

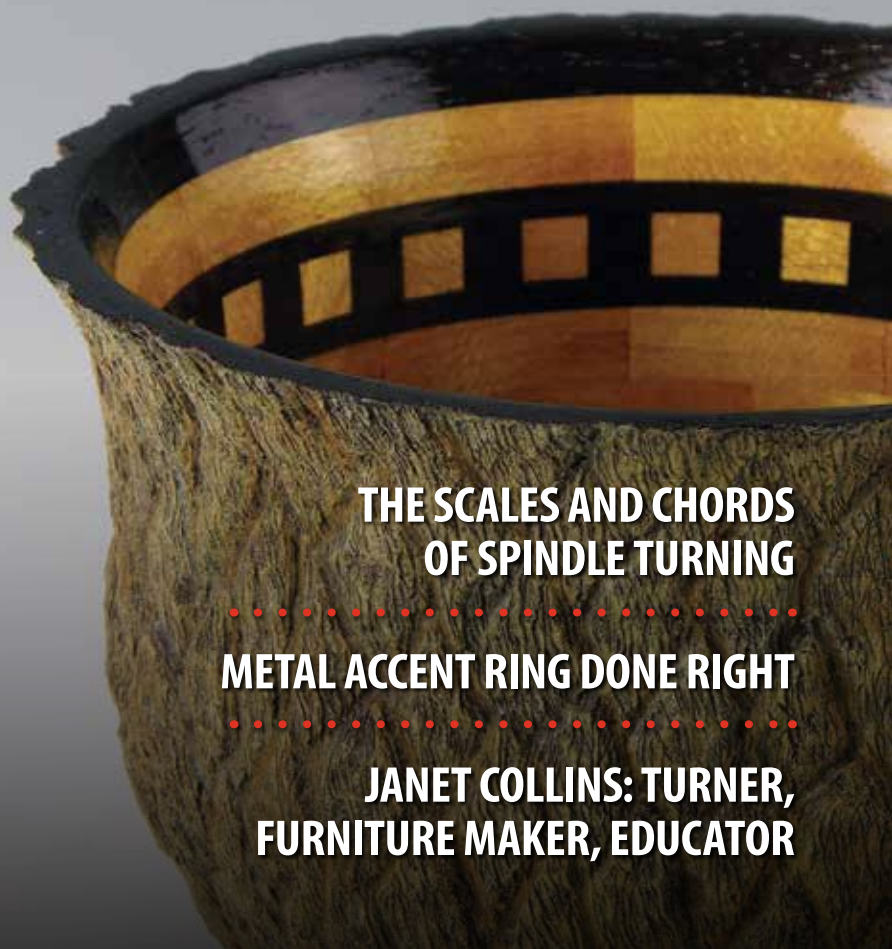
INSET BOTTLE OPENER • BULLETPROOF PEN FINISHES • TURN A BETTER MALLET

AMERICAN WOODTURNER

Journal of the American Association of Woodturners

February 2017 vol 32, no 1 • woodturner.org

BITS AND PIECES



THE SCALES AND CHORDS
OF SPINDLE TURNING

METAL ACCENT RING DONE RIGHT

JANET COLLINS: TURNER,
FURNITURE MAKER, EDUCATOR

Michael Foster

Vermont

This series represents my exploration of the Platonic solids. I like to explore interesting geometric forms that mathematicians conceive and to interpret these forms as lathe-based art. These polyhedra were named after Plato because of his philosophical interest in them. The actual geometric objects were likely discovered by some of his contemporaries who explored math and geometry. These solids (more aptly

named regular convex polyhedra) all have identical polygonal faces with the same number of faces joining at each vertex. Only five forms meet these conditions and all are represented in this series.

The real challenge with these forms is conceiving ways to use the lathe to create the form and still remain true to the math. This requires design work involving a lot of math to figure out how the wood needs to be oriented on the lathe and where the center of each face should be.

This is complicated by the material itself. The size of the wood and the shape help to dictate my approach to designing and turning the object. Three of the pieces have an interior spherical hollow, which requires turning the hollow

to a pre-determined size in order to have enough wood left for the desired wall thickness. I also have a very clear idea of my intention for carving and surface decoration before starting, as these elements can also influence wall thickness. Clearly, turning forms like these requires planning and forethought before ever approaching the lathe.

I take cues from the geometrical form and the wood I have on hand and let my imagination go—to come up with a design I think might be pleasing to the eye, yet still retain the mathematical underpinnings. I intentionally tried to make each piece in this series quite different from the rest, just as an exercise in creativity. I love the challenges in design and execution that these forms demand. They require planning and patience, but for me, the reward is in the process and seeing an idea come to life. ■

For more, visit breezyhillturning.com.

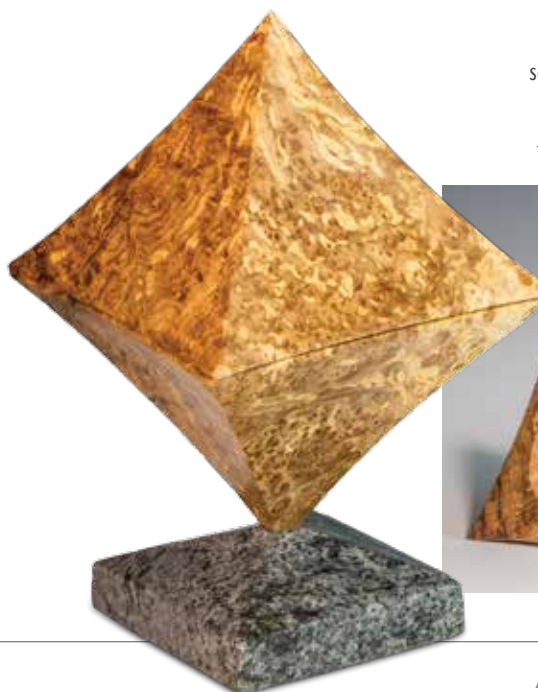
Platonic Ocean, 2016, Basswood, acrylics, ink, 23K gold leaf, 6" × 6" × 6" (15cm × 15cm × 15cm)

A turned dodecahedron with twelve pentagonal faces. The five-sided faces seemed a perfect fit for carved starfish—all colored and textured to emulate actual species.



Octahedron, 2016, Spalted black ash burl, soapstone, 8" × 5" × 5" (20cm × 13cm × 13cm)

A turned octahedron with eight equilateral triangular faces and an internal spherical box.





Lost Reliquary of Thoth, 2016, Box elder, acrylics, India ink, 23K gold leaf, 6" x 7" x 6" (15cm x 18cm x 15cm)

The shape of this turned tetrahedron box, with four equilateral triangular faces, reminded me of the Great Pyramids (though pyramids actually have a square base and four sides). Picking up on the Egyptian theme, I added hieroglyphs and images depicting ideas associated with the ancient Egyptian God Thoth.



Event Horizon, 2016, Macassar ebony, 3½" x 3½" x 3½" (9cm x 9cm x 9cm) (not including base)

A turned cube with six square faces and carving inspired by the physics of a black hole.

Turned on multiple centers



Floral Symmetry, 2016, American hophornbeam, India ink, acrylics, 6½" x 6½" x 6½" (17cm x 17cm x 17cm)



A turned icosahedron with twenty equilateral triangular faces. Interesting to have designed this piece with the pentagonal symmetry of the flowers, trilateral symmetry of the pierced inner flowers, and hints of hexagonal symmetry formed by the sides of six of the flower petals against the foliage background.

This piece was turned on multiple centers using a custom jam chuck and tailstock support. Its flat surfaces were the result of carefully planned turning on the lathe.

Dedicated to providing education,
information, and organization to those
interested in woodturning

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Journal of the American Association of Woodturners

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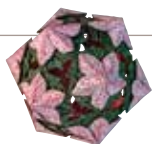
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Unless otherwise noted, cover photos by Sharon Bierman/Segmented Woodturners.

Back Cover – Rick O'Ryan



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A NOTE ABOUT SAFETY

An accident at the lathe can happen with blinding suddenness; respiratory and other problems can build over years.

Take appropriate precautions when you turn. Safety guidelines are published online at tiny.cc/turnsafe*. Following them will help you continue to enjoy woodturning.

*Web address is case sensitive.

Editor's Note



In October, I had the privilege of attending the Segmented Woodturner's Symposium in Quincy, Massachusetts. The level of work I saw there is literally mind-boggling and a testament to the intelligence and precision of the makers. Jerry Bennett, a well-respected segmenter, has written a thoughtful analysis of segmenting based on some of the pieces in the Instant Gallery at this symposium (page 44).

Kip Christensen offers an insightful beginner article on page 14: "The Scales and Chords of Spindle Turning." Kip reminds us that each visit to the lathe does not have to produce a presentable finished product. It is enough

to simply practice through repetition, just as a musician does when learning scales and chords. Look for a link on page 17 to an accompanying online video illustrating Kip's practice techniques. Kip also provides us with a fun challenge on page 18: "Do You Know Your Shavings?"

This issue of the journal also offers valuable materials from turners who will be demonstrating at the AAW Symposium in Kansas City this June. Get a taste of what you can learn at the Symposium from Bruce Berger (front cover), Kurt Hertzog (page 20), Janet Collins (pages 24 and 50), and Janice Levi (page 32).



—Joshua Friend

From the President



Craft schools

Among the many positive influences they have on woodturning, craft schools bring the casually interested turner into the company of those

of us who are obsessed. A week-long class provides a unique experience. Separating yourself from daily activities and dedicating your efforts exclusively to the lathe always drive your abilities to new levels. You may enroll in a class knowing no one, but after a day or two of turning, eating, telling stories, showing off your successes, and producing a piece or two for the firewood pile, you will feel your classmates are longtime friends. I look at craft school experiences as an investment that will provide returns long into the future. If you've attended a class at a craft school, I bet you'll want to go back; if not, put it on your bucket list.

One prominent craft school, Arrowmont School of Arts and Crafts, sustained significant fire damage in November 2016, due to wildfires (see page 10). Many AAW members view Arrowmont as their "alma mater of turning," and we identify the school as the founding location of the AAW—the Woodturning Vision and Concept Symposium in October

1985. Arrowmont's instructor list is a "who's who" of turning. I know that Arrowmont's director, Bill May, and all those who work with him will make the fire of 2016 only a bump in the road in 2017. This year's courses will proceed as scheduled. Please give them your support by taking a class or donating. Visit arrowmont.org for more.

Arrowmont, John C. Campbell, and Anderson Ranch support AAW's scholarship program, which provides educational woodturning experiences to selected AAW chapter members. These schools, and others like them, promote AAW and its members, and we appreciate them. I hope you will attend their classes and support their fundraising efforts.

There is a national initiative to promote craft schools called "The Craft School Experience." Learn more at CraftSchools.us, where you'll find lots of information, podcasts, and more.



Sowing seeds

AAW's local chapters play a huge role in introducing turning to their communities. Chapter members provide key learning experiences to youth groups such as the Boy Scouts and local schools. Those experiences may remain dormant for some years but could one day lead those students to populate our membership. AAW members are primarily white,

male, and mature. It is time to diversify. Chapters might consider offering classes to women or girl scouts. If a chapter is near an urban area, how about a class for inner-city kids or adults? I have a friend who teaches at a troubled-youth facility. Creating something with their own hands has a positive effect on kids' self-worth and, I believe, on their adult lives. Some of our efforts have immediate results, and others are more like planting trees—for the next generation. I hope our future, more diverse membership will ensure AAW will continue to develop turners and artists of all backgrounds.

Thank you

Finally, I'd like to thank all AAW members for their support in our Board of Directors election last fall. We had an impressive slate of candidates, making for a difficult voting decision. On your behalf, I'd like to welcome David Heim and Molly Winton to the Board. They bring a wealth of knowledge and abilities to an already strong group of representatives. On behalf of all Board members, we thank you for the privilege of serving.

Looking forward,



Greg Schramek
President, AAW Board of Directors

Calling all AAW Chapter Newsletter Editors and Webmasters

Each year, the AAW holds the Best Chapter Newsletter and Best Chapter Website contests. **Closing date for applications is April 1.** Winners will be announced at the AAW International Symposium, with a follow-up announcement in *American Woodturner*.

How to apply

Applications for both contests must be submitted online. Links to rules and guidelines, as well as to all past winners' newsletters and websites, can be viewed at tiny.cc/ChapterNewsWeb (case sensitive). This is a members-only page.

For the newsletter contest, the judges will be looking for:

- Visually appealing layout
- Current content
- Content that pertains to woodturning
- Content that contributes to AAW's mission
- Useful woodturning and news-related information
- Sound writing skills



For the website contest, the judges will be looking for:

- Layout/graphic design: visually appealing, easy to access
- Ease of navigation: easy to traverse pages, intuitive menu, links work
- Use of technology: appropriate use of scripting, styles, databases, and search engines
- Up-to-date/current content: new information upfront, archived material available
- Website content: contains useful woodturning technical and news-related information
- Uniqueness/personality: good blend of design with appropriate appeal to woodturning audience
- Cross browser compatibility: site works with different browsers
- Content that pertains to woodturning
- Content that contributes to AAW's mission
- Useful woodturning news-related information



Hall of Fame

Past first-place winners of the chapter newsletter and website contests have been inducted into AAW's Hall of Fame, prominently honored on our website. Visit tiny.cc/chapterwinners to view all past winners. In order to recognize the excellent work of the full range of AAW chapters, first-place winners in either category must wait three years before entering the competition again.

Above all, newsletters and websites should be fun to read and provide useful information for the chapter they serve.

AAW Board of Directors Call for Nominees

The AAW offers much to its members and we are looking for a few good people who can contribute something in return. Do you have the time, energy, and ideas to be a part of the AAW operations, as well as a willingness to help make it a better organization? Be a part of moving the AAW forward—run for a position on the AAW Board of Directors.

The AAW elects a volunteer nine-member board to represent the membership and move the organization forward. If you have been a member in good standing for the past three years, you are eligible. The nominating committee will select the six best candidates. From these six, members will elect three candidates to serve a three-year term, beginning in January 2018.

For information on the duties of board members, call any current board member or visit the AAW website at tiny.cc/Board for details.

If you are interested in serving on the board, please email the following to the executive director (phil@woodturner.org), no later than April 15, 2017:

1. A statement of intent, including qualifications and reasons for applying
2. Letters of recommendation from two individuals who can attest to your organizational and leadership abilities
3. A high-resolution photograph of yourself

The nominating committee will review application materials and conduct phone interviews. Candidates will be presented in the August issue of the journal, ballots will be sent out in the fall, and election results will be announced in late 2017.

JOIN US IN KANSAS CITY, MISSOURI, FOR AAW'S 31ST INTERNATIONAL SYMPOSIUM

KANSAS CITY CONVENTION CENTER • JUNE 22–25, 2017

The AAW International Symposium is an excellent opportunity to watch world-class demonstrators share their techniques, to find out about the latest innovations in tools and materials, and to be inspired by the instant gallery and other woodturning exhibits. Join us to experience in person the creative passion of woodturning while enjoying the company of others who share your interests.



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Kansas City, MO 64105

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Learn more at tiny.cc/AAW2017KC

SELECTED DEMONSTRATORS

For a list of the invited demonstrators appearing at the Kansas City Symposium, please refer to the December 2016 issue of American Woodturner, page 8. Look for more Kansas City Symposium details in the upcoming April 2017 issue.

Sam Angelo, Wyoming

- Fundamentals of Chasing Threads by Hand



Untitled, 2014, Acrylic, 4½" (11cm) long

Bruce Berger, California

- Tangential Twists



Classic Teapot, 2016, Box elder, holly, ebony, 9¾" x 9" x 6" (25cm x 23cm x 15cm)

Jason Clark, Illinois

- Offset Saturn Bowls



Torus VII, 2014, Oak burl, 3" x 8" (8cm x 20cm)

Janet Collins, Vermont

- Spindle Turning Basics w/focus on Spindle Duplication
- Inlay Techniques for Woodturners



Newel post caps, Cherry, each is 8" x 5" (20cm x 13cm)

Anthony Harris, Kansas

- Threaded, Eccentric Rocker Box



Off-Center Rocker Box, 2016, Walnut, boxwood, 3" x 3¼" (8cm x 8.25cm)

Michael Kehs, Pennsylvania

- Celtic Drinking Horn



Scaithian Leathair, 2014, Pine, copper, cherry, steel nails, 12" x 11" x 3" (30cm x 28cm x 8cm)

Janice Levi, Texas

- Barrel-Shaped Purse



On the Prowl, 2015, Mimosa, fabric lining, 6¾" x 4¾" (17cm x 12cm)

David Lindow, Pennsylvania

- History of Ornamental Turning
- The Curvilinear, Using a Mini-Lathe for Finials and Other Forms
- Guilloché Using Metal and Wood



Pendant, 2014, African blackwood, silver, enamel (enameling by Ron McGuire), 2" (5cm) diam.

Photo: Eric Spatt

SELECTED DEMONSTRATORS, CONTINUED

Harvey Meyer, Georgia

- **Basket Illusion Demystified**
(Parts 1 and 2)



Lattice Weave Basket Illusion, 2015, Maple, India ink, 13" (33cm) diam.

Thomas Stegall, Illinois

- **Thin-Walled Endgrain Bowls and Hollow Forms**



Spalted Porcupine, 2011, Unknown spalted wood, 14" x 6" (36cm x 15cm)

Jason Swanson, Wisconsin

- **Polychromatic Peppercorn Pulverizer**
(Stave Segmented Peppermill)



10" Salt/Peppermill Set, 2016, Leopardwood, sycamore, each is 10" x 2 3/8" (25cm x 7cm)

Photo: Cathie Swanson

CALL FOR STUDENT SUBMISSIONS

2017 Turning to the Future Competition



The AAW is pleased to announce the third-annual Turning to the Future competition, an opportunity for woodturning students and schools to show off their best work. The exhibition will be held in conjunction with FreshWood, one of North America's largest student furniture-making and woodworking competitions.

The competition is intended to encourage and support students in reaching for and attaining the

highest levels of skill in the use of the lathe. The contest is open to students in North America, and there is no entry fee.

Prizes include \$500 first-place and \$100 second-place awards in each division and category, and two lathes for the Best in Show piece in each division.

There are two divisions, High School and Post-Secondary, with three categories each: Functional, Small Turnings, and Open. Five finalists in each division category will be chosen to have

their work displayed at the 2017 AWFS® (Association of Woodworking & Furnishings Suppliers®) Fair in Las Vegas, Nevada. Work will be evaluated on craftsmanship, aesthetic appeal, creativity and/or utility, and process documentation. Application period opens March 1, 2017. Deadline for submissions is May 1, 2017.

If you know a student woodturner, encourage him or her to apply! Submission details can be found at tiny.cc/Calls.

Sponsor a Demonstration Room in Kansas City

We are offering the opportunity to express your support of AAW by sponsoring a demonstration room during the Kansas City Symposium. Whether as an individual member, an AAW vendor, or as a local chapter, this is a way to visibly display your support of the AAW and our programs. We especially want to thank all the individuals and organizations that have sponsored rooms in previous years.

Opportunities to participate in this fundraising program still remain. For more information, please contact Phil McDonald, Executive Director, at 877-595-9094 or phil@woodturner.org.

Call for Demonstrators

AAW Symposium 2018

The AAW's 32nd Annual International Symposium will be held in Portland, Oregon, June 14–17, 2018. To apply to be a demonstrator, visit tiny.cc/CallsforEntry (case sensitive) between May 1 and August 1, 2017. For more information, call the AAW office in Saint Paul, 877-595-9094 or 651-484-9094, or email inquiries@woodturner.org.

