AMERICAN WOODTURNER

Journal of the American Association of Woodturners

Turning Coves on Spindles

Wood Dust and the Woodturner

Craft a Cryptex

Balanced Bowls

April 2010 vol 25, no 2
woodturner.org

Tea Time

Douglas Fisher, *Potlatch Eagle Tea Ceremony,* 2009, Maple, 9" × 7" × 5" (23cm × 18cm × 13cm)

Malcolm Zander, *Pearl Grey Teapot,* 2009, Pink ivory, acrylic, cultured freshwater pearls, compressed cherry, 4" × 5" × 3" (10cm × 13cm × 8cm)

Dewey Garrett, *OT Teapot,* 2009, African blackwood, 2½" × 4" × 3" (6cm × 10cm × 8cm)

Stephen Hatcher, *Morning Song,* 2009, Big leaf maple, mineral crystals, rosewood, ebony, 6¼" × 6" × 3⅓" (16cm × 15cm × 9cm)

Function is the inspiration that heats up artists' creativity in the Professional Outreach Program's (POP) themed exhibition, "The Teapot." Invited artists from around the globe were put to the challenge of creating a teapot out of wood and within size restrictions. They have brewed amazingly diverse objects, all based on function. Some are suggestive of metaphor; others present the illusion of reality, yet all have a common thread rooted in a centuries-old form.

One might ask, "What is the function of a wooden teapot?" Each is a unique work of decorative art. Wooden teapots are beyond function—quite simply, they brim with joy.

The teapots will be auctioned at the symposium in Hartford. Proceeds from the auction will help support programs established by the POP, such as the Instant Gallery Awards and panel presentations at the symposium. This exhibit brings awareness to a broad audience of the talents of leading and emerging artists in the woodturning field. ■

Michael Kehs, *White Oak and Wasp,* 2009, Plum, walnut, 5¾" × 6½" × 3" (15cm × 17cm × 8cm)

Art Liestman, *Kadlin,* 2009, Big leaf maple burl, ebony, 4⅝" × 7⅛" × 2½" (12cm × 18cm × 7cm)

Satoshi Fujinuma, *Sea Pot,* 2009, Black walnut, glass beads, vine, 7½" × 6" × 3⅛" (19cm × 15cm × 8cm)

Yann Marot, *Roped Tea Pot,* 2009, Olive wood, rope, 6¾" × 8¼" × 6⅓" (17cm × 21cm × 16cm)

Joyce McCullough, *Tea Roses on Prom Night,* 2009, Holly, tupelo, rosewood, purpleheart, acrylics, 5" × 6" × 2¾" (13cm × 15cm × 7cm)

William Smith, *Tea with a Twist,* 2009, Holly, red heart, ebony, 5" × 9" × 4½" (13cm × 23cm × 11cm)

John Goodyear, *Late Harvest,* 2009, Black cherry, acrylic, steel, urethane, ebony, leather cord, 9⅛" × 9½" × 5⅝" (23cm × 24cm × 14cm)

Detail

Clay Foster, *Te Pot,* 2009, Wood, sheet metal, bailing wire, tile grout, brass beads, 6" × 7¼" × 8" (15cm × 18cm × 20cm)

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

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Journal of the American Association of Woodturners

ASSOCIATION NEWS AND NOTES

WOODTURNERS CHATTER

GALLERY

ON THE COVERS

Cover – Mark Knize, Set of balanced bowls, 2009, Wood from an unidentified landscape tree, each bowl is about 3" × 3" (8cm × 8cm) (story, page 33)

Back Cover – David Belser, *Phyllostachys Hexagonos,* (bamboo hexagons), 2009, Bamboo, cherry, epoxy, 14" × 3" (36cm × 8cm), Collection of Dr. Michael Goldberg

woodturner.org

EDITORIAL

Editor Betty Scarpino
5246 Evanston Avenue
Indianapolis, IN 46220
317-254-1374
editorscarpino@gmail.com

Editorial Advisors Kip Christensen
Denise DeRose
Stan Wellborn
Malcolm Zander

Journal Production **Albarella Design**
Linnea Stenberg
Art Director

Jaime Thompson
Production Management

EDITORIAL SUBMISSIONS

Please send article ideas to:
editorscarpino@gmail.com

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please contact Associations Inc. at 515-280-7313 or email Tonya Vitzthum at tvitzthum@associationsinc.us.

The AAW does not endorse any product featured or advertised in this journal.

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 in the AAW *Resource Directory*. Following them will help you continue to enjoy woodturning.

From the Editor

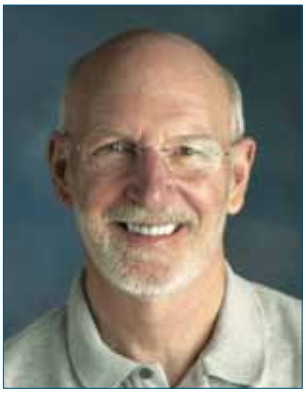
When we attempt an unfamiliar technique or project for the first time, often there is risk involved. We wonder, will that texture actually enhance the surface of the bowl or vessel? Are balanced bowls of interest or are those something best left to others to try? Will all this time and effort be worth it? Why not find out? The possibility exists for new discovery and renewed interest in woodturning—you just have to be willing to take the risk.

I am confident I could now make a cryptex. I would not have been the least bit confident a few months ago. John Giem's step-by-step instructions make a complex project understandable. John is an engineer. Admittedly, I am not. With John's clear explanations, and after having edited the article, I believe that anyone who decides to can make a cryptex. Send me your photos!

For this issue, I particularly enjoyed working with a new author, Mark Knize. Not only was I delighted with his balanced bowls, but he was also a pleasure to work with. Mark retook all of the original process photos, with direction from Phil Gelbach of Albarella Design (the company which does layout for the journal). If that wasn't enough, Mark also took new beauty shots of his bowls. It was a risk on my part to be so demanding of a new author, but it paid off in what I think is an informative article and a lovely cover photo. Thank you Mark *and* Phil.

—Betty Scarpino

President's Letter



New Benefits of Membership!

At the February Board meeting in Hartford, CT, we approved two exciting new benefits of AAW membership.

- All current AAW members now have **online access** through the AAW website **to every issue of *American Woodturner***. All twenty-five years! No more fruitless digging through dusty boxes to find that "certain article." To access the archives, go to woodturner.org and click on Members Area. Log in with your membership number and password, click on Online Journals, and enjoy this wonderful new resource all at your fingertips. In addition to having access to every article ever published in *American Woodturner*, there is also a searchable index, providing the information needed to find articles of interest. Turners of all skill levels and interests will be able to find articles on techniques and new projects whenever inspiration strikes!
- **The AAW is now offering a full membership for $38 per year to members who would prefer to read *American Woodturner* and the resource directory online, through the AAW website.** This membership provides a major cost savings to anyone wishing full membership, and preferring to read the journal and access the resource directory online. It should also be especially attractive to AAW members who reside outside North America, who can now read publications instantly, avoiding postal costs and delays. The $38 per year membership is available to all new and renewing members worldwide from now going forward.

As one member said, "Let the trees make bowls, not paper."

Good idea!

With warm regards,

Tom

New AAW Membership Benefit

We are pleased to announce that beginning in March 2010, there will be a monthly drawing for a variety of prizes, generously provided by our business members and supporters. Thereafter, at the end of each month, names will be randomly drawn from the current membership roster and all available prizes awarded.

There is an array of significant prizes already available and more will be added. Prizes, winners, and donors will be listed regularly in the journal and posted on the AAW website (woodturner.org).

Look for the prize list and winners in the Association News section in future journals. Because this announcement was added at the last minute, current prizes are listed on page 72.

24th Annual AAW Symposium

Hartford • June 18-20, 2010

Ten great reasons to visit Hartford

1. Connecticut Science Center
2. Wadsworth Atheneum Museum of Art
3. Old State House
4. The Mark Twain House & Museum
5. Naismith Memorial Basketball Hall of Fame
6. Lake Compounce Amusement Park
7. Blue Back Square
8. Dinosaur State Park
9. The New England Air Museum
10. Butler McCook House & Garden

Join us for the AAW's 24th annual symposium, June 18–20, at the Connecticut Convention Center (CCC) in historic downtown Hartford where floor-to-ceiling vista windows overlook the revitalized riverfront of the Connecticut River.

We've chosen Hartford not only because it is a vital, thriving city, but because it is easily accessible by car, train, and plane. Bradley International Airport is only twelve miles from the CCC (ctconventions.com) and there is ample parking nearby in an eight-story parking garage.

While in Hartford, visit historic Asylum Hill where you will find the Mark Twain House, Harriet Beecher Stowe Center, and Hartford Children's Theatre. Take in the impressive collections at the nation's oldest public art museum, the Wadsworth Atheneum Museum of Art. Hartford ranks in the top 6 percent in North America for its arts and culture!

Of course don't miss the fantastic woodturning demonstrations we have planned. A complete lineup of demonstrators follows.

Connecticut Convention Center

Featured Demonstrators

Glenn Lucas
Jimmy Clewes
Trent Bosch
Peter Exton
Graeme Priddle
Mark St. Leger
Joey Richardson
Peter Bloch
Christian Delhon
Michael Kehs
Hans Weissflog
Michael Fortune
Stephen Gleasner
Cindy Drozda
Sharon Doughtie
John Jordan

See the February issue for rotation descriptions and titles.

Photo: Joshua Friend

24th Annual AAW Symposium in Hartford

Selected Demonstrators

Michael Allison

▸ **Colorful Luminous Finish**

I will demonstrate the use of water-based dyes, airbrushed acrylics, and high-build clear coats on a variety of vessels. This finish transforms ordinary wood vessels into highly color-saturated, luminous, and light-reflective objects. The technique allows for dramatic highlighting of specific features, applied and inherent, in wood. A variety of application techniques will be shown, including ragging-on, wiping, and airbrushing.

Michael Allison,
untitled, 2009, White ash, dyes, acrylics, 6" × 12" (15cm × 30cm)

Donald Derry

▸ **Romancing the Curve**

I will turn the five rudimentary forms that make up all turned objects—sphere, pear, egg, cone, and cylinder—and will discuss how these forms relate to each other. There are two questions a turner can ask to help overcome *now what*? moments. Find out what they are. Developing masterpiece forms is a simple process, not a guessing game.

▸ **Ornaments for All Seasons**

I will share the basics for designing turned ornaments, show techniques for small-scale hollowing and spindle work, and cover fixture and holding strategies to improve turning efficiency. Creating ornaments is challenging and satisfying.

Donald Derry,
American Chopper,
2008, Elm, pigment, dye, 22" × 24½" × 22" (56cm × 61cm × 56cm)

Make Magic

Al Hockenbery,
Ball in Ball, Pecan, 5" (13cm)

Al Hockenbery

▸ **Ball in a Ball**

Learn a bit of magic and use basic bowl-turning techniques to create this unusual turning. Discover how to shape a sphere from a cylinder following a simple layout, and how to make and use chucks for finishing and hollowing the ball. I will reveal the secret of passing a ball through an opening that is smaller than its diameter to produce the ball in a ball.

▸ **Natural Edge Southwest Hollow Form**

Inspired by the pottery forms of the Southwest, my design focuses on volume and the illusion of function. When hollowing through face grain, the natural contours of the bark edge form dramatic rims. I will cover design, wood selection, mounting, shaping the form, surface refinement, hollowing, reverse chucking, turning the bottom, and finishing options.

Douglas J Fisher

▸ **Turning Off-Center Platters**

I will demonstrate how to turn off-center platters using a vacuum chuck so that both sides can be designed and carved—one side asymmetrical, the other symmetrical.

▸ **Surface Enhancement and Color**

I will demonstrate the methods I use to carve designs, texture surfaces, and achieve a variety of colors.

Douglas J Fisher,
Wise Thoughts Remembered,
2009, Bigleaf maple, 19½" × 2¼" (50cm × 6cm)

Keith Gotschall

▸ **Spindle Turning Versus Bowl Turning**

I will compare and contrast spindle turning and bowl turning. Grain orientation makes all the difference . . . or does it? I will show which tools to use and the way they should be oriented. Perfect for beginning and intermediate turners, with a surprise ending!

Keith Gotschall, *Holly and Ebony Tiny,* 2009, Holly, ebony, 4½" (11cm)

EOG Auction

After Saturday evening's banquet, join us for a lively auction of turned objects. Proceeds from the auction benefit the AAW Educational Opportunity Grant (EOG) program.

Keith Holt

▸ **Multi-Axis Turning for Figurative Work**

Explore how to use multi-axis turning with a twist to create masks, faces, and abstract forms. There is a natural progression from spindle-oriented multi-axis turning to eccentric turning with multiple grain orientations. I will explain the design and use of jigs for balancing multi-axis turnings and demonstrate the eccentric arm I use.

Keith Holt, *Meditating Face,* 2009, Maple, 6¼" × 3¾" × 2½" (16cm × 10cm × 6cm)

Spouse and Significant Others Tours • Craft Room

Sign up for one of the three fascinating packaged tours of the Hartford area:

- Mystic Seaport
- Historic Deerfield
- Essex Steam Train

The craft room was a roaring success last year in Albuquerque. We expect a repeat performance in Hartford.

Accommodations

Hotels

Hilton Hartford, 860-728-5151. Mention group code American Association of Woodturners. Rate is $119 for a single or double. Free downtown shuttle bus is available to the Convention Center.

Crowne Plaza Downtown Hartford, 860-549-2400. Mention group code GHCVB, American Association of Woodturners. Rate is $118 for a single or double. Free downtown shuttle bus is available to the Convention Center.

Ed Kelle, *Skin Deep,* 2009, Cherry, 13" × 6" (33cm × 15cm)

Ed Kelle

▸ **Explorations in Color and Texture**

Good form is a priority. Contrast can generate drama: light/dark, smooth/textured. Enhancements draw the viewer in for a closer look, inviting touch. An organic sense can be created without replicating nature—randomness is natural and gives a realistic feel. Learn bleaching and ebonizing, my *coral* and *thatched* styles, and the application of acrylic and watercolors.

Get Inspired

John Lucas

▸ **Turning Hand Mirrors**

Learn the proper use of a variety of tools in this demonstration on making a mirror with a handle. The mirror includes faceplate and spindle-turned parts. I will discuss how the cutting edges of tools work, unique ways to use turning tools, and how to use your body to control the cut. Also covered will be the use of a skew chisel and proper sharpening techniques.

▸ **Gift Ornament**

Discover a new way of presenting a small gift by learning how to make a Gift Ornament. The two-part ornament screws together and a small treasure can be enclosed. Demonstration will include hand-chased threading.

John Lucas, *Cocobolo Gift Ornament,* 2009, Cocobolo, 2" × 6¾" (5cm × 17cm)

24th Annual AAW Symposium in Hartford

Refine Your Method

Jon Siegel, New Hampshire Arm Chair, 1996, Hard maple, rush seat, 48" (122cm) high at back

Jon Siegel

- **Duplicating Spindles**
  I will turn a set of four table legs and discuss the challenges and methods associated with duplication. I will cover use of drawings and marking jigs, centering jigs, and working in short steps.
- **Spindle Turning for Furniture**
  I will turn a multi-axis Dutch foot (pad foot) table leg, as illustrated in my recent article in *Fine Woodworking*, and discuss how spindle turnings are used in tables, chairs, beds, and other furniture to form the structural framework.

Alan Lacer

- **Sharpening Woodturning Tools**
  I will discuss equipment, shaping, edge production, and honing; demonstrate freehand sharpening; and show what a sharp scraper and sharp cutting–type tool are.
- **Skew Chisel**
  I will discuss different grinds, shaping, edge production, and honing (hand and power honing) for skew chisels. There are multiple cuts that can be made with this tool. Overcome your fear.

Alan Lacer, lidded box, 2009, Wenge, bleach, 4½" × 2¾" (11cm × 7cm)

- **Box Making**
  Discover the various types of boxes and how to make them. I will demonstrate hollowing with hook tools, show how to achieve desired fits, and discuss finishing options.

Art Liestman

- **The Lost Wood Method: Moving Beyond Round I**
  I will show how to create lathe-turned hollow vessels with oval cross-sections. Turned objects can look bigger than the wood they start with. The process involves resawing boards, glue-up, turning, cutting apart, and reattaching the turned parts to complete the piece. I will discuss design of asymmetric turnings.
- **Therming: Moving Beyond Round II**
  Learn about multi-axis turning with the center of rotation *outside* of the piece of wood. I will show how to build jigs, discuss designing multisided objects, and share safety aspects.

Art Liestman, *Sprout and Sprite,* 2009, Bigleaf maple burl, acrylics, 3¼" × 2⅜" × 5½", 3¼" × 2½" × 5⅜" (8cm × 6cm × 14cm), (8cm × 6cm × 14cm)

David Marks

- **Gilding Turned Vessels**
  I will demonstrate the steps for applying silver leaf, copper leaf, and Dutch metal (composition gold) to hollow vessels, from surface preparation to the finished object. Dramatic patterns and effects can be achieved.
- **Creating Unique Patinas**
  In this exciting demonstration, enter the fascinating world of patination. I will discuss five different mild acids I use to create a variety of colors and patterns on metal leaf. See this process transform a gilded vessel. Silver leaf will turn to magnificent gold/red and then blue. Copper leaf turns to rich reds and haunting purples and blacks.

David Marks, Vessel, 2008, Buckeye, poplar, snakewood, ebony, silver leaf, 14" × 6½" (36cm × 17cm)

Examine Solutions

Dick Sing, European Style Pens, 2006, Buckeye burl, acrylic

Dick Sing

- **Basic Pen Turning**
  Learn how to choose the right materials, prepare the tubes and blanks, turn, glue, finish, and assemble a pen. I will cover unexpected problems and details so that you can understand why and how they happen and know the solutions.
- **Implementation of Ornamentation**
  I will demonstrate how to add end trim, inlays, and other materials to pens. I will discuss stabilized wood, acrylics, and antler and cover unexpected problems and details so that you can understand why and how they happen and know how to troubleshoot.

Tania Radda

- **Evaluating the Surface**
  Simple techniques can be used to select the best approach when treating the surface of a piece. I will discuss how to decide if an object should have texture, color, added elements, or piercing. Learn to recognize how patterns can work together or how they can clash, how to properly use surface treatments, and how to recognize balance and harmony.
- **Magical Twists**
  This is an introduction to working with compressed wood and how this material can be applied to turning. I will show how I work with *compwood* and how other turners have been using this material. I will discuss the limitations of compwood, how to turn it, how to creatively apply it, and give a glimpse of its infinite possibilities.

Photo: Ken Manicki

Tania Radda, *Rooted Traditions,* 2007, Basswood, compressed cherry, 9" × 8" × 15" (23cm × 20cm × 38cm)

Betty Scarpino and Terry Martin

Are you interested in submitting an article to *American Woodturner*? We will provide the information you need, answer questions you may have, and offer ideas for article topics.

Four Marvelous Woodturning Exhibits!

- *Instant Gallery*
  Not only is the AAW's Instant Gallery the largest group of turned-wood objects ever displayed under one roof, the work is incredible! Bring three of your best pieces to add to the excitement. While there, vote for your favorite chapter-challenge project and check out the special areas set aside for youth turning, EOG auction pieces, award winners, and other craft items.
- *Maple Medley: An Acer Showcase*
- *The Teapot*
- *A Gathering of Spoons*

These exhibits are open to the public, so encourage your local friends and relatives to check them out!

Woodturning Trade Show

Many of the major lathe manufacturers and specialty suppliers will be present. You won't see a larger exhibit of wood-turning equipment and supplies anywhere.

Curt Theobald, *Cha' hu',* 2010, Cherry, 6" × 3" × 7½" (15cm × 7cm × 19cm)

Jon Delp, Spoon, 2008, English boxwood, purpleheart, 1⅛" × 1½" × 9" (3cm × 4cm × 23cm)

24th Annual AAW Symposium in Hartford

Friday Special Interest Night

Photo: Ed Davidson

Join us Friday evening to attend one of a variety of special interest sessions to discuss ideas and visit with friends.

Collectors of Wood Art (CWA)
With the purchase of your first piece, you are a collector. If you are an artist, when you make your first piece of art, you are a collector.

CWA members explore topics such as how to discover a magnificent piece of wood art; where artists get their inspiration; how to care for a wood art collection; and insuring, documenting, and appraising wood art. Our programs include forums, studio tours, exhibitions, and a newsletter. You will meet other collectors and the artists who create the work.

For more information, visit our website at collectorsofwoodart.org.

Pen Turners
Interested in a pen turners' special chapter of the AAW? Share your views.

Segmented Turners
Find out the latest news on this specialty-chapter's symposium. Check out their website at segmentedwoodturners.org.

Ornamental Turners
Discover a variety of resources to learn more about OT.

Additional interest groups may be added.

Sharpen Your Skills

Curt Theobald, *My Mothers,* 2009, Laminated and dyed birch, holly veneer, largest is 6¼" × 3½" × 4½" (16cm × 9cm × 11cm)

Curt Theobald

▸ **Segmented Patterns**
Don't let the apparent complexity of a segmented pattern intimidate you. Come to this demonstration and learn how to break down the steps necessary to design and successfully assemble a pattern or project.

▸ **The Art and Evolution of Segmented Woodturning**
Where did the current popularity of segmented woodturning come from? This presentation will cover the history of segmented woodturning and the impact that past and contemporary turners have had on this growing discipline of woodturning.

Keith P. Tompkins

▸ **Kick It Up! Design for Beginners**
Geared to the beginner and intermediate turner, this demonstration represents my integrated approach to turning: balancing good technical skills with a sound understanding of design. By taking a balanced approach, woodturners can expect to see dramatic improvements in their work.

▸ **Ten Essential Cuts**
I will demonstrate my three favorite tools—spindle gouge, skew chisel, and bowl gouge—and cover the ten essential cuts they can produce. I will show my preferred grind for each tool and how to consistently achieve it. By mastering these ten essential cuts, there will be nothing you cannot turn.

