tool. This means I need a tool rest for a hand tool.

As an aside, I will mention that I think many of us have forgotten that ornamental turners have historically used their tools both in lathe tool holders and with handles. Holtzapffel provided tool handles for use with his cutters. Bill Jones often used this method of work and discussed it in his books.

Using the banjo that comes with the lathe would require removing the Hardinge and adaptor, fitting the banjo, doing the hand turning, and then setting up the Hardinge again. Clearly this is not an efficient way to work.

At the 2014 AAW Symposium Bill Ooms gave a presentation on turning pen parts using a mini metal lathe. [*LREN*, v6, n1, p19.] During his presentation Bill used a length of metal rod clamped into a tool holder as a tool rest for a hand tool on his metal lathe. I thought this should also work when using the Hardinge adaptor so I cut a length of rod and rounded and smoothed both ends. I placed it in a spare tool holder and use it with the Hardinge.



Since I use it both parallel and perpendicular to the bed ways, I cut the rod long enough that I can reposition it in the holder for both uses. At some point I'll buy an additional holder so that I have two rests and don't have to stop to reposition the rod. In the photo I am turning the body for a pocket tape measure from stabilized walnut. The blank has a 1 1/4" hole which is fitted to the headstock mandrel. The tailstock mandrel applies pressure to the blank outside the hole and has a dished surface to allow the headstock mandrel to extend beyond the blank.

These two simple and inexpensive solutions have

made it possible for me to utilize the Hardinge cross slide on one of my mini lathes to help me do my production runs quicker and with greater accuracy.

Sherline Step Chuck

David worked with Sherline to develop a new four jaw scroll chuck with a new style of master jaws to carry full circle pie jaws. The pie jaws are made of free machining steel so they can be machined in place, or if desired, Mike Stacey has machined sets of jaws with steps. These chucks will take the place of the Swiss chucks that had to be sourced and require individual special backs. These new chucks mount with the typical Sherline ¾"-16 thread and can be mounted directly to the index head or to the spindle with an MT2 to ¾"-16 adapter. Mike has also made levelers for these chucks that mount readily on the Sherline spindle. The chuck is nickel plated which increases not only wear life but also provides an additional level of lubricity. These chucks make holding blanks for guilloché work quick and accurate at a price competitive with the cost of a used Swiss chuck. The initial production run has been sold and orders are now being taken for the next run. A chuck with uncut jaws is $365 without a leveler . Extra sets of uncut jaws are $80. A chuck with step jaws without a leveler is $425 or $500 including a leveler. If you are interested contact David so your order can be added to the list.

OTI Symposium Denver, Colorado September 22-25, 2016

Jean Claude Charpignon—Fixed tool work
His work and the methods and machines used.

David Wood-Heath—Brocading machines and their uses and engine turning/guilloche.

Bill Ooms—Planning your work

Fred Armbruster—New cutting frame.

Jeff Edwards—Photographing your work and website usage

Charles Wagoneer—Wood stabilization

Jon Magil—MDF rose engine innovations.

Phil Poinier—Making dies with your rose engine.

Peter Gerstel–Rose engine projects.

Pecha Kucha—20 slides for 20 seconds each. This new type of presentation will be given by multiple presenters and will include anything related to shop, tooling, or anything interesting to OT people. Space is still available for this presentation. Contact Brad Davis if you would like to participate.

DAVID LINDOW
527 GRAVITY ROAD
LAKE ARIEL, PA 18436

570-937-3301
dlindow@socantel.net

WWW.ROSEENGINE1.COM

Submit Articles for future Issues of the Rose Engine News to
John Tarpley
2169 Highland Acres Way
Gatlinburg, TN 37738
jjtarpley@comcast.net