Prize Drawing for AAW Members

One of the many benefits of membership in the AAW is our monthly prize and year-end grand prize drawings. Thank you to the vendors who donated this year's prizes, which include tuition scholarships, \$100 certificates, sanding supplies, DVDs, chucks, grinding jigs, symposium registration, and lathes! Contact Linda Ferber if you would like to contribute a prize, linda@woodturner.org.

When you patronize our vendors, please thank them for their support of the AAW. To see a listing of each month's prizes and winners, as well as hyperlinks to the vendors' websites, visit tiny.cc/AAWDrawings.

At the end of 2017, we will draw another name from our membership roster to give away a Powermatic 3520B lathe. That winner will name a local chapter to win either a JET 1642 or five JET mini-lathes. The Powermatic and JET lathes are donated by Powermatic/JET. Included is free shipping in the continental USA, or up to a \$500 allowance for international winners.

2017 Donors

(Others may be added during the year.)

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WIT Grant Opportunities



WIT (Women in Turning) is dedicated to encouraging and assisting women in their pursuit of turning, to sharing ideas and processes to further members' skills and creativity, and to increasing participation of women in the field of woodturning. For that purpose, WIT has established grant opportunities to help defray the costs to individuals, groups, schools, and local AAW chapters in sponsoring events that support AAW's WIT Committee goals. Grant applications will be evaluated and funds distributed quarterly. For more

information and the online application, please visit tiny.cc/WITGrants.



Photo: Andi Wolfe
Tania Radda (right) helps Brenda Uekert at the lathe during the AAW International Symposium in Atlanta, Georgia, 2016.

SMW Honors Naval Reserve Specialist

The Corner Arts Gallery, which is located on the historic Courthouse Square in Newnan, Georgia, showcases local artists on special occasions. Jenny Jones, owner of the gallery, selected South Metro Woodturners (SMW) as her featured artists for a recent Art Walk on the Square. Members of our club demonstrated turning tops and also had their wood creations on display. Printed brochures with information about our club were available, and some patrons voiced an interest in membership.

Ms. Jones also asked the membership to return the next week for a full-day demonstration. SMW decided to highlight the Freedom Pens Project for this demo. George Blankenship, John Stewart, and John von Eschenbach demonstrated and also assisted interested patrons in turning pens.

The highlight of the day was when the Sykes family entered the gallery and became very interested in the Freedom Pens Project. Andrea Sykes, a Naval Reserve Culinary Specialist assigned to the Defense Logistics Agency, asked if it would be possible for her to receive a pen since she was about to be deployed to Afghanistan.

The club members were going to turn a pen for her, but Andrea's twelve-year-old daughter asked if she could turn the pen for her mother. So John guided her in making this special present, which she then presented to her mother. At that moment, it was evident that woodturners not only bring the beauty out of wood, but also assist in bringing beauty to life.

Subsequently, the Sykes family came to one of our turning club meetings, where Andrea was welcomed with a standing ovation for her military service.

—Roger Hendrickson



South Metro Woodturners hosted Andrea Sykes and family at one of its regular meetings. Andrea was met with a standing ovation for her military service.

EMT Brings “Turning Day” to High School

On a cold, wintery Saturday, both turners and lathes showed up in the industrial arts shop at Wyalusing Valley High School, Wyalusing, Pennsylvania. Over the past two years, members of AAW chapter Endless Mountains Turners (EMT) have reached out and donated materials, expertise, and time to interested students. The tradition has been dubbed “Turning Day” and has been a big hit with students.

In addition to being an EMT member, I am also on the faculty at the high school as a mathematics teacher and had been doing turning demonstrations for Matt Cobb’s woodshop classes. The demonstrations grew into individual turning sessions after school. A discussion with Matt led to the idea of a full-day, hands-on turning class.

Fellow club members, including Mark Detrick, Rick Doganiero, George Morris, Elaine Nichols, Ray Sprouse, and Bob Stevens, eagerly assisted in the endeavor, bringing their specialized talents to the



cause. The club offered financial support in the form of pen and other turning kits. The shop department helps to supply all necessary wood blanks, and Matt Cobb personally supplies lunch for everyone. Members haul lathes and all requisite tools to the shop. Each lathe is set up for a different project. There are stations for turning small bowls, pens, keychains, pendants, and spindle projects such as bottle openers. Students can turn as many projects as time permits.

With budget cuts persistently looming, the woodshop program has been curtailed over the years. Only two large, old spindle lathes remain. Turning has been absent



(Left to right) Students of Wyalusing Valley High School pose after a busy day of turning.

Endless Mountains member Rick Doganiero with student and completed bowl.

from the courses, and Matt (who has no prior turning experience) has enthusiastically welcomed our expertise. Interest in turning among the shop students is high. To date, at least three students have purchased their own lathes to continue turning on their own. Each year has seen twelve to fifteen students participate.

EOG support

We are pleased to report that we have received an EOG (Educational Opportunity Grant) from the AAW to supplement our efforts with the purchase of two mini lathes and tools. ■

—Dave Lutzkanin

ARW Teaches Joy House Youth

As part of its community outreach program, the Apple Ridge Woodturners (ARW), an AAW chapter in Ellijay, Georgia, recently provided a hands-on woodturning training class for youths in The Joy House educational program. The Joy House, located in Jasper, Georgia, is a ministry for youths in crisis that restores teens and families through religion.

The Joy House asked ARW if we could provide a beginners’ class in woodturning for 12- to 17-year-olds. Four students came to the Big Creek Fire House, where ARW holds its meetings. Ron Carrabotta (past president) was the instructor, assisted by four other club members—Richard Byers, Larry McClish, Keith Rueckert, and Gordon Brewer. All volunteered to work one-on-one with each student. ARW provided each student with a mini lathe, woodturning tools, and the appropriate safety equipment.

The students experienced the fun and joy of woodturning and had an opportunity to experiment with their own design ideas. It was fascinating and rewarding to see how each of them progressed. The class was a huge success and ran over the allotted time, as everyone was having so much fun. That day, ARW helped develop four new turners for the future, and our outreach with Joy House has become an ongoing program.

ARW meets regularly on the second Thursday of each month at 5:30 p.m. at the Big Creek Fire Station in Ellijay, Georgia. Meetings feature various woodturning demonstrations, plus show and tell of the members’ turned work. Twice a year, the club features a professional turner from outside the area to demonstrate and provide a weekend hands-on lesson. ■

—Larry McClish

For more on The Joy House, visit thejoyhouse.org.



Members of the Apple Ridge Woodturners of Georgia provided positive woodturning experiences for youth in The Joy House program.



With expert guidance, a student practices turning beads and coves.

Arrowmont Endures Wildfires

As you may already know, Arrowmont School of Arts and Crafts in Gatlinburg, Tennessee, survived wildfires in late November 2016. Arrowmont's staff and artists-in-residence evacuated safely and no one sustained injuries. Although we lost two dormitories, Hughes Hall and Wildwing, as well as our maintenance building and equipment, the core of the campus remains intact. All studios, including the wood studio complex, Red Barn, Teachers, Stuart, Staff House, and our main building, Turner, which houses the galleries, permanent collection, library, store, and staff offices, were not affected by the fires. All scheduled programs, including summer and fall national workshops, will proceed as scheduled. The 2017 Workshop Catalog has been mailed, course descriptions are online, and early registration is open.

Arrowmont will rebuild its dormitories, having lost fifty-seven beds in the fire. In the meantime, we are negotiating with nearby hotels to house students. When assessment and planning are completed later this year, plans for



reconstruction and campus improvements will be made public. "We will rebuild," Arrowmont Executive Director Bill May said. "We are very grateful for our local and national communities and the outpouring of support we have received. Many have asked how can they help. The best way is to take a workshop this year. We hope to welcome many old and new friends to campus."

Community

May recognizes that the school has been fortunate and that many Gatlinburg residents suffered major losses. "As needs in the community are identified, we are looking at what Arrowmont can do and responding according to our mission and purpose. As the oldest entity in Gatlinburg, we believe we have a responsibility to reach out to our community and help it heal," he said. As part of its local outreach, Arrowmont has offered information, discounts on materials, scholarships, and the use of its studios.

Arrowmont is moving forward with local community classes for adults and children and with conferences such as Pentaculum. The school has returned to normal operations, even as it plans for the reconstruction and improvement of parts of its campus. ■

—Fran Day, Arrowmont Director of Development

To register for a workshop at Arrowmont, visit arrowmont.org or call 865-436-5860. To make a donation, visit our website (click the Donate or Rebuild Fund tab) or call.

Everyone who lives in the mountains fears fire and drought. Arrowmont has lived with that dangerous combination for several years, and last fall, the elements combined with high winds to cause damaging fires on campus. The school was lucky to lose only two dormitories and a maintenance building, while hundreds of people in the region lost their homes and businesses. Thankfully, the school was able to serve free meals to the surrounding community during the ordeal. This summer will be my thirty-fourth year teaching at Arrowmont, and I can't wait to get back. —David Ellsworth



Arrowmont School of Arts and Crafts will continue with its scheduled classes and programs this year, despite the loss of some campus buildings to wildfires. Plans for rebuilding are underway.



Calendar of Events

April issue deadline: February 15

Send information to editor@woodturner.org. For a more complete listing, see the AAW's *Woodturning Calendar* online at tiny.cc/AAWCalendar.

Canada

March 25, 26, 2017, The Matisho Memorial Woodturning for Cancer Research Benefit, Menno Industries, Waldheim, Saskatchewan. This year marks the twelfth Matisho event, where we share woodturning skills and raise money to support research done by the Canadian Cancer Society. For more, visit turnersforcancerresearch.org or contact Glen Friesen at glenfriesen@sasktel.net.

California

March 21–26, 2017, World Wood Day annual meeting and celebration, Long Beach Convention & Entertainment Center, Long Beach. A cultural event drawing participants from more than 100 countries and regions, celebrated annually to highlight wood as an eco-friendly and renewable biomaterial. For more, visit worldwoodday.org/2017.

Georgia

January 20–February 17, 2017, *Wood Works: A Regional Exhibition*, Oconee Cultural Arts Foundation (OCAF), Watkinsville. Featuring work from more than thirty-five furniture makers, woodturners, and fine artists. For more, visit ocaf.com.

March 10–12, 2017, Southern States Woodturning Symposium, Clarence Brown Conference Center, Cartersville. Demonstrators to include Stuart Mortimer, Dixie Biggs, Dennis Pallus, Greg Pennington, Peggy Schmid, Robert Lyon, Steve Cook, and Nick Cook. Instant gallery, tradeshow, and auction. For more, visit southernstatessymposium.org or call Nick Cook at 770 421-1212.

September 15–17, 2017, Turning Southern Style Symposium, hosted by the Georgia Association of Woodturners, Dalton Convention Center, Dalton. Event to include top-notch demonstrators, a large group of vendors, and a great facility. More details to follow.

Hawaii

March 4–30, 2017, Big Island Woodturners 19th Annual Invitational Exhibit, Wailoa Center, Hilo. Celebrating Wailoa Center's 50th anniversary, this year's exhibit will feature turnings from all of the woodturning clubs in Hawaii. "Meet the Artist Reception," March 3, 5:00–7:00 p.m. Silent auction. Woodturning demonstrations March 4, 11, 18, and 25, 10:00 a.m.–2:00 p.m. For more, visit bigislandwoodturners.org.

Idaho

February 25, 26, 2017, *Idaho Artistry in Wood Show*, Wyndham Garden Boise Airport Hotel, Boise. Competitors from all skill levels submit their wood carving, turning, scroll work, fine woodworking, gourd art, and pyrography for public display and judging. Demonstrations, vendors, raffles, auction, and banquet. For full information, entry forms, and discount admission coupons, visit idahoartistryinwood.com. For specific questions, contact Doug Rose at (208) 856-8856 or roseboise@yahoo.com.

Massachusetts

January 21–April 16, 2017, *Bartram's Boxes Remix* at Fuller Craft Museum, Brockton. *Bartram's Boxes Remix* is a collaborative project between The Center for Art in Wood and Bartram's Garden. Works in this traveling exhibition reference the boxes containing seeds, plants, and curiosities that John Bartram sent back to his colleagues and clients in England. Reception: Sunday, January 22, 2–5 p.m., with panel discussion at 3 p.m. with Albert LeCoff, Michael Brolly, Amy Forsyth, and Mitch Ryerson. For more, visit fullercraft.org.

April 8, 2017, Terry Martin & Zina Manesa-Burloiu Demo, Pop-Up Show, and Lecture, Fuller Craft Museum, Brockton. From 10:30 a.m. to 3:30 p.m., Australia's Terry Martin and Romania's Zina Manesa-Burloiu will present their recent partnership, "Deep Collaboration." This one-day event includes an informal demo, afternoon lecture, and pop-up show of their recent work. For more, visit fullercraft.org.

Minnesota

Ongoing, The AAW Gallery of Wood Art in Saint Paul features four to six woodturning exhibitions per year, including works from AAW's annual themed member and POP exhibitions. *Art From the Lathe—Selections From the AAW Permanent Collection* will be on view through February 28, 2017. *The Sphere—Second Round* will be on view March 5–June 4, 2017. On continuous display is the "Touch This!" family-friendly education room. For more, visit galleryofwoodart.org or email Tib Shaw at tib@woodturner.org.

Mississippi

January 24–March 11, 2017, *Against the Grain: Wood in Contemporary Art*, Ohr-O'Keefe Museum of Art, Biloxi. An exhibition featuring turned work by artists Sammy Long, Tom Myers, and Terry Tjader. For more, visit georgeohr.org.

New York

April 1, 2, 2017, 14th Annual Totally Turning Symposium, hosted by the Adirondack Woodturners Association, Saratoga Springs City Center, Saratoga Springs. Featured demonstrators will include Jimmy Clewes, Curt Theobald, David Ellsworth, Trent Bosch, Chris Pytlik, Kurt Hertzog, Rick Angus, Lynda Zibbideo, Willie Simmons, Ralph Mosher, and more. For more, visit totallyturning.com.

Ohio

October 13–15, 2017, Ohio Valley Woodturners Guild's "Turning 2017" Symposium, Higher Ground Conference Center, West Harrison, Indiana (near Cincinnati, Ohio). Featured demonstrators to include Jimmy Clewes, Nick Cook, Avelino Samuel, Ashley Harwood, Keith Gotschall, plus OVWG and other regional chapter members. This will be the 10th biennial OVWG Symposium; the event is one of the oldest and most successful of its kind in the U.S. Event will feature a tradeshow, instant gallery, and more. Registration opens Spring 2017; for more, visit ovwg.org.

Oregon

March 17–19, 2017, Oregon Woodturning Symposium, Linn County Expo Center, Albany. Demonstrators to include Al Stirt, Binh Pho, Christian Burchard, Dixie Biggs, Don Ward, Jon Magill, Michael Blankenship, Nick Cook, Stuart Batty, and Stuart Mortimer. Also featuring a vendor show, banquet, and lunches. For more, visit oregonwoodturningsymposium.com.

Pennsylvania

October 28, 2016–April 8, 2017, *Wood, Revisited*, The Center for Art in Wood, Philadelphia. An exhibition examining the role technology has played in the work of wood artists over twenty years. Participating artists include Jérôme Blanc, Wendell Castle, Dewey Garrett, Bud Latven, and others. For more, visit centerforartinwood.org.

August 22, 2016–August 20, 2017, *At the Center: Masters of American Craft*, an installation of twenty works by David Ellsworth paired with works by the late ceramist Rudolf Staffel, Philadelphia Art Museum, Philadelphia. Curated by Elisabeth Agro, Curator of Decorative Arts. For more, visit philamuseum.org/visit.

Washington

March 25, 2017, Northwest Washington Woodturners' 8th annual All Day Demo, A Day with Trent Bosch, Anacortes First Baptist Church, Anacortes. Trent Bosch will demonstrate decorative utility bowls, hollowing techniques, vessels, surface enhancement, and more. Visit nwwwwt.org/BoschDemo.pdf, email info@nwwwwt.org, or call Rick Anderson at 360-319-7600.

Tips

Shellac dispenser

When I buy a can of shellac, the rust that builds up on the lid area is a nuisance and always seems to get into the shellac, no matter how careful I am. I have found that glass hot-sauce bottles are a good solution for storing and dispensing shellac. The narrow opening of a hot-sauce bottle controls the rate at which the shellac is dispensed, meaning less waste. It also keeps the rate of alcohol evaporation to a minimum. The glass bottle does not produce rust and is easy to clean up with a little denatured alcohol.

I have several bottles for various mixtures. For example, for use at the wood lathe, I add a small amount of boiled linseed oil to the shellac to act as a lubricant for a French polish effect. I use a small funnel to add the ingredients to the bottle.

—Curtis Myers, Virginia



Share your turning ideas!

If we publish your tip, we'll pay you \$35. Email your tips along with relevant photos or illustrations to editor@woodturner.org.

—Joshua Friend, Editor

Shopmade dust hood adjuster

I needed an adjustable dust-collecting mechanism to use while sanding at my lathe. The commercially available models lacked the flexibility I wanted, so I decided to build my own, using two pieces of scrap 2" x 4" lumber, hanger bolts, lock washers, threaded wing knobs, and a dust hood.

One piece of scrap wood is clamped to the table my lathe sits on, and the other piece acts as a pivot arm connected to the dust hood, allowing for optimal positioning.

As shown in *Photo 1*, I rounded both ends of the vertical pivot arm so it can

swivel without catching on square corners. I attached the pivot arm to the base piece using a hanger bolt and wing knob, with corresponding holes drilled through the pivot arm and part way into the base piece (*Photo 2*).

The dust hood is attached to the upper end of the pivot arm using another hanger bolt, which extends into the dust hood and allows for adjustable positioning with a threaded wing knob.

Now I can position my dust hood exactly where I want it for better dust extraction.

—Ira Penn, Washington



LED purchasing guidance

After reading Bob Rosand's tip, "My Journey to LEDs," page 13 in the October 2016 issue of *American Woodturner*, I'd like to offer additional information that might help in making good lighting choices.

All LED (light-emitting diode) lights are not alike. In fact, most offer relatively poor color accuracy. There is a simple color-quality rating associated with modern lights, including LEDs, called the Color Rendering Index (CRI). Most cheaper lights have a CRI of around 70. Perfect would be 100. An LED or fluorescent light ought to have a CRI of at least 85. These cost a little more than the bottom-of-the-line lights, but it is worth it for a woodturner, who must judge the color of woods and materials. Getting a light rated above 90 is even better, but more expensive.

The other number needed to make a wise selection is the color temperature, indicated in Kelvins and abbreviated with a capital K. If a turner is working in a shop with mixed daylight and artificial light, then the lights should have a daylight color temperature. Photographers have chosen 5600K as their daylight standard. True daylight varies throughout the day and with location and season. The D65 viewing standard, which is the International Commission on Illumination's generally accepted portrayal of average daylight conditions, is indexed to 6500K. Turners will probably be happy with anything from 5000K to 6500K. If the workshop has no natural light, then the selected color temperature of the lights is more flexible, but all the lights should be the same.

—Derek Roff, New Mexico

Drill press as clamp



A drill press can apply convenient clamping pressure, here gluing a wasteblock to a turning blank.

I have found that my drill press offers an ideal clamping solution for a number of glue-up scenarios. While the lathe can also be used for clamping by pinning a glue-up between the headstock and tailstock, the drill press offers the added benefit of a table, where workpieces can be accurately positioned. Another benefit is that the drill press applies straight-downward pressure, with less likelihood of the workpieces sliding out of position—not to mention your lathe remains available to turn another piece while you wait for the glued piece to set.

You can use the depth-locking function on your drill press to hold pressure against the glued pieces. Or you could raise the drill press table, using the hand crank to apply gluing pressure.