Keith P. Tompkins, *Eye of the Storm,* 2005, Walnut, 5½" × 4" (14cm × 10cm)

Malcolm Zander, *Out of Africa and Blackwood Form,* 2006, African blackwood, 3" × 3½" (8cm × 9cm) and 6" × 2½" (15cm × 6.25cm)

Malcolm Zander

▸ **Form and Design**
This talk looks at different aspects of form. The goal is to develop a deeper understanding of what form is and why it is important to wood artists. We will explore, in depth, ways in which we can find new forms and designs for our work. Illustrated with an extensive slide show.

▸ **Thin-Walled and Pierced**
This talk will cover the turning and piercing of thin-walled pieces from dry wood. The emphasis will be primarily on cross-grain, using a simple bowl gouge (although end-grain turning will be touched on). The methods used will be illustrated with a slide show and two thirteen-minute videos. An overview of my work and any special techniques used will be included.

Ornamental Woodturners

John Calver

▸ **Eccentric Turning on a Rose Engine**

I will demonstrate how to set up and cut a four-start, star pattern with an eccentric chuck and the process for cutting through a multilayered disc to form an insert for a box lid. I will give a brief description of my shop-built Rose engine.

John Calver, untitled, 2009, Walnut, laminated acrylic

David Lindow

▸ **The Many Facets of the Eccentric Cutting Frame**

David Lindow, *Rose Turned Square Box*, 2008, African blackwood, 2" × 2" (5cm × 5cm)

The eccentric cutting frame (ECF) is the most versatile cutting frame in ornamental turning. It can cut barleycorns, offset circular patterns, spherical shapes in both convex and concave, make moldings for ornamentally turned objects, shape polygons, and much more. I will give the history of the tool, show patterns and shapes possible, and demonstrate the tool in action employing the use of the Rose engine.

▸ **Ornamentally Turning a Polyhedron**

Multiple-sided objects have become popular for ornamental turners. I will show how to choose the best chuck for the job on the Rose engine, hold the work, choose the proper cutting frame, and execute the operation. This demonstration is practical and provides the basis for branching out into more complex operations with a Rose engine or ornamental turning lathe.

David Lindow, Salt Shaker, 2010, African blackwood, 2" × 4" (5cm × 10cm)

Panel Discussions

The POP will sponsor ten rotations in Hartford, which are open to anyone to attend. Panel discussions are interactive—dialogue with the audience is welcome. See POP News on page 13 for details.

Jon Sauer

▸ **Rose Engine Lathes, Then and Now**

This presentation will include the history of Rose engine lathes, the early use of the Rose engine, and how objects made with this type of machine have evolved over time. Discussed will be how to locate antique and modern Rose lathes and the advantage of using the Rose lathe over indexing ornamental lathes. Jon brings to the table more than twenty-five years of ornamental turning experience. ■

Jon Sauer, Flowering Top, 2009, Amboyna burl, boxwood, bloodwood, magic medicine nut, 2½" × 4⅛" (6cm × 10cm)

Youth Turning Room

Youth between the ages of 10 and 17 are eligible to register for free hands-on instruction. Youth must be accompanied by an adult registered for the symposium. Projects include a ball and cup, long-handled spin top, pens with pen kit, stick pen, bowls, and plates.

Photo: Andi Wolfe

Twenty-five youths will win a complete turning package, including a lathe, tools, and faceshield!

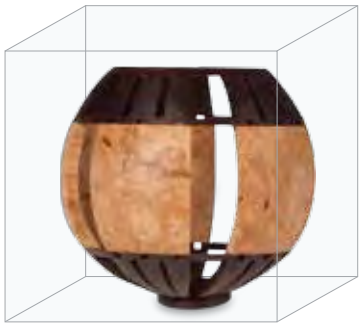
Volunteer instructors are Nick Cook, Barry Gross, Bonnie Klein, Joe Ruminski, Avelino Samuel.

To help make this program successful, donations include:

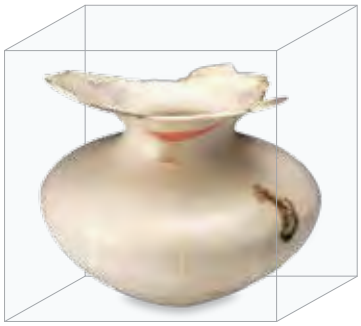
- Walter Meier Powermatic/JET, twenty-five JET mini lathes with stands
- Crown Tools, twenty-five sets of woodturning tools
- Woodcraft, twenty-five faceshields
- Vince's Wood 'N Wonders, sandpaper
- The Sanding Glove, glue
- Teknatool, twenty-five chucks and safety centers

Photo: Ed Davidson

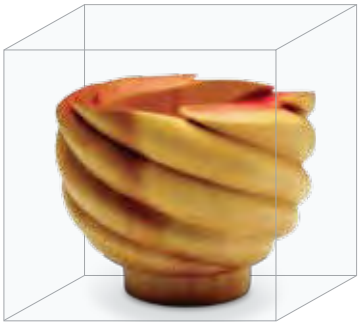
Joe Ruminski



Bill Smith



Barbara Crockett



Dennis Paullus

Ed Kelle

Call for Entries 25th Anniversary Local Chapter Exhibition

The American Association of Woodturners will celebrate its 25th anniversary in 2011 at the symposium in St. Paul, Minnesota. One of the many special events featured will be the exhibition, "Turning 25—A Celebration." All local chapters of the AAW are encouraged to enter. Our goal is to have every AAW chapter represented. We would like each chapter to enter a lathe-turned work that best exemplifies and represents that chapter.

The chapter can choose its own process for selecting a piece for the show, whether it is a collaborative effort or a chapter-juried selection from members' work. Registration and color photos of the entries must be submitted online through the AAW website at woodturner.org/sym/sym2011/exhibit.

Each entry must comply with the following:

- One lathe-turned object may be submitted per chapter.
- The object must fit in an 8" (203mm) cube.
- Weight limit is 3 lb (1.36kg).
- Sales will be shared 70% with the chapter or artist and 30% with the AAW.
- All pieces must remain with the exhibit and travel to various venues after the symposium. Sold work will be shipped to the buyer at the end of all exhibits, and unsold work will be returned to the chapter or individual.

Other requirements:

- Entry fee: $40
- Entry deadline: February 28, 2011
- Additional details will be provided in the future.

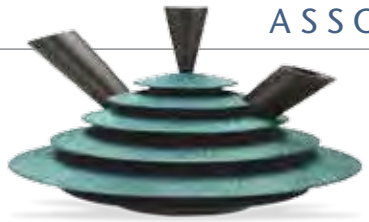
The entry fee helps to defray the cost of a special display setup, return shipping to the buyer or the chapter, plus the publication of an exhibit catalog. The catalog will contain a photo and description of each exhibit piece. All participating chapters will receive a complimentary copy of the catalog.

The exhibit will be displayed in a prominent area at the St. Paul symposium and participating chapters will be individually recognized for their contribution.

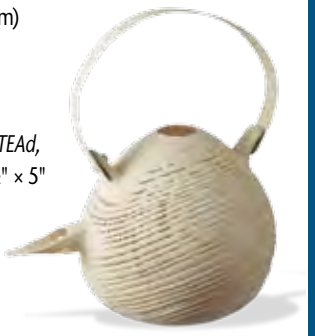
With over 325 AAW chapters, this exhibition will be quite large and a powerful display of skill and talent. It would be awesome to see each chapter represented in order to comprehensively capture this special moment in our organization's history.

Questions can be addressed to Bill Haskell, Exhibitions Committee Co-chair, at bill@woodturner.org. ■

POP News



Darrell Copeland, *They Came for Tea,* 2009, Maple, acrylic, 4½" × 8½" × 7" (11cm × 22cm × 18cm)



Pascal Oudet, *SandblasTEAd,* 2009, Oak, bleach, 8¼" × 7½" × 5" (21cm × 19cm × 13cm)

The mission of the Professional Outreach Program is to promote a greater understanding of professionalism within the field of contemporary woodturning.

New POP chair

Trent Bosch has assumed the leadership of the POP committee replacing Jacques Vesery. Jacques will be continuing on the committee in an advisory role. We sincerely thank Jacques for his dedicated work on behalf of this committee and we congratulate Trent.

Looking for a logo

The POP needs a logo, and we would like your input. Designs must be received by June 14. Entries will be reviewed during the Hartford symposium, and the winner will be announced at the banquet. The winner will receive a free registration for a future AAW symposium. Submit electronic entries to Barbara Crockett at bcrocket@columbus.rr.com.

POP rotations in Hartford

The POP will sponsor ten rotations in Hartford, which are open to anyone to attend. Panel discussions are interactive—dialogue with the audience is welcome.

- *A Case Against the Vessel*, Peter Exton, Bill Luce, and Marilyn Campbell
- *Teapots and Their Makers*, Art Liestman, Tania Radda, and Jacques Vesery
- *All About Wood*, Andi Wolfe and J. Paul Fennell
- *Analysis of Marketing and the Development of New Markets*, David Nittmann, Jerry Kermode, and Mike Mahoney
- *Photography*, David Ellsworth and Ed Kelle
- *Overcoming a Lack of Talent*, Bruce Campbell and Jerry Kermode
- *Careers in Woodturning*, Peter Block, Mike Mahoney, and Barbara Crockett
- *Open Forum—Ask Us Anything*, Marilyn Campbell, David Ellsworth, and Kevin Wallace
- *Why You Need a Website and What to Do About It*, Cindy Drozda, Jacques Vesery, and J.Paul Fennell
- *Influence and Inspiration*, Kevin Wallace, Jacques Vesery, Binh Pho, Tucker Garrison, and Joey Richardson

Instant Gallery group critiques

At the Hartford symposium, during lunch on Friday and Saturday, POP is hosting small critique sessions for Instant Gallery pieces. Up to fifteen objects will be critiqued by their makers and a moderator. The pieces will be brought to one of three tables where discussions will take place. Friday's themes are hollow forms, surface treatment, and segmented work. Saturday's themes are natural edge, sculptural, and anything goes. Look for sign-up sheets in the Instant Gallery.

POP exhibits at Hartford

This year's invitational exhibit is "The Teapot." The teapots will be auctioned for the benefit of programs sponsored by the POP. Check the conference program to determine when the auction will take place, bid, and take home a treasure!

A second POP sponsored exhibit is "A Gathering of Spoons." These wooden spoons are from the collection of Norm Stevens, who lives in Hartford.

Emerging artists program

The POP is sponsoring an emerging artists (EA) program at Hartford. The emerging artists, Nick Agar, David Belser, Tucker Garrison, and Pascal Oudet, are recognized as having the potential to make significant contributions to the woodturning field. Each emerging artist will demonstrate at the symposium. Watch for more details in the symposium brochure.

Christian Burchard receives top honors

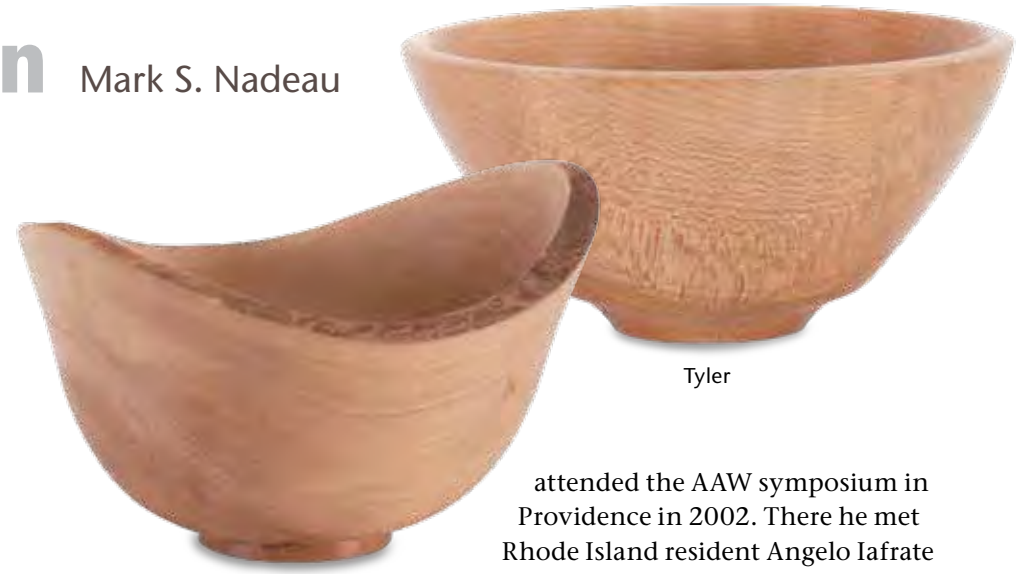
Christian's wall sculpture, *Days of Summer by the Pond* received the $5,000 top prize of the Society of Contemporary Craft's biennial, "Transformation 7: Contemporary Works in Wood, the Elizabeth R. Raphael Founder's Prize," at the ACC gallery in Pittsburgh, PA. The presentation can be viewed on YouTube at Transformation 7: Contemporary Works in Wood. Congratulations, Christian!

David Ellsworth leaves committee

I would like to thank all the POP committee members, as well as the AAW Board, who have supported me since we began the POP in October 2004. It has been an absolute delight to be a part of this dynamic and progressive program and to work with such dedicated and creative individuals. It is now time to step aside and make room for new people with fresh ideas and new energy. I will remain as an advisor to the committee. There has been remarkable growth, thanks to the energetic people who give it strength. I welcome David Willard who will replace me on the committee. —David Ellsworth ■

Students Turn

Mark S. Nadeau



Tyler

Steve

It is not uncommon to see shop classes disappearing from our nation's schools. Fewer high schools are offering industrial arts, and it is even less common to see these programs in middle schools. However, in the town of Tiverton, Rhode Island, the Tiverton Middle School (TMS) has not only managed to maintain its woodworking program, but it has a growing woodturning program as well. This is originally as a result of the hard work and dedication of technical education teacher Wayne Collins, as well as a handful of dedicated volunteers.

Wayne Collins began teaching fifth through eighth graders at TMS in 1989. For each year of Collins's curriculum, the students were introduced to a new topic. Fifth graders studied introduction to technical education; sixth graders studied mechanical drawing; aerospace (model rockets) was offered in seventh grade; and eighth graders studied woodworking. Initially, woodturning was not a mandatory part of shop class. It was taught during regular class time only if students had an interest and was offered after school for students of all grade levels. However, more and more students became interested in learning to turn. As of January 2008, woodturning became a regular part of his eighth-grade curriculum.

The inspiration for the woodturning program came after Collins attended the AAW symposium in Providence in 2002. There he met Rhode Island resident Angelo Iafrate (past president of the AAW) and Larry Dunklee and Mike Murray, two members of Rhode Island's local AAW chapter, Ocean Woodturners. Collins became a member of each organization, held three terms as vice president of the Ocean Woodturners, and was elected president in 2009.

Collins went to the symposium looking for new ideas. The individuals he met as well as the youth turning sessions he saw opened his eyes to the possibility of starting his own woodturning program at TMS. With only a year of woodturning experience he was able to launch the woodturning curriculum in 2003. He started with six JET mini lathes, three of which were purchased with his class budget. The other three lathes were donated to his program: one from the Ocean Woodturners, one from George Snyder (owner of the Woodcraft store in East Greenwich), and one from the parent–teacher organization of TMS.

Since the inauguration of the program, Collins received two Educational Opportunity Grants from the AAW. The combination of those grants, generous donations, and fundraising in the form of a biannual craft fair, allowed the program to grow to eleven lathe stations. This is important, as the program now has an average

Owen Leary turns his first bowl with the help of Rick Sousa *(left)* and Wayne Collins *(right)*.

of twenty students per class, and as many as fifteen students have recently signed up for after-school classes. Students have been successfully sharing their lathe time with each other.

During the 2006-2007 school year after-school woodturning classes went smoothly, even spawning an after-school woodturning class for the faculty. But, in September 2007, many after-school programs, including the woodturning class, were halted as a result of a teacher strike. Teachers returned to work under a contract compliance rule, but that meant teachers worked a full day of school, nothing more. All volunteer-based after-school activities were put on the back burner.

Many of Collins's advanced woodturning students voiced their disappointment, and as a result Collins and the Ocean Woodturners came up with a solution. There was an exception to the rule about holding after-school activities during the strike: If an outside organization sponsored an activity for the students, then it was permissible. The Ocean Woodturners started sponsoring Tuesday night woodturning classes, effectively reinstating the original schedule. They continue to sponsor the classes to this very day.

The Ocean Woodturners members who regularly help at these classes include Wayne Collins, Rick Sousa, Bill Mershon, Tom Marshall, and myself. Rick Sousa has been teaching all of the after-school woodturning classes since he came on as a mentor in 2003. Rick turns and builds custom furniture for Stephan Plaud Inc., an independent furniture maker located in Tiverton. Rick has generously donated his time and knowledge regularly over the past six and a half years. Other professional woodturners who volunteer include Angelo Iafrate, Beth Ireland, and Bill Grumbine.

The lathe stations at Tiverton Middle School.

In 2009, Collins retired from his career at TMS. However, his after-school woodturning program continues with the volunteer work of the Ocean Woodturners. The program is enriching the lives of many young people. You just never know what treasures you are going to find in a small town. ■

Mark S. Nadeau is a photographer and woodturner who lives Portsmouth, Rhode Island. Questions and comments can be sent to mark@markscottnadeau.com.

Zack

Owen

Victoria

AAW Grant Triggers Five-Year Success at Maine Woodturning School

Ken Keoughan

In 2004, when the Maine Woodturning School started, the Maine Woodturners, a local chapter of the AAW, donated $1,000 to help with startup. Additionally, the AAW provided an Educational Opportunity Grant (EOG). The results have been substantial. Many of our faculty are local club members, which has, in turn, helped triple the club's membership.

The original vision was to create a school in which students, with little to no woodturning experience, could develop woodturning skills. We believed that the key to this concept was having state-of-the-art equipment and tools. The grants, along with startup money, allowed the school to purchase six Oneway lathes and the tools and equipment required to teach six students. All that the students needed to bring was a positive attitude.

When the Woodturning School became an independent, self-sustaining organization in 2007, the AAW again supplied grant money to help cover costs incurred in reorganization. The $2,000 EOG broadened the school's student base by launching more workshops and specialty classes for advanced turners.

The School's focus is primarily on teaching basic woodturning skills, as covered in four Core Courses. Upon completion of these four classes, students have had hands-on instruction with all the tools and techniques with which to turn almost anything. In addition to the basic curriculum, the school offers fifteen specialty intensives.

The school also works with other educational institutions such as the local high school, Lincoln Academy.

Douglas Blasius and instructor, Al Mather, proudly show off Douglas's rolling pin.


Instructor Ken Shepherd demonstrates for his Bowl 1 students.


Winfield Libby works on his candleholders as instructor and alumna, Ann Prescott, looks on.


Enthusiastic participants from the "Girls' Night Out" bowl sampler class show off their final products.

Students from the high school's alternative education program can attend 1½-hour-long introductory woodturning sessions.

Atlantic Challenge, where students learn wooden boat building as part of an apprentice program, also takes advantage of courses offered at the School, in particular spindle turning. Thanks to Rick Palm, former Atlantic Challenge executive director and a Woodturning School instructor, the apprentices now have an opportunity to incorporate woodturning education into their basic program.

A practical and fun way to find out about woodturning is the "no prior experience, success guaranteed" turning sampler class, during which students turn their own bowl in three hours. Two experienced instructors guide students through the process from start to finish. For an added touch, cake and gourmet coffee are served. Participants go home with a bowl and get to have their cake and eat it too!

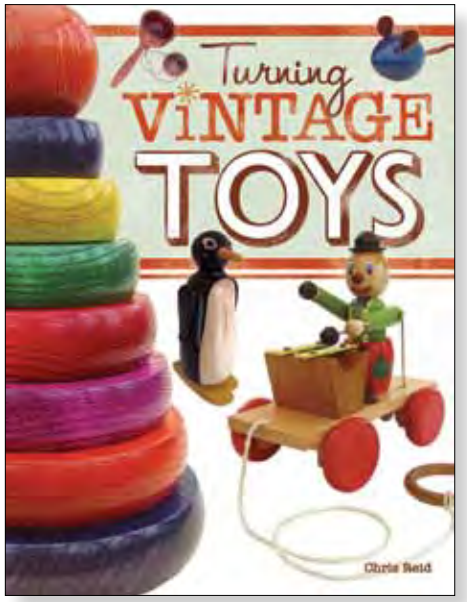
It has been a wonderful five years and everyone at the school is grateful for all the encouragement and support we have received. More information about the Woodturning School can be found at woodturningschool.org. ■

Turning Vintage Toys by Chris Reid

Calling all grandparents! Chris Reid has just released a new book that will make you a hero to your special grandchild. Parents can use it too, but toy-making just seems to be a grandparent kind of thing. Having turned toys for my own grandchild a few years ago, I am keenly aware of the satisfaction that comes from seeing a grandchild's delight in a toy made by their treasured relative. Interestingly, even at toddler age, children seem to prefer simple solidly built toys to the plastic glitzy ones from the store.

In *Turning Vintage Toys* (2009, Fox Chapel Publishing, 192 pages), Reid presents fifteen excellent projects with something for each age group from toddler to teenager. As implied in the name, these are classic toys that have been around for ages. The ones intended for the very young are brightly painted and tactile; all are appealing to their intended age group. Toys include a cuddly mouse with leather ears, some colorful stacking toys, and several action toys including a monkey that climbs down a tree and a ball bearing yoyo.

Each project is fully described and illustrated. Reid begins each description with a cutting list for all of the wooden parts of the toy and includes suggestions for suitable woods to be used. He follows with a fully dimensioned scale drawing of each component. He provides a step-by-step, well-illustrated description of the turning, finishing, and assembly of the toy. In the case of action toys, he describes how they work and how to operate them. Also, in most cases, he suggests interesting variations of the design, and in many cases, he tosses in tips and bits of history relating to the toy.

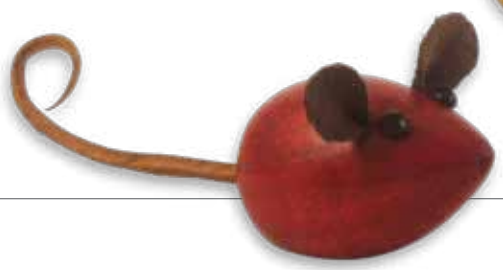


No unusual woodturning skills are required to complete the toys, with the exception of hand chasing of threads in a couple of the projects. Even here, Reid provides alternatives if one is not up to thread chasing. Several projects require the turning of spheres, but few require high accuracy. For turners who would like to avoid freehand sphere-turning, Reid presents a sixteenth project, the fabrication of a sphere turning jig, and provides detailed instructions on its use.

Technically, the book is very well done. The layout is engaging and all of the illustrations are first class. It is an enjoyable book to pick up and read even if you do not intend to make toys. But, hey, don't disappoint those grandkids! ■

—Dennis J. Gooding

I tried my hand at a couple of Chris Reid's toy designs. The woodturning was simple, but painting and decorating the stacked soldier was a challenge; I must have made every painting mistake possible. The mice, however, were dyed and lacquered and were not a problem. Many years ago when my daughters were small, I invented a trio of rodents for their entertainment named Ratatouille, Mousse au Chocolat, and Pamplemousse (grapefruit). Ratatouille seems to have achieved fame and fortune as the star of a Disney movie, but alas, poor Mousse au Chocolat and Pamplemousse remain in obscurity. Perhaps publication of their pictures in *AW* will be the break they need.



Calendar of Events

Vol 25, no 3, 2010 Deadline: April 20
Vol 25, no 4, 2010 Deadline: June 20

Send information to editorscarpino@gmail.com

Australia
March 23–25, 2012, TurnFest Australia, 10th anniversary conference to be held at the Sea World Resort, Gold Coast, Queensland. Over fifty past presenters, both international and Australian, will be featured. Contact ddrescher@bigpond.net.au for information.

British Columbia, Canada
September 10–12, West Coast Roundup, Sheraton Guilford, Surrey, sponsored by the Greater Vancouver Woodturners Guild. Visit gvwg.ca for more information.

Jason Schneider, *Relevant Teapot,* 2010, Corrugated cardboard, plaster, acrylic, 8¾" × 8¼" × 5" (22cm × 21cm × 13cm)

Colorado
May 22–30, Exhibit of Colorado woodturning, club member work from Front Range Woodturners, and AAW member participants from other Colorado clubs. Instant Gallery style. Demonstration turning outside. Opening reception May 22. At Rockler Woodworking, Denver. For more information contact Bruce Perry at 303-972-4716 or FRWmembership@live.com.

September 11–12, 12th Annual Rocky Mountain Woodturning Symposium, Larimer County Events Center, Loveland. Featured demonstrators are Dixie Biggs, Trent Bosch, Bruce Hoover, Allen Jensen, David Marks, David Nittmann, and many more. For information contact Allen Jensen at 970-663-1868 or rajconst@aol.com or visit rmwoodturningsymposium.com.

Georgia
September 17–19, Turning Southern Style XVI, at the Unicoi State Park Lodge in the mountains of North Georgia near Helen. Featured demonstrators include J. Paul Fennell, Stephen Hatcher, and Alan Lacer. Also featuring Nick Cook, Johannes Michelsen, Peggy Schmid, and Dave Barriger. Information is available at gawoodturner.org or contact Harvey Meyer at 770-671-1080 or him1951@bellsouth.net.

Illinois
August 20–22, Turn-On! Chicago 2010, symposium, Mundelein, just north of Chicago. Demonstrators include Jimmy Clewes, Don Derry, Cindy Drozda, David Nittmann, Binh Pho, Dick Sing, and Malcolm Tibbetts. Events include hands-on pen turning, trade show, and banquet. For more information, visit chicagowoodturners.com.

Indiana
February 19–April 10, 2011, "Through the Woods, Around the Block: A Juried Exhibit of Turned Objects," Lubeznik Center for the Arts, Michigan City. Entry deadline is September 30, 2010. More information and a prospectus can be found at lubeznikcenter.org.

Minnesota
March 2–May 24, "The Teapot" and "A Gathering of Spoons," AAW Gallery, 222 Landmark Center, Saint Paul. For more information, visit gallery@woodturner.org.

North Carolina
January 2–May 15, "With Lathe and Chisel: NC Wood Turners," Gregg Museum, North Carolina State University, Raleigh. Exhibit features work selected by Dale Nish from members of the North Carolina AAW chapter. For more information, go to ncsu.edu/gregg.

January 30–April 4, "Women in Wood," Grovewood Gallery, Asheville. For more information, visit grovewood.com or call 828-253-2489.

Pennsylvania
January 8–April 24, "Magic Realism/ Material Culture," showcasing artists' perceived notions of material. Wood Turning Center, 501 Vine St., Philadelphia. For more information, visit woodturningcenter.org.

Tennessee
November 11–14, 2nd Segmenting Symposium, Arrowmont School of Arts and Crafts, Gatlinburg. Topics covered include glue technology, ribbon construction, beyond the vessel, segmenting pens, small-scale turnings, alternative materials, photography, and software packages that aid in design and planning. New to segmenting? Learn where to begin. Featured demonstrators include Malcolm Tibbetts, Curt Theobald, William Smith, Andy Chen, Jaime Donaldson, Lloyd Johnson, Bill Kandler, Jim Rodgers, Kurt Hertzog, Jerry Bennett, and Dennis Daudelin. For more information and registration, visit segmentedwoodturners.org.


Photo: Ken Manicki

Tania Radda, *Who Came First?,* 2010, Basswood, compressed walnut, Prismacolor pencils, dye, 7½" × 7½" × 16" (19cm × 19cm × 41cm)

Utah
May 6–8, Utah Woodturning Symposium, McKay Center, Utah Valley University, Orem. Featuring over twenty premier woodturners, demonstrations, instant gallery, manufacturers' showcase, pen turners' rendezvous, educators' lecture series, swap meet, and more. Visit utahwoodturning.com for information.

Washington
July 24–27, 3rd Annual Creativity in Woodturning, Komachin Middle School, Lacey. Alan Lacer will be the featured woodturner for Saturday's symposium. Workshops are available July 25–27. For more information, visit woodturnersofolympia.org or contact Al Price at aprice44@aol.com. ■

Call for Entries
"The Art of Applied Design"

The DHM Digital Gallery invites designers working with wood to participate in "The Art of Applied Design," an international juried competition. Deadline: July 15, 2010. All submitted works must be functional objects commonly used within interior spaces, such as furnishings (hard or soft), utensils, fixtures, or containers. Objects that are purely decorative are not eligible. Evaluation will be based upon uniqueness and creativity, craftsmanship, and quality of the submitted digital image. The online exhibit (from Sept. 15 to Dec. 1, 2010) will include email addresses of accepted artists to facilitate independent sales of work. For a prospectus and entry form, visit ches.okstate.edu/dhm/gallery.

Website Winner

Congratulations to Dave Peebles, Lyons, Ohio, first-place winner of the January 2010 AAW website contest. Mark Nadeau was second-place winner and Bob Sesti took third place. The contest theme was turned wood bowls, of a salad or fruit bowl shape, with the focus on the form, finish, and appeal of the wood. Rim treatments were allowed, as well as external surface modifications, but the interior of the bowl must be only wood. Mike Mahoney was the judge. Of David's bowl, Mike wrote, "Great looking bowl. Simple interior and exterior curves. Good use of material. Bowl turning done to its best and exemplifies the theme of the contest."

Dave Peebles, untitled, 2009, Black cherry, 4⅛" × 12" (10cm × 30cm)

Check out the AAW Forum at woodturner.org for the next online contest. ■

Wood Dust and the Woodturner

John English

The most complete protection is offered by full-face visor/mask/shroud systems such as Triton's powered ventilator, which was specifically designed for woodworkers.

At the U.S. Department of Labor, somebody has a cheerful way with words. According to the Occupational Safety and Health Administration (OSHA), "wood dust becomes a potential health problem when wood particles from processes such as sanding and cutting become airborne. Breathing these particles may cause allergic respiratory symptoms, mucosal and non-allergic respiratory symptoms, and cancer."

Of course there's a lot of truth in what OSHA is saying. And while the government is primarily concerned with people who create dust as a byproduct of their jobs, every woodturner is exposed to some level of risk. Even among turners, those risks vary. As humans grow older, we are less able to combat the effects of environmental hazards. For example, our lung capacity decreases as the elasticity of our lungs declines. And it's not just our lungs we should be concerned about. According to OSHA, "exposure to excessive amounts [of wood dust] is considered to have an irritant effect on eyes, nose, and throat, in addition to pulmonary function impairment, and is considered a human carcinogen."

Whether the dust collector has a fabric or a canister filter on top, it can usually be equipped with a clear plastic disposable collection bag below; this offers the distinct advantage of allowing the woodturner to see at a glance when the bag is getting full.

We should make responsible decisions, so let's get informed.

The nature of dust

Anybody who has perused *The Art of War* is familiar with the phrase "know your enemy." Writing in the sixth century, Sun Tzu, a Chinese military strategist, held a philosophy that is still widely taught; it is as applicable in a basement workshop as it is in a combat zone. The smart way to fight, according to Tzu, is to learn as much as possible about the enemy in order to create an advantage for yourself. So, let's do that by beginning with a discussion of the type of waste product that woodturners generate.

Turners create three distinct types of wood waste, and two of these are essentially innocuous. Large chips and gross dust particles are extremely difficult to inhale. While they may be hazardous as projectiles flying through the air, their collection and control is more a matter of workplace tidiness than a health issue. Fine dust particles, on the other hand, can be dangerous, and this is the enemy that we need to learn about.

There are two aspects to fine dust that determine risk. First is the size of the particles, and second is the concentration of them in the air. Sawdust is generally in the area of less than 1 micron to 600 microns in size. A micron (µm) is one-millionth of a meter ($\frac{1}{25,400}$ of an inch) in diameter. To put that in perspective, particles smaller than 40 microns cannot be seen with the naked eye. Our lungs deal well with foreign bodies that are more than 7 microns in size. So, when a ray of sunlight reveals floating dust in the shop's air, we're only seeing particles that are five or six times larger than the ones that can hurt us. Those invisible enemies are so small that our natural respiratory filters can't catch them.

But size isn't everything. The number and concentration of particles in the air is the real key. Jobsite exposure to wood dust causes significant increases in respiratory problems at exposure levels as low as 2 mg/m^3 (just 2 milligrams per cubic meter). The National Institute for Occupational Safety and Health (NIOSH) recommends exposure limits that are half that: 1 mg/m^3. So, here's a sobering thought: Sanding a bowl with fine grit paper produces a concentration

Many smaller dust collectors now offer canister filters rather than fabric ones. The filters replace the top fabric bag and any buildup of powdered dust can be removed by simply turning a lever (on top), instead of trying to beat the dust from the inside of a bag.

Oneida has created an aftermarket add-on cyclone that can be attached to a single-stage dust collector, in effect transforming it into a two-stage unit that separates the dust from the chips. A two-stage filter keeps filters cleaner and more efficient, and is easier on impeller fan blades.

several hundred times the NIOSH level in the immediate vicinity of the work.

It is not just the cellulose debris that needs to be addressed. Adverse health effects also come from biological organisms such as mold and fungi that grow on or in the turning blank. Scraping and sanding wood while it is on the lathe will release these particles, and will also free the residue from adhesives used in segmented or repaired work. Furthermore, concentrations of wood dust may create a mixture with air that can explode and will also burn readily if ignited by a spark or flame.

The government has come up with a lovely acronym for this weighty topic: LEV (local exhaust ventilation). LEV describes the three main dust solutions available to turners: powered masks and helmets, ambient filters (those large, ceiling-hung boxes that scrub the shop's air), and dust collectors/shop vacuums equipped with filters to handle fine particles. The latter is the most effective and perhaps the least understood of the three, so let's begin there.

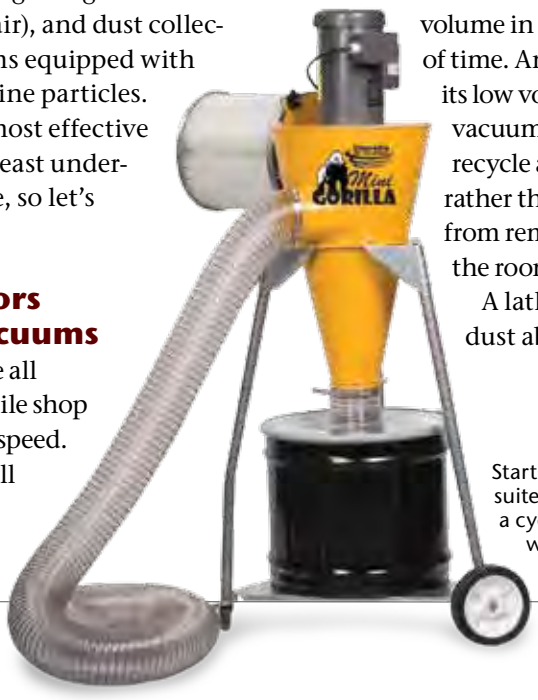
Dust collectors and shop vacuums

Dust collectors are all about volume, while shop vacuums are into speed. Dust collectors pull large amounts of air through their filters, while shop vacuums have more suction but move far fewer cubic feet per minute (cfm). Power in both types of machine is measured in terms of static pressure, which is the ability to pull up water in a controlled test. A dust collector can raise a column of water about a foot up a tube, while a shop vacuum can pull the same column perhaps five times as high.

However, the average woodshop dust collector has a 4" or 6" (10cm or 15cm) inlet and it will move between 650 and 2,000 cfm, while a shop vacuum hose is only 2½" (64mm) in diameter and can pull less than 200 cfm (and about a quarter of that with a smaller, 1¼" [32mm]-diameter hose). A typical one-car garage workshop contains about 2,000 cubic feet of air. A larger dust collector can filter that much air about once a minute, while an average shop vacuum handles less than 1/10 of that volume in the same amount of time. And because of its low volume, the shop vacuum will primarily recycle air close to it, rather than scrubbing air from remote corners of the room.

A lathe generates dust about halfway between the floor and the ceiling in most shops, so the contaminants are well distributed through the workshop and especially around our mouths and noses. During turning, sandpaper is static while the work revolves, and that motion tends to spread the dust around. Because of its small hose and ▸

Collectors equipped with two pairs of bags are designed to share a single, larger motor. The airflow is split, allowing twice the room for waste in the lower bags and twice the amount of fabric filter in the upper ones.



Starting at just 1 HP, the Mini-Gorilla dust collector from Oneida is ideally suited to space-challenged shops, where a turner needs high efficiency, a cyclone separator, and 600 cfm of airflow to collect the fine and coarse waste from a single lathe.

Combining the benefits of cyclone separation with an exterior two-stage filter and a large debris bucket, the 2 HP Super Gorilla from Oneida is a unit well suited to turners who take on larger bowl projects, and therefore need more than one dust port.

Oneida Air System's portable collector is designed for woodworkers and turners who don't have a central dust collection system with lots of ductwork already in place. The cyclones create a vortex that uses centrifugal force to separate dust from chips.

lack of volume, a shop vacuum is fairly ineffective at collecting fine particles around a lathe, no matter what kind of dust port is used on the end of the hose. It'll get the big bits, but the harmful ones can enter our lungs.

On the other hand, dust collectors usually force the air back into the room through a large fabric bag rather than through a small cylindrical filter. The weave on the bag determines what size particles are returned to the room. Bags are available aftermarket for most collectors, and many handle dust down to one micron or less. There is a point of diminishing returns, where the filter openings are so small that they restrict the airflow to the point that the dust collector loses much of its volume. For most machines, that watershed is in the neighborhood of one to two microns, while some manufacturers recommend staying above four microns, just to maintain airflow. Some of the high-end shop vacuums now come with cartridge filters that will scrub the air down to a very respectable level. These high efficiency particulate air (HEPA) filters are required to remove at least 99.97% of airborne particles 0.3 microns in diameter. However, they simply can't handle high volume, and that's what turners need to address their dust.

Storage is important, too. A shop vacuum's waste tank is generally in the 5 to 10 (20 to 40L) gallon range, while a dust collector bag doesn't need to be emptied until it has accumulated several times that. Many are even set up for 30- or 55 (110- or 210L)-gallon drums. That encourages people to use the machines. Nobody wants to stop working every few minutes just to empty a dust bag.

There's one more health concern with shop vacuums: most models are very noisy. However, there are mufflers made for most shop vacuums, including a fairly universal one from Sears.

The bottom line is that dust collectors serve turners better than shop vacuums, primarily because of the sheer volume of waste that we generate and the number of air exchanges we require to protect ourselves.

Selecting a dust collector

The critical numbers to look for in a dust collector are volume and static pressure. Volume is described in cubic feet per minute (cfm). While the horsepower rating gives some indication of a unit's abilities, different manufacturers measure horsepower in different ways and that often leaves the woodturner comparing apples to oranges. But the volume of air that a fan can move is a fairly reliable number.

If the lathe is the only tool hooked up to a dust collector, or all the other machines can be isolated with blast gates so that only the lathe is being served, a collector with volume in the 600 to 1200 cfm range is quite adequate for most work, if it isn't located too far away. Turners with large bowl lathes who are turning vessels that exceed 16" (41cm) or so in diameter will need more volume.

The second half of the equation, static pressure (SP), can be confusing. For example, Grizzly offers an excellent two-horsepower cyclone dust collector (model G0440) that pulls

The Dust Deputy from Oneida turns an ordinary shop vacuum into a two-stage unit, where the larger particles are sent to the bucket and the fines are trapped and collected in the unit's standard bin.

Ceiling-hung shop air filters such as Grizzly's G0572 usually have a remote control for the three-speed motor, an automatic timer, and two filters (in this case a 5- and 1-micron). The 1/5 HP motor runs on standard 110 Volts.

Filtering up to 1,400 cfm, the G9956 from Grizzly can scrub all the air in a two-stall garage shop in an impressively scant three minutes, providing twenty changes an hour. It runs on a 1/3 HP, 110-Volt motor with remote and three speeds.

Weighing just 18 lb (8kg), this freestanding version of a ceiling-mounted whole-shop filter is offered by Shop Fox. It filters down to an impressive 0.3 microns, and because it is unattached, it can be placed close to the lathe, especially during sanding tasks.

1,354 cfm at 2.5" (6cm) SP. That is, it moves 1,354 cubic feet of air per minute at 2.5" (6cm) of static pressure (the amount of suction required to raise a column of water that high). However, the specs on this machine also note that the maximum SP is 10.4" (26cm). In other words, the machine will not move air at a higher suction level. The key here is that, as the static pressure rises, the volume of air falls. So, when comparing two dust collectors, one needs to compare their volumes (cfm) at the same SP. If a salesperson is touting an impressively high volume of airflow, the odds are that he or she is not mentioning a very low suction rating.

Beware of a SP number that is quoted without cfm. If a machine is rated at, say 16" (41cm) SP, it's a safe bet that this is the maximum SP it can generate, and at that pressure there is absolutely no airflow. The bottom line is that a good two-horsepower dust collector should be able to draw about 1,500 cfm at 12" to 14" (30cm to 36cm) maximum SP; a three-horsepower unit should handle 2,000 cfm; and a four-horsepower machine should be in the 3,500 cfm range.

Aside from airflow, some other design aspects are worth noting. Two-bag collectors have a filter bag on top and a collection bag on the bottom. Four-bag units simply double the filter and collection areas. Clear poly bottom bags (as opposed to canvas ones) really help, as they make it immediately obvious when the collector needs to be emptied.

Machines with canister filters have a pleated filter instead of a fabric bag, and the big advantage here is that, when dust cakes on the inside, it's just a matter of moving a handle to knock it loose and regain full airflow. The canister filter is usually made of polyester, and many filter down to less than 1 micron. The pleats allow for a larger filtering surface in a smaller physical area.

A cyclone dust collector has a large funnel-shaped plenum that forces the incoming air to swirl in a circle, so that large and small particles are separated by centrifugal force. In general, there is a canister for large chunks and a bag for fine particles. For turners, there isn't a whole lot of advantage, considering the extra expense, as we generally don't create large waste on the lathe. A more budget-sensitive solution is to create a two-stage collector by adding a garbage can and a special lid to a single-stage unit (the lids are available at nosawdust.com/cyclone_lid.htm).

Ambient filters

These are also known as air scrubbers or whole-shop filters. They most often take the form of rectangular, ceiling-hung metal boxes with a fairly powerful fan that is located behind one, two, or even three stacked filters. The salient factors to consider when choosing one of these air filtration systems are the same as those used to decide on a dust collector: how much air does it move, and how efficient are the filters? The higher the volume (cfm) on the outfeed side of the unit, the quicker it will scrub the air in your shop. Try to find a unit that will recycle the cubic feet in your space (length × width × height in feet) at least every ten minutes.

Most of the newer units come with a remote control, which is handy for people who are less than 7' (213cm) tall. They usually have three speeds (in the neighborhood of 400, 600, and 800 cfm), and will cycle the air in a ▸

A freestanding dust port that has its own independent, adjustable stand and a wide funnel-shaped mouth is ideal for collecting dust on the lathe. These units can be placed so close that they almost touch the work, and angled upward a little to catch falling chips.

Several manufacturers now offer custom and aftermarket high efficiency filters for shop vacuums and most of them are capable of trapping more than 99% of the small particles that cause pulmonary problems.