—Dennis Ciesielski, Wisconsin

Strap clamp

When tailstock pressure and/or tooling forces result in a workpiece too tight to remove by hand from a threaded screw, use a strap wrench. It is easy and will leave no marks on the wood. Strap wrenches are typically sold in sets of two—a short (as shown) and long strap, which can be used on different-sized turnings.

—John Pickett, Arkansas



Efficient pen finishing



I make pens in multiples for the Freedom Pens Project (freedom-pens.org) and typically finish the pens using Wood Turners Finish, made by General Finishes. In my shop, it takes ten to fifteen minutes for one coat of finish to dry enough for me to apply another coat. I put on six coats, which means it can take more than an hour to finish each pen. Rather than finishing one pen at a time, I needed a quicker way to apply multiple coats to multiple pens.

My solution is to hold multiple pen barrels at once on a 30" (76cm) length of 6mm drill rod ($\frac{1}{4}$ "-diameter rod is too large). The drill rod is mounted in a compression-type pen mandrel in the headstock and is supported by a mandrel saver in the tailstock. With this setup, I can hold up to five two-barrel pens at a time, which cuts my finishing time dramatically.

I apply the finish to each pen barrel on the lathe, which I run at a very slow speed (about 125 rpm). *Note: This finishing setup is not intended for fast lathe speeds, which could be dangerous, given the length and flexibility of the drill rod.* After the last coat is applied, I wait about five minutes before turning the lathe off. Then I allow the pens to dry overnight before sanding them individually on a regular pen mandrel.

—Harry Farmer, Colorado

Rag container/dispenser

I repurpose a lot of old cotton T-shirts for finishing by cutting or tearing them into small squares. I found that an excellent way to store them for easy access is an old gallon milk or water jug or other large plastic container. I cut an opening near the bottom, so I can simply pull out a rag when I need one. If the container does not already have a large opening, like a milk jug, I cut a larger opening at the top, so I can stuff my rags in. The jug handle is an easy way to hang it nearby for quick access. ■

—Mike Peace, Georgia





THE SCALES AND CHORDS OF *SPINDLE TURNING*

Just as a musician practices scales and chords without resulting in a complete song, a beginning woodturner should practice cuts and motions repetitively, without having a finished project as the goal.

Photo: Caitlin Egan

Kip Christensen

When I was in eighth grade, I wanted to learn the trumpet. I signed up to take beginning band, and my parents were kind enough to pay for private lessons. My teacher, Mr. Warner, became a significant mentor, who not only helped me learn to play the trumpet, but also taught me valuable life lessons. I approached my first lesson with great anticipation, expecting to learn to play a song or at least a simple tune.

I envisioned myself in a few short weeks playing solos with the band and even improvising on the fly.

My first few lessons were filled with surprises. I learned that before I could play exciting music, I needed to master some fundamentals I had not even thought about, such as how to stand, sit, and breathe properly while playing, how to build the muscles and endurance needed to produce good tone, etc. Mr. Warner taught me that the best

way to learn a complex skill is to break it down into the smallest elements possible and practice those elements over and over in a short period of time—and to do this repetitively until it could be done with little mental or physical effort. My home practice assignment consisted not of learning to play a tune, but rather of playing scales. I loved playing the trumpet and over several years became fairly good at it, all the while beginning my practice sessions

by playing scales. Most accomplished musicians, but particularly those playing a stringed instrument such as piano or guitar, have probably spent many hours practicing scales and chords.

Repetitive practice of the essential elements, without interruption, is foundational to learning almost any skill. Examples include basketball players shooting hundreds of free throws and golfers hitting buckets of balls at a driving range. Practicing the “scales and chords” of any skill develops muscle memory and frees the mind from focusing on the technique, allowing increased efficiency, creativity, and personal fulfillment.

Good technique takes time

In teaching woodturners, both young and old, I have found that—like me learning the trumpet—beginning woodturners are often impatient and unrealistic. They expect to create beautiful work without spending time developing the fundamentals. In woodturning, it is possible to create functional and even beautiful objects without spending long hours practicing basic skills. But often this accelerated pace means sacrificing good technique, and projects might require unnecessary time and

extra sanding. For those serious about learning to turn, I recommend spending ample time working on what I call the “scales and chords of woodturning.” Similar to riding a bike, once the fundamental skills are mastered, they come back quickly, even if you have been away from the lathe for a while.

The “scales and chords of woodturning” can be practiced on any spindle element, or shape, such as beads and coves. The important principle is that the shape be broken down to its simplest

Repetitive practice of the essential elements, without interruption, is foundational to learning almost any skill.

steps, and that those individual steps are practiced repetitively without distraction or interruption. For example, beginning turners are often taught to practice cutting beads by turning a “bead-and-cove stick” or a row of beads. However, turning a full bead requires two cuts: a right-half bead cut and a left-half bead cut. Muscle memory for making bead cuts will be developed faster not by

turning a series of beads, but rather by repetitively turning half beads. This is true of other common spindle shapes and cuts, such as roughing, planing, peeling cuts, V-grooves, and more.

Exercises you can try

This section describes several spindle cuts you can use as part of a “scales and chords” exercise. Start with a piece of wood that turns easily, has straight grain, and is about 2" (5cm) square and 6" (15cm) long. With the piece mounted between centers, begin at the tailstock end and work toward the center, choosing one of the cuts to practice. Regardless of which cut you are working on, take very light cuts of about $\frac{1}{32}$ " (1mm) per pass until the bottom of the cut is about 1" (25mm) in diameter. Within only a few minutes, you will have made many “right-sided” practice cuts before you reach the center of the workpiece. When you reach the center, start from the headstock end and make similar but “left-sided” cuts until you again reach the center of the wood.

A companion article I wrote in the February 2016 issue of AW (vol 31, no 1, page 14), “*Ten Principles of Clean Cutting*,” provides additional information about making some of the cuts described below. ►

Remove corners with spindle-roughing gouge



Hold the tool handle low and cut with a peeling angle. Begin the first cut about $\frac{1}{2}$ " (13mm) away from the end and cut toward that end. Begin the next cut $\frac{1}{4}$ " (6mm) to $\frac{1}{2}$ " past the beginning of the previous cut. Make the cuts deep enough to remove the corners and most of the flats. Continue these short, nibbling-type cuts as you progress toward the center of the spindle (but cutting toward the end of the blank). The bevel should glide lightly on the wood throughout the cut.



Planing cut with roughing gouge



Planing cuts should produce a clean, smooth surface. Hold the tool handle low and take light planing cuts the full length of the cylinder. To create a cylinder of consistent diameter, position the toolrest parallel to the lathe bed, pinch the tool between your thumb and fingers, and glide your hand along the toolrest while making the cut.

Bead cut with a skew



When forming a bead using the heel, or short point, of a skew, begin the cut with the tool lying on its side. This cut requires several simultaneous motions: swinging the tool handle vertically and horizontally, as well as rotating, or twisting, the tool. Light contact with the bevel should be maintained throughout the cut. Only the lower half of the cutting edge should be cutting wood. At the end of the cut, the tool will be nearly on edge.

Bead cut with a spindle gouge



Although cutting a bead with a spindle gouge is very similar to forming a bead with a skew, most people find it easier to use the gouge. Beads cut with a skew are usually cleaner, but a gouge-cut bead is usually sufficient. Notice that the bevel is gliding on the wood just behind the cut and that the flute is rotated away from the wood to about the two o'clock position. The tool handle must be swung sideways significantly during the cut to maintain proper bevel contact.

Cove cut with a spindle gouge



To make a cove cut with a spindle gouge, start with the flute on its side, in the three o'clock position. Begin with the tool handle fairly low, the tool securely anchored on the toolrest, and the bevel at 90 degrees to the wood. Make a light cut by lifting the tool handle slightly and advancing the tip of the cutting edge into the wood until a small shoulder appears. As you continue the cut, swing the tool handle horizontally and rotate the flute upward. At the end of the cut, the flute should be facing up, to the twelve o'clock position.

V-groove cut with a skew



The V-groove cut using the toe, or long point, of a skew is very similar to turning a shoulder from square to round. Begin by anchoring the skew firmly on the toolrest with the toe down and the cutting edge nearly vertical. Pick up a light cut on the outside diameter of the cylinder, and gradually raise the tool handle while advancing the tool to make the cut. Control the depth of cut by lightly gliding on the bevel, but only on the part of the bevel near the toe where the cut is being made. There should be a small gap between the bevel and the wood near the heel of the bevel.

90-degree shoulder cut



Turning a 90-degree shoulder with the toe of a skew is similar to making a V-groove, except the bevel is positioned 90 degrees to the lathe bed.

Parting tool cut



Parting cuts are rarely intended to give a clean, finished surface. However, two pointers will help you get relatively clean parting cuts without the tool binding when making deep cuts. First, lower the tool handle as far as possible to produce a peeling angle, rather than a scraping angle. The objective here is to cut so the shavings do not change direction much as the wood is removed. Second, to prevent the parting tool from binding in the cut, back the tool out about every $\frac{1}{2}$ " and widen the cut about $\frac{1}{32}$ ". Repeat this process until you reach the desired depth of cut.

Peeling cut with a skew



To prepare for practicing the peeling cut, make several parting cuts along the length of the cylinder, leaving about $\frac{1}{2}$ " of wood between each parting cut. Next, anchor the side of the skew flat on the toolrest with the cutting edge parallel to the lathe bed. Lower the handle as far as possible and swing the tool handle upward slowly until a light shaving develops. Continue to raise the handle to keep the cut advancing until the final depth is reached.

Square-to-round shoulder with skew



Begin by anchoring the skew firmly on the toolrest, enter the cut on the very outside corners of the wood, and lift the tool handle gradually as the cut progresses. The depth of cut is controlled by lightly gliding only the toe part of the bevel near the cutting edge. There should be a small gap between the bevel and the wood near the heel end of the bevel.

Square-to-round shoulder with spindle gouge



Making this cut with a spindle gouge is very similar to making the cut with a skew. Note that the bevel is gliding on the wood just behind the cut, and the flute is rotated away from the wood to about the two o'clock position.

Final thoughts

Making these cuts, or almost any cut, over and over in a short period of time without interruption is the most direct method I know of to develop the foundational skills of woodturning. Just as no complete song results from playing scales on a trumpet or chords on a piano, no beautiful turned work is produced while practicing scales and chords at the lathe. But soon the techniques and skills will be at hand for you to apply to any type of turned work. ■

Unless otherwise noted, all photos by Stephanie Staples.

Kip Christensen teaches wood prototyping, furniture design, and manufacturing at Brigham Young University. He has a particular interest in woodturning education and has authored several articles and DVDs to help others learn the techniques of the craft.

**You read the article—
now see the video!**

This article has an accompanying online video in which Kip Christensen demonstrates the scales and chords exercises described in this article. To view the video, visit tiny.cc/ScalesandChords or scan the QR code with your mobile device.



Do You Know Your Shavings?

Each of the various cuts described in this article results in a unique shaving. With a little practice, you'll be able to tell by looking at a shaving what tool and what type of cut was used to produce it. Can you match the wood shavings below with the cuts used to produce them (listed in the box *at right*)? Check your answers at the bottom of the page.

Sidebar photos by Caitlin Egan.

CUTS USED

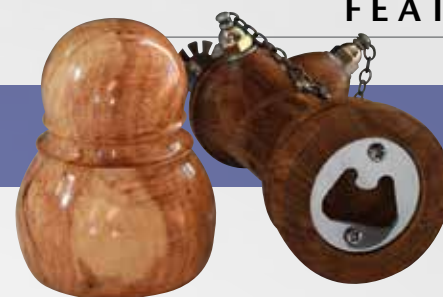
- Shearing cut using a spindle gouge, cutting a cove
- Shearing cut using a skew, turning a bead
- Shearing cut using a spindle gouge, turning a bead
- Light peeling cut using a spindle roughing gouge, planing a cylinder
- Peeling cut using a skew, removing excess wood
- Peeling cut using a spindle roughing gouge, removing square corners



ANSWERS: (1) b. shearing cut using a skew, turning a bead; (2) e. peeling cut using a skew, removing excess wood; (3) a. shearing cut using a spindle gouge, cutting a cove; (4) f. peeling cut using a spindle roughing gouge, removing square corners; (5) d. light peeling cut using a spindle roughing gouge, planing a cylinder; (6) c. shearing cut using a spindle gouge, turning a bead.

INSET BOTTLE OPENER

Rick O’Ryan



An inset bottle opener can be hidden under almost any turned form, such as Rick O’Ryan’s fire hydrants featured on the back cover of this issue of AW.

Inset bottle opener kits provide the opportunity for creative solutions to a simple task: opening a bottle. The woodturning can be as fancy as a centerpiece on a table, without communicating the piece’s hidden function. The idea is to make a woodturning of your choice, sculptural or otherwise, and inset the bottle opener kit on the underside, unseen but ready for use.

To illustrate this article, I used an opener kit from Penn State Industries, but similar kits are available from Woodcraft, Rockler, and other sellers.

The turning

Mount a block of wood between centers and turn to a cylinder with a tenon on one end. Then install a scroll chuck on the lathe spindle and remount the turned tenon in the chuck. In this orientation, use the tailstock with a drill chuck installed to bore a hole in what will be the bottom of your turned bottle opener (*Photo 1*). The kit I have used calls for a 40mm-diameter hole, $\frac{9}{16}$ " (14mm) deep.

I make sure to face off and sand the bottom edge smooth, so the opener will sit flat on a table. I also use a small gouge to remove the divot left by the center spur of the Forstner bit.

Turn the piece around, and with the spigot jaws, grip from the inside of the bored hole, expanding the jaws to hold the piece firmly. Bring the live center in the tailstock up to support the free end, and shape the wood to your liking (*Photos 2, 3*). Back the live center away from the piece to finish the top.

Make sure the base of your piece maintains sufficient wall thickness for the first $\frac{3}{4}$ " (19mm) or so, to accommodate the 40mm hole you have drilled. When reducing the diameter in that area, remember there will be screws

that hold the opener kit in place. This is where creativity and practicality balance for interest in the final shape.

Sand and apply the finish of your choice. Finishes for this kind of project might include sanding sealer and friction polish, CA (cyanoacrylate) adhesive, or wipe-on varnish. Remove the piece from the lathe in preparation for mounting the opener kit.

Mounting the opener kit

Insert the opener disk into the 40mm hole and mark for the screw holes (*Photo 4*), then remove the opener disk. Center punch the hole locations and predrill for the screws. I use a $\frac{7}{64}$ " (3mm) bit. Don’t drill these holes any deeper than needed.

Insert the kit’s metal ring, which acts as a spacer, keeping the opener away from the bottom of the bored hole (*Photo 5*). Place the opener disk on the metal spacer ring and drive the mounting screws to hold it in place. I add a drop of medium-thin CA adhesive in each screw hole before inserting the screws (*Photo 6*).

Once the kit is installed, I buff the piece to its final sheen.

See back cover for examples of Rick O’Ryan’s bottle opener forms.

Drill and reverse-mount



1 With the workpiece mounted between centers, turn a cylinder and form a tenon on one end. Mount the tenon in a chuck and drill a hole to later receive the opener hardware.



2 Remount the piece by expanding the chuck jaws inside the drilled hole. Bring up the tailstock for support during turning.

Turn the shape of your choice



3 Turn the bottle opener shape of your choosing.

Mount opener hardware



4 Temporarily place the opener disk into the drilled hole and mark the screw locations. Remove the disk and predrill for the screws.



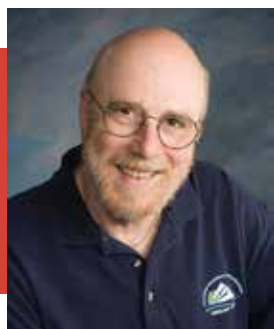
5 Insert the metal ring that comes with the opener kit, which acts as a spacer and keeps the opener disk away from the bottom of the drilled hole.



6 Place the opener disk over the metal spacer ring and install the mounting screws.

BULLETPROOF

Pen Finishes



INVITED SYMPOSIUM DEMONSTRATOR

Kurt Hertzog will be featured as one of the invited demonstrators at AAW's 2017 International Symposium in Kansas City, Missouri, where he will cover various penturning topics. For more, visit woodturner.org.

Kurt Hertzog

When you think of woodturnings, there are few that live a life as difficult as a pen's life. Artistic forms are viewed and rarely handled, and functional turnings are expected to take on a bit of a weathered look. Pens fall into both categories. The artistic pen sitting in a stand on a desk for a few signatures a day has a cushy life. The workhorse pens wind up in the bottom of a purse, in the glove box, bounced around in a drawer, or just plain manhandled. This doesn't include the abuse of opening boxes, poking into things, or generally using the pen as a tool in addition to writing.

Waxes and rub-on finishes will certainly add a high-gloss, punch-up-the-figure finish, but they don't protect the pen from typical abuse over time. Following are three finishes that are easily applied and can provide exceptional protection, in addition to making your pen look great. For the most durable finishes, I recommend cyanoacrylate (CA) adhesive, lacquer, or epoxy.

Safety

While all three of these materials may be familiar, don't become complacent about safety. Adequate ventilation is

a must, as well as eye/face protection and gloves as needed. Both CA and epoxy will "exotherm," or give off heat, as they cure. Your applicator towels or brushes need to be placed in an area where the heat won't present a fire hazard while they are still curing. Once the towels or brushes have cured and are cold, they are safe to discard. When spraying lacquer, use plenty of ventilation and, even better, wear the correct carbon-filter mask. They are readily available and reasonably priced.

CA adhesive Considerations

You may think of CA glue as Krazy Glue®—it has fast curing and wonderful wicking capabilities. CA adhesive, in liquid form, is really a plastic that hasn't hardened yet. Using it as a finish over your pen can literally put a plastic shell over the top to create an extremely protective finish. There are many methods touted as the one to use when creating a CA finish. Some spell out mixing in boiled linseed oil, using a specific brand

of paper towel, buying a special brand or viscosity of CA adhesive, or other guidelines. Here is a simple application method that works well for me.

Use thin viscosity CA as a finish. As far as brand, I have tried many of them and all will work. The technique matters more than the brand. That said, I recommend when you get this technique down, continue with the same products—no sense entering another variable into the process. Pick your favorite, learn the technique, and for ease of application, keep the variables to a minimum. You'll have enough variables with the variety of materials you'll be finishing.

On the topic of materials, there are some I won't put a CA finish on. Plastics themselves provide a great surface to punch up and be protective, so there is no need to put a finish over them. Blackwood and similar dense woods are tough and resilient. They will take a good shine without any finish. Oily woods can be finished with CA, but you need to remove the surface oils before application. This can be done with acetone, and the CA finish should be applied before more oils can weep to the surface.

With the turned pen sanded and still mounted on the lathe, use a paper towel wetted with denatured alcohol to wipe all of the dust out of the wood's pores.

If you've cleaned the pen with a liquid, wait until it dries before you apply CA.

Application

The actual CA application is simple. Fold a half-sheet of clean paper towel three times until it is a small, handheld applicator. On one of the corners, apply sufficient CA to wet it well but not have any liquid puddle (*Photo 1*). With the small amount of adhesive and the multiple folds of the towel, you shouldn't have your fingers come in contact with the CA. You can certainly wear gloves just in case. Since CA dries very quickly, a wise move is to have a small container of acetone open and within reach. Acetone will dissolve CA, should you accidentally glue your fingers to each other or to something else.

With the lathe off, pick a point on the mandrel as a reference and wipe the CA along the length of the pen (axially) as you rotate the lathe spindle by hand (*Photo 2*). Go around one complete rotation, until your wetted edge meets the spot where you began. If wiped on axially and very sparingly, there is no adhesive wicking down into the bushings, and the CA is already cured without the need for accelerator. If you are having difficulty with the CA adhering to your pen bushings, you can mount the pen blank using non-stick, plastic bushings (*Photo 3*).