The 11121 Lathe Dust Hood from Big Horn Corporation has a hinged, clear viewing shield that swings completely out of the way. It comes with universal mounting brackets for a custom fit on many different brands of lathes, and it works with a 4" (10cm) hose.

two-car garage between five and ten times an hour. There are generally two filters, a coarse one that collects dust in the 5-micron plus range, and a fine one that works all the way down to 1 micron or less. Better models come with timer settings (they can be run for several hours and then they shut down automatically), and the motors are almost always 110 V that generates less than 1 HP, so they can be plugged into a standard ceiling or wall outlet. (Make sure the ceiling outlet isn't designed for lighting, and is controlled by a switch.)

Depending on the thickness of the sheet metal housing and the size of the motor, ambient ceiling-hung filtration systems weigh between 40 lb and 80 lb (18kg and 36kg), so they need to be anchored soundly to the underside of floor joists or trusses.

For some very impressive guidelines on building an inexpensive, shopmade ambient filter and downdraft sanding table combo, visit woodworkersworkshop.com/plansshare/air_filter_downdraft_sanding_table.htm.

Pressurized dust masks

In addition to running a collector, a great many turners now wear a pressurized mask system (also called a powered respirator) while sanding or doing other tasks that produce dust or vapors. These units can seem a bit pricy, but they work very well. There are two types: a small breathing mask that pumps air out faster than the operator can breathe it in, and a full-face unit that incorporates a Plexiglas face screen, and sometimes a helmet, too. The latter provides face protection from impacts, and allows the user to wear eyeglasses without fogging. Beards can be a problem with conventional dust masks, but they're not an issue with most powered respirators.

Perhaps the most popular respirator is one made by the Australian company, Triton. This is more of a system than just a mask: it has a helmet designed to guard the head from impact, a faceshield to save eyes from flying debris, and a shroud and filter to protect lungs from fine dust. The shroud is a soft plastic fabric that rests on the shoulders, sealing the bottom of the system.

The key component in Triton's respirator is an air filter that sucks in air through a belt-mounted, battery-operated filter that hangs on the user's waist. The batteries are rechargeable. The filter usually contains two or three separate filters that meet US N95 NIOSH standards (P2 in Australia). They eliminate up to 99% of the dust particles that are under one micron in diameter, and 95% of particles down to ⅓ of a micron in size. At around $210, Triton's system delivers 4.23 cfm without any accessories. For more information, visit tritontools.com.

Smaller versions of the powered respirator are available. One of the more popular ones is made by the U.S.-based 3M Company (3M.com). The company refers to its model 6800PF mask as a Powered Air Purifying Respirator. It uses a single filter and delivers four cfm of clean air. The system includes a faceshield, motor blower unit, belt, battery pack, flow meter, and high efficiency filter. A small version (6700PF) and a large one (6900PF) are available. Typical prices run about $400.

Wearing a powered respirator feels a bit strange at first, but it doesn't take long to get used to it. Most are quite lightweight and ergonomic. There's a small rush of claustrophobia the first time it's worn, but once the air starts moving and the face shield stays clear of fog, it actually feels reassuring. One wouldn't wear it to the grocery store, but in the private confines of a workshop, this strange garb is literally a lifesaver and can extend the joyful years of turning. It can help avert the onset of numerous pulmonary problems, and can also help make turning possible for folks with asthma, mild emphysema, various allergies, and susceptibility to dust-related illnesses.

Dust masks: A word of caution

One of the great misconceptions of dust control is that inexpensive white

Lightweight face and lung protection is provided by three sizes of battery-powered ventilators offered by the 3M Company, the 6700, 6800 and 6900PF masks.

Inexpensive nuisance masks offer virtually no protection whatsoever against fine sanding dust, and lull some turners into feeling so safe they don't use a dust collector.

The Dust Bee Gone reusable dust mask is available in several sizes.

fabric or paper nuisance masks offer some protection while turning. It's worth noting that reputable companies such as 3M place a warning label on their version of these, and it literally reads: "*This mask will not protect your lungs*." (Less scrupulous manufacturers print the label in small print on the package rather than the mask, or not at all.) Nuisance masks not only allow almost all of the dangerous small particles through, they also impart a false sense of security. People using them for wood dust filtration feel as though they are doing something to protect themselves (which, of course, is completely false), so they don't bother taking any other real steps such as installing an air scrubber, hooking up to a dust collector, or investing in a powered respirator.

Beyond the cheap, disposable versions, there are some nuisance masks such as the Dust Bee Gone that, although not NIOSH or OSHA approved, still filter down to 3 microns. The mask accommodates to most faces, even those with beards, has two straps to help close gaps around the edges, won't fog up glasses, and is actually made in America. For more information, visit dustbeegone.com/dustmask.html.

After all is said and done, woodturners who take precautions against inhaling wood dust will be able to enjoy their time at the lathe without fearing respiratory health hazards. The consequences of exposure are just too risky to take casually. ■

Many additional fact sheets and articles on the hazards of wood dust exposure can be found online at a number of websites, among them:

Ohio State University Extension Service
ohioline.osu.edu/aex-fact/0595_1.html

State Compensation Insurance Fund
scif.com/safety/safetymeeting/Article.asp?ArticleID=125

WoodBin Woodworking
woodbin.com/misc/wood_dust_toxicity.htm

Health and Safety Executive
hse.gov.uk/pubns/wis1.pdf

John English is the author of The Woodworker's Guide to Sharpening *and* How to Choose and Use Bench Planes. *He teaches furniture building and cabinetmaking at the Black Hills School of Woodworking.*

For additional information, see AW, *vol 16, no 2, "Wood Dust," by Pat Matranga and vol 21, no 4, "Battling Dust," by Peter Fedrigon.*

Dust control

Malcolm Zander

In a past issue of *AW*, I described the use of a polyethylene sheet tent around the lathe to isolate the dust and shavings from my workshop (vol 22, no 4). This enclosure keeps the workshop clean, but I still have to stand inside the tent and breathe sanding dust—even with the best dust extractor system.

To help remedy this problem, I bought a Triton powered respirator helmet (upgraded from a now-defunct Racal helmet), but found that the daily cleaning and replacement of the inlet air filters was a major hassle. So I eliminated the belt-mounted battery pack/fan/filter and replaced it with clean air ducted in from another room in the house.

Clean house air arrives through a 5" (125mm) duct that is connected to a 200 cfm bathroom-type blower in another room of the house. A furnace filter is placed over the fan intake.

By using standard plumbing hardware, the ducting diameter is reduced to 1¼" (30mm) to fit the Triton hose. The central vacuum hose extension allows me to reach anything within a 10' (3m) radius of the lathe with good ease of movement.

The duct run is 20' (6.5m) long. To give the proper airflow rate required inside the respirator, a 200 cfm (5.7m³/min) blower with a squirrel-cage centrifugal fan (as opposed to an axial fan) was needed to overcome the resistance of the ducting and the smaller diameter hose restriction.

In order to see the duct setup, I have removed the plastic tent around the lathe.

This system blows clean room-temperature air directly into my helmet. When sanding, I am unaffected by the dust cloud inside the tent. The respirator is comfortable and very quiet, and I wear it virtually all the time when turning. One additional advantage to this setup is that when my wife is baking muffins in the kitchen I can tell within seconds.

(A condensed version of this article was published in *Woodturning*, September 2008, p. 51.)

Turning Coves on Spindles

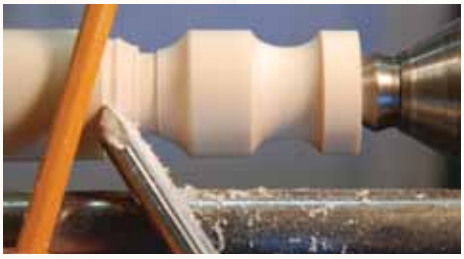
John Lucas

New turners in my classes often have trouble turning a cove shape on a spindle. A cove is a concave circular or semicircular indentation cut into a cylinder. Kickbacks happen at the beginning of the cut; catches occur at the bottom. Techniques for mastering the cutting of coves can be learned, and with practice anyone can easily incorporate this lovely form into spindles.

Attach a length of wood between centers of your lathe. Turn a cylinder, and then mark layout lines for where the cove will be cut. With the lathe running, mark the beginning, end, and middle of the cove. If just starting out, make shallow wide coves. As your skill level increases, progress to deeper coves with steeper sides. Mark your layout lines accordingly.

Practice cutting a variety of coves, perhaps beginning with a shallow cove such as the one shown in the middle.

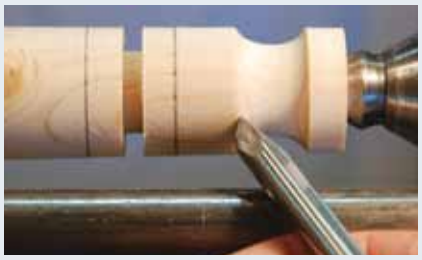
Using a parting tool, cut the middle of the cove to your desired depth. Doing so helps you visualize the shape and depth of the cove, which is especially important if you are matching a cove in another spindle. It's best to start your cut just inside the edge lines. Or, you can make the layout for the cove smaller than what is needed, allowing the cove to be enlarged in increments. If you decide to work this way, you will learn how the gouge is cutting and get a feel for the body and hand movements needed.



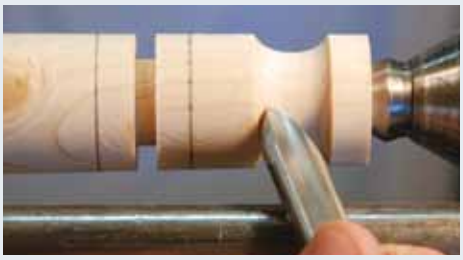
To begin cutting a cove, position your spindle gouge at this approximate angle. Point the flute in the direction of the cut, and use the lower half of the gouge's cutting edge. Tool movement is from the top of the cove to the bottom, following the grain of the wood.

I use a spindle gouge for cutting coves. Begin the cut on the left side of the cove. The flute of your gouge should be pointing to the right and the lower cutting edge of the tool should be pointing in the direction the cut needs to go. Apply gentle pressure and let the edge of the tool start the cut. As the cutting edge advances into the wood, rotate the flute so it is pointing up. At the same time, raise the handle as needed to get the depth of the cut that feels right. Stop when you reach the lowest point of the cove.

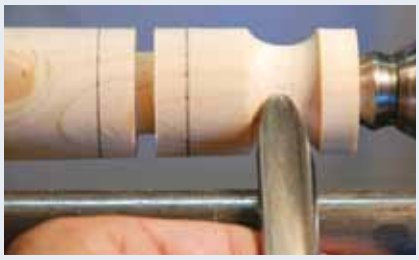
Now position the spindle gouge on the right side of the cove, move the flute so it points left, position the lower cutting edge and bevel so that the tool cuts on that side, start the cut, and rotate the flute up. Raise the tool handle to finish the cut at the bottom. Do this several times until the cove is deep enough and the shape is correct.



When cutting coves, make repeated cuts, each cut deepening the cove. To start a cut on the left-hand side of a cove, the flute of the spindle gouge points to the right and the tool handle is down. The leading edge of the gouge does the cutting.



As the cut progresses into the bottom of the cove, rotate the gouge so that the flute points up. The handle of the tool is slightly raised as the cove becomes deeper. Stop the cut at the bottom of the cove.



The left-hand side of the spindle-gouge's cutting edge is incorrectly positioned. In this incorrect position, the bevel behind the cutting edge is not supported. Additionally, the cutting edge of the spindle gouge would be cutting uphill, against the grain, and a catch will happen.

Most people have trouble starting the cut. This may be because the flute is not positioned correctly and/or the cutting edge of the tool is not positioned in the proper direction to make the cut. Study the photos and notice how the flute and cutting edge of the tool are positioned. The bevel of the spindle gouge should always maintain contact with the wood. It is necessary for the leading edge of the tool to start the cut and establish a shoulder for the bevel to rub before you push into the wood. When the bevel of the tool loses contact with the wood, that's when the tool kicks back and you get those lovely spirals across your wood.

It helps to visualize the shape of a cove and point the bevel so it aims down one side of that cove.

Make gentle cuts. In the words of John Jordan, "If you start gently and it's wrong, it will be rejected gently. If you start hard, it will be rejected hard."

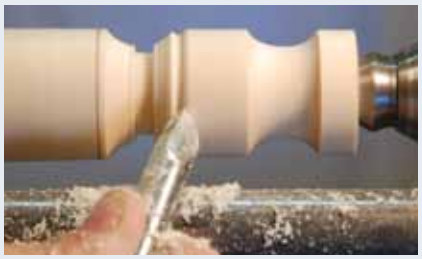
Think of cutting a cove like scooping ice cream out of a carton with a spoon, but never going past the halfway point (always a good idea when eating ice cream, too). Cut from the rim to the bottom of the cove, downhill, with the grain. As the cutting edge of the tool moves from the rim to the bottom, the flute should be rotated from pointing toward the middle of the cove to almost straight up. Doing so keeps the bevel rubbing and prevents catches. Raise the tool handle to control the depth of the cove.

For spindle turning, always make your cuts downhill, from the high point to the low point. For cutting coves, if you cut beyond the halfway point and begin cutting uphill, you will be cutting against the grain; torn grain and/or a catch can happen. Also, the bevel can end up being unsupported, causing the edge of the gouge to catch.

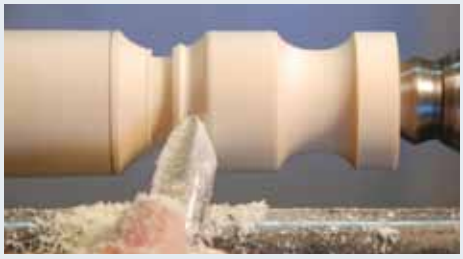
One trick to help you start a cove is to cut shallow shoulders using either a parting tool or the toe of a skew chisel. This shoulder is for the bevel of the spindle gouge to rest on when you start the cut, which reduces the chance of kickback. A shoulder is often helpful on steep-sided coves.

Now all you have to do is practice, practice, practice. ■

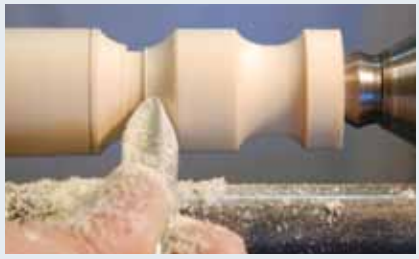
John Lucas is a photographer for Tennessee Tech University. For the past thirty years, he has been turning wood as a hobby and a passion, making everything from miniatures to large bowls. John will be a demonstrator at the symposium in Hartford.



To deepen a cove, when you are cutting on the right-hand side, have the flute of the spindle gouge pointing to the left and the tool handle down. Make repeated cuts, stopping at the bottom of the cove.



As the cut progresses, rotate the flute so that it begins to point up. Raise the tool handle slightly in order to deepen the cut into the cove.



When finishing a cut on the right-hand side of the cove, the flute will be pointing almost directly up. Do not advance the cutting edge past the bottom of the cove.

The Sawmill Project

Joshua Friend

Generous gifts from friends, neighbors, and tree surgeons.

Like many turners, I get a lot of wood free in the form of logs. Usually, I work on only one or two logs at a time, and my chainsaw and 18" (45cm) bandsaw are sufficient for prepping the wood I need for turning. But I must have had some good wood fortune recently because all at once, from a variety of sources, I had an abundance of beautiful, perfectly sized logs.

My woodpile expanded to the size of a small woodlot, amounting to over fifty logs: black walnut, butternut, cherry, maple, white ash, beech, and magnolia, with diameters up to 2' (60cm) *(Above)*. I did not want to let the logs sit for too long and become casualties of nature's process, so I decided to go the route of production and rent a portable sawmill.

Some problems with logs

Leaving wood to dry in full-log form is ineffective and reduces the amount of usable material, sometimes within just a week or two. The centermost areas of logs rarely, if ever, dry fully, and if logs are stacked directly on the ground, rot is inevitable. Even if logs are stored out of the elements, a whole log will end check and eventually surface check as the moisture leaves the wood, beginning with the outermost parts of the log. This checking

Surface checking on a maple log. The deeper the cracks, the less usable wood there is to harvest from a log.

Extensive ant damage in a cherry log (note the eggs!).

reduces the amount of usable stock *(Photo 1)*.

It has been my experience that a water-based wax-type emulsion sealer is quite helpful in slowing the drying process and even in eliminating cracking and checking in smaller, dimensioned pieces of wood. This sealer, however, will not prevent cracking and checking in whole-log sections, which contain a greater mass, have an unstable pith area, and are round, not milled. The release of moisture from cut wood is a natural and inevitable occurrence as a result of evaporation. Storing wood in whole-log sections over the long term is not ideal.

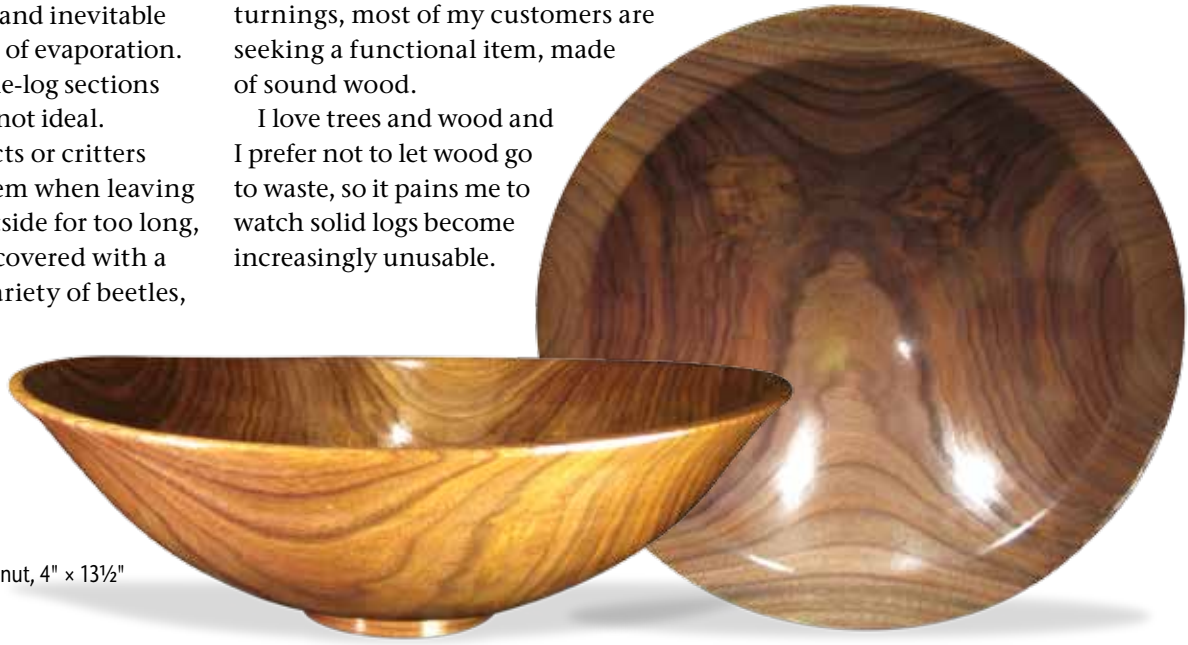
Wood-boring insects or critters create another problem when leaving wood in log form outside for too long, especially if logs are covered with a tarp. A fascinating variety of beetles, ants, termites, pill bugs, centipedes, slugs, grasshoppers, mice, snakes, and spiders take up residence in that sheltered, cozy log pile *(Photo 2)*. Whenever I uncover the wood to seek out just that right log for a turning project, my daughter takes delight in her never-ending quest to discover new creepy, slimy creatures. My perspective is rather more practical—I view wormholes, ant damage, rot, punky areas, mold, and spalting as something that spoils perfectly good wood. While many of these "defects" can produce interesting turnings, most of my customers are seeking a functional item, made of sound wood.

I love trees and wood and I prefer not to let wood go to waste, so it pains me to watch solid logs become increasingly unusable.

Seeking a sawyer

I decided that a portable sawmill would be a perfect solution to processing my treasure. They are highly efficient and produce precisely placed rip cuts *(Photo 3)*, unlike my current method of processing logs with a chainsaw and bandsaw. ▸

Butterfly Bowl, 2009, Black walnut, 4" × 15" (10cm × 38cm)



Walnut bowl, 2009, Black walnut, 4" × 13½" (10cm × 34cm)

A horizontal cut through this ash crotch required a bit of wedging to stabilize the log. The sawmill delivered precise placement of cuts, which resulted in wood that was easier to process and also minimized waste.

Our sawmill setup consisted of a wooden platform with a fence and wedges to hold the logs in place.

I quickly discovered that renting a portable sawmill was almost unheard of, and even if I could find one to rent, I am inexperienced and would have to spend a good deal of time learning the nuances of the machine and of processing logs. I made a few calls to find a sawyer in my area. The lead that paid off was through a local sawmill operator, who knew of someone with a portable bandsaw-type sawmill.