Pick a fresh corner of the paper towel and repeat the application.

After you have applied four coats using the four corners of the paper towel applicator, put the paper towel in a safe location to cool. Get another paper towel and repeat. How many coats? Because you are putting on the CA in extremely thin coats, you'll need to build it up. You can apply twelve coats in about five minutes. You'll know the number of coats by counting the paper towel applicators you've used. If the CA doesn't set up immediately, you can mist on accelerator sparingly with the lathe running slowly. Build your finish until you get the depth you want. From here, go to the "Finishing the finish" steps below.

Epoxy Considerations

Epoxy is another good choice for a durable pen finish. Clean your turned and sanded pen parts, as described in the CA adhesive section. You'll have a choice of two different epoxy types. One is the basic two-part, five-minute epoxy available at home improvement stores. Buy in a store with good turnover; epoxy will keep quite well, but after a while, the resin will thicken, making dispensing, mixing, and application more difficult. Epoxies, such as those made by West System® and System Three®, are also good ►

CA adhesive



1 Wet a corner of a folded paper towel, without puddling, to prepare for the CA application. Rotating the work by hand, use the wetted towel to "paint" one complete coat on axially, end to end, around once.



3 If the CA adheres to the pen turning bushings, you might try universal, non-stick, plastic bushings instead.

Epoxy



Epoxy finishes are equally easy to apply. Mix the resin and hardener thoroughly and wipe on axially while slowly rotating the lathe spindle by hand. It may be necessary to mix additional small batches of epoxy and repeat the process until you are happy with the build.

Lacquer



Mist on the lacquer while you rotate the pen part, held in place with tape on a skewer. If you apply the lacquer lightly enough, you can shoot the next coat in minutes.

choices and are considered to be more “professional.” These are mixed in different ratios than the more readily available variety. They are not available in small quantities but are certainly worth having in the shop, not only for pen finishing, but also for structural fastening. You can buy them from woodturning retailers or marine centers.

Application

Whichever epoxy you choose, mix it up per the manufacturer’s instructions. Spread the epoxy with a folded-up paper towel (*Photo 4*), applying it over the entire pen surface; then immediately wipe most

of it off with a clean paper towel. At this point, you have two options. You can apply, wipe off, let the epoxy cure, then scuff the surface with a piece of abrasive to provide some tooth before applying the next coat. Repeat until you are content with the build, or layers of finish.

The other option is to continue applying coats of epoxy while it is still wet. As long as the epoxy remains wet, you can put coats right over the top. Because you are applying and then wiping off as much as you can, you are putting on very thin coats, building with each application. A trick you can use is to blow warm air on the wet

epoxy. Use a heat gun set on low and keep it moving. You’ll get the epoxy flowing into every nook and cranny. Once you’ve built your desired thickness, let the epoxy cure for at least twenty-four hours. After the final coat has cured, go to the “Finishing the finish” steps below.

Lacquer Considerations

Lacquer is another durable finish. I use it on many of my larger turnings, but it certainly works well on pens, too. For spraying lacquer on pens or other small objects, you don’t need

Finish the finish



(6) After applying your finish of choice and allowing it to cure, sand through the grits with Micro-Mesh™ abrasive, or similar product, to “finish the finish,” or enhance the sheen. For each grit, sand radially with the lathe running slowly, then axially with the lathe off, rotating the work by hand.

(7) Any thickness of CA build hanging over the edge of the pen barrel can be sanded flush and flat with a mid-range grit abrasive.

an expensive spraying setup. Readily available “rattle” cans will do fine. I don’t prefer any specific brand, but just buy the least expensive aerosol lacquer available in the discount stores.

An item that really helps when using a spray can is an inexpensive snap-on trigger handle. It locks onto the rim of most cans and gives you a grip and trigger, so you can use it like a pressured spray gun. This type of handle offers much better spray control than depressing the actuator directly with your finger. They are typically available in the paint department of home centers.

Application

There are several ways to hold your pens for applying spray lacquer. I rarely use the lathe as a workholding device. I use skewers to hold the pen body while I’m spraying the lacquer. To hold them in place, put a bit of painter’s tape on the skewer so that the tape contacts the inside of the pen body. You can then rotate the skewer to reposition the pen blank at will.

After spraying, push the sharp point of the skewer into a cardboard box or block of craft foam (*Photo 5*). Be certain you are spraying in a properly ventilated area and using the necessary personal protective equipment (PPE)—in this case, a carbon filter mask. I do all of my spraying of lacquer outdoors.

Here are two rules of thumb for successfully spraying lacquer:

1. Most instructions say to shake the can for two minutes to get the lacquer mixed well with the propellant. Do it! It really works. If you let the can sit for any longer than a few minutes, shake it again to remix the contents of the can.
2. Mist the lacquer on patiently. There is a temptation to hurry the process and spray the lacquer too thickly. If you do this, the solvent will not flash off quickly enough and you’ll

Durability



This pen is on its second set of metal components, with the original CA finish over the painted body. I’d call that finish tough enough.

have small “builds” of lacquer, and you’ll likely wind up with runs, for which there is no fix, other than to let the finish cure and sand it back enough to spray again.

If you spray lacquer in very thin coats, you can literally spray, wait a few minutes, and spray again. How many coats you wish to use is up to you; I often use five to ten light coats. After spraying, I allow the lacquer to sit overnight before moving on to the “Finishing the finish” steps.

Finishing the finish

After applying a finish of CA, epoxy, or lacquer and letting it cure, you are now ready to punch up the sheen.

If the finish has been applied thinly and axially, there should be no ridges, ribs, runs, or other flaws needing leveling. You’ll only be driving the finish to that polished look. I do this by sanding with Micro-Mesh™, a cushioned sheet abrasive, and don’t begin at the lower end of grits. The coarsest grit is 400; I start in the middle of the range, sanding with the pen blank on the lathe and spinning slowly (*Photo 6*). I sand radially and stop the lathe to sand axially, along the grain, while rotating the lathe by hand. Wipe off any sanding debris with a paper towel before moving to the next grit.

Sanding with increasingly fine Micro-Mesh™ grits will increase the sheen on your finish. However, all of

the three finishes discussed in this article also lend themselves to buffing. I have had good success with pen-buffing wheels and jeweler’s rouge, which let you take the sheen to an incredible level. If you wish to knock back the sheen to a more matte look, fine steel wool will do the job.

If any finish overhangs the ends of your pen blank, don’t be tempted to break it off. Rather, sand it off, as shown in *Photo 7*.

Conclusions

If you want a finish for your pens that will hold up to the rigors of a pen’s life, CA, epoxy, or lacquer are good choices (*Photo 8*). I suggest you practice applying the finishes on scrap material; if you use a “keeper” during the learning process, you might wind up ruining it and putting yourself off these finishes. If you work on scrap pieces and master the finishing process, you’ll be able to use the finish at will and give your pens a finish that will last for years. ■

Kurt Hertzog is a past president of the AAW, past chairman of the Rochester Woodworkers Society, and a council member of the Pen Makers Guild. He has written about woodturning and woodworking extensively for various publications, including Woodturning and Woodturning Design, where he published a long-running penmaking column. You can find all of these and many additional unpublished articles at kurthertzog.com.

Turn a *Better* Mallet

Janet A. Collins

Designing a mallet offers opportunities to include beads, coves, and straight tapers, or any number of elements, which makes turning a mallet a great exercise to challenge and improve spindle-turning skills. The result will be a useful tool for woodturning and general woodworking.

Design your mallet

Possibly the most common approach to turning a mallet is to start with a 3" × 3" × 12" (8cm × 8cm × 30cm) block of seasoned or kiln-dried wood. Woods with interlocking grain, such as apple, dogwood, or lignum vitae, are traditional choices but can be difficult to obtain; hard maple or ash are my usual choices.

The laminated blank is where the "better mallet" comes in (see *A Laminated Mallet Blank sidebar*). Wooden baseball bats are labeled on the weakest (flat-sawn) grain so the batter knows to hold the bat with the label up or down, striking the ball with the stronger quarter-sawn grain. The growth rings in flat-sawn stock can

separate with repeated impact, whereas quarter-sawn grain will not separate.

Either method described here will produce a great mallet and will give you the opportunity to practice spindle turning and copying a pattern. The ideal blank is free of defects, but small knots at one end of the blank can be consigned to the handle end, as they may be turned away. The ends should be approximately square. I find and mark the centers of both ends with an awl before mounting on the lathe.

I like to plan out my design on paper and then transfer my drawing onto ¼" (6mm) plywood with the centerline of the pattern placed on the edge of the plywood (*Photo 1*). The critical dimensions and transition points are marked with a line squared from the edge and the finished diameter marked on this line. This simplifies transferring measurements to calipers as well as the transition marks to the mallet blank. My pattern creates a mallet that suits my hand, but is

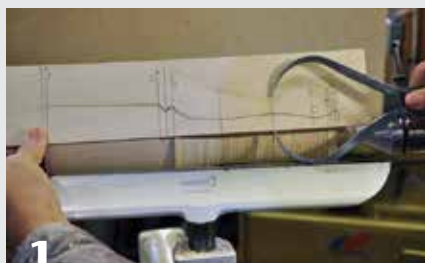


easily altered to fit the hand of the final owner. For the best ergonomics, I recommend offsetting the rise to the largest diameter of the handle slightly closer to the end. My experience has also been that a handle with a smaller diameter than the one I show here is at risk of breaking during use, and the head-to-handle junction is the point of greatest stress.

True the blank

With preparations complete, the blank is mounted between centers on the lathe, with the head of the mallet positioned toward the headstock. This arrangement offers the best support for the heavy head of the mallet.

Design the mallet, rough-turn the blank



1 A template defines the key features of the mallet, and makes transferring measurements with calipers quick and easy.



2 Roughing proceeds by cutting from one end of the blank and working in increments back towards the center. Keep an eye on the profile of the rotating blank to see that material is being removed uniformly, and stop the lathe periodically to gauge progress.



I use three tools for this project: a $\frac{3}{4}$ " (19mm) spindle-roughing gouge with a 45° bevel, a $\frac{1}{8}$ " (3mm) parting tool with a 25° angle on each side of the tip, and a $\frac{3}{8}$ " (10mm) spindle gouge with a 35° bevel and swept-back sides.

The first step in turning the mallet is to create a cylinder out of the blank using the spindle-roughing gouge (*Photo 2*). The tool rides the bevel on the wood just behind the cut, with the toolrest supporting the tool just behind the bevel. I approach the spinning wood with the tool on the toolrest and the handle almost vertical, and then raise the handle to present the cutting edge to the wood. When shavings appear, I hold the handle at this cutting angle and begin moving the tool to the left or right. This approach is useful in spindle turning with any tool; enter the cut by raising the handle from

vertical and exit the cut by dropping the handle back to vertical.

With the roughing gouge, it is easiest to start the cut about 1" (25mm) from one end and cut towards the closest end of the blank. The next cut starts another inch nearer the center and moves towards the same end of the blank (*Photo 3*). This approach cuts in

manageable amounts and in a direction that has already been cut, which is easier than starting the cut in the middle. Using this technique, I rough the entire blank to a cylinder approximately 3" in diameter. With the laminated blank, the portion of the handle nearest the head can be left slightly square to be turned to final shape later. ►

Transfer design, establish length



Use a parting tool to define the ends of the mallet and reduce the spigots to about 1" diameter.



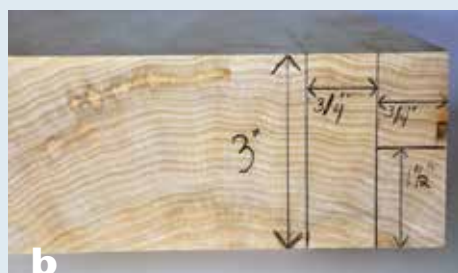
A Laminated Mallet Blank

As shown in *Photo a*, a mallet made from a single piece of flat-sawn wood has an increased chance of failure because the growth rings in the sidegrain area can come apart with repeated impact. An "ideal" mallet would always present quarter-sawn grain around the full 360 degrees of its striking face, an impossible attribute in a single block of natural wood. It is possible, however, to create a laminated blank that shows quarter-sawn grain around its entire circumference. Laminating a blank also offers creative opportunities to pair contrasting species of wood, as shown in this article's opening photo.

Quarter-sawn hardwoods are usually more expensive than flat-sawn material. Because little material is needed for this project, enough wood can often be cut from larger pieces of flat-sawn boards to make the mallet (*Photo b*). I usually start with 12/4 rough maple or ash with the appropriate grain characteristics and cut and mill the pieces I need for this project.

I start with a $1\frac{1}{2}$ " \times $1\frac{1}{2}$ " \times 13" (4cm \times 4cm \times 33cm) handle core with all four faces milled smooth and parallel. Four pieces of milled quarter-sawn timber comprise the head (*Photo c*); two pieces are 6" \times 3" \times $\frac{3}{4}$ " (15cm \times 8cm \times 19mm), and two are 6" \times $1\frac{1}{2}$ " \times $\frac{3}{4}$ ". The four head pieces are glued

and clamped to the handle core to make a 3" \times 3" \times 13" blank (*Photos d, e*). The joints must be tight to ensure the mallet will not fall apart during use, or worse, during turning. I wait a full twenty-four hours after glue-up before turning to ensure the adhesive has achieved full bonding strength. Once the blank is ready, turning proceeds as for the solid-wood (non-laminated) blank.



The small amount of quarter-sawn material needed for this project can sometimes be found at the edge of a thick, flat-sawn board. Look for one with the grain running out, toward the edge.



After the five mallet components are milled, the two smaller side pieces of the head are glued to the core first, followed by the larger pieces. If the two small pieces are not perfectly flush with the handle, allow the glue to cure and pass the assembly through a thickness planer before gluing the wider strips in place.



This mallet, made from a single piece of flat-sawn wood, has failed in the sidegrain areas. Note that the visible quarter-sawn area, with wood grain facing out, remains intact.



Laminating a blank can produce a mallet with vertical grain around its entire perimeter and yields the most durable tool.



Shape the head



The parting tool defines the location and diameter of the bottom of the head.



The head is shaped with the roughing gouge and sanded flat and true with the aid of a sanding block. Always remove the toolrest for sanding.



Define the features, shape the head

I transfer my design from the pattern, including marking each end of the head of the mallet and the transition between the head and the handle. The *top* of the head is closest to the headstock, while the *bottom* will join with the handle. Using the parting tool, reduce the diameter at both ends of the mallet blank to about 1" (*Photo 4*). This establishes the length of the mallet (*Photo 5*).

I use calipers and a parting tool to establish the diameter of the top and the slightly smaller bottom of the mallet head (*Photo 6*). The top of the mallet may already be 3" in diameter and may not need to be reduced. I use the roughing gouge to bring the handle down to a diameter about $\frac{1}{4}$ " smaller than the head of the mallet to provide clearance to further shape the head. I also use the roughing gouge to taper the head from the top to bottom, cutting from large-to-small diameter to avoid grain tearout (*Photo 7*). This will be the striking face of the head and it should be a smooth, continuous line. Once I have cut this surface as uniformly as I can with the roughing gouge, I follow up with a hardwood sanding block to ensure it is straight and flat (*Photo 8*).

Shape the handle

Waste material from the handle can be quickly removed with the spindle-roughing gouge, maintaining a diameter

slightly larger than the final dimension. I set my calipers to the diameter of the end of the mallet handle, where there is a bead the same diameter as the largest part of the handle. I mark the transition points on the handle using the pattern for reference and part down to the bead diameter and largest diameter of the handle. I then part down on either side of the bead to create space to roll the bead.

To create the final shape of the handle, I use a $\frac{3}{8}$ " spindle gouge and start with the bead at the handle's end. The swept-back sides of my spindle gouge allow me to turn beads easily, as the tool tip reaches the bottom of the curve without the sides contacting the wood on either side of the tool (*Photo 9*).

To encourage a symmetrical bead, I draw a line at the center of that feature. When the bead is complete, the centerline should still be there, leaving the bead slightly flat at the center.

Without this flat spot, the bead will be pointed rather than round.

Starting with the right side of the bead, I place the tool against the rest with the flute open (facing straight up, or 12 o'clock, and just to the right of the center line). I lift the handle to start the cut, and once shavings indicate the bevel is on the wood, I rotate the tool, using wrist action only, to the bottom of the parting tool cut. When I finish the cut, the flute will be facing to the right, or the 3 o'clock position. There is also a subtle movement of the spindle gouge in the wrist rotation that requires a slight lifting of the handle toward the end of the arc. The center of the bevel is the only part of the tool used to create the bead. I think of the center of the bevel as the pencil that is drawing the curve; it needs to stay on the wood in order to draw the curve. Turning the left side of the bead uses the same motions, but ends with the flute facing left, at the 9 o'clock position (*Photo 10*).

Turn the end bead



The bead is formed by rolling the spindle gouge through an arc, with its flute rotating from 12-to-3 o'clock for the right side of the bead, and 12-to-9 o'clock for the left side.

All of the design elements from the head transition and the handle are turned with the $\frac{3}{8}$ " spindle gouge. The transition between the head and the handle incorporates a chamfer (a straight, angled cut descending from the mallet head) and a half bead (*Photo 11*). To enter the chamfer cut, the flute faces 3 o'clock and the handle is almost horizontal on the toolrest. The presentation of the tool to the wood is approximately 45°, the same angle that the chamfer will be. The half bead uses the same technique described for the bead at the end of the handle.

The cove starts at the top of the half bead and descends to the smallest diameter of the handle (*Photo 12*). The opposite side of this cove is turned from the largest diameter of the handle down to the smallest diameter. The section between the bead at the end and the largest diameter of the handle is also a cove and requires the same technique.

Coves start with the flute facing either 3 o'clock (cutting toward the right) or 9 o'clock (cutting toward the left) and end with the flute facing 12 o'clock at the bottom of the cove. To start the cove at the end of the mallet handle, place the spindle gouge approximately $\frac{1}{8}$ " from the left side of the bead with the flute facing to the left, or 9 o'clock, and the tool handle horizontal. If the center of the tool starts cutting at the center of the wood, the tool is less likely to skate out of the cut and damage the bead. Once the tool is cutting, it can be rotated so the flute is at about 11 o'clock and brought down the slope of the cove shape, stopping at the bottom of the cove. Continuing the cut up the slope of the adjacent side of the cove will tear the grain. To cut the other side of the cove, start with the flute in the 3 o'clock position and cut to the bottom of the cove with the flute facing 1-to-2 o'clock. At this point, the handle should fit your hand and the final shaping and smoothing is done with abrasives. Start with a grit that will efficiently remove any ridges or bumps and work through 220 grit.

Complete the head and finish

I cut a chamfer on the top of the head to match the chamfer at the handle transition. A mallet often stands on its head on the bench when not in use, so the top should be slightly concave so the mallet will stand steadily. To cleanly cut the endgrain, make several light cuts with the spindle gouge, working from largest-to-smallest diameter (*Photo 13*). With the head tooling completed, finish with a round of sanding before parting off.

I part off the mallet at the headstock, gently supporting the mallet head with my left hand while making the final light cuts with the tool in my right hand. It is also possible to remove the spigot with the form off the lathe using a carving knife or chisel. The spigot at the handle end will have to

be removed off the lathe with the assistance of a handsaw, knife, or chisel.

The spigot can also be removed on the bandsaw with a v-block jig firmly holding the round mallet (*Photo 14*). A few strokes with abrasives will clean up the spigot attachment points.

The mallet can be finished on or off the lathe with any type of oil finish, or it can be left unfinished. My preference is a beeswax and oil finish. ■

Janet A. Collins has been a furniture maker, woodturner, and teacher since graduating from the North Bennet Street School furniture-making program in the mid-1990s. Her shop is located in a barn at her home in Ryegate, Vermont, and she teaches woodworking full time at Dartmouth College in Hanover, New Hampshire. Janet's work can be seen at greenmountainwoodturning.com.