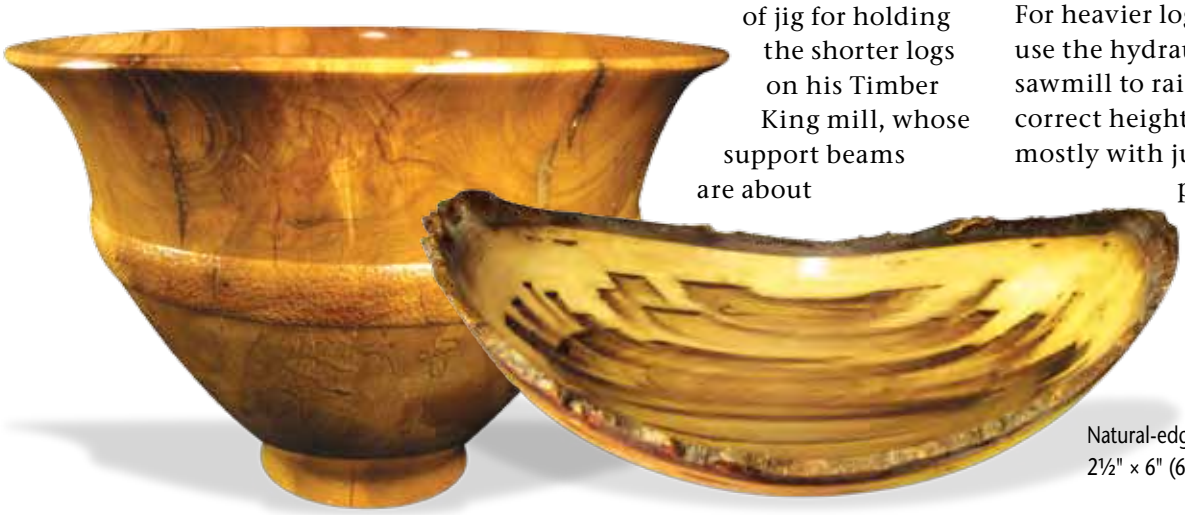
I called the sawyer and told him that I wanted most of the logs in a log pile cut in half, at or near the pith. From that point, I'd be able to use a chainsaw or bandsaw (depending on the size of the half log) to rough out bowl blanks. I could use my bandsaw to rip smaller logs into stock for between-center projects. He accepted the challenge and, at the rate of $450 for half a day, said he would "work with me" to get the job done. He said that the job sounded fun and interesting.

The sawmill in action

The sawyer knew right away that we would have to build some kind of jig for holding the shorter logs on his Timber King mill, whose support beams are about 4' (120cm) apart. The jig we created worked fine, for the most part. We used a wooden fence and wedges to hold the logs in place *(Photo 4)*. A more secure way of holding the logs would definitely be an improvement for next time, as the lighter-weight logs required a very slow feed rate to prevent the blade from pushing the log.

The actual cutting time took around four and a half hours. We established a routine. I loaded the logs onto the mill and used chalk to draw a line where I wanted them cut, and the sawyer did the cutting. For heavier logs, we were able to use the hydraulic log lifter on the sawmill to raise the logs to the correct height. We cut all of my logs, mostly with just one or two passes per log. And as they say, I now had my work cut out for me! After the sawyer

New Relic, 2009, Maple, 10" × 15" (25cm × 38cm)



Natural-edge bowl, 2009, Magnolia, 2½" × 6" (6cm × 15cm)

left, I evaluated the huge mound of cut wood and separated the pieces into two piles: wood that was small enough and ready for my bandsaw and half logs that I would rough out with the chainsaw to use for large bowl blanks *(Photos 5, 6, 7, 8)*.

Additional processing

It was imperative that I move the processed wood out of the sunlight as quickly as possible. The bandsaw pieces went into my garage. I sawed the half logs next into round forms for mounting on the lathe and then placed those rounded half-log sections into plastic bags, to prevent release of moisture too quickly. The next step was to get them onto the lathe so that they would not languish for too long in the plastic bags, growing mold. Once on the lathe, I roughed out the outside profile of the large bowl blanks and then cored them using the McNaughton center saver.

"...it was worth the hard work; I now have a vast stockpile of bowl blanks to select from, in a variety of sizes and species."

When I core bowls for drying, I leave each bowl extra thick. In general, a thickness of about 10% of the bowl's diameter is desirable, so a 10" (25cm)-diameter bowl would be roughed to a wall thickness of about 1" (25mm). I then seal the bowls with a water-base wax-type emulsion sealer. I store the sealed bowls in a separate part of my basement, where I run a dehumidifier. As a ▸

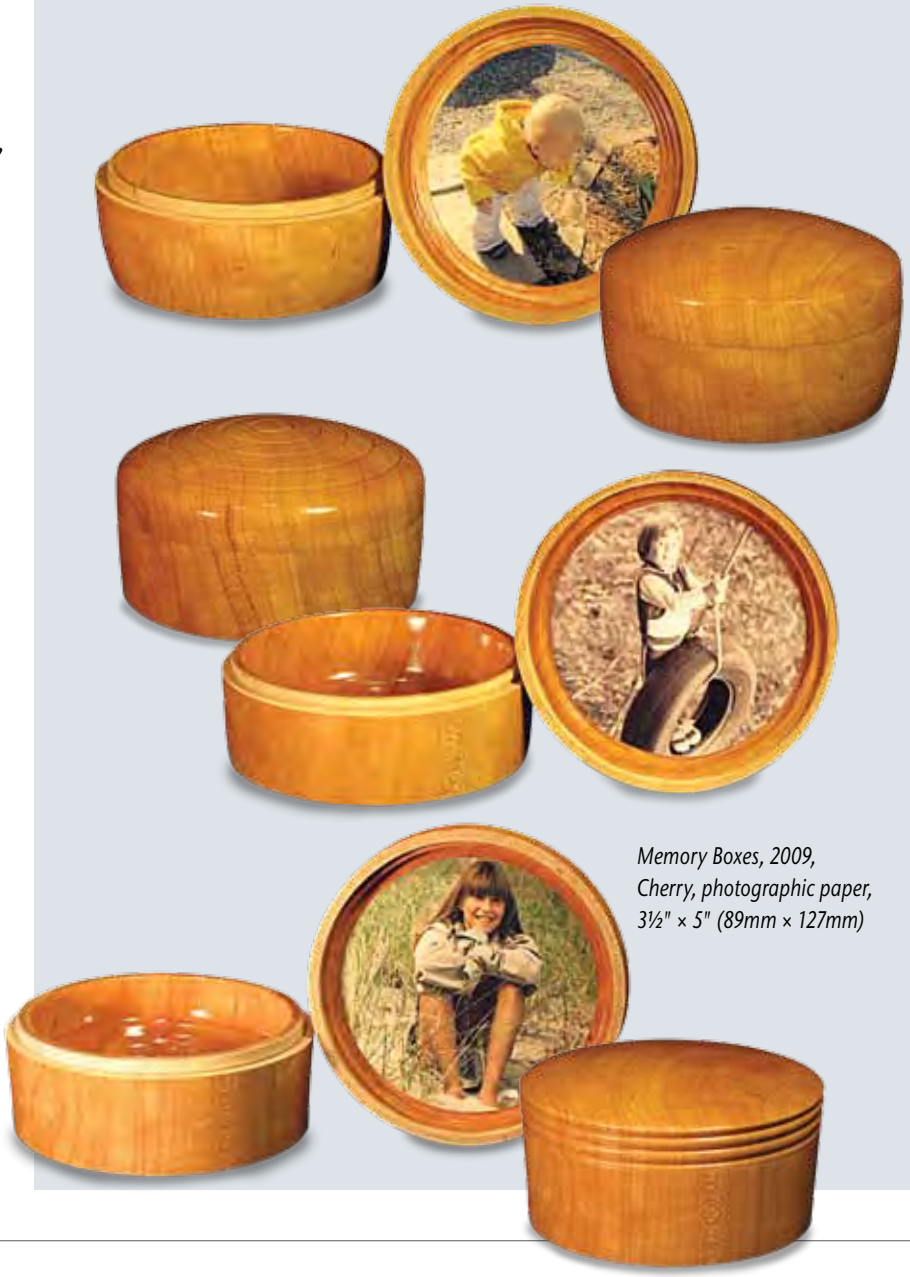
Memory Boxes

While visiting my booth at a craft fair, a repeat customer and friend saw some lidded boxes I had made and got an idea to commission a truly custom gift for his grown son. He had recently cut down the limb of a cherry tree in his backyard where a tire swing had hung since his children were little.

He had a valued photo of his son as a little boy on the tire swing and wanted a way to preserve those memories. I was commissioned to make a box from the wood and attach a copy of the tire-swing photo to the inside of the lid. I was to make two other boxes at the same time, one for his daughter and one for his granddaughter, using other favorite photos.

Cherry wood is lovely to turn. It is midway between the tool-dulling density of maple and the easy cutting softness of butternut. When finish is applied, the wood takes on a darker tone and the grain pops. I attached the ink-jet photos to the lids using thick CA glue, with several coats of gloss lacquer over the top.

My customer, Bob, has reported back that his children love the boxes and will treasure them for a lifetime.



Memory Boxes, 2009, Cherry, photographic paper, 3½" × 5" (89mm × 127mm)


We produced a substantial pile of cut logs on *both* sides of the sawmill.

byproduct of the process of removing moisture from the air, the dehumidifier circulates air in the room, around the bowls, which speeds the drying process. Depending on the species and size, the bowl blanks usually dry sufficiently in two to five months.

The cored bowl blanks will shrink and move out of round, losing weight as they dry. When a bowl blank stabilizes to the humidity in the room (that is, when it stops warping and losing weight), it is sufficiently dry for finish turning. I don't actually weigh the blanks to track their moisture loss; I can tell fairly well if they're ready to finish turn, just by handling them.

I roughed out and sealed bowl blanks for a long time, but it was worth the hard work; I now have a vast stockpile of bowl blanks to select from, in a variety of sizes and species.

I also spent many hours at the bandsaw, ripping smaller half logs into 2"–4" (50mm–100mm) thick blocks, which are now air drying. As is the case with whole logs, smaller blocks will experience end checking as they dry, reducing the amount of usable material. To minimize this effect, I seal the ends of the blocks with the same wax-type sealer. Doing so prolongs the drying process but also preserves more of the wood than if no sealer was used. I then stack and sticker the blocks of wood onto racks to allow air to flow around them.

The entire project required a good deal of physical work but the outcome was a positive, generally efficient way to process and begin drying my own turning stock. ■

Joshua Friend, owner of J. Friend Woodworks, is a member of Nutmeg Woodturners League, which meets in Brookfield, CT. For information about his work, visit jfriendwoodworks.com.


A walnut crotch slab will become a stunning platter.


This half log will make an attractive walnut bowl. The circle encompasses almost equal amounts of sapwood on either side. Drawing a circle with a piece of chalk is a helpful aid when using a chainsaw to rough-cut a circle.


Now that the half log is cut into a rough circle, it will be safely mounted onto the lathe for roughing into a bowl blank, then cored.

Balanced Bowls

Mark Knize

I have been enjoying making spheres ever since reading Christian Burchard's 1995 article in *AW* (vol 10, no 2, pp. 26–28). Spheres are satisfying to look at and are pleasant to hold. They rest on a single point, seemingly floating above the surface of a table or pedestal. Spheres show off beautiful wood grain.

Spheres, of course, tend to roll away. To help keep them in place I display them perched on small O-rings. Having the spheres sitting atop an O-ring, however, detracted from the appeal of a form with almost no base. Additionally, when I sold one, I had to throw in an O-ring, almost as an "embarrassing extra" so that the customer would be able to safely display their sphere.

Group of seven hemispherical bowls in cherry wood.

At a recent art event, a potential customer knocked one of my spheres off of its O-ring and the sphere went crashing to the ground, suffering major dents. I knew then that I had to do something to prevent the spheres from rolling away; this unfortunate event motivated my exploration for a solution.

I thought of drilling a shallow hole in the sphere, adding a lead weight, and then plugging the hole to make a weighted sphere. I even bought a plug-cutting tool for that purpose. Before I tried it, however, I thought of removing weight from the sphere to achieve the same effect. With some design experimentation, the result is what I have titled *balanced bowls*.

Balanced bowls solve the problem of having them roll away because they have a weighted spherical bottom. As a bonus, these bowls, turned off-center, achieve a slight rocking movement until they stabilize, infusing life into static bowl forms. My original balanced bowls were spherical; the current ones I make have straight sides above a curved bottom. I call them *hemispherical balanced bowls*.

1

A cherry-wood bowl blank is turned between centers to a diameter of about 3½" (90mm). When the piece is mounted on the lathe, the wood grain runs vertically, as is the case with most turned bowls.

2

Mark the bowl blank with two lines, one for turning a tenon at the tailstock end, and the other to indicate the eventual transition from straight sides to a hemispherical bottom. At this point, the cylinder's headstock end is sanded to 320 grit.

Wood selection

I like to use a wood that leaves a good finish from a scraper and also wood that is free. For me, that means orchard cherry or olive wood. I usually turn these cross-grain in the way that conventional bowls are turned. The blank used for this demonstration piece was approximately 4" (100mm) cube. To begin, I turn ▸

The horizontal line shows the direction to offset the blank to new centers. Take into consideration the grain's direction and pattern.

The bowl blank is attached in its newly established offset centers, and an offset tenon has been turned on the cylinder's tailstock end.

Bore a hole in the cylinder using a Forstner bit. The hole will be offset from having attached the cylinder into a chuck using the offset tenon.

A poster-board pattern helps achieve a fair curve for the bowl's interior cavity.

The bowl's interior and rim have been turned and sanded.

This set of balanced bowls (hemispherical) was made from an unidentified landscape tree.

the wood into a cylinder, mounted between centers of the lathe *(Photo 1)*.

Mark the cylinder

The diameter of this cylinder is 3½" (90mm). The height of a hemispherical bowl looks best at about 80–85% of its diameter, so in the case of a cylinder 3½" (90mm) in diameter, the final bowl will be about 2¾" (70mm) tall. I allow ¼" (6mm) for a tenon, which I turn on the tailstock end of the cylinder. Mark a line for the tenon ¼" (6mm) from the end of the cylinder, then mark a line 2¾" (70mm) up from that line.

The next step is to mark a line where the hemispherical part of the bowl ends and the straight part of the side begins. The location is 1¾" (45mm) (half the diameter of the bowl) up from the bottom of the bowl (2" [50mm] from the tailstock end). I carefully adjust the length of the blank, working on the headstock end to achieve the exact length *(Photo 2)*.

Sand the outside of the bowl above the hemispherical line to 320 grit. This is the last chance to easily sand that area.

Offset the cylinder

The next step is to offset the cylinder. Draw a horizontal line through the center of the cylinder. The line should go through the points of the headstock and tailstock (use your toolrest and a pencil) and will be used to help align the new centers *(Photo 3)*. I mark new center points about 5⁄16" (8mm) from the old centers and use a scribe to make a dimple to mark the points. The idea is to shift both centers the same amount in the same direction. I usually move the centers in line with the direction of the grain to keep the grain balanced when looking at the top of the finished bowl, so place your line on the cylinder accordingly.

The new centers will be used to locate a tenon that will fit into your chuck. Remove the cylinder from between centers and shift it to the new centers. It is a good idea to draw a circle on the face of the spinning cylinder to indicate

Mount a piece of scrap wood into the chuck, turn a jam-fit recess, and reverse the bowl blank. Use the tailstock for support. The bowl blank will now be mounted in line with its original centers.

This shopmade scraper is ideal for fine-shaping of spheres. It is made from a hole saw with the teeth ground off and is fitted with a wooden handle.

Before using the scraper, remove the tenon using a bowl gouge. The scraper is only for taking light, scraping cuts and refining the bowl's curve. Fine shavings will collect in the scraper.

The bowl's bottom is sanded.

Spherical-shaped balanced bowls

Set of spherical bowls in cherry.

Balanced bowls can be made closer to a spherical shape with some slight modifications to the steps that produce the hemispherical version. A spherical shape was my original intention; however, I like the straight-sided hemispherical design better.

After turning a cylinder and marking the tenon length, the overall length, and hemispherical point at half the diameter, cut and scrape the blank to a spherical shape above the hemispherical line. Extra care needs to be taken not to change the diameter (try not to scrape off the pencil line) and to make the top the correct diameter. This is when the circular scraper comes in handy. By carefully scraping the top and not pushing as much on the hemispherical line, it is easy to arrive at something close to a chopped-off sphere. Close is all you need at this stage.

Make the offset centers as before, move the piece to the new centers, and cut the tenon at the bottom.

Chuck the sphere using the eccentric tenon. Hollow as before *(Photo A)* and follow the profile of the outside of the bowl. Leave the top with a wide, flat rim and make the bottom approximately ½" (13mm) thick. Smooth the top rim with abrasive paper wrapped around sanding block. Sand and finish the inside of the bowl.

For this spherical-style bowl, the jam chuck does not work, but I have had surprisingly good luck using hot-melt glue to attach these bowls by their top rim surface, which is flat. Buy high-strength glue sticks.

Mount a waste block into your chuck. Turn the top surface to the same diameter as the top of your bowl to help align the two. Apply the hot-melt glue using a heat gun. Heat the block and the glue stick with the heat gun and deposit a thin layer of glue around the diameter that will contact the bowl top *(Photo B)*. Then, apply glue in the same manner to the top of the bowl. Finally, heat both surfaces and, using the tailstock, apply pressure to the bowl. Let the glue cool for ten minutes *(Photo C)*. The only time I have had this glue fail is when I have not allowed enough cooling time. I usually have the opposite problem: How to get the bowl off?

Carefully remove the tenon with a sharp gouge, cut the bottom part of the bowl to a hemispherical shape and scrape the outside until you achieve a spherical shape. Sand and finish *(Photo D)*.

To remove the bowl, heat the glue joint with the heat gun. I do this with the lathe running at very low speed. Eventually, the glue melts a little and the bowl can be removed by sustained pulling.

To remove the glue residue, I sand the top with abrasive paper resting on a flat surface, progressing through all the grits.

With the cylinder attached into a chuck, shape the upper part of the spherical bowl form, then drill the interior.

First apply a thin layer of hot melt adhesive to an auxiliary blank using a heat gun. Hot melt adhesive will also be applied to the rim of the bowl blank.

The bowl blank is attached with hot-melt adhesive. To achieve a strong bond, the tailstock was used for pressure during the curing process.

The bowl blank is shaped and the exterior is sanded.

the correct tenon size, since making the tenon too small would be a disaster. Because the cylinder is side grain like a regular bowl, I use a bowl gouge and finish the tenon with a scraper *(Photo 4)*.

Hollowing the interior

Reverse the cylinder and mount it into a chuck using the new offset tenon. Now it is time to begin the hollowing process. Drill an initial hole with a 1½" (40mm) Forstner bit. This diameter is smaller than the final inside diameter of about 2¼" (60mm). The inside bottom will be curved, so I only drill about halfway into the bowl *(Photo 5)*. Drilling too far into the bowl and/or using a large-diameter bit would result in cutting through the side walls of the curved bottom.

To finish hollowing the interior, I use a template to indicate the interior: a hemispherical bottom, straight sides above that, and a line for the depth that will leave a ½" (13mm) bottom thickness *(Photo 6)*. I hollow with a bowl gouge as much as I can, and then use a large round-nose scraper.

This is where wood that leaves a good finish with a scraper is ideal. I spend some time with the scraping on the interior; woodturners aren't the only ones who love to feel the interior of these tactile pieces.

I use the same template for all bowls in this size range in order to get ▸

Roughing out green bowl blanks

An eccentric blank can be roughed-out from green wood and left for several months to dry. Turn a cylinder and shape a large-diameter ½" (13mm)-deep tenon on one end. Shift the centers and turn a smaller tenon, sized to fit your chuck, half the depth of the existing tenon. Reverse the cylinder and mount it into a chuck using the small tenon. Drill the opening and rough-turn the interior of the bowl to leave a wall thickness of about ½" (13mm) as a minimum sidewall thickness.

After several months of drying, place the open end against a sandpaper-covered wooden disk attached to the headstock, using the point of the tailstock in the original center point. True the first tenon. Remove the cylinder and reposition it using the offset point. True that tenon. Proceed to turn the bowl as described in the article.

This roughed-out blank shows the offset tenons. (The recess in the other end is not shown.) After several months of drying, the blank is remounted and each tenon is trued. The balanced bowl is then made following the steps in the article.

the inside shape to match the eventual outside shape, that is, straight sides and a curved interior bottom. The template is useful for the depth measurement in any size bowl, estimating a ½" (13mm)-thick bottom.

Sand the interior and the top face to at least 320 grit. I tear off small strips of abrasive paper for sanding the inside. For sanding the top, wrap abrasive paper around a sanding block and hold that flat surface onto the flat rim. Run your lathe at a fairly slow speed. This is the last chance to easily sand the inside and top *(Photo 7)*.

Reverse and turn the bottom

Remove the bowl from the chuck and mount it into a jam chuck. I like to use wet wood for the jam chuck because I believe it holds the work better. Make a recess about ½" (13mm) deep that is the same diameter as the outside of your bowl. Place the bowl into the jam chuck and use the tailstock for support *(Photo 8)*. Turn the tenon off and start making a hemisphere. Make light cuts with a bowl gouge toward the headstock to create the best curve possible. I sometimes hold a circular template next to the piece to see how I am doing with the shape.

Now comes the key part of the hemisphere-forming process. To get a nearly perfect hemisphere for the bottom, I use a circular scraper made from a hole saw with the teeth ground off, an idea I got from *AW* (vol 15, no 1, p. 37). My version is shown in *Photo 9*. The tool works by contacting the sphere with its entire circular surface, with the inside of the hole saw doing the scraping. As the work piece spins at a low speed, move the circular scraper back and forth on the toolrest. The high points are removed, resulting in a nearly perfect sphere. Sawdust accumulates on the inside of this scraper *(Photo 10)*.

Do not allow any part of the scraper's surface to contact the wood near the headstock side of the line delineating the straight part of the bowl from the curved section. Doing so will quickly begin to reduce the diameter of the bowl above the hemisphere. In practice, I scrape a little, then see the high points as smooth or shiny surfaces, and then make a light cut shear scraping with a bowl gouge. Then I go back to the round scraper.