Complete the handle



11 The transition from the head to the handle is a combination of decorative elements turned with the spindle gouge.



12 Coves connect the bead elements at either end and determine the handle's feel in the hand.

Undercut the head and part off



13 Cut the endgrain across the top of the mallet to produce a slightly concave and stable rim on which the mallet will stand. This can be done while reducing the spigot in preparation for parting off.



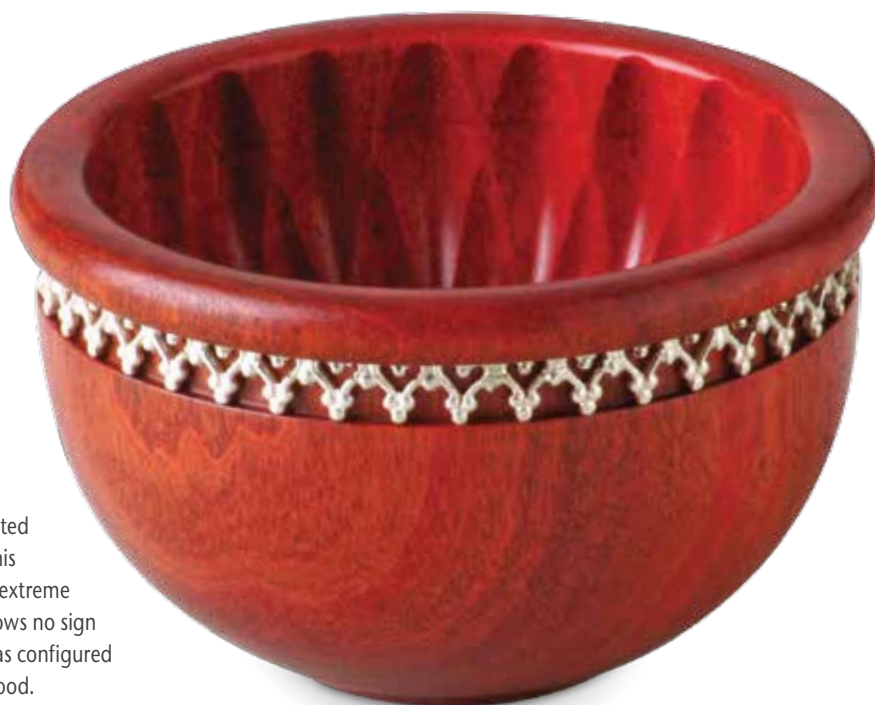
14 Removing a spigot with the bandsaw. Unsupported round stock can catch violently on a bandsaw, ruining the blade and potentially pulling your hand into the teeth—do not attempt this cut without a v-block holding jig.

Metal Accent Ring



Done Right

Bill Ooms



Pink and Silver Bowl, 2013,
Pink ivory, sterling silver,
2" (5cm) diam.

Combining metal with wood—two materials with distinct properties—can spell trouble due to wood movement, unless you employ some thoughtful engineering. This bowl, constructed using a technique described in this article, has successfully survived extreme humidity changes. The wood shows no sign of cracking because the metal was configured to stretch and retract with the wood.

Effects of humidity change



1
African blackwood box with sterling silver filigree insert in the lid, constructed in an arid location.



2
The wood lid expanded after exposure to high humidity, allowing the silver ring's edge to become visible.

Metal and wood don't normally mix well—just like water and oil. The reason is that wood expands and contracts significantly with changes in moisture, while metal does not. This can lead to cracking of the wood, breaking or stretching of the metal, gaps between the metal and wood, and other similar problems. However, with a little thoughtful engineering and clever design, one can overcome many of these problems.

Some things that don't work

Here's an example of something that doesn't work. *Photo 1* shows a box with a threaded lid made from African blackwood. The size is 2" (5cm) in

diameter, and the wood was “Arizona dry” (which means a moisture content of about 4% measured with a moisture meter). The top of the lid was recessed and a round ring of sterling silver was inset into a groove with some silver filigree work soldered inside the ring.

Since this was the first time I tried this technique, I decided to test what would happen when the piece was subjected to higher humidity. In order to simulate “New Orleans wet,” I put the piece in a plastic bag with a damp sponge for two weeks. The result is shown in *Photo 2*. The wood (both the top and bottom of the box) expanded by about 0.100" in diameter, but the silver did not change size. Not only did the metal ring become visible, but also a gap of about 0.050" formed between the silver and the wood, which allowed the captive ring to nearly fall out.

You can also imagine what would happen if the silver was first fitted to wood that was acclimated to a higher-humidity environment. If you took it to Arizona, within a few weeks the wood would shrink and the metal would not—the wood would crack.

A solid metal band around the exterior of a shape will either stretch or break at the solder joint as wood expands when going from dry to humid. Alternately, if the wood goes from wet to dry, a solid metal band around the exterior of a shape will loosen and fall out of any retaining groove.

A flexible solution

One solution that works well is to make the metal flexible and springy. *Photo 3* shows some decorative sterling silver gallery wire that can be purchased from jewelry suppliers. On the left, you see the unmodified metal strip, and on the right you see the modifications I’ve made by sawing through the solid portion at the bottom at $\frac{1}{8}$ " (3mm) intervals. The silver is annealed to half hard, so it is springy. The sawn gaps allow ►

Put some spring in your ring



Sterling silver gallery wire shown without and with small saw cuts (left and right sides, respectively). This step is key to adding flexibility to a metal accent ring.



Sawing cuts at $\frac{1}{8}$ " (3mm) intervals with a jeweler's saw.



After sawing, the band is flexible and springy.

Retaining ring with a groove

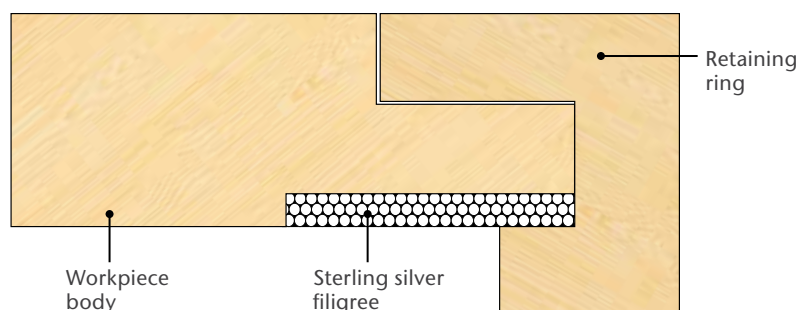
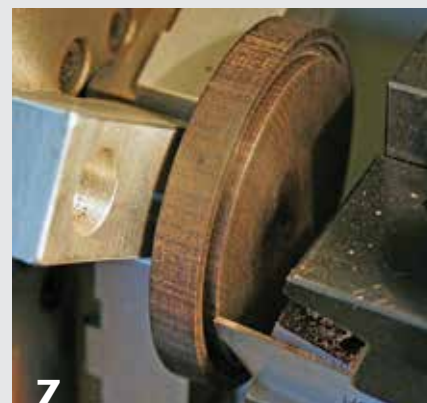


Figure 1. Cross-section drawing of the retaining ring joint.



The silver band inset in a recess cut on the metal lathe.



Cutting the groove in the retaining ring on the metal lathe. When the retaining ring is installed, this groove conceals the small cuts in the silver ring, allowing only the decorative filigree to show.

the annealed silver band to be very stretchy (like a spring or rubber band).

I first measure the correct length of the gallery wire and make a solder joint (ensuring the pattern matches at the joint). Then I use a jeweler's saw to make the cuts at $\frac{1}{8}$ " intervals (*Photo 4*). The proper technique for sawing is to keep the blade near vertical and cut only on the downward strokes. It only takes two or three strokes to cut through the metal at each point.

When the cuts are completed, you have a stretchy metal band that will expand and contract with the movement of the wood (*Photo 5*).

To keep the silver ring in place (and to hide the cut marks), I turn a wooden retaining ring. The configuration is illustrated in *Figure 1*. I use a metal lathe to cut a precise groove in the wood, as shown in *Photo 6*. Note that the end of the cylinder is recessed to receive the retaining ring. This gives me some edge grain for gluing (like a half-lap joint), rather than using an unreliable endgrain glue joint. Using a metal lathe makes it easier to control the dimensions precisely.

The groove in the retaining ring is cut with a parting tool on the metal lathe (*Photo 7*) just deep enough to cover the cut portions of the silver, leaving the uncut portions exposed. Not visible in the photos are alignment marks on the matching pieces of wood so I can glue the retaining ring with the grain perfectly aligned. I'm careful not to get glue on the metal—I want the metal to be free to float under the retaining wood.

Another design option is to cut a narrow groove into the body of the workpiece to receive the bottom, cut portion of the silver band (*Photo 8*). For the purpose of illustration, I've used a piece of cut silver that was not soldered into a ring. This more clearly shows how the band tucks into the groove. I turn the groove using a custom, narrow parting tool ground from a piece of high-speed steel to a thickness matching the thickness of the gallery wire. Then, on the metal lathe, I cut the depth of the groove so the wood just covers the cut portion of the silver. With this design, the retaining cap simply holds the soldered ring in the groove. Again, I take

care to orient the grain so it matches when the retaining ring is glued in place. I'm careful not to get glue on the metal, as I want the metal to be free to float in the captive groove.

Other techniques

Wood doesn't move much in the direction of the grain of the wood. So another technique that works well is to cut shallow grooves in the wood with an end mill that are primarily in the longitudinal direction. The width of the groove is just slightly narrower than the diameter of the wire I want to inlay (about 0.001" smaller). The depth of the groove is also slightly less than the diameter of the wire. Then, using a leather mallet, I gently tap the twisted sterling silver wire into the groove.

The egg box in *Photo 9* shows how these techniques can be combined together. ■

Bill Ooms learned woodworking from his father. After a career as an engineer, Bill became a full-time woodworker. He works with rose engine and ornamental turning, which combine his woodturning skills with his math and engineering background. For more, visit billooms.com.

An alternate method



8 An alternate method of retaining the silver ring while hiding the small cuts—this time with the concealing groove cut in the lower body of the workpiece, rather than in the top retaining ring.

Longitudinal metal inlays



Black and Silver Egg, 2014, African blackwood, Maple, brown ivory, sterling silver, 5" x 3" (13cm x 8cm)

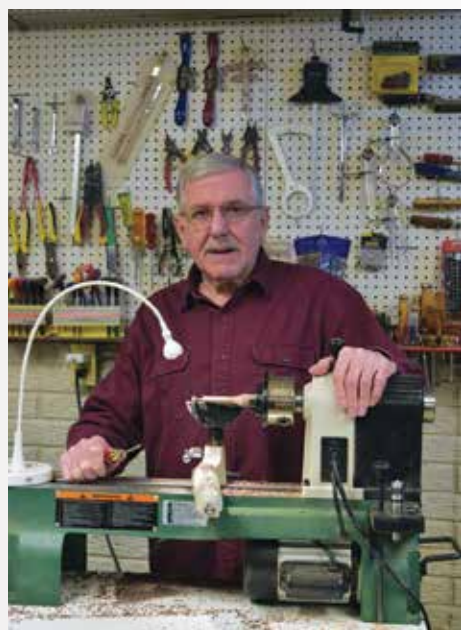
This egg employs a combination of techniques to safely add metal with wood. In addition to holding flexible silver rings in concealed grooves, it also features inlaid silver in strategically placed channels.

THROUGH THE EYES OF ANOTHER

Jim Nickless

I have been an amateur woodworker for most of my life and a woodturner for about twelve years. I migrated more and more toward turning, as my lathe skills grew and my age made many previous woodworking projects too difficult. When did the weight of a sheet of plywood grow to about 500 pounds? And, why won't my lumber supplier deliver the stuff to my shop, in the basement?

I am a self-taught woodturner, with a lot of help and direction from my



Jim Nickless of the Michigan Ohio Woodturners continues to turn small items after receiving corneal implants. His message: find a way to continue doing what you love to do.

local chapter, the Michigan Ohio Woodturners. Several years ago, one of our members gave a demo on turning miniatures and toothpick-sized finials. As I was looking for a specialty to hang my hat on and a way to spend less money on materials, making small stuff seemed to be a great idea. I got hooked. Since that demo, about eighty percent of my turning time is spent making miniature segmented projects and ornaments with long thin icicles.

A problem and a solution

About twenty years ago, I was told I had cornea dystrophy and that eye drops would help, but that over time my vision would deteriorate. About two years ago, the inevitable happened. I mounted a piece of stock in the chuck and proceeded to first make it round and then turn an icicle. As the icicle became very thin, I began to see two or even three spinning icicles. I stopped the lathe, wiped my eyes, and took a break. Nothing helped. The next day, I got the same results. I truly feared I was at the end of my woodturning hobby.

Several friends recommended I contact a doctor at the University of Michigan Kellogg Eye Center. I did just that and was informed I was a good candidate for corneal transplants. The doctor mentioned a new procedure that transplants only the inner layer of the cornea. Over an eighteen-month

period, I had transplant procedures in both eyes. The surgery was painless and, within a week of each surgery, my vision was better than it had been for many years. I am now literally “seeing through the eyes of another.”

A few weeks ago, I picked up my first pair of glasses, with a permanent prescription, and I now see things in detail way beyond my expectations. I am back to making miniatures and very thin icicles. As a vision/skill test, I made a pen blank with 244 segments. That finished pen now belongs to the doctor who performed my corneal transplants. The pen represents so many things: my gratitude to the doctor, my thanks to the family of the donor, and a big thank you to the medical researchers who developed the procedure. I asked the doctor to think of the pen not as a gift, but as an advertisement for hope.

The only moral to the story is this: When issues come up, the world finds a way to keep turning. You should, too. ■

—Jim Nickless, Michigan



One of Jim's segmented ornaments, comprising 172 pieces of wood, plus a thin icicle—a testament to his improved vision.



A segmented pen, comprising 244 pieces, turned by Jim Nickless and given as a gift to the doctor who made his improved vision a reality.

- Turn a - HALF-MOON PURSE



Janice Levi

A turned wooden purse presents an artistic opportunity; it can be as beautiful as it is functional. The design shown in this article borrows from the woodworking world and from leather craft to enhance the turning.

Wood selection

Since a purse is meant to be carried, it must be able to endure some abuse. Therefore, hardwoods work best for

this project. It is also better to select a kiln-dried wood that will not move much after turning. Maple, oak, ash, and pecan are good choices, but if you are planning to enhance the purse with woodburning or color, oak and ash are not the best choices because of their open grain. Many exotic woods also make beautiful purses, including purple heart, quilted maple, and Honduran mahogany, to name a few.

Purse sizes vary, but a diameter of 8" to 10" (20cm to 25cm) and a thickness of 1½" to 2" (38mm to 5cm) are good, workable dimensions.

Getting started

Prepare the blank by marking the outer circumference and cutting away the excess on a bandsaw. Although many prefer to initially mount the blank on a screw chuck, I prefer to mount it between centers, turn a dovetail recess, and mount the blank onto a scroll chuck in expansion mode.

Shaping the outside of the purse blank is similar to turning the outside of a bowl. Use a bowl gouge to create a slightly convex shape. The edges of the blank will be turned straight or very slightly narrower toward the outside edge. Turn a dovetail

recess about ⅛" (3mm) deep, then round over the outside edge of the blank (*Photos 1, 2*).

Hollow the purse

Once the outside shape has been roughly turned, reverse the blank, using the new dovetail recess to hold the blank on the scroll chuck. Now you are ready to begin hollowing the interior of the purse. Begin by turning the surface of the blank flat. Next, mark a cut line ½" (13mm) from the outer edge. Use a parting tool and plunge it into the wood to a depth of ¼" (6mm) on the inside of the mark, then remove the waste wood from inside this plunge cut to a depth of about ½" (*Photos 3, 4*).

Use a hook tool to create a recessed lip beneath the ½"-wide shoulder (*Photo 5*). The recess should be about ⅛" deep. This lip and shoulder will later be necessary to hide the upper edge of the fabric lining. Continue hollowing to a wall thickness of about ¼", but leave the center area, which will become the bottom of the purse,

Form dovetail recess, shape outside



On what will become the outside of the purse, turn a dovetail recess for future chucking. Round over the outer edge and roughly turn the outside profile to a slightly convex shape.

Hollow the purse



With the purse blank reverse-mounted, use a parting tool to define the width of the purse's shoulder/lip. Then hollow the inside of the purse. Use a hook tool to create an angled undercut in the outer lip; this cut will later be used to tuck in and hide the edges of the purse liner.

Final-shape and sand outside



Remount the blank to finish shaping and sanding the outside profile. Since you have turned away the dovetail recess on the inside of the purse, you'll have to remount the workpiece with a vacuum chuck, jumbo jaws, or a jam chuck. As you remove the dovetail recess on the outside surface, be aware of overall wall thickness and strive for a consistent $\frac{1}{4}$ ".

Saw blank in half



(7-8) Draw a line across the center of the blank, in line with the grain, then saw the purse blank in half.

(9) Tape the two purse halves together, making sure they match, and sand the lower edge on a flat surface or belt sander.



a bit thicker, about $\frac{3}{8}$ " (10mm). Note that when the blank is reversed in the next step, you will remove the dovetail recess; be sure to account for that thickness when hollowing. When the purse is hollowed, sand the shoulder and lip to 320 grit.

Remove the blank and reverse chuck it using jumbo jaws, a vacuum chuck, or jam chuck. Cut away the dovetail recess, being careful to maintain the wall thickness in that area (Photo 6). This surface will become the exterior of the purse; sand it to 320 grit now, though additional sanding will also be needed after assembling all the elements.

Saw in half, cut bottom pieces

While the purse blank is still reverse-mounted, mark the center with a pencil. Next, line up the grain so the cut line will be along the grain of the wood. Make a pencil mark on the edge of the purse blank, then use a flexible ruler to draw a line all the way across the purse blank (Photo 7). Remove the blank from the lathe and cut along the pencil line with a bandsaw (Photo 8). Use blue painter's tape to tape the two sides back together. Make sure the curved edges match. Hand-sand the lower edge of the purse on a sheet of 120-grit abrasive placed over a

perfectly flat surface such as medium density fiberboard (MDF). Be careful to keep the purse perpendicular to the sanding surface. I have used a belt sander for this step with varying degrees of success (Photo 9).

Using the bandsaw or tablesaw, cut two pieces of the same type of wood $\frac{1}{8}$ " wider and longer than the bottom edges of the purse blank when the pieces are placed side by side. These pieces, which will become the bottom of the purse, should be between $\frac{3}{8}$ " and $\frac{1}{2}$ " thick and cut so the length runs with the grain of the wood (Photo 10).

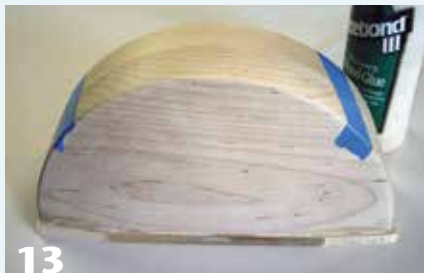
Set the angle of the bandsaw or tablesaw to cut a $22\frac{1}{2}$ -degree bevel ►

Cut bottom strips, attach hinges



Cut two strips $\frac{3}{8}$ " thick and slightly wider and longer than each half of the purse; these strips will become the purse's bottom. Bevel one edge of each strip at a $22\frac{1}{2}$ -degree angle. The hinges are attached to the unbeveled surfaces.