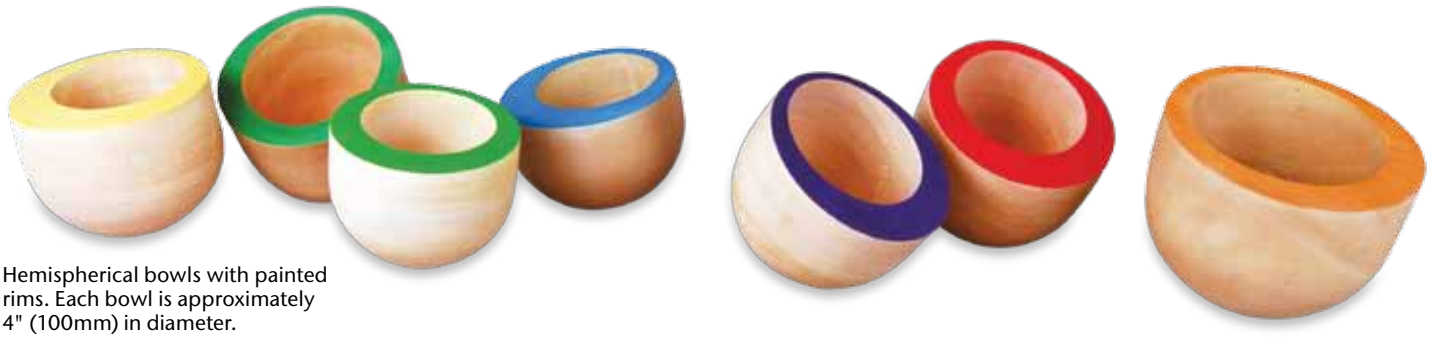
When the surface is satisfactorily hemispherical *(Photo 11)*, I sand to 320 grit. I apply one coat of my favorite finish. These days, it is Minwax Wipe-On Poly. I let it soak in a few minutes and wipe off the excess.

To remove the bowl, I release the wooden jam chuck from the scroll chuck, grip the bowl, and whack the jam chuck with a mallet. This works every time.

I let the finish cure overnight and then sand with 800-grit paper and add one or two more coats of finish. After curing, I buff using the Beal buffing system.

I enjoy displaying balanced bowls in groups. Making one seems to lead to two or three more. ■

Mark Knize is a former research scientist and now a full-time sculptor in a variety of media and is a member of the Bay Area Woodturners Association. He lives in Tracy, California. He can be contacted at mknize@caldsl.net.



Hemispherical bowls with painted rims. Each bowl is approximately 4" (100mm) in diameter.

Craft a Cryptex

John I. Giem

When I read Dan Brown's novel *The Da Vinci Code,* I was intrigued by his description of a *cryptex,* described as a cylindrical enclosure containing a secret message. It consisted of five stone cylinders marked with letters of the alphabet and a brass framework to hold everything together. In order to access the contents, one must align the letters to spell out a secret word. This would be similar to opening a combination lock by turning the rings to line up the correct number sequence.

My interest in building my own cryptex was revived when I read the article "Wooden Puzzle Vault" by Donald Horgan in the Summer 2007 issue of *ScrollSaw* magazine. The article showed the basic principles required to implement the combination lock needed to make a cryptex. In Horgan's article, he shaped the parts using a scroll saw, router, chop saw, and drill-press. Being a woodturner, I recognized that the cylindrical parts could be easily turned on a lathe. (See also *Secret Box,* by Pierre Delétraz, vol 24, no 1, back cover.)

The first cryptex I created was a slightly modified version of Horgan's design and it helped me understand the operation of the locking rings, as well as the overall assembly and operation. I further refined the design to move the structural support inside, thus hiding it. I simplified the shaping of the rings and merged several parts into one.

Whether you call it a treasure box, a puzzle box, or a cryptex, it makes a unique gift box, a container for gifts, or a secret compartment for keeping small treasures. A cryptex can be customized by creating a shape based on a particular interest or personality, with a code word unique to that shape or personality. The treasure within can be a gift certificate or a surprise befitting the recipient and the occasion. This distinctive gift box will be treasured every bit as much as the contents.

The various parts

The easiest way to visualize the cryptex design is to think of it as three concentric cylinders. From outer to inner: the code rings, the backbone tube, and the box tube. The top is a cap. The box tube includes the base as part of its construction. When assembled, the backbone tube is glued to the top, while the code rings are left free to rotate. There are locking pins inserted in the box tube, which pass through a slot in the backbone tube and interlock with the code rings *(Figure A).*

My cryptex is configured to stand on one end, thus the ends are named *top* and *base.* In your design, you are free to change this configuration. ▸

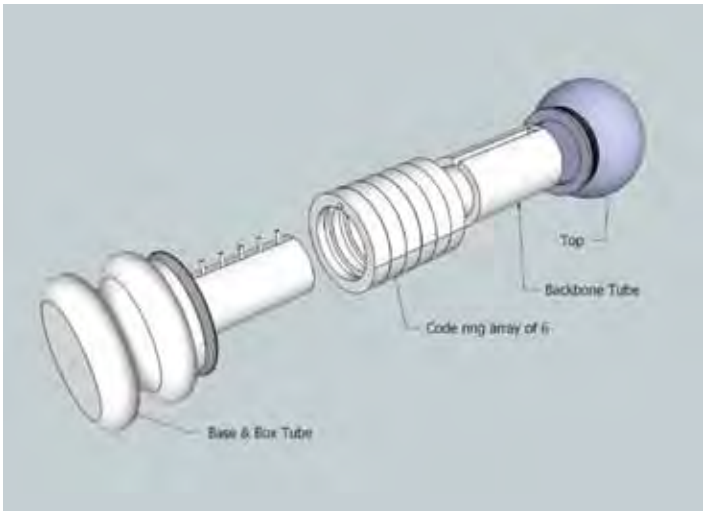


Figure A. Exploded view of cryptex parts.

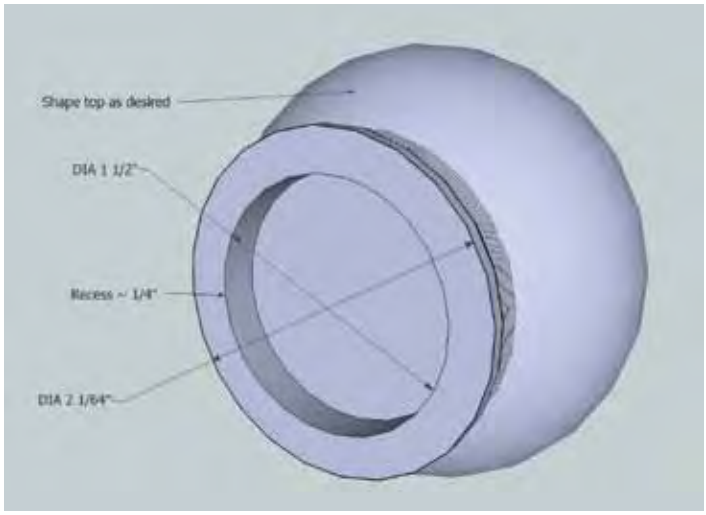


Figure B. Top

Design and construction considerations

When designing an object such as a cryptex, which has a lot of mating parts, the fabrication is simplified by taking into consideration the equipment you have on hand. For example, by selecting hole sizes that match the drill bits you have, you will reduce or eliminate the need for purchasing new tools and will improve the accuracy and speed of fabrication.

The wood you use for the backbone and tube box should be square. The square ends on both sections allow you to align the sections for drilling the locking pin holes. You will need four squared-up turning blanks: 2½" × 2½" × 3" (65mm × 65mm × 76mm) for the top; 2½" × 2½" × 4" (65mm × 65mm × 102mm) for the backbone; 2½" × 2½" × 5" (65mm × 65mm × 127mm) for the code rings; and 2½" × 2½" × 5" (65mm × 65mm × 127mm) for the box tube with base.

Top

Except for one surface where it interfaces with the code rings, the top can take on any shape desired *(Figure B)*. That particular interface surface must be flat and have a minimum diameter of 2" (50mm). Additionally, the top will have a flat-bottomed recess cut into its underside where the backbone will be glued.

Backbone

As the name implies, the backbone *(Figure C)* is the structural element around which the cryptex is built. The box tube is captured within it when the cryptex is closed and locked. A slot cut down the length of one side of the backbone allows passage of the locking pins, which are embedded in the box tube. The code rings are mounted onto and rotate around the backbone. The top is glued to one end of the backbone and one of the code rings is glued to the other end, with the five other code rings left to rotate freely in between.

Code rings

There are six code rings designed into this cryptex. Five are free to rotate around the backbone while the sixth is glued to the end of the backbone opposite the top.

The six code rings are identical in size and markings with the exception of the notch cut for the passage of the locking pins. The location of each notch corresponds with its letter in the code word *(Figure D)*. Each ring has a rabbet cut into the interior surface that allows it to be rotated around the locking pins when the cryptex is closed.

Box tube with base

A box tube and its base are turned from one piece of wood, left connected *(Figure E)*. Square sides on the base end (to be shaped later) help provide alignment when drilling holes for the locking pins. The box tube will contain your secret message or treasure. The surface where the box tube and the base join together must be flat in order for the backbone to meet it at 90° when the cryptex is assembled.

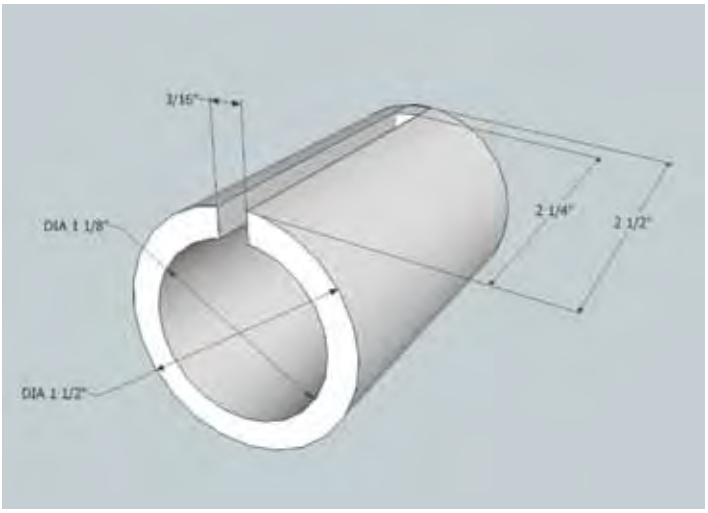


Figure C. Backbone

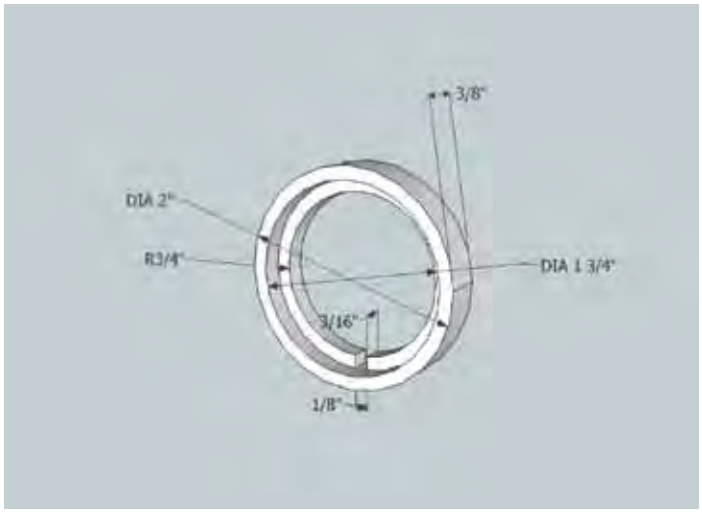


Figure D. Code rings

Code word

To begin, select a five- or six-letter code word. Although there are six rings, your code word can contain either five or six letters or symbols. When using six letters, the first letter is on the fixed ring and the other five align to it. When using five letters, leave the fixed ring blank, except for an index mark for aligning the remaining letters.

On a piece of paper, print the six letters of the code word on a line. If using a five-letter code word, use a hyphen (or other figure) for the first letter, thus making it six letters long. On the line under the code word, place the numbers one through six, aligning them with the letters above them. The numbers represent the number of the code ring; the corresponding letter is assigned to that ring. For this design, when the cryptex is held horizontally with the base to the left, the left-most ring is number one and its letter or symbol is the index. Each ring to the right is placed in numerical sequence ending with the sixth ring. During final assembly, ring one will be glued to the backbone tube, making it the index for aligning the other rings. Rings two through six will be free to rotate.

Fabricate the parts

Code rings

1. Mount your code ring blank on the lathe between centers and turn a tenon on the tailstock end for mounting into a chuck. Do not rough turn the rest of the blank at this time.
2. Reverse the blank and mount it into your chuck, being careful to align the right end with the live center in the tailstock. Turn on the lathe and verify proper centering and balance.
3. Move the tailstock out of the way and face off the right end of the blank. Using the sharp point of a skew chisel, make a small cone-shaped indentation at the center of the end of the blank. This hole will help in the drilling process.
4. Insert a Jacobs chuck into the tailstock. Secure a 1½" (40mm) Forstner bit in the chuck. This will be used to bore out the center of the stock *(Photo 1)*.
5. Running the lathe slowly to avoid burning the wood, drill out the center of the code ring blank as deep as your bit will reach, not to exceed 4" (100mm). Be sure to clean out the chips frequently to avoid trapping your bit in the hole.
6. Remove the chuck and bit and replace them with a live center equipped with a large cone center *(Photo 2)*. The cone center provides two functions: the first is to minimize flexing and vibration and the other is to help compensate for any offset errors created in the drilling process.
7. Using the cone center for support, turn the blank down to a cylinder, ▸

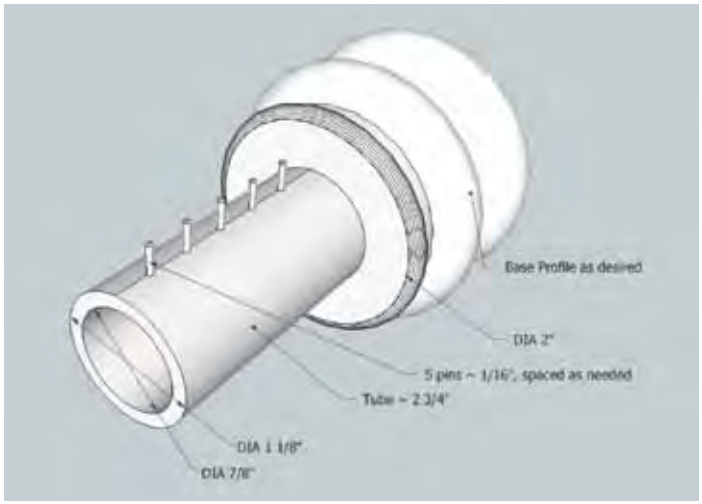


Figure E. Box Tube with Base.

With the blank for the code rings mounted into a chuck and a Forstner bit mounted in a Jacobs chuck, drill out the inside of the wood to form the code rings.

Use a cone center to help minimize flexing and vibration and to help compensate for any offset errors created in the drilling process.

The wood is drilled, turned, and sanded and is ready for laying out the segments.

2" (50mm) in diameter. You should be able to make your cylinder at least 4" (100mm) long. Sand it to its final finish *(Photo 3)*. Note: Using a sanding block with your sandpaper helps to make the surface of your cylinder uniform.

8. Divide the cylinder into segments. *Method A.* If your lathe has an indexing feature, that is most helpful. A typical lathe provides indexing every 15°, yielding twenty-four segments (a – x of the alphabet). Set your toolrest close to the cylinder near center height. Lock your spindle using the index. Using a soft pencil, draw a line the length of the cylinder *(Photo 4)*. Rotate the spindle to the next index position and repeat until all segment lines have been drawn. *Method B.* If your lathe does not have an index function or if you want different increments than are available from your lathe's index, use the following steps. Cut a ½" (13mm) wide strip of paper long enough to wrap around the cylinder. Wrap it around the cylinder and cut the ends so that they just meet. Place a pencil mark at that point on the cylinder. Fold your strip of paper in half and make a pencil mark on the paper at that point. Fold each half in half and mark each fold. Wrap the paper around the cylinder aligning the ends with the previous mark. Now mark the cylinder at the fold marks in the paper. This divides the cylinder's circumference into four equal segments. Using one of the segments of the strip that is ¼ of the circumference, proceed to fold and mark it as before to get smaller segments. Be sure to use the same strip of paper to mark all segments to minimize layout error. After the segments are defined around the circumference of the cylinder, use the toolrest to extend these marks the length of the cylinder *(Photo 5)*.
9. After verifying that the right end of the cylinder is smooth and free of torn grain, use a pair of dividers to make a mark every ½" (12mm) starting from the tailstock end *(Photo 6)*. You should be able to mark off six or more rings. The extra rings are in case something goes wrong.
10. Using a soft pencil, lightly number the rings from left to right starting with the number one.
11. Remount the Jacobs chuck in the tailstock and equip it with a 1¾" (45mm) Forstner bit.
12. Drill ⅛" (3mm) into the end of the cylinder using the 1¾" (45mm) Forstner bit. This forms a rabbet, which allows the ring to rotate over a locking pin *(Photo 7)*.
13. Clean up and sand the end of the cylinder.
14. Using a thin, ⅛" (3mm) thick parting tool, part off the ring at the previously marked point *(Photo 8)*. You should end up with a ring that is about ⅜" (10mm) wide.
15. Repeat Steps 12, 13, and 14 until you have all of your rings, plus extras, cut *(Photo 9)*.
16. Using fine sandpaper, clean up your rings.
17. Relabel each ring by placing its number inside where it will not be obliterated by later processing. (Note: The labeling of the code

Applying the markings

Applying the letters or symbols onto the code rings sounds simple but this procedure can make or break your project. These markings on the code rings are highly visible and make a strong first impression.

The markings must be neat and easily read (shape and contrast), evenly spaced around the circumference, and durable—the cryptex will be handled a lot.

The processes for applying the markings can be separated into two categories: manually formed and machine formed. My personal preference is to hand letter the code rings with a pencil and then use a pyrography pen to make them more visible and permanent. Another option would be to first mark the letters or code, and then use an engraver or rotary cutter for highlighting. Use your imagination to create your own individual look.

rings will be done now, although it can be delayed until later.)

18. If there are not enough segments around the rings for all twenty-six letters of the alphabet (in the current example there are twenty-four segments), check to be sure that all the letters in your chosen code word will be included on the marked rings. Make adjustments as needed.
19. Mark the segments on your code rings with the letters (or symbols) from your table (see sidebar for possible methods of marking code rings). When applying the letter, face the rabbet toward your right. This will help avoid putting the letters on upside down.
20. Line up your code rings in numerical order from 1 to 6 with ring 1 on the left. Have the rabbets facing to the right (refer to Step 17). Line up the rings in the order they were originally turned; this will avoid size differences created during turning and will keep the wood grain aligned. For each ring, place a pencil mark inside the rabbet and directly under the letter that corresponds to its letter in the code word. The notches may be cut now or delayed until later.
21. Erase all pencil marks on the outside of the rings and set the rings aside until later.

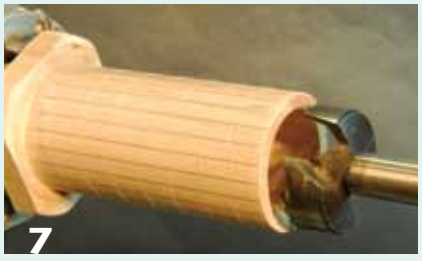
Backbone tube

1. Mount the backbone tube blank between centers and turn a tenon on the end. Leave the rest of the blank square.
2. Reverse the blank and mount it into your chuck using the tenon.
3. Face off the right end to prepare it for drilling out the center.
4. Using a 1⅛" (30mm) Forstner bit, drill out the center to a depth of 3½" (90mm). ▸

With the lathe's index pin engaged, draw the lines for the segments. Use a soft-lead pencil and run it along the toolrest.

The wood is ready to mark for the code rings.

Starting from the tailstock end and using dividers, make a mark every ½" (12mm). You should be able to mark off six or more rings.



With a 1¾" (45mm) Forstner bit mounted in a Jacobs chuck, drill ⅛" (3mm) deep into the end of the tube to form a rabbet.

Using a thin parting tool, part off the first ring at the previously marked point. You should end up with a ring that is about ⅜" (10mm) wide.

This complete set of code rings with notches is not yet labeled. (Notching will be done later.)

Using one of the code rings as a gauge, slip it over the end of the backbone tube and make sure it moves freely along the entire length. Adjust as necessary. (Note that the ring in this photo is unlabeled and the notch has already been cut.)

Using the backbone tube as a gauge, slip it over the end of the box tube to make sure it moves freely along the entire length. Adjust if necessary.

5. Mount your cone center in the tailstock and stabilize the end of the blank.
6. Turn the outside of the cylinder to 1½" (40mm) diameter by 3" (75mm) long. Be sure to leave the blank square next to the tenon.
7. Using one of the code rings as a gauge, slip it over the end of the backbone tube *(Photo 10)* and verify that it moves freely along the entire length. Adjust the backbone as necessary.
8. Finish sanding the surface of the backbone tube.
9. Using the toolrest as a guide, draw a pencil line the full length of the backbone tube through the center of one of the flat surfaces. This line will be used for positioning the holes for the locking pins. This line will pass through the center of one of the flat surfaces of the square end so that when the backbone tube is placed on the drillpress table, the holes for the locking pins can be aligned properly. (The line will be 90° to the drill bit.)
10. Set the backbone tube aside until later.

Box tube with base

1. Mount the box tube/base blank between centers and turn a tenon on the end. Leave the rest of the blank square.
2. Reverse the blank and mount it into your chuck using the tenon.
3. Face off the tailstock end and prepare it for drilling it out.
4. Using a ⅞" (22mm) Forstner bit, drill out the center to a depth of 2¾" (70mm).
5. Mount your cone center in the tailstock to stabilize the end of the blank.
6. Turn the outside of the cylinder to 1⅛" (30mm) diameter by 2¾" (70mm) long; however, for now leave the base next to the tenon square. The most critical surface of the box tube/base is the surface between the tube and

Move the rings to make room to insert a pencil between them. Mark a line on the backbone tube that corresponds with the edge of each of the rings. The marks should fall across the line drawn the length of the tube.