Attach bottom, sand flush



With the purse halves still taped together, glue them to the hinged bottom (hinges facing up and bevel down). After the glue has dried, cut, carve, or sand away the excess, overlapping material to bring the edges flush. Use a sanding arbor mounted in a drill press to remove excess glue and to finish-sand the lower edges of the purse.

along the entire length on one side of each of the bottom pieces (Photo 11). This bevel will allow the purse to open without binding.

Add hinges

For a professional look, spend a little extra time and make wooden hinges (see *Shopmade Wooden Hinges sidebar*). A sensible option, however, is to use brass or other metal hinges to hold the two sides of the purse together.

Place the two bottom pieces side by side with the angle-cut sides down. Use strips of blue painter's tape on each end to hold the strips together. Position the hinges $1\frac{1}{2}$ " from the outside ends and mark the screw holes with a pencil. Remove the hinges and use a drill with a small bit to drill pilot holes. Reposition the hinges and insert the screws (Photo 12). To ensure the tiny screws do not come loose, put a drop of glue onto the screw end before driving it into the wood.

Assemble the purse

Using wood glue, glue the two halves of the purse (still be taped together) to the hinged bottom. Do not skimp on glue, as a solid fit is necessary (Photo 13). Excess glue

will be sanded away later. Allow the glue to dry overnight.

You are now ready to remove the excess, overhanging wood from the bottom edges of the purse. A belt sander helps remove the bulk of the wood, but carving and planing can also work. I do the final sanding to shape the bottom edges and to remove any excess glue by inserting a sanding arbor and disks into my drill press (Photo 14). Begin with 120-grit abrasive and work through the grits to 600. Hand-sand the entire purse through all the grits and apply the finish of your choice. If you are going to enhance the surface of the purse, do so before applying a finish.

Add shoulder strap and latch

A leather strap secured to the purse with woven cord works nicely with this style of purse. A short length of woven cord at each end of the purse limits how far the purse can be opened and anchors the leather shoulder strap. Make pencil marks where the woven cord will be attached—about 3" (8cm) from the bottom edge on each half of the purse and on both ends. Drill a small pilot hole first, then, using a drill bit slightly larger than the thickness of the woven cord, drill the four holes (Photo 15). I have found that using a hand drill gives me the best results.

To dress up the appearance of the holes, turn four small grommets, or eyelets, from the endgrain of a contrasting wood such as ebony or ►



Shopmade Wooden Hinges

Although store-bought metal hinges can be used on this purse, shopmade wooden hinges look much nicer. The process is fairly simple but requires precision.

Using the same wood as the purse, or a contrasting hardwood, cut two pieces measuring $1\frac{7}{8}" \times 3"$ (48mm \times 8cm), with the grain running lengthwise. The thickness of the hinge material should match that of the purse bottom pieces. Crosscut the two pieces in half, resulting in four sections measuring about $1\frac{7}{8}" \times 1\frac{1}{2}"$ (48mm \times 38mm). Cutting the hinge pieces in this manner ensures continuous grain from one half to the other for each hinge.

Draw a reference mark along the length of each set and number each set. Each of the five knuckles along the barrel will measure $\frac{3}{8}" \times \frac{3}{8}"$. Carefully measure and mark each knuckle. Three knuckles will be removed on one side of the hinge, and two knuckles on the opposite side. Mark the knuckles to be removed, then cut those knuckles away using a bandsaw. Cut inside the pencil lines (*Photo a*). Check to see if the two sides fit together and adjust the fit as needed. Sand the inside edges of the knuckles with 120-grit abrasive wrapped around a flat stick.

After achieving a good fit, tape the two like halves together lengthwise, meaning the two three-knuckle pieces go together and the two two-knuckle pieces go together (*Photo b*). At this point, if any of the knuckles are wider than the others, a careful pass through the bandsaw or sanding will even them up.

Next, on the top end of the hinges, make a pencil mark in the center of the knuckle where the pin will be inserted. Push the hinge parts together and tightly clamp in a hand screw. With a $\frac{1}{8}"$ (3mm) drill bit in a drill press, carefully drill the pin hole all the way through all five knuckles (*Photo c*). The hole must go through the center of all knuckles or the hinge will not open properly.



The edges of the knuckles must be rounded for the hinges to move freely. This can be done by sanding the knuckles on a flat piece of 100-grit abrasive or on a belt sander—if you proceed slowly and carefully with the workpiece held securely (*Photo d*). Once the knuckles move freely, insert a $\frac{1}{8}"$ brass rod, trimmed to length. Depending on the manufacturer, the rod may have to be sanded to get a good fit.

Put the two bottom purse strips together with the bevels together and facing down. Place the two sets of hinges about $1\frac{1}{2}"$ from the ends. Make sure the brass rods inside the hinges are centered between the wood strips. Draw around the hinges and number the openings to correspond with the hinge numbers. Use the bandsaw to nibble away the area from the bottom pieces, cutting inside the lines (*Photo e*). Test for a good fit. Another pass at the bandsaw or using a file or coarse abrasive may be necessary.

Once a good fit is achieved, place the strips on a sheet of wax paper or plastic and glue the hinges into the cutouts in the bottom pieces (*Photo f*). Secure the pieces with blue painter's tape to prevent slipping and let dry overnight. Sand away the excess glue from the bottom, which will be visible.

Mark and cut hinge knuckles



Gang and drill for hinge pin



Round over knuckle edges



Fit and mount hinges in purse bottom



blackwood. Mount the blank into small chuck jaws, and mount a drill chuck in the tailstock with a $\frac{3}{16}$ " (5mm) drill bit. Drill a hole about $\frac{3}{16}$ " deep. Use a spindle or detail gouge to shape the grommet by rounding over the top and side surfaces (*Photo 16*). Apply friction polish or wax to the surface that will be exposed. Part

off the grommet, undercutting it by slightly angling the parting tool to the right. Use wood glue to attach the grommets over the four drilled holes in the purse.

Cut two 8" sections of woven cord and apply white glue to both ends to prevent fraying. When the glue is dry, thread the cord through the holes on

each side of the purse. Tie a knot in one end on the inside of the purse. Measure 4" (10cm) of cord to show on the outside of the purse and tie a knot on the other end inside the purse (*Photo 17*). Apply glue to the knots so they do not slip out of position. Woven cord can usually be found in fabric stores.

Measure the leather for the strap. Forty-eight inches (122cm) is a good length with a width of $\frac{1}{2}$ " to $\frac{5}{8}$ " (16mm). Trim each end of the strap with a sharp knife or heavy scissors to a slightly rounded shape. Use a hole-punch or leather punch to make four holes—two $\frac{5}{8}$ " from each end and two $3\frac{5}{8}$ " (9cm) from each end. Loop the leather strap ends around the woven cord and fasten the strap ends together with a screw rivet and post (*Photo 18*). Leather straps, punches, and screw rivets with posts are available at leather goods stores.

Now it is time to make a latch knob. Using the same hardwood as the grommets, turn a small knob with a $\frac{3}{16}$ "-diameter tenon (*Photo 19*). Sand and apply friction polish or wax to the knob and part it off. Next, turn another grommet with a $\frac{3}{16}$ " hole. Sand, apply finish, and part it off. At the top of the purse, drill a $\frac{3}{16}$ " hole at the center on each side, as shown in *Photo 15*. Glue the grommet over the hole on one side and the latch knob into the hole on the other side (*Photo 20*). Allow the glue to dry completely.

Cut a piece of round elastic that will snugly loop over the latch knob and down through its adjacent grommet. Allow enough length to tie a knot inside the purse. Dab glue onto the knot and the ends of the elastic to keep the knot from pulling out. Black round elastic can usually be found in fabric stores.

Attach shoulder strap



(15) Mark the holes where the cords that hold the shoulder strap will be drilled. Drill the holes slightly larger than the cord.

(16) Use a spindle gouge to turn grommets that will dress up the holes.

(17-18) Tie knots in the cord inside the purse. Use a leather punch to make holes in the leather shoulder strap, then loop the strap over the cord and use screw rivets to hold the strap's ends together.

Turn and install latch



Turn a small knob to be used to secure an elastic latch cord. Drill a hole at the top center on each side of the purse (as shown in *Photo 15*) and glue the latch and a grommet into place. A short length of elastic cord, fed through the grommet and tied off inside, loops over the knob to hold the purse closed (as shown in *Photo 25*).

Make the lining

To prevent items inside the purse from slipping through the slot in the bottom or from falling out at the ends, it is necessary to have some sort of lining. If you or someone you know

Lay out and cut liner material



21 After measuring and drawing the length and width of lining material needed, trace the curve of the purse onto each end of the longest measurement.



22 The gussets, or end pieces, help contain the contents of the purse. Lay out all pattern pieces onto the liner fabric and cut around the patterns.



23 The gussets, or end pieces, help contain the contents of the purse. Lay out all pattern pieces onto the liner fabric and cut around the patterns.

has a basic knowledge of sewing, a sewn lining will look professional. If, however, you are better suited to using a hot-melt glue gun than a sewing machine, there is an alternative.

Select a fabric that complements the color of the wood and one that does not ravel. Suede cloth is a good choice. Thin, pliable leather can also be used. Open the purse and measure the total distance from the widest point on one side, across the bottom, and to the widest point on the opposite side. Next, measure the width at its widest point in the bottom of the purse. Lay out these two dimensions on a piece of paper.

To get the correct curve for the top of the pattern, lay the purse on its side and trace the curved portion onto your piece of paper (Photo 21). Finally, for the two gussets, or end panels, draw a trapezoidal figure onto pattern paper that measures 5" (13cm) across the top, 2½" (6cm) across the bottom, and 3" high (Photo 22). Lay out the pattern pieces onto the fabric and pin or tape the paper to the fabric. Cut around the patterns (Photo 23).

Test fit the gussets into the ends of the purse and the large lining piece across the bottom and into the curved sides. Install the gussets first. Run a bead of hot-melt glue under the lip on one side of the purse from the bottom and up 3". Press the fabric into the

glue. Then run a 3" bead of glue under the lip on the opposite side and press the fabric into it (Photo 24). Repeat the process on the other end of the purse.

To install the large lining fabric, position it inside the purse. To hold it in place while you are working, fold down one side and lightly spray the wood with a small amount of spray adhesive. Reposition the fabric and repeat the process for the other side of the lining. With the fabric held in place with spray adhesive, you can work more easily to hot-melt glue the lining into place. Beginning at the bottom corner on one side, apply a 2"-long bead of glue, then press the fabric into the glue (Photo 25). When you reach the center top, move to the bottom corner on the other side and hot-melt glue the fabric, working your way again to the center top. When half

of the purse lining is glued into place, repeat the process on the other side.

After both sides of the curved edge are glued in place, run a short bead of hot-melt glue along the bottom edge of each gusset and press the lining into the glue to close up the end gaps in the bottom of the purse.

Your turned purse is now ready for use. You may choose to enhance the surface of your purse with woodburning, color, or carving. I'm sure you will think of many ways to customize this design to your own piece of wearable art. ■

Janice Levi is a past president of both the Brazos Valley Woodturners in Waco, Texas, and the Southwest Association of Turners (SWAT). Janice teaches hands-on classes and demonstrates at various clubs throughout the Southwest. For more, visit janicelevi.com.

Attach the purse liner



24 Hot-melt glue the side gussets into position first. Then hot-melt glue the lining, beginning at the inside corner and working toward the top center, tucking the material under the lip as you go.



25 Hot-melt glue the side gussets into position first. Then hot-melt glue the lining, beginning at the inside corner and working toward the top center, tucking the material under the lip as you go.

Drawn to Form: MULTIAXIS Hollow Forms

Ian Stewart



A rogue's gallery of Ian Stewart's playful, multiaxis boxes.

When I began the process of educating myself and exploring turning more fully, after some basic earlier forays, I joined the AAW and later a local chapter, the Toronto Woodturners Guild. I was inspired by the many articles in *American Woodturner* and devoured each issue as soon as it arrived. One particular issue featuring Barbara Dill's multiaxis work on the cover caught my attention. I was struck by the lively forms Barbara was extracting from wood on the lathe. Further research led me to her website and DVD, and I subsequently took a class with her at Arrowmont.

After taking Barbara's class, I began to explore multiaxis work more seriously. At a friend's suggestion, we both attended a class with Trent Bosch at the John C. Campbell Folk School, where I was introduced to hollow-form endgrain turning. Throughout these learning experiences, I began to focus my design attention and drawing on the exploration of multiaxis hollow forms.

My exploration of these forms continues, and this article explains and

JOURNAL ARCHIVE CONNECTION

For more foundational information on multiaxis turning, see Barbara Dill's *AW* articles on the subject:

- "A Systematic Approach to Multi-Axis Turning" (vol 22, no 3, page 34)
- "Multi-Axis Turning: Part II: How to Turn a Goblet" (vol 22, no 4, page 52)
- "Multiaxis Spindle Turning: Further Exploration" (vol 26, no 6, page 32)

AAW members can access all past journal articles online at woodturner.org.



Prepare the blank



1 Round off the blank and cut a tenon with squared shoulders and face.



2 After flipping, remounting, and retreating the blank, cut a 1/4" clearance groove to form a 1/4" reference plane. This plane helps to orient the blank visually, and the groove offsets the body of the work from the jaws, allowing easier tool access.

demonstrates the process of turning a multiaxis lidded box. As Malcolm Gladwell notes in his book *The Outliers*, most individuals who excel in their fields of endeavor have put in more than 10,000 hours to master their profession. As a relatively new turner, I think 10,000 forms should be enough to be considered a master—only 9,829 to go...

Prepare the body

Turn a blank round and form a tenon on the tailstock end. The length of the blank is somewhat arbitrary, but the longer the blank, the greater the potential offset at the tailstock. I use a four-prong spur drive and a live center in the tailstock.

Flip the blank end for end, mount the tenon in the chuck, and re-true. Next, cut a groove at the chuck end to provide a reference plane for indexing the form against the jaws of the chuck. I usually make the plane about $\frac{1}{4}$ " (6mm) wide and the same diameter as the jaws or slightly larger. Cut a clearance groove, also about $\frac{1}{4}$ " wide and fairly deep. This also provides a visual reference void and safety zone for tools, which aids in preventing contact with the jaws when turning on the new center (Photos 1, 2).

Now I determine the general proportion of the form, which may be based on a sketch from my journal and the mounted blank. Drawing the forms in both perspective and elevation allows me to develop proportions and details prior to turning. As I have discovered, both drawing and turning multi-axis forms is challenging; however, the drawing process allows me to explore forms off the lathe, and can be done at any time. (See *Drawn to Form* sidebar.)

I typically divide the length of the blank into thirds, with one-third for the "waist" line and two-thirds for the upper body. Mark these proportions with a pencil on the blank. ►

Drawn to Form

In my capacity as a design educator, I teach students how to express their ideas through drawing. Whether it is two- or three-dimensional design, the same drawing principles are used in the communication of design intent.

Drawing or sketching is much like turning, requiring hand-to-eye coordination, tool control, and focused intent. When developed and in balance, these skills will produce consistently expressive drawings that communicate design intent and direction, or inspirational avenues of investigation.

I often sketch my turning ideas in my journal and reference these when on the lathe. Not all ideas are executed as drawn, as the wood will often have something to say during the turning process. I find I am far faster at drawing than turning, primarily due to practice.

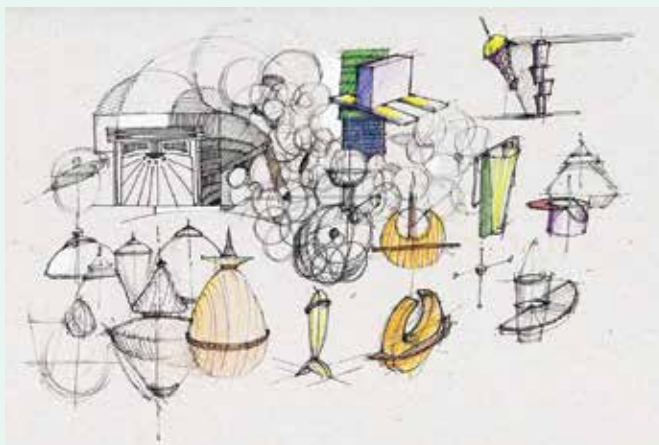
When teaching drawing, I start students off with basic tool control, trying various instruments

and papers without a specific drawing task at hand. One way to practice is to slip a sheet of grid paper under semi-transparent paper, tracing the grid lines so that you produce even, consistent lines, avoiding "chicken scratches." Much like cutting while turning, aim for smooth, even pressure.

Next is to split the difference, drawing between the grid lines. When I sketch in my journal, I always start out with a warm-up exercise of drawing closely spaced lines with the finest black marker at hand. I always draw with a marker so that ideas are not erased due to a drawing error. Sometimes drawing errors lead to new ideas.

Effective communication with drawing takes practice but is worth the effort when you can show others your intent prior to placing a tool on wood. Much like turning, the outcomes and rewards can vary, but the more you do, the more you progress in your ability to communicate design intent.

Drawn to Form



These drawings show the creative process in action, with a variety of ideas under exploration. Whimsical doodling, tangent explorations, and focused drawing are all part of the process.

Communicating Intent



Ideas that were at first just suggested are explored in depth. Various iterations of the overall form, leg ideas, and the relationship between the forms and the multiple axes are all detailed. Through such drawing, the design intent comes into focus, and can be clearly communicated.

Establish the second axis



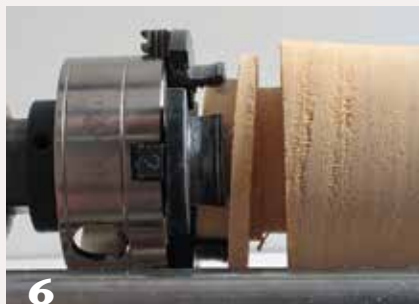
3 Tip the blank away from jaw number one, taking into account any features of the wood you want to emphasize. Record the offset on the tenon in case rechucking is needed later.



4 Reset the tailstock firmly—an essential safety step in holding off-center work securely. Start the next phase at slow speed for safety and security.



5 Using a bedan or parting tool, cut another groove near the chuck on this new axis, yielding another reference plane and groove.



6 The re-turned groove, or reference plane, and new axis. Note the offset of the tenon in the chuck. This is why the tailstock is so critical.

Add a new axis

Loosen the jaws and tip the blank away from jaw number one, and mark the offset value, somewhere between $\frac{1}{8}$ " (3mm) and $\frac{1}{4}$ ". I record this value next to the jaw on the tenon in the event that I must offset the blank later in the turning process. Look for interesting

grain, knots, or other features of the wood so that the intersection of the lower and upper forms becomes an integral aspect of the form. I rotate the blank so the feature I wish to highlight is centered on jaw number one.

Bring up the tailstock and set the live center securely in the end of the

blank to help keep the blank in the jaws of the chuck. Initially, I did not do this and threw a few blanks out of the jaws when a catch occurred (Photos 3, 4), so remember tailstock support is an essential safety measure.

Ensure the toolrest is clear of the blank. Set the lathe speed low to assist in visualizing the desired form. This also allows me to see how I might approach the blank with the tool. By gradually increasing the speed, I am able to see the "air wood," the ghosted contour of the offset blank.

With things in motion, cautiously present the tool to the wood. Establish another groove at the chuck end to accommodate tool clearance, ensuring that you do not cut into the reference plane established while the blank was on center (Photos 5, 6). I use either a $\frac{1}{2}$ " (13mm) bedan or a narrow parting tool, based in part on the length and diameter of the blank and the amount of offset. Greater potential stress requires a more substantial tool.

Form the lower section

Begin defining the lower portion of the form using a $\frac{3}{8}$ " (10mm) or $\frac{1}{2}$ " bowl gouge. The angle and direction of tool approach influence the form. A shallow angle of

Establish the lower section



7 Carefully start shaping the lower section of the blank, bringing the "air wood" down to round as you establish the new contours.



8 First define the "waist" line of the piece, separating the lower and upper portions, each with its own degree of taper.



9 Sand the bottom section before resetting centers to form the upper section.

the toolrest (almost parallel to the ways) yields a shallow taper. I typically use a greater angle to achieve a pronounced difference in the taper of the form below the waistline in comparison to the portion above the waistline.

With the toolrest angle set, present the tool at a shallow angle to the rest so the side of the gouge initiates the cut. The amount of “air” wood will vary, and the cut will seem rough initially until the lower portion becomes round on the new offset center. The tool is still riding the bevel, albeit the side of the gouge, not the “front end.”

With the lower section of the form established, I sand this area using an angled air-powered die grinder. I work my way up to either 220 or 320 grit, depending on the wood and the surface quality left by my gouge (*Photos 7–9*).

Shape upper section and hollow

With the lower portion established and sanded, reset the form back on its original, true centers. Now shape the upper portion, and adjust the location of the waistline. If I have a dramatic feature in the wood, I may adjust the length or degree of taper, to ensure the feature is appropriately positioned on the belt line.

Depending on the overall form, the top section may be “lipped” or “unlipped.” True the top of the vessel and establish a center point for the next stage (*Photos 10, 11*).

When you are happy with the shape, use a Forstner bit to drill the opening and establish the interior depth. Then use a hollowing tool to remove waste wood from the inside, while carefully watching tool direction so as not to pierce the sides. I have made a few “funnels” by mistake, cutting partially through the sides of forms, as the depth and ►

Shape the upper section



10 Reset the blank to the original centers and shape the upper portion. This is when the final form emerges, and the angle and proportions of the upper part are clarified.



11 If your design includes a lip at the top, now is the time to form it. Make sure the top section is trued and centered at this point.

Hollow and sand



12 A Forstner bit performs initial hollowing and establishes the internal depth.



13 Hollow and refine the inner contours, being careful not to pierce through the asymmetrical walls. Once the hollowing is completed, it is safe to sand the exterior of the upper portion, as well as the inner form.



Shape the top



14 Using a contrasting wood, cut and fit a tenon that fits snugly in the main body. Take your time, checking the fit as you sneak up on it.



15 Repeating the same basic sequence used for the body, reverse and rechuck the top, round it off, loosen the jaws and offset the blank to establish a new axis, bring up the tailstock for support, and turn to final shape.



16 Last steps: turn a delicate finial. Ready for final sanding and finishing.

angle of the interior is not constant due to the asymmetry of the exterior. I keep some of these mistakes as cautionary reminders to pay proper attention to the side thickness and angle (*Photos 12, 13*).

Sand to 320 grit prior to removing the piece from the lathe. I keep the bottom reference planes intact until I have finished the top, in case there is a need for revision. I remove the plane on the bandsaw (using a safe workholding jig) and sand the

bottom flat on a stationary belt sander.

Turn a top

Now define the top. Take a small square of a contrasting wood and mount this directly in the chuck. Then cut a tenon on the bottom to a diameter that is a snug fit in the box's opening. I usually use a bedan and sneak up on the fit, testing it with the main body.

Flip the top around in the chuck, and turn a portion of it round. I then use the same procedure as used on the main body to create an offset for the top. Loosen the jaws, then "pull out" the top from the jaws, marking the offset on the tenon and the location of the number one jaw.

With the piece secured in the chuck, bring up the tailstock to help keep the wood engaged in the chuck. As the blank is still square on the one end, there is a tendency to catch and tear the wood from the chuck; the tailstock aids in preventing this (*Photos 14–16*).

When you are satisfied with the shape, sand to 320 grit. I use a Danish oil and the Beall wax system for finishing.

Final thoughts

For some of these lidded boxes, I use a different top configuration. I do not create a lip at the top; instead, I run the taper continuously to the end. I then use a contrasting wood with a tenon to match the opening. I jam this on the main body and bring up the tailstock to lightly "pin" the two parts together while I shape the top. I initially turn the top so that the taper of the main body is continued on the lower portion of the top. I then change centers back to the center used for the lower waist portion and finish turning the top with an offset (*Photo 17*).

I cut the reference plane off with a bandsaw, sometimes following the shape of the waistline. When placed on the table, the lidded box stands at an angle, accentuating the offset shape. ■

Photos by David Forrester.

Final box



The possibilities are endless. When the piece is completed, the reference plane near the bottom can be removed using a handsaw (or bandsaw with proper workholding jig) and sanded flat on a stationary belt sander.

17

Ian Stewart is a designer, educator, furniture maker, and turner. When not in the shop, Ian teaches at Sheridan College in Oakville, Ontario, and at the Center for Furniture Craftsmanship in Rockport, Maine. For more, visit ianstewart.design.

Discarded Wood Reveals Inspiring History

Leslie Struthers

One of the best things about being a woodturner is finding wood. Sometimes folks call me to say they have a tree down; sometimes I chase landscaping trucks and dig in the trailer. I've been known to stop for wood at the side of the road and pilfer various firewood piles for interesting logs. This time, it started with a simple email, stating wood flooring from the old Connelley Trade School in Pittsburgh was available to anyone who wanted it. The wood was solid maple flooring strips from the School's workshop classrooms. I jumped at the chance for some historic wood to work with—and keep out of a landfill.

Bridging the past and future

Before turning the wood, I inspected each piece for metal and other foreign bodies and ended up pulling out lots of old nails and pieces of nails. The wood strips are lovely, approximately 3½" (9 cm) wide by 1½" (38 mm) thick. In some of the wood, I found bird's-eye figure, interesting knots, and worm holes. The top side is covered in original finish, paint overspray and drops, dents from dropped tools, and dirt. I can imagine the thousands of students learning and making on this floor over the years.

Each plank is impressed on the underside with a series of letters:

"M.F.M.A. HOLT OCONTO WIS." In some places the words, "MFMA Third Grade" is printed in green ink. From a quick Internet search, I learned of the Holt Lumber Company (later renamed Holt Hardwood Company), which operated in Oconto, Wisconsin, for about ninety years. "M.F.M.A." is the Maple Flooring Manufacturers Association. Founded in 1897, it is still setting and maintaining standards for flooring today. The printed Third Grade refers to a standard of flooring. According to the MFMA website, maplefloor.org, Third Grade flooring is used where "variations in appearance are not an aesthetic concern."

The Clifford B. Connelley Trade School, or Clifford B. Connelley Vocational High School, opened in 1930 and closed for good in 2008. But the Connelley story is far from over. Many people have advocated for a reinvestment in vocational education, including parents, educators, and foundation leaders. During his campaign for mayor, Bill Peduto took up the cause, calling for a "Pittsburgh Connelley for the 21st century." This vision is being realized in the new Energy Innovation Center (EIC). Under the leadership of Pittsburgh Gateways Corporation, with the help



A dumpster of old maple flooring, destined for the landfill but intercepted and recovered by the author.

of community organizations, the EIC continues to draw inspiration from the legacy of Clifford B. Connelley. The building is currently being renovated by the EIC—hence the flooring being discarded.

Sharing and repurposing

To honor the history of the Connelley Trade School—a Pittsburgh icon once flourishing, then declining, and now being brought back to life—I look forward to sharing the wood I salvaged and turning commemorative items. When I first heard of this wood, I thought of making pens. I thought it would be satisfying to create a limited, numbered run of pens from this historic wood, each with a certificate explaining the wood's remarkable history. ■

Leslie Struthers is a full-time woodturner living in Carnegie, Pennsylvania. She is a member of AAW's Women in Turning (WIT) and Turners Anonymous. Leslie began turning fourteen years ago and believes art takes us into the world in ways we would not normally go.



The underside of the discarded maple flooring, some featuring bird's-eye figure.



Old square-headed nails pulled from the wood prior to repurposing.



An example of the author's handiwork in repurposing old, discarded materials into something once again useful and of value.

BITS AND PIECES

Impressions from
the 5th Segmenting
Symposium, Quincy,
Massachusetts,
October 2016

Jerry Bennett

I started putting bits and pieces of wood together to make vessels and sculptural art pieces several years ago. Things have changed a lot since then. Over the years, methods and tools have been developed that make segmenting much easier. Woodturning software takes care of the design and math; new tools make cutting and assembling segmented pieces much easier. Segmenting, in conjunction with other craft skills such as carving, pyrography, and airbrushing, has brought a lot of new pieces to the table.

In October 2016, many segmenters gathered in Boston at the Segmenting Symposium, a biennial event hosted by The Segmented Woodturners, a web-based virtual chapter of the AAW. This event is a great place for knocking the edges off the learning curve, whether

you are a beginner or a pro. Yes, even the pros can learn a thing or two. Every time I go to a Symposium, someone is pushing the boundaries and trying something new. Just when I think everything has already been done, I discover something on a table in the Instant Gallery that proves me wrong. I am convinced that with the flexibility of segmenting, you can do almost anything with wood.

Conventional segmenting

Conventional segmenting is done using rings with segments with vertical sides. A piece may include a feature ring made of long segments that will incorporate a design pattern; this is accomplished using traditional woodworking methods. The southwestern vessel is considered conventional. Robert

Robert Beaupre,
Untitled, 2016,
Maple, cherry,
yellowheart, 13¾" ×
5½" (35cm × 14cm)



Martha Collins, left to right: *Jeweltone Modern*, 2014, 1,000 pieces; *Linear Offset Bangle*, 2012, 400 pieces; *Helical Modern Bangle Bracelet*, 2015, 700 pieces; each with twelve species of artist-dyed maple veneer, each 1⅞" × 3" (29mm × 8cm)



Don Gouveia,
Lidded Bowl with Feet, 2016, Curly maple, 5½" × 6¼" (14cm × 16cm)



Beaupre came to the Symposium with his very first segmented vessel. There is nothing like going through the process of designing, cutting segments, assembling, turning, and finishing a “first” that turns out well. I am looking forward to seeing what Robert does next.

You do not need a large piece with a feature ring to make an impact. I like the simple elegance of Don Gouveia’s

lidded box. It showcases the wood and presents a nice shape that will grace any table. Martha Collins’ bracelets incorporate fun, intricate designs using conventional segmenting methods.

When I saw Richard Burri’s vessel on the table, I headed straight for it. The chatoyance of the wood coming through a bright red finish caught my eye right away. One of the ways to punch

up plain wood is with a little dye and a good finish. Richard did it very well.

Open-segmented work

The first open-segmented piece I saw was a lamp made by Johnny Tolly of Austin, Texas. That was many years ago, and since then, there has been an explosion of creativity in that direction. Open-segmented pieces ▶

Tom Lohman, *Flora*, 2016,

6,500 pieces: Maple, bloodwood, yellowheart, bubinga, wenge, cherry, purpleheart, lignum vitae, chaka-viga, 5¾" × 12¼" (15cm × 31cm)



Richard Burri,

Kawartha Flame, 2015, Maple, walnut, cherry, analine dye, 10¼" × 7½" (26cm × 19cm)



Roger Tice, *The Egg*, 2016, approximately 1,500 pieces: Ebony, canarywood, holly, egg is 2½" × 1¾" (6cm × 4cm)



have gaps between the segments. The segments can be stacked like bricks or aligned on top of one another for effect. Artists refer to the gaps as “negative space.” Open-segmented construction is a little more forgiving than conventional because the sides of the segments do

not touch and therefore do not have to be cut perfectly.

Tom Lohman and Roger Tice are on the cutting edge of this approach. Both use various woods and hundreds of segments to create elaborate patterns. Tom’s bowl and Roger’s egg are both beautifully executed pieces.



Peter Schultheiss, *Open Segmented Bowl*, 2013, Utile, maple, wenge, 4¼" × 9½" (11cm × 24cm)



The variety of methods and designs in segmenting is seemingly endless. As I mentioned, every time I go to the Symposium, I find something new. The 2016 event was no different. I walked into the Instant Gallery and there was a small commotion at the back of the room. Peter Schultheiss was sharing how he implements splines to attach the segments in his open-segmented pieces. I had never seen this method before. What really impressed me was his impromptu demo, complete with how-to examples pulled from his bag, and his willingness to share his methods without reservation. This kind of openness and sharing is typical at every Segmenting Symposium.

Sculpture

Sculpture requires the freedom to express shape, color, and texture without the inhibitions a material can bring. That is a tall order. Of course, we have to work around limitations with any material, but with segmenting, you have the ability to use wood in artwork that could not be done any other way. There are techniques in place that enable us to make wood sculpture any size we choose and in any form. Russ Braun’s piece is segmented, carved, airbrush painted, and set on fire. What more could you ask of a material and process? David Bettinghaus incorporated sections of turned bowls along with free-form sections to make his wonderful flowing art form. Tim Moore turned many individual ring sections, connected them, and smoothed the edges by sanding and carving to make his orbiting piece. These works illustrate the point that segmenting is right at home with sculpture. You are limited only by your imagination.



Russ Braun, *Suitable for Burning*, 2015, Walnut, maple, bloodwood, orangewood, 15" × 15" × 15" (38cm × 38cm × 38cm)

Other methods

The kaleidoscope method, used by Rodney Smith in his *Dizzy Bowl*, produces a swirling cacophony of color and intrigue. Each work turns out differently. Next up on the horizon—wouldn't it be interesting to enhance the process to produce repeatable patterns as in a real kaleidoscope?

Let your imagination run wild, and see what you can create with a few bits and pieces. Right now is a great time to

give segmenting a try. The Segmented Woodturners chapter of the AAW is a tremendous resource for support and encouragement. For more, visit segmentedwoodturners.org.

Photos by Sharon Bierman/courtesy of segmentedwoodturners.org. View all of the Instant Gallery images from the 2016 Segmenting Symposium at [flickr.com/photos/segmentedwoodturners/albums](https://www.flickr.com/photos/segmentedwoodturners/albums).

Jerry Bennett has been a turner since 2001. His work has been included in many collections and exhibitions across the country. He shares his methods and techniques at various symposia and has contributed articles to the AAW journal.

David Bettinghaus, *Meander*, 2016, Mahogany, 13" × 18½" × 15¼" (33cm × 47cm × 39cm)



Tim Moore, *Life's Journey*, 2016, 720+ pieces: Cherry, 15" × 13¼" × 12" (38cm × 34cm × 30cm)



Rodney Smith, *Dizzy Bowl*, 2016, Wenge, maple, purpleheart, yellowheart, cherry, walnut, pau santo, 6¼" × 11½" (16cm × 29cm)





Tooling Around Sheffield

Steve Forrest

If it weren't for the unassuming sign, you'd never know this nondescript factory is one of the worldwide centers of the manufacturing of woodturning tools.

It helps to have friends in high places. When my wife found a good deal on tickets to England, my first thought, as an avid woodturner, was that this was a great opportunity to go to Sheffield, the Mecca of woodturning tool manufacturing, and visit a factory.

It turns out, it's not so easy to see tools being made. After contacting four of the biggest names in Sheffield tools, and politely but briefly being told that no tours were offered, I had to get creative. Enter Google. I searched Sheffield and woodturning, and lo and behold, the Sheffield Woodturning Club popped up. I just assumed woodturners in England would be as friendly as the folks in my own club, so I sent them an email to see if they

might have any leads on possibilities for an interested, enthusiastic visitor to actually visit one or more of these facilities. Yes, it was just that random.

I promptly received a reply from the club secretary, who essentially said she had friends at a couple of the factories, and she would see what she could do. And so began an absolutely lovely correspondence, and now enduring friendship, with one Lesley Churton. It turns out, the “secretary” of the club is what we would call the president. Lesley is a mover and shaker—a retired former hospital administrator and member of the Royal Navy, she is a no-BS gal with a bawdy sense of humor. Eventually, she managed to arrange a tour of the Robert Sorby factory.

My journey to Sheffield

When the appointed day came, I took the train across the rolling green hills of the midlands from King's Cross up to Sheffield. I was met there by my unmistakable guide, with her short silver hair and warm smile. I had no idea what to expect—my mind was filled with vague images of belching smokestacks and Dickensian poverty. It turns out that Sheffield, the fifth-largest city in

England with something over half a million people, has undergone its own renewal, like its larger counterpart, London. While there are still old, broken-down areas (think Rust Belt), there was also a blend of new and old, of clean steel along with repurposed brick. There are lovely old neighborhoods with shade trees, and beautiful countryside punctuated with stone walls just minutes from the city's edge.

Our first stop, after a lunch that might as easily have been in San Francisco, was the Kelham Island Museum. Many aspects of Sheffield's industrial past are recounted here. Especially noteworthy was the River Don steam engine, an enormous three-cylinder beast, the most powerful remaining steam engine in Europe. This immaculately maintained masterpiece could switch from forward to reverse almost instantly, and had driven huge steel mills in its day. From the largest to the smallest—the museum also had a display of “Little Mester” workshops. These were the craftsmen with an encyclopedic knowledge and skill relating to particular aspects of tools and tool making: forging, grinding, surgical instrumentation, pocket knives, etc. (The day I was there, I briefly observed a very old mester working on a knife at his bench. He also had a cell phone, of course.) This was a poignant display for me. It was like watching the last passenger pigeon. Just as aboriginal cultures and languages all over the world have disappeared (and continue to do so), an epochal wealth of knowledge and skill relating to tool-making is going extinct before our eyes.

Next was dinner at Lesley's house, with her partner Jan and their dog, Toffee. Lesley showed me some of her prized turnings, and of course we had to poke around her workshop, with the usual tools and blanks waiting for some attention. I had brought some wood for her from California, stuff



Sorted by size and type into bins, finished tools are ready to be shipped. By the time they reach this phase, they have been worked on by many hands and machines.

I figured might count as “exotic” in England—madrone and laurel—and a modest bowl as a hostess gift. Of course, she wasn’t about to let me leave empty-handed; I returned home with some robinia, elm, and beech.

In the evening, we went to the historic farmhouse where the Sheffield Woodturning Club meets. Four lathes were promptly pulled from storage, each with its own stand and set of tools, along with a grinder, blanks, and some finishing supplies, and people got right to work turning tops for a charity fundraiser. Newbies watched, learned, asked questions, and tried their hand, people were friendly to the stranger in their midst, and Lesley watched over the whole affair, taking the pulse of the various members. It was interesting to see the similarities and differences between Sheffield and the Wine Country. A beer in the local pub with a few of the members brought the day to a fitting end.

A privileged visit

The next day, Lesley drove us to a medium-sized, nondescript factory with a small sign over the door, Robert Sorby. After signing in, we were met by Clive Brooks, the European Sales and Product Manager. A friendly guy with an obvious regard for Lesley, he led us through the plant. It was a revelation. If you ever wondered why good tools cost more, after seeing what goes into one, you would only wonder how they can sell it for that price and still make a profit. With obvious pride, Clive showed us station after station—assembly, shaping, stamping, grinding, even testing for hardness and etching the Sorby name permanently into the steel. There is an overwhelming mix of old machines and new—they have a dedicated station just for repairs, where they can fabricate spare parts because some of the machines are old enough and specialized enough that that’s the only way to keep them running.



Tools start as large blanks of raw tool steel, stored on racks. Some operations are performed by modern CNC machines, others by old industrial machines, and still others by hand in a precisely choreographed interaction between skilled worker and machine.



Finished tools need only a handle before they are ready for shipping. Grinding off the discoloration to reveal the gleaming steel beneath is one of the final steps.



Lesley Churton, Secretary of the Sheffield Woodturning Club, and Clive Brooks, Product and European Sales Manager at Robert Sorby, share a love of woodturning and a professional appreciation. They often appear together at demonstrations and symposia, both locally and internationally.

But it wasn’t just the machines. It was the interaction between the machines and the people that was so impressive. The people who work there, while not little mesters, are very skilled and experienced. Every tool is handled by a number of people, each with an obvious eye for the quality of their piece, and for the tool as a whole. As many tools as they make (and they are very, very busy), it’s still small enough that it feels personal.