Use a center punch to mark the location of the locking pins.

The backbone is marked with the positions where each hole will be drilled for the locking pins. Note that a pin is not provided for ring 1 since ring 1 will be glued in place and cannot rotate.

Drill holes through the walls of the backbone and box tube. Make sure this assembly remains lined up properly.

The backbone tube has a slot cut out of it, along where the holes had been drilled.

The completed backbone tube is ready for fitting into the recess in the top.

the base. That surface should be flat and square to the tube.

7. Using the backbone tube as a gauge, slip it over the end of the box tube to make sure it moves freely along the entire length. Adjust the box tube as necessary *(Photo 11)*.
8. Finish sanding the surface of the box tube.

Fit the locking pins

At this point, you should have six code rings, one backbone tube with a 2½" (64mm) square end, and a box tube also with a 2½" (64mm) square end. These square ends will help you align and drill the holes for the locking pins without the need for elaborate external fixturing. The challenge is to accurately mark and drill the locking pin holes. Keeping them in a straight line is very important, so the line drawn in Step 9 (for the backbone tube) is essential to a successful outcome. Along this straight line, you will place a vertical mark to create a "+" for each of the six locking pin holes.

1. Place your six code rings onto the backbone tube in numerical order. The index ring (ring 1) should be at the end away from the square end. The rabbets cut into the rings should be toward the square end. These rabbets form hollows that allow the rings to rotate without hitting the locking pins (which will be added later).
2. With the first ring flush against the end, move the other rings to make room to insert a pencil next to the first ring *(Photo 12)*. Mark a line on the backbone tube that corresponds with the edge of that ring; do the same for each of the other rings. The marks should fall across the line drawn the length of the tube. Be sure that the first ring is flush with the end of the backbone when marking and that each subsequent ring is also pushed tight to its neighbor. When finished, you will have six sets of "+" marks. These marks will be used to locate the locking pins.
3. The vertical line of each "+" mark indicates the edge of each of the rings; however, the hole for the locking pins must be located 1/16" (2mm) from the "+" mark, offset toward the square end (top). Use a center punch *(Photo 13)* to mark the locations of the locking pins. *Photo 14* shows the backbone marked with the positions where each hole will be drilled for the locking pins.
4. With the code rings removed, insert the box tube into the backbone tube. The square elements on the ends of each section hold the backbone tube and box tube aligned and stable when placing the assembly on the flat surface of the drillpress table *(Photo 15)*.
5. Select a drill bit that will provide a friction fit when the locking pin (nail) is inserted into a hole created by the drill. (Locking pins can be made from 4d nails. A 1/16" [2mm] drill bit was used in this example for the 4d pins.) Test the fit in a piece of scrap wood. Note: When you use a twist drill to make a hole in wood, the hole becomes a little undersized because the wood fibers spring back into the hole, so take that into consideration.
6. Clamp a straight piece of wood onto your drillpress table to use as an alignment guide against which you can place the square sections of your turnings. At each marked location on the backbone tube, drill the hole through both the backbone tube and the box tube. Stop when the drill bit advances into the center of the box tube. Keep the tubes and holes aligned as straight as possible. Any misalignment will show up later in the ease or difficulty of opening the cryptex.
7. Set the box tube aside. Place all six of the code rings back onto the backbone tube with the first ring flush with the end (*away* from the square section this time). To determine the final length of the backbone tube, mark a line about 3/8" (10mm) longer than the total length of the stacked code rings.
8. Referring to *Figure C* and using the drilled holes as a guide, lay out the lines for cutting a slot on the backbone tube. Center the slot on the row of holes. With the backbone tube clamped in a vise (use the square end), carefully cut into the wood using a small handsaw or a rotary carving tool *(Photo 16)*. (You will be cutting away the row of holes you just drilled.)
9. Remount the backbone tube onto the lathe and cut it off at the length you marked in Step 7. Be sure to make your cut square; any off-square cuts will cause problems later when ▸

Remount the box tube/base into the chuck and face off the tailstock end. Drill a ¼" (6mm) deep hole. Select a Forstner bit that is one size smaller than the nominal diameter of the backbone tube. If needed, enlarge the diameter of the hole using a turning tool.

Test fit the backbone in the recess. The goal is to achieve a light friction fit to prevent squeezing out all of the glue.

Reverse the top and remount it into the chuck and shape the rest of its profile.

Test fit the backbone tube into the top. (All the parts in this photo are ready for assembly.)

Verify that the backbone tube is long enough to come out even with the stacked rings. Use one of the wedges to expand the backbone to make sure that ring 1 can be successfully glued onto the backbone tube.

Remount the box tube/base into the chuck and turn the base to its final shape.

gluing into the top. Set aside until later *(Photo 17)*.

Shape the top

1. Mount the blank for the top between centers and turn a tenon on the tailstock end.
2. Reverse the blank and remount it into a chuck using the tenon.
3. Use the tailstock for support and finish roughing the top down to round. Move the tailstock out of the way.
4. Face off the right end, making it flat and smooth. This surface should be at least 2" (50mm) in diameter.
5. Drill a ¼" (6mm) deep hole using a Forstner bit. This hole will receive the backbone tube *(Photo 18)*. The nominal diameter of the backbone tube is 1½" (38mm). It is possible that your backbone ended up slightly undersized. If that is the case, select a Forstner bit that is the next size smaller than 1½" (38mm).
6. Using a turning tool, enlarge the hole until a light friction fit is obtained for the top end of the backbone tube *(Photo 19)*. Test the fit of the backbone tube into the socket.
7. Reverse the top and remount it into the chuck using expanding jaws to grip the inside of the recess. Finish profiling the top *(Photo 20)*.

Glue the top and backbone together

Using some scrap wood, cut a couple of small wedges that will fit within the slot of the backbone tube. Be sure that the wedges are not too long and will not bottom out when inserted into the slot. These wedges will be used to help wedge the first ring in place during the gluing process.

Test fit the parts by placing the top end of the backbone tube into the recess in the top *(Photo 21)*, then place all six of the code rings, in sequence, on the backbone tube *(Photo 22)*. Verify that backbone tube is long enough to come out even with the end of the stack of code rings. It is okay if it is a little long at this point. Use one of the wedges to expand the backbone tube to verify that the first ring can be successfully glued to the backbone tube. The other five code rings should rotate freely.

Remove the top and apply glue sparingly to the recess. Insert the backbone tube. Verify that the backbone tube is fully seated, square to the top, and that the joint is tight. Set aside and let the glue cure.

Finish turning the base

Retrieve the box tube/base, mount it onto the lathe and turn the base to its final shape. Sand *(Photo 23)*.

Locking pins

The locking pins are made from 4d nails (read as 4 penny). For each of the five locking pins, remove the point from the nail using diagonal cutters. It may be necessary to remove burrs from the cut end of the nail. A file or a sharpening stone will work for this task.

Insert the remainder of the nail into the first hole drilled into the box tube, which is the hole that is closest to the base. The end of the nail should be flush with the inside surface of the wall of the box tube. Obtaining a flush fit of the nail can be accomplished by using the ⅞" (22mm) Forstner bit as a backstop. Insert the Forstner bit into the box tube and position it so that the side of the bit is under the first nail hole. (The Forstner bit also helps reduce splitting.) After inserting the pin, apply thin CA glue to each pin where it enters into the wood *(Photo 24)*. After the glue has set, cut off each nail leaving it approximately 5/16" (8mm) long.

Test fit the box tube by sliding it into the backbone tube. If there is any misalignment of the pins, the slot in the backbone may need to be widened to allow the box tube to be freely inserted *(Photo 25)*.

Finishing tips

With all of those moving parts, you need to be careful when applying the finish to avoid causing problems.

Consider finishing all parts before the final assembly and glue-up. Stray finish can cause the parts to stick together. Also, do not get finish on any area to be used as a glue joint.

Waxing the surfaces of the backbone tube, the box tube, and the sides and insides of the code rings before assembly will help with smooth operation; however, do not wax any area that will become a glue joint.

If you prefer to apply the finish after final assembly, consider using an oil finish like Tung oil or Danish oil.

Cut notches in the code rings

Retrieve the code rings. Make sure that each ring is properly marked as to its position 1 through 6 and that the notch position is properly marked in the rabbets.

Cut the notches on the inside of each code ring. The depth of the notch is such that the bottom of the notch is flush with the surface of the rabbet. The width of the notch controls how sensitive the cryptex is to precise alignment of the rings. Wider notches compensate for misalignment of the locking pins and reduce sensitivity to the alignment of the code rings. Placing small incomplete notches around the ring to simulate normal notches will help fool a "safe cracker."

Final adjustment of locking pins

Place one of the notched rings on the backbone and use it as a gauge for any final adjustment needed for the length of the locking pins. Slide the box tube into the backbone tube, and if needed shorten the length of each pin so that the ring will easily slide over it *(Photo 26)*. To adjust the length of the pin, hold the pin with a pair of long-nose pliers next to the tube and remove metal from the end using a file or hand grinder. Holding the pin with pliers will minimize the stress on the glue joint while filing.

Test fit the parts

Place all six rings onto the backbone and test the fit of the rings and pins. The rabbets on the rings should be toward the top of the cryptex. If the backbone tube extends more than 1/16" (2mm) beyond the stacked rings, shorten it. The rings should turn freely around the backbone and not bind on the pins. Binding problems and possible adjustments follow:

- Box tube binds sliding in and out of backbone: widen slot in backbone
- Pins bind on rings: shorten pins and/or widen the notches
- Rings bind on pins when rotated: use a file and remove a small length of the pin where it is rubbing on the ring

24 The first pin is fitted into the box tube. The code ring on the adjacent backbone tube is used to gauge how long to cut the pin.

25 Trial fit the box tube, backbone tube, and code ring to verify the correct lengths of the locking pins. Check for binding of the pins within the slot.

26 Stack multiple code rings on the box tube and backbone tube to verify that the parts will work together when assembled. For clarity, the top is not shown.

27 Use one of the wedges to expand the backbone so that ring 1 will be successfully glued onto the backbone tube.

Glue ring 1 to backbone

Place the six rings onto the backbone and make sure they are in their correct positions. Remove ring 1, the index ring. Place a small amount of glue on the inside of ring 1 where it will contact the backbone and place the ring back on the backbone. Align the notch in ring 1 with the slot in the backbone. (The remaining five rings are *not* glued and are free to rotate.) Do not jam the rings tightly together; they need room to rotate. Insert a small wedge into the slot in the end of the backbone tube. Press it in tightly enough to force the backbone tube out against ring 1, in effect clamping the glue joint *(Photo 27)*.

After the glue has set up, rotate each of the other five rings to make sure glue did not get in the wrong place. Sand the end of the backbone tube flush with the edge of ring 1.

Insert the box tube into the cryptex and check for length. There should not be a wide gap between the base and the rings. Shorten the end of the box tube as needed until the gap is gone.

Insert the box tube into the cryptex and test for proper operation. Note that when you insert the box tube, the code rings must be properly aligned using the code word. At this point, if there is any binding, the only adjustment available is to file off small amounts of the locking pins from the top or sides.

Apply finish as desired.

Place your secret treasure or gift certificate within the box tube, close the cryptex, and spin the rings.

Present your work of art to that special someone. ■

John Giem is the secretary and newsletter editor for the Rocky Mountain Woodturners in northern Colorado. He lives and teaches woodworking in Fort Collins. Contact him at jgiem@comcast.net

Cryptex Gallery

David Belser, *Cryptex Tantalus*, 2007, Cherry, walnut, maple, 14" × 5½" (36cm × 14cm)

After reading *The Da Vinci Code*, I became obsessed with the idea of making a cryptex, an object that would last for centuries in contrast to the short-lived creations of my professional software career. My wife suggested that if I was going to expend the effort, I should make it useful and large enough to hold a bottle, thus the origin of *Cryptex Tantalus*.

After a year of development, I completed the first two *Cryptex Tantalus* in May 2006, just in time for the AAW symposium in Louisville, my first symposium. Since then, I have made over thirty *Cryptex Tantalus*.

—David Belser

More of David's creations can be viewed on his website davidbelser.com.

Pierre Delétraz, *Just Married*, 2009, Sycamore maple, crackle varnish, 14" × 2¾" (360mm × 70mm)

This is a secrets container for a married couple. The husband and wife each have a box inside the container that can only be opened using his or her personal code. Enclosed can be first loving recollections about each other. The symbols and colors are based on the Chinese philosophical concept of yin and yang, which are represented as female and male or dark and light.

Pierre Delétraz, *AAW Albuquerque Symposium*, 2009, Sycamore maple, crackle varnish, 7" × 2¾" (180mm × 70mm)

The word *Albuquerque* is engraved on the box inside the container.

Collection of Barbara Crockett

Pierre Delétraz, *Cryptex Syringe,* 2009, Sycamore maple, crackle varnish, 13½" × 2⅓" (340mm × 60mm)

The code is life.

Collection of Jacques Vesery and Minda Gold

Beyond Round
Therming

Flask, 2008, Quilted big leaf maple, 7¾" × 4¼" × 2⅛" (197mm × 108mm × 54mm)

This flask was thermed on two sides, cut apart on the bandsaw, hollowed using a drillpress, and then reassembled. The surface was further altered by carving and the figure in the wood grain was enhanced with acrylics.

Photo: Kenji Nagai

Art Liestman

The lathe is an excellent tool for making round things, but it can also be used to make partial cuts (arcs of a circle) that will yield interesting shapes. *Therming*, a woodturning technique dating back to the 1700s, allows the turner to produce multiple-sided spindles with each side turned. Historically, the technique was used primarily to produce table legs and balusters, typically with four sides. A cross-section through a thermed leg shows four arcs of a circle meeting at sharp angles. When the legs are attached to a table, these angles appear as vertical lines, emphasizing the form and creating attractive shadow lines.

My interest in therming comes, in part, from a curiosity about making objects on the lathe that are not obviously turned. I enjoy exploring realms beyond round. Other techniques (such as multi-axis turning) can be used to produce pieces with multiple-turned sides, but there are two differences that distinguish therming: in therming, 1) multiple workpieces are shaped at one time 2) while they revolve around the axis of rotation (which does not pass directly through the workpieces).

There seems to be some uncertainty about the origin of the word *therming*. The term dates back to at least the 1700s and seems to refer to a pillar design used for statue bases. The word itself is likely derived from the name of a Greek god, either Hermes or Terminus. Therming has also been called "barrel turning," "drum turning," and "angular turning." Sigi Angerer's article on therming, "Angular Turning on the Lathe," appeared in a 1998 issue of *AW* (vol 13, no 2) and was reprinted in the compilation, *American Woodturner's Techniques & Projects III* (1999, AAW). Mike Darlow's *Woodturning Methods* (1999, Fox Chapel) also includes some information on therming.

Methods of mounting

There are at least two methods for mounting workpieces for therming. In the first method, the workpieces are secured at each end to the outer faces of

Two 1" × 3" × 9" (25mm × 75mm × 230mm) workpieces are screwed to a 1" × 3" (25mm × 75mm) carrier (the middle layer). The assembly is mounted between centers.

The assembly looks like this after turning the outer faces.

After turning the outer faces, dismantle the assembly and reassemble with the workpieces flipped over.

Turn the new outer faces to achieve something as shown. Each of the 1" × 3" (25mm × 75mm) workpieces has now been reshaped by turning the two broad faces of the boards. These faces have been thermed.

a wooden carrier, which is mounted between centers of a lathe *(Photo 1)*. In the second method, the workpieces are secured at both ends to discs, forming a barrel *(Photo 12)*. In either case, the turner can shape the exposed face of each workpiece using standard spindle-turning techniques. The workpieces can then be rotated and the process repeated to shape another face, and so on *(Photos 2–4)*.

When using the first method, it is important to use screws that are long and strong and to drill pilot holes if the wood is prone to splitting. When turning, a portion of each end of the blank must be left unturned to avoid hitting the heads of the screws.

The turning process

I begin turning by creating a groove with a parting tool well to the inside of the mounting screws. This reminds me to turn inside the groove. I find that a spindle-roughing gouge is the easiest tool for doing most of the shaping of the pieces, although other gouges can also be used. Some of the assembly will be left unturned, so do not move the toolrest while the assembly is turning. If the toolrest has been repositioned, be sure to hand-rotate the assembly one complete rotation before turning the lathe on again to make sure the new position of the toolrest is safe.

Depending on the type of wood and the sharpness of your tools, the finish can be quite good straight off the tool. There may be some tearout as the gouge exits the wood, leaving a bit of fuzz. If you are therming all four sides, you can minimize the number of fuzzy edges by rotating the pieces so that the exit edge becomes the next entry edge. That way, only the last exit edge is likely to be fuzzy. For safety, all sanding should be done with the lathe turned off. I prefer to sand each face before rotating the workpieces. I do this with the assembly still mounted on the lathe.

Options for further turning

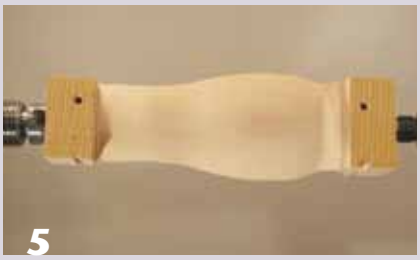
Another option for turning is to dismantle the assembly again and place one of the workpieces between centers for further shaping *(Photo 5)*. The ends of each workpiece have not been turned, so it is easy to find the center of the workpiece at each end. These centers can be marked and some of the unturned material can be removed using a bandsaw. The workpiece can then be remounted using these centers.

Photo 6 shows the workpiece reshaped between centers. In this instance, the turning that was done with the workpiece held between centers has resulted in the shaping of two new faces so that the spindle now has four turned faces, two turned by the therming process and two turned between centers *(Photo 7)*. Part off the workpiece and the result is a totally turned object. ▸

Inga, 2009, Big leaf maple burl, ebony, 5½" × 7" × 3½" (140mm × 178mm × 89mm)

A teapot can be created from a four-sided thermed object that was then hollowed on the lathe. The figure in the wood grain was enhanced with acrylics.

Photo: Kenji Nagai



One of the workpieces has been remounted and is ready for turning between centers. Notice that the unturned ends have been trimmed.

The workpiece is reshaped between centers.

The workpiece is completely turned and parted off at both ends. Each of the four faces of this object has been turned.

Use of thicker wood

Using a 3" × 3" (75mm × 75mm) carrier, you can mount and turn four workpieces at a time *(Photos 8–11)*. The curvature of the faces of the resulting thermed workpieces will be flatter, as the wood being shaped is further away from the axis of the lathe. By varying the dimensions of the carrier and the workpieces, many different effects can be achieved.

Barrel-mounted assembly

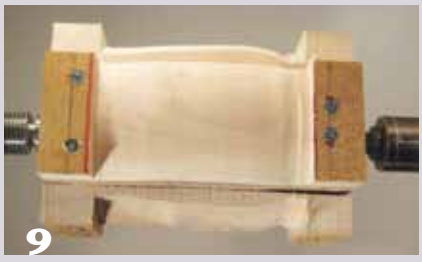
Another way to mount the workpieces for therming is to connect them in a barrel-shaped assembly with discs screwed into the workpieces at either end. The cylindrical barrel consists of several spindle blanks—staves of the barrel—and two round pieces of plywood at the ends. The plywood discs form the top and bottom of the barrel. With the barrel positioned horizontally, it is mounted on the lathe with a faceplate attached at the middle of one end of the barrel and the live center at the middle of the other end.

The outer face of the barrel staves are shaped, the barrel dismantled, each stave rotated, then reassembled to form the barrel assembly again, this time with a new, unturned face of each stave facing outwards. The barrel assembly is remounted, and the new face of each workpiece is shaped. The process is repeated to shape all the sides of the barrel staves.

To try this method, begin with discs made of high-quality ¾" (20mm)-thick plywood. Cut two 9" (23cm)-diameter plywood circles. For each disc, drill pilot holes approximately 1" (25mm) apart on a circle laid out ¾" (20mm) in from the edge of the disc. Center a faceplate on one of the discs and attach it securely to the disc. Drill a small hole (⅛" [3mm] diameter, or so) in the center of the other disc to allow easy location of a live center.

When using this method, it is important to cut your workpieces carefully, making them all exactly the same length and being careful to ensure that the ends are parallel to each other. Careful preparation of these blanks will minimize complications in assembling and aligning the barrel. The eight workpieces I use in this project are 2" × 4" × 9" (50mm × 100mm × 23cm) attached to two 11" (28cm)-diameter plywood discs.

Stand the workpieces on end in a circle and space them evenly. Place the disc, with the faceplate attached, over the workpieces and securely attach the disc to the workpieces using at least two strong screws for each workpiece *(Photo 12)*. The screws



Photos 8 – 11 show a similar process, only with a 3" × 3" (75mm × 75mm) carrier in the middle. The pieces are thermed on the two broad faces.

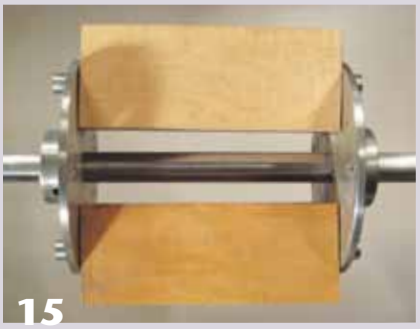
should extend a minimum of ¾" (20mm) into the workpieces.

Invert the partially constructed barrel assembly and loosely attach the other disc to the tailstock end. Do not fully seat the screws yet. Mount the assembly on the lathe by threading the faceplate onto the spindle and then bringing the tailstock into place to center the disc. Use enough pressure to keep the assembly centered. Once the tailstock is in place, tighten the screws on the tailstock disc, advancing the tailstock as needed to maintain the alignment as the disc is drawn toward the ends of the staves. This ensures that the assembly is properly aligned with the tailstock. The barrel-shaped assembly is now ready for the first turning *(Photo 13)*.

12 Eight workpieces are securely attached to two plywood discs to form a barrel shape for mounting on the lathe.

13 The barrel-shaped assembly is mounted to the lathe and is ready for turning the first face of each workpiece.

14 The custom-made mounting jig is shown from the Morse taper end. There are two locating pins mounted opposite each other for accurately holding two workpieces for turning.



15 Two 3" × 3" × 9" (75mm × 75mm × 230mm) workpieces are mounted to the jig and are ready for initial turning.

Safety considerations

Before turning this barrel-shaped assembly, there are several safety issues to be considered. First, the mounting of the faceplate and the connecting of the discs to the workpieces must be done carefully using appropriately long and strong screws. As there are gaps between the workpieces, care must also be taken during the turning process.

Because the turner will be turning air during some portion of each rotation, catches are possible. To minimize the chance of a catch, start each cut carefully keeping the tool handle low as you initiate each cut, and then raising the tool handle as you advance the cut. Doing so controls the depth of cut. Also, using more workpieces allows the gaps to be smaller, increasing the safety of the process.

Turning speed is always a safety consideration. It is best to begin turning your assembly at no more than 500 rpm. As you become comfortable with the cutting action, the rpm can be increased, assuming your assembly is properly put together. Turning at a higher rpm will help avoid catches that could result from the voids between elements of the assembly. Establish a safe balance between too slow and too fast.

Before you start the lathe, be sure to always check the lathe speed, hand-rotate the assembly to check the position of the toolrest, and make sure the tailstock is tight and locked into position.

My practice is to clearly mark on the workpieces (using colored pens) the location of the ends of the mounting screws. I then use a parting tool to create a trough on the workpiece side of those marks (clear of the mounting screws).

Alignment of workpieces

Using plywood for the discs allows the turner to attach various "stops" making for easy alignment of the workpieces when they are rotated. L-shaped stops, made from plywood and attached to the plywood disc, would permit easy repositioning of square corners of the workpieces. A second layer of plywood (on one or both ends) with notches cut to fit the workpieces also adds to the rigidity and safety of the assembly.

Another method to align workpieces for easy and accurate repositioning is to use a center pin located in a hole at the center of each end of the workpiece. ▸

Photo: Kenji Nagai

Ancient Tower, 2009, Big leaf maple, 14" × 4⅞" × 4½" (35cm × 124mm × 114mm)

Although it does not appears to have been turned, this sculpture was thermed on four sides, cut in half horizontally, hollowed on the lathe, then glued back together. The surface texture was applied after reassembly. The final color was achieved with wood bleach.

Custom-made mounting rig

If you intend to do a lot of therming, it may be worth making a more sophisticated jig *(Photos 14–18)*. My current jig (designed by Dennis Cloutier and made by a local machinist) uses steel discs with alignment pins to locate the center of the workpieces and a steel central shaft to aid in setup and jig-to–lathe alignment. I have different sets of discs for different diameters.

The central shaft is 1" (25mm) in diameter with a #2 Morse taper on one end and a dimple at the other end for locating a live center. The shaft has a ¼" (6mm)-wide keyway that runs full length. The discs have keyed hubs that slide onto the shaft.

The discs have threaded holes for locating pins that allow even spacing of two, three, or four workpieces. The locating pins are modified bolts with the threads removed on one end leaving a ⅜" (10mm)-diameter pin approximately ¾" (20mm) long. Around each locating pinhole are several smaller holes to be used for screwing the disc to the workpieces.

Beyond the basics

An added bonus of therming is that it allows for the use of nicely figured wood that has been slabbed into planks that are anywhere from 1"–3" (25mm–75mm) thick. Such planks can be used for platters, peppermills, and shallow bowls using regular turning techniques, but therming provides a way to use this dimensional lumber to make flattened vessel forms.

Once you have the basic idea of therming, you can apply this method to other realms. Thermed pieces can be remounted between centers of the lathe and shaped further. Larger workpieces can also be hollowed on the lathe after therming. Another way to hollow thermed pieces is to cut them apart, hollow the halves using carving tools, and then glue them back together. The basic technique also allows you to make a piece with any number of thermed sides.

This age-old technique offers exciting, unexplored possibilities for woodturners. By using therming alone or combining it with other turning techniques, we can move beyond round to create innovative shapes using our lathes. ■

Art Liestman coaxes wood into peculiar shapes in Coquitlam, British Columbia. Please visit his website at artliestman.com. Art will demonstrate his woodturning techniques at the AAW symposium in Hartford.

The first face of the workpieces has been turned and the pieces are ready for remounting.

The two workpieces mounted to the jig after the fourth faces have been turned.

The two workpieces look like this after being dismounted from the jig. The two (identical) workpieces are rotated to show the different profiles.

Connections and Reverberations

Woodturning, the Mobile Museum of Art, and Martha Connell

Kevin Wallace

Stoney Lamar, *Temple Series #7,* 1990, Redwood burl, 18" × 13" × 9" (46cm × 33cm × 23cm)

Dale Nish, *Nagare,* 1989, Wormy ash, 13" × 10" (33cm × 25cm)

Bud Latven, *Singularity Series #12,* 1991, Bloodwood, holly, dyed birch veneer, 5" × 6½" (13cm × 17cm)

Woodturning has long been represented in museum collections internationally, primarily as a result of its historical use in furniture. Until fairly recently, one would have been hard pressed to find the examples of artistic woodturning scattered among a small sampling of museums. This has changed considerably over the last two decades, as the field of artistic woodturning is increasingly embraced by a growing number of museum curators.

The list of museums that have been acquiring work is almost overwhelming: The Carnegie Museums, Minneapolis Institute of Arts, Yale University Art Gallery, Long Beach Museum of Art, Arkansas Art Center, Crocker Museum of Art, Contemporary Museum in Hawaii, Detroit Institute of Art, Figge Museum of Art, Museum of Fine Arts (Boston), Fine Arts Museum of San Francisco, Los Angeles County Museum of Art, Mint Museum of Craft + Design, Museum of Arts & Design, Museum of Fine Arts (Houston), Philadelphia Art Museum, Racine Art Museum, Renwick Gallery, Smithsonian American Art Museum, University of Michigan Museum of Art, and the Victoria & Albert Museum . . . the list goes on and continues to grow.

Having work collected and exhibited in museums is vitally important to the field of artistic woodturning. Aside from the validation it provides, it opens the door to critical analysis in books and exhibition catalogs and in the media, from specific art world publications to ▸

Todd Hoyer, *Winged Series Emerging Pyramid Variation,* 1991, Apricot, 13¾" × 16" × 9½" (35cm × 41cm × 24cm)

Ed Moulthrop, untitled, 1991, Georgia loblolly pine, 37" × 16" (94cm × 41cm)

newspapers and television. This in turn expands the number of galleries interested in exhibiting and promoting the artists who are its leading proponents, and art collectors who recognize the value of the work.

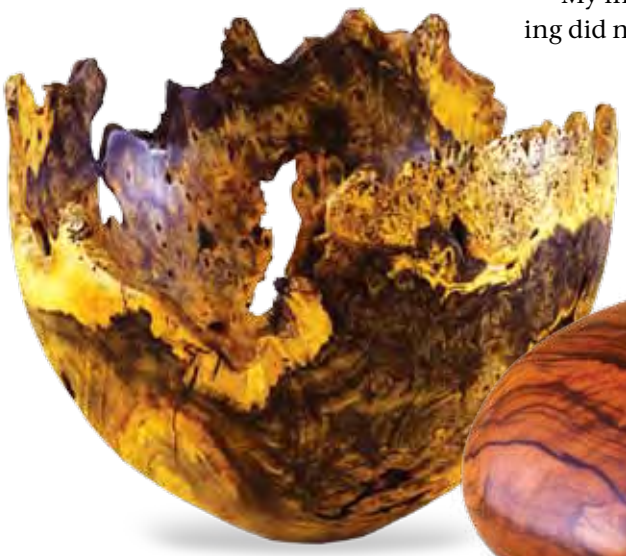
Creating art collections has always been the domain of visionaries, and the field of artistic woodturning has indeed been blessed with many individuals who have supported the field and made gifts to the aforementioned institutions, paving the way for others to follow. In the museum world, the course of events in the field has similarly been determined by individuals who recognize its value and choose to exhibit and collect the work. One museum that recognized the importance of the field of artistic woodturning earlier than the rest, and has made a major commitment to acquiring and promoting the work, is the Mobile Museum of Art in Mobile, Alabama. "It was really the then director, Joseph B. Schenk, who saw the potential for the museum to begin a serious collection in this area," Curator and Assistant Director Paul Richelson explains. "During his years in Georgia, prior to coming to Mobile, he developed a real interest in crafts and knew certain people, including Martha Stamm Connell, who had expertise in the field of woodturning."

"My involvement with woodturning did not really begin until my husband, Pat, and I entered the gallery business in 1985," recalls Martha Connell. "I was aware of the work of Ed Moulthrop, as is every Atlantan who is interested in the arts. I first heard of Ed when he began showing at the Atlanta Arts Festival in the 1950s. However, I had never met Ed until I met my husband Pat in 1972. Pat had known Ed when he was a student and had worked under Ed as a designer for a local architect. When he came back to Atlanta, Pat reestablished his relationship with Ed and they became very close friends."

Pat and Martha shared a strong interest in studio crafts. The two had talked about opening a gallery and had looked at properties that they could purchase and renovate to include both a business and home, so were ripe for the opportunity to acquire an existing operation. This led them to purchase The Great American Gallery, when the owners decided to move to the Southwest.

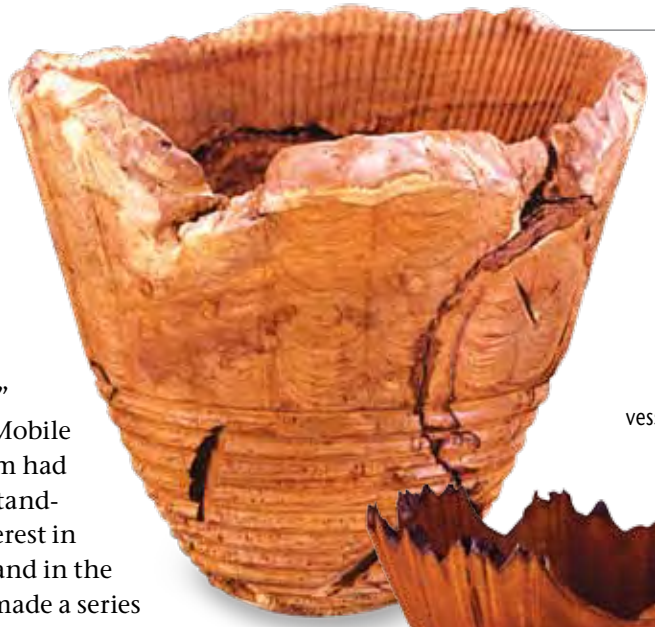
"It was an ideal partnership," Connell recalls. "Pat designed and hung the shows and designed and produced our show announcements, ads, etc. while I ran the day-to-day operations. When Pat retired in 1994, he came to work full time at the gallery."

Rude Osolnik, untitled, 1990, California buckeye burl, 13" × 16½" (33cm × 42cm)



David Ellsworth, untitled, 1987, Macassar ebony, 5½" × 13½" (14cm × 34cm)

Melvin Lindquist, untitled, 1980, Cherry burl, 7½" × 9" (19cm × 23cm)



Mark Lindquist, *Unsung Bowl Ascending #8,* 1989, Oak burl, 17" × 18" (43cm × 46cm)

Bob Stocksdale, vessel, 1989, Black walnut, 6" × 7" (15cm × 18cm)

Ed Moulthrop was very supportive of the Connells' move into the gallery business and felt they should increase their representation of woodturners. Prior to 1985, The Great American Gallery had shown the work of David Ellsworth, Bruce Mitchell, and John Whitehead. Moulthrop introduced the Connells to Rude Osolnik and acquainted them with some of the other turners who eventually became part of their artist family.

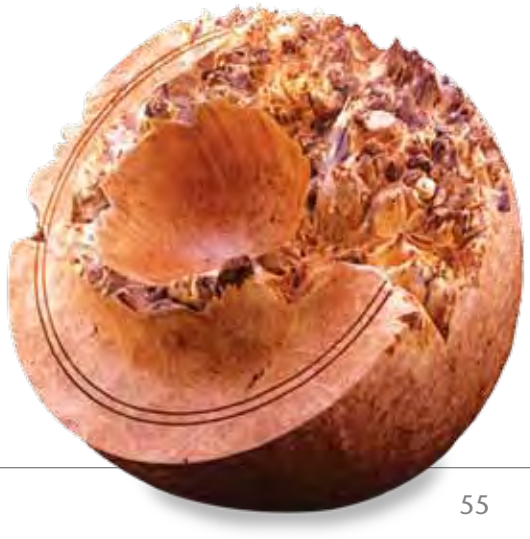
Another event that was influential in shaping the Connells' commitment to woodturning was the Woodturning Conference at Arrowmont in 1985. "That conference occurred the same month we presented our first wood exhibition, 'Wood: Turned Vessel and Sculpted Objects' that featured work by David Ellsworth, Rude Osolnik, Bruce Mitchell, John Whitehead, Grant Miller and Nick Cook," Martha recalls. "For me, this Arrowmont conference was a wonderful indoctrination into the world of turning. The conference exhibition was extraordinary and, of course, the chance to meet the artists and watch demonstrations was a unique opportunity that I relished. I was totally hooked."

Martha Connell became involved with the Mobile Museum of Art when Joe Schenk became its director in 1989. Prior to that time, Schenk had been director of the Chattahoochee Valley Art Museum (now called the LaGrange Art Museum) in LaGrange, Georgia. While he was in LaGrange, the museum mounted a catalogued exhibition of craft objects titled "Art on the Move in 1987," borrowed from The Great American Gallery. "As a new convert to the art of woodturning, I was seeking every opportunity I could find to promote the field," Connell says. "I encouraged Joe to consider presenting a woodturning exhibition, but before that idea could mature, Joe moved on to the Mobile Museum of Art (then called the Fine Arts Museum of the South)."

The Mobile Museum had a longstanding interest in crafts, and in the 1980s made a series of purchases in glass, ceramics, and furniture by leading American artists. "Rather than it originally being a curatorial decision, the collection developed in this area more as the result of the enthusiasms of the Arts Patrons League of Mobile which had given pieces on their own to the collection, and then eventually the profits from a jointly sponsored Annual Outdoor Arts and Crafts Fair were earmarked for purchases in craft/decorative arts and sculpture," Paul Richelson explains.

The formation of the museum's craft collection came from these acquisitions and proceeds from the Fair were used to purchase a 1987 Ellsworth Macassar ebony vessel and a 1988 William Hunter vessel that were in the collection before Joe Schenk became director. "Not long after assuming his job as museum director, Joe called me about the museum's interest in acquiring a Stocksdale piece for the collection," says Connell. "At the time we did not represent Bob, but I told Joe I would contact him to see if he had works available for the museum's consideration. Bob sent us four pieces, and we placed two of them in the museum's collection. Thus began our relationship with Stocksdale that would last until his death. After the Stocksdale acquisitions, I had a number of conversations with Joe Schenk about woodturning, suggesting that they greatly expand the museum's holdings," Connell says. "To me, the field seemed to be in a period of expanding creativity that warranted museum recognition."

As plans developed for a celebration of the Year of American Craft, ▸



Robyn Horn, untitled, 1989, Western maple burl, 10½" × 12" × 9½" (27cm × 30cm × 24cm)

Michelle Holzapfel, *Chain Link Vase,* 1991, Cherry burl, 9" × 12" (23cm × 30cm)

William Hunter, *Mesa Wind*, 1988, Cocobolo, 5½" × 10" (14cm × 25cm)

Joe Schenk contacted Connell about curating a woodturning exhibition at the museum as part of this celebration. She eagerly accepted and began work on "Out of the Woods: Turned Wood by American Craftsmen," an exhibition that opened in Mobile in 1992 and then traveled in Europe as a presentation of the U.S. government under the Arts America program of the U.S. Information Agency from 1993 to 1997. A full-color catalog was produced, with an appropriate foreign-language version made available at each venue. With funding made available through the help of E.J. Montgomery at Arts America, who recognized the importance of the show, a video featuring three grand masters of woodturning: Ed Moulthrop, Rude Osolnik, and Bob Stocksdale was created.

"I took a video crew to each of their studios where we spent two days at each filming them working and interviewing them in their home surroundings," Connell recalls. "Because of this unique opportunity, I requested that the crew shoot as much raw footage as possible, which the museum retained. The finished product was a thirty-minute video that was a component of the traveling exhibition. In addition, a ten-minute edited version was produced to be used to promote the exhibition."

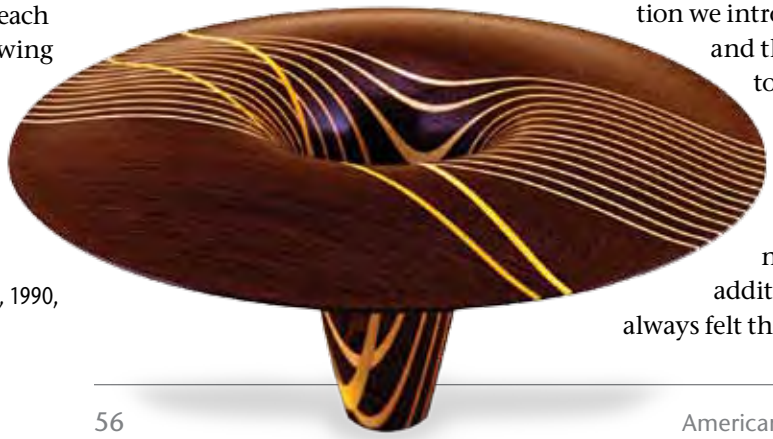
As plans for the "Out of the Woods" exhibition developed, Joe Schenk told Martha Connell that he would like the exhibition to have a home at the museum. His idea was to acquire one piece by each of the artists before the show began its tour and to raise money to acquire the remainder before the show returned to Mobile. "It was a very ambitious plan that fortunately became reality," Connell notes. "And this body of work is now a permanent feature of the museum's collection."

Paul Richelson arrived at the Mobile Museum of Art with "Out of the Woods" fully organized. "I had only to install its first showing in Mobile before it left for the USIA-sponsored tour in Europe," Richelson says. "As is probably the case with many curators, a new position requires getting up to speed in unfamiliar areas, which was certainly the case with me. Prior to 1991, my experience was limited to artists who created functional wood objects. Like many others before me, I was easily seduced by wood as an artistic material."

The exhibition was of major importance in the recognition of woodturning as an art form. Never before had American woodturning been given such a showcase: a European tour that traveled from 1993 to 1997, with full-color catalog and accompanying video. Upon the collection's return from its European tour, it was put on exhibit again in Mobile, this time in the museum's newly opened Downtown Gallery in 1998. From 2000 to 2002 the collection went on a tour of the United States.

Connell then curated an exhibition at the Atlanta Airport of the original collection, plus an additional eighty-two turnings borrowed from several Atlanta collections, which was presented August 2003 to May 2004. The airport art program produced a color brochure that was available free to travelers viewing the show.

In 2004, the original "Out of the Woods" exhibition was presented at the Columbus Museum in Columbus, Georgia. "Half of the pieces in 'Out of the Woods' were part of the collection by purchase when the tour began," Richelson continues. "When it returned to the USA, one anonymous gift allowed the museum to purchase the remainder. Through the exhibition we introduced our members and the Mobile community to the museum's commitment to the area of wood art. We used our part of the rental fees from the national tour to acquire additional pieces. We always felt that the national tour



Virginia Dotson, *Devine Line Series #19,* 1990, Wenge, maple, 4⅝" × 10⅞" (12cm × 27cm)

Robyn Horn, untitled, 1988, Tasmanian pinkwood burl, 5" × 15" (13cm × 38cm)

helped introduce new American audiences to the field. Art museums' involvement came in many ways late in the game and that has always puzzled me a bit, but better late than never. Mobile was certainly ahead of the game. I believe that Osolnik, Lindquist, Moulthrop, and Stocksdale were so diverse and complete in their own way that people were waiting to see whether others could build on them. By the time 'Out of the Woods' was put together that answer was a resounding 'yes'."

Over the years, a number of individuals have been important in the continued growth of the woodturning collection at the Mobile Museum of Art, including Robert M. and Lillian Montalto Bohlen, Daniel Greenberg and Susan Steinhauser, John and Robyn Horn, Jane and Arthur Mason, and of course Martha Stamm Connell and Pat Connell.

"When it was possible through an anonymous gift of funds in 2004 to add new artists or update an artist's career, I used the wish list that I had been keeping and we added thirteen pieces, several of which we commissioned, to reflect what I perceived was a new, more sculptural, less vessel-focused shift in the field," Richelson says. "Anyone who comes to visit the museum today will come away with a solid overview of the accomplishments of contemporary artists working in wood. Once the decision was made to make this a collections focus to complement our other craft holdings, the museum has done its best to promote it through exhibitions and additions to the collection."

"What is amazing is that the museum felt strongly enough about the work to purchase it for their permanent collection," Robyn Horn says of the "Out of the Woods" exhibition. "I don't know of any other museum that has purchased an entire exhibition and then displayed it in their facility. It was one of the first museums to own my work, and I felt it was a critical step in establishing many careers. Paul Richelson is a founding member of the Collectors of Wood Art (CWA), and curated a special exhibition for CWA at SOFA in 2008. So the museum is still very interested in turned wood, and is still participating in promoting it."

"My experience with the Mobile Museum of Art is that they have a great appreciation for the field of wood art," notes Bob Bohlen, a major collector in the woodturning field. "They have one of the strongest museum collections of