And what I saw was still just the tip of the iceberg. Tools were being shipped out all over the world, and someone like Clive is in direct contact with shops and turners, continually gauging the market and developing new ideas. There was a palpable sense of pride in continuing the Sheffield heritage embodied in the Sorby brand. Not having toured the other manufacturers, I can’t speak for them, and every turner out there has his or her favorites, but I would imagine things are comparable. As with manufacturing everywhere, there are all sorts of pressures—corporate vs. local ownership,

foreign competition, technological innovation, labor relations—but somehow these elegant, powerful, refined tools make their way all over the world for us to enjoy, providing us with a range of experiences we would never have otherwise. It is not something to be taken for granted.

Lesley drove me to the train station, and now I am back in Sebastopol, making shavings with an even greater appreciation for this ageless and endless activity called woodturning. Lesley and I continue to send photos and stories, and this whole adventure and series of wonderful, unexpected, and interwoven experiences came out of four rejections and an email to a stranger. Thank goodness for friends in high places. ■

Steve Forrest is an amateur woodturner in Sebastopol, California, whose work is in the collections of his mother, his family, some friends, and, just recently, a few strangers who were willing to pay for it. A former registered nurse and current high school teacher, he turns as often as he can, which is not nearly often enough.



JANET COLLINS

Turner, Furniture Maker, Educator

John Kelsey

Janet Collins brings to the lathe a furniture maker's skills and sensibilities, with an adventurous can-do spirit that's always eager to try something new. See, for example, her inlaid-rim bowls: Janet sets the inlays into the blank before she turns the wood, not after, a furniture approach that informs all her work and continues to produce interesting discoveries.

Janet was already an accomplished carpenter and home-handy person when she acquired a creaky old lathe and tried turning, but that was years before she enrolled in a furniture-making course and she did not get far on her own. The program at North Bennet Street School in Boston is what kicked her into a furniture-making and teaching career, and with it her interest in turning.

Why turning? "Because," she says, "you can just put this ugly lump of wood on the lathe and ten minutes later you got something beautiful. Wow. Instant gratification, I loved that."

Yes you can

North Bennet Street School, in the old part of Boston, was founded in 1885 to advance the Swedish "sloyd" system of craft and technical education. Today it offers full- and part-time professional certificate programs in furniture and

Turner and furniture maker Janet Collins in the workshop behind her farmhouse in Ryegate, Vermont.



SELECTED SYMPOSIUM DEMONSTRATOR

Janet Collins will be featured as one of the selected demonstrators at AAW's 2017 International Symposium in Kansas City, Missouri, where she will cover spindle turning basics and inlay techniques for woodturners. For more, visit woodturner.org.

cabinetmaking, bookbinding, locksmithing, carpentry and preservation carpentry, jewelry making, violin making, and piano technology. The woodworking programs emphasize traditional styles and hand-tool techniques, alongside a well-equipped machine room and benevolent tolerance for avant-garde design ideas. It's renowned as a great place to get a craft education and Janet took full advantage.

Like most woodworking schools, North Bennet encourages a personal curriculum within the school's outline. So if the assignment involves making a small table, Janet would elect to turn the legs, while another student might try veneering the top.

Janet takes a "yes you can" approach to teaching that you can see in the story she tells about an early student project, a pedestal table. Janet had three good blanks so she turned three pedestals and then moved on to the piecrust tops—her ambitious introduction to faceplate work—when, Bang! A wicked scraper catch trashed the workpiece and bent the shank of the tool. Janet, seeing the dark side of the lathe, stomped off to lunch.



Inlaid platter by Janet Collins, walnut with sand-shaded maple, 13" (33cm) diameter. Janet's inlays are always in facegrain orientation, so they can be plug-cut in 8/4 wood and inlaid with the grain aligned. Hot sand scorches right through the plug, which she then saws into 1/8" (3mm) wafers.



Her instructor, the legendary Lance Paterson, stroked his long beard and said, "You could turn it thinner." "It came out like a pizza tray," Janet says, unusual but OK, but it got so thin that the wormholes, which she'd carefully located on the back side, came through to the face. "Lance said, 'Maybe do some inlay there,' so I replaced the holes with inlaid berries."

She continues, "Then I was fitting the tilt-top mechanism and drilled through the top from the back, so Lance said, 'A butterfly would look nice there.'" In this realm, there's no such thing as a mistake

because every slip-up is an opportunity to learn something new. Classic North Bennet. Janet's recent *AW* article, "Turn a Windsor-Style Footstool" (vol 31, no 2), crystallizes her experience in a well-thought-out project that introduces key concepts in both faceplate and spindle turning, with considerably less at risk than her tilt-top piecrust adventure.

Turned work

Janet makes bowls that she sells locally and on her Etsy site ([etsy.com/shop/birdseyem](https://www.etsy.com/shop/birdseyem)). Her ►



Janet's Windsor stool project combines spindle and faceplate turning, and students can make the legs as simple or as complex as they wish. Janet describes how to make the stool in an April 2016 *AW* article (vol 31, no 2).

Three tilt-top tables Janet made as a North Bennet Street student illustrate an adventurous range of techniques, including line-and-berry inlay with a sand-shaded butterfly (left), carving the rim (center), and compass-star inlay in an ellipse (right).

workshop is just a few steps out her back door, but it's not heated in the winter; the February day I visited, she kindly ran the little space heaters for a few hours ahead. She does most finishing and detailing, plus the final hand-sanding of turned bowls, in an indoor workroom. Living alone, she can work at any hour and often does.

Janet's workshop is crowded, with a lot going on, orbiting around the workbench opposite an enormous Oneway lathe. There's a wall of patterns, shelves, and racks of materials, and a lot of work in progress in the form of turning blanks sawn round, then inlaid and clamped to dry in shopmade presses.



Janet uses a shopmade press to clamp up turning blanks with inlays.

Janet routs arcs in the walnut blank using plastic disk templates, then the homemade press pushes the holly inlays into place.



To make decorative circles and berries, Janet cuts plugs in solid wood, then sand-shades the entire plug (a traditional marquetry technique) before gluing them into shallow holes drilled in the blank. She also makes metal millefiori inlays in the traditional way: small decorative rods and tubes packed into a larger tube, then filled (nowadays with epoxy) and sawn off as wafers.

To create the undulating black line in the cherry bowl (*see Undulating Lines sidebar*), Janet shaped convex and concave versions of the same curve into blocks of cherry, then glued them, sandwiching an ebony veneer. She expected the scallops, but the sweeping black line was a nice surprise.



Metal millefiori inlays set into the rim of a platter have been sawn from a long brass tube filled with smaller elements embedded in epoxy.



Janet prefers local wood and is especially fond of curly maple (*see Curly Maple sidebar*), a beautiful hardwood that's extremely difficult to work when flat and almost impossible in bowls, because the curl not only thwarts working with the grain, it also disappears as soon as you turn into it. Solving that problem led Janet to a square platter that preserves and presents the curl.

A New Englander

Janet, who turned 61 in September 2016, grew up in Boston and Hanover, a suburb about thirty miles to the south. She's the daughter of a Boston cop and an Irish mom who sandwiched Janet in the middle of four sons. "I grew up with strong-willed men, so I have an ease around men that made me unafraid to enter a male-dominated field. They never scared me," she tells me over tea in her kitchen.

"I got married in my 20s, and we bought an old house in East Bridgewater, Massachusetts, and there wasn't a single thing I didn't do around that house. I'd watch Norm Abram on *New Yankee Workshop* and I'd think, 'I could do that.'"

She also credits genetics—one grandfather was a tool-and-die maker, the other a cabinetmaker, and an Irish grandmother who came to America alone at the age of 16. "She was always doing things with her hands—sewing, cooking, whatever. I got my own sewing machine at age 10, I learned stained glass, I had a contractor saw in our low-ceiling basement, I watched Norm make kitchen cabinets, so I made mine and they worked. Wow. I could do that!"

Around 1990, Janet went to a weekend woodworking show and learned about the North Bennet Street program. "They were just starting their two-week workshop classes, and I remember thinking that my girls were in school, I could take the train in, maybe I could do this."

"Well, that first class, called 'Fundamentals of Fine Woodworking,' really opened my eyes. I saw what the

other students were making, and that I really could learn how to make furniture. I was hooked,” she says.

A man’s world?

“I remember thinking, as I walked to the school that first day, ‘Am I crashing a man’s world?’ But right from the start, I was taken seriously and treated equally. Will Neptune was the instructor and he had a woman assistant, Tania Wilckie. Will is a walking encyclopedia and it was just wonderful. I took two more workshop classes, and I knew this was what I wanted to do. So in January 1995, with my kids in middle school and my husband working near home, I started full-time in a two-year program.”

Janet also began working part time for the school, initially as a clerk, then fetching wood in her truck, and soon in charge of selecting and preparing wood for all the classes. “I got a good feel for how to organize a workshop, and then I began assisting in a few classes. After I graduated, I rented space in a group shop for a few months, until North Bennet offered me a job managing its workshop programs. We offered short courses in all our subject areas; it was a great opportunity for me to learn from real professionals.”

Encouraging women

Janet says she always remembers how uncertain she felt as a female student that first day at North Bennet Street School—“What am I in for?” So, as a program manager, she always tried to staff every class with a male-female combination of teacher and assistant, one way or the other. “People sometimes ask for a course in woodworking for women, and I always resist,” she says. “I just don’t want to perpetuate the idea that women are somehow less capable. I was treated equally and I knew that was the way to go.”

Janet has honed that point of view since leaving North Bennet in 2007,

when she moved to Vermont. The family had often vacationed in southern Vermont, and by 2001 Janet was ready to buy a place of her own there, although it took another five years to disentangle and leave Massachusetts.

The rural quiet was a lure, as was the workshop building out back—it turned out that Janet is the third woodworker to live in the old farmhouse just up the road from Ticklenaked Pond. And despite the northern winters, Janet ►

Undulating Lines



The black line undulates around the cherry bowl, almost seeming to dance. How did she do that?



Janet machines cherry blanks with a matched pair of knives in an old Williams & Hussey planer-shaper. She glues ebony veneer between the blanks, then glues the blocks into a turning square. Bandsawing round reveals the dancing line.



Curly Maple



The curly figure in maple would become obscured in the curve of a bowl, so Janet designed a square platter to display its extravagant beauty.



Curly maple chair combines elegant spindle turning with careful joints, meticulous carving, and comfortable rush seats. Janet kept this prototype chair, which she made preparing for a commission for a set of twelve.

is likely to stay right there. Her older daughter, Lauren, married the dairy farmer next door, while her younger, Amanda, lives nearby. When Janet moved to Vermont, she took a commission for a set of twelve curly maple chairs with rush seats. Her dining room features the prototype chairs from various sets she's made, a living album of her career. With a wry laugh,

Janet allows that these days, she only takes furniture commissions from two special clients, her daughters, "and they don't pay."

She soon began assisting and teaching part-time in the Hopkins Center workshop at Dartmouth College in Hanover, New Hampshire, and in 2013 signed on as one of two full-time instructors. The shops were established

after WWII as a recreational outlet for faculty and students together, a place where, as Janet says, "an art student might be working next to a medical professor, an engineer alongside an English major." And where Janet herself usually has a piece in progress, which she'll interrupt as needed to demonstrate and explain.

Janet goes out of her way to encourage young women, she says, "because the idea that women can't be woodworkers is still out there. To this day, some women don't think they're capable. It's important for young women to see women doing things normally done by men, to see that they can do it, too." ■

For more on Janet Collins, visit her website: greenmountainwoodturning.com.

John Kelsey is a member of the Lancaster Area Woodturners, an AAW chapter.

Custom bed by Janet Collins. Janet says the turned bedposts, with their reeding and carving, were the most time-consuming project of her career, because the grain changes direction for every cut.



MEMBERS' GALLERY

Vivien Grandouiller, France

I started woodworking in 2003 by studying carpentry, followed by two years of furniture making. I then discovered cabinet making and earned an advanced degree in that work. In 2011, I started woodturning and completed my training at Moirans-en-Montagne.

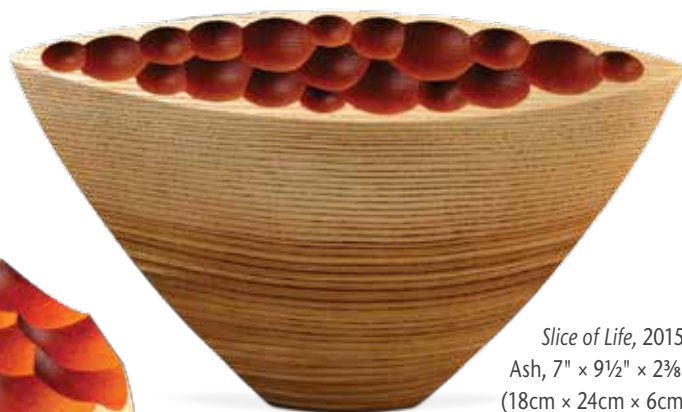
After some short classes at the Escoulen School with different international teachers, I spent five more months learning with Jean-François Escoulen and Yann Marot, followed by a year-long residency at the school.

My work is characterized by simple geometric forms, which I enhance with carving, sandblasting, and painting. Using a technique of multi-axis hollowing, I get an optical illusion that is amplified by working with colors. I also like working with light to reveal other aspects of the wood, such as grain and color.

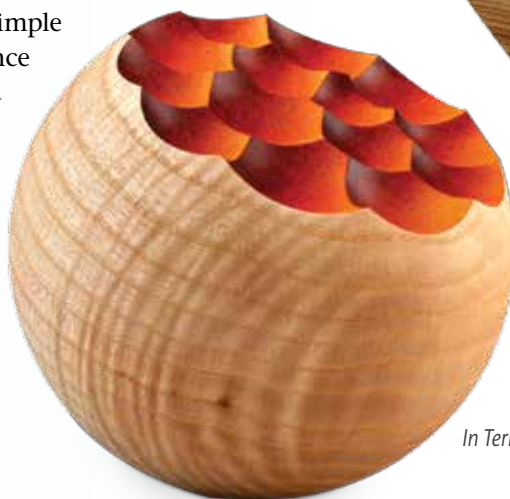
I enjoy pure lines, which I consider pleasing to the eye and touch. ►



Forest of Menhir, 2014, Ash, largest is 6" (15cm) tall



Slice of Life, 2015,
Ash, 7" x 9½" x 2⅜"
(18cm x 24cm x 6cm)



In Terra, 2015, Ash, 4¾" (12cm) diam.

Waves, 2015, Ash,
largest is 6¼"
(16cm) diam.



Rich Foa, Maryland

I have always been a collector, mostly of small items that reflect the craftsmanship of the maker and that reveal some delight in the making. My biggest collection is of figural bottle stoppers with distinct personalities—most of which have a mischievous or humorous sparkle. My wife and I have collected other, larger works that, while beautiful and well made,

also often convey a sense of humor or irony. So, while I only began making studio art seriously after retiring from a career in medicine, it is not surprising I aspire to create in my own work the same qualities I've looked for in my collecting—craftsmanship and a delight in the making.

The themes I explore are quite varied. For a time, I focused on a series of useless tools that started with

parodies of practical hand tools I was taught to make in boat school. I have also made small narrative sculptures that incorporate or build upon characters from my stopper collection. Lately, I have concentrated on mixed media works inspired by nature, literature, current events, and even mythology. My goal is always to share my delight in the making and to bring smiles to the faces of my viewers. ■



(Top left) *Blues Crab*, 2016, Poplar, cherry, walnut, fir, string, oyster shell, bronze nails, machine screws, loose change, 12" x 26" x 17" (30cm x 66cm x 43cm)

(Top right) *The Hungry Caterpillar* (based on the children's book, *The Very Hungry Caterpillar*, by Eric Carle), 2016, Maple, fir, walnut, nails, wire, glass, 11" x 39" x 9" (28cm x 99cm x 23cm)



(Bottom left) *Great White Wrench*, 2014, Mahogany, oak, jade, 3½" x 21" x 8½" (9cm x 53cm x 22cm)

(Bottom right) *Lobster Claw Hammer*, 2014, Mahogany, oak, 8" x 14" x 2" (20cm x 36cm x 5cm)



Ed Zbik, California

Hopi 3, 2016, Curly maple, zircote, yellowheart, chokte-coc, holly, lacewood, purpleheart, cherry burl, walnut, 8" x 12" (20cm x 30cm)

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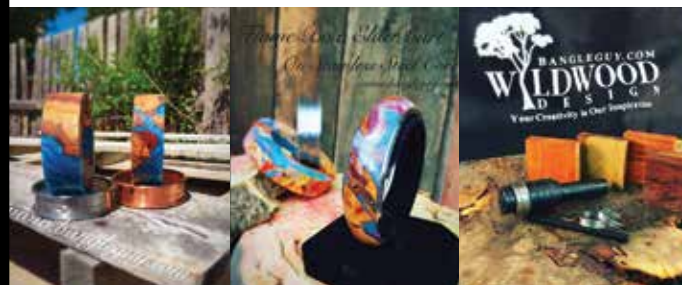
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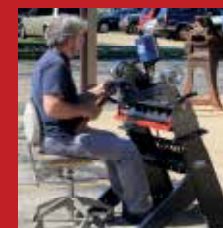
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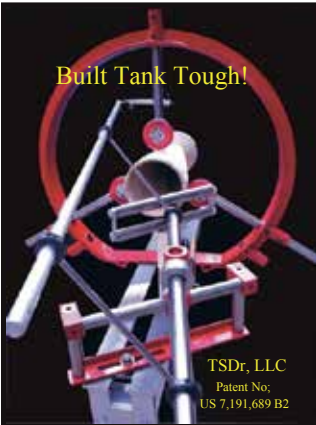
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RICK O'RYAN NEW MEXICO



(Above) *Firematic Coulter*, 2016, Salvaged birch handrail, coupler pine cone, 9" (23cm) tall

(Inset) Rick O'Ryan's hydrant forms feature bottle opener hardware inset into the bottom.



During a visit to a decommissioned veteran's hospital (Fort Bayard) near Silver City, New Mexico, I acquired salvaged sprinkler heads and birch handrails. I knew these could be used as a tribute to those who had been through that hospital. The fire suppression theme of the sprinklers led me to hydrants. I made hydrants from the birch handrail with a sprinkler head on top and carved ports on the barrel, with bottle-opening hardware inset into the bottom. Soon, I introduced other woods and made some without the sprinkler heads. I printed photos of hydrants from around the country and made scaled, reasonably close models of existing hydrants. This series morphed into a celebration of hydrants and their place in Americana folk history.

Occasionally, the hydrants would be fantastical, without measurements or a print from which to model. Some were turned on multiple centers, and some got anatomically incorrect acorn nuts on the ports. I added port cover retention chains (tassels?) to most of them. The characteristic five-sided head on the port bolts, as well as the top control rod that actuates the underground valve, proved to be a hard find. So my blacksmith friend has been forging hex head bolts into the familiar pentagon form. I go back and forth between making a fantasy hydrant and a scale model in pursuit of their history.

For more on Rick O'Ryan's work, visit woodsongs.net.



(Bottom, left to right) *You Blow My Hair Back*, 2016, Almond, 7 $\frac{5}{8}$ " (19cm) tall

Mueller Super Centurion, 2016, Orangeheart, granadillo, 13 $\frac{3}{4}$ " (35cm) tall

M&H 129, 2016, Stabilized spalted cottonwood, 6 $\frac{1}{4}$ " (16cm) tall

Living' on the Fault Line, 2016, Apple, stabilized spalted alder, 8 $\frac{3}{8}$ " (21cm) tall

To learn how Rick turns a form to accept the inset bottle opener hardware, see his article on page 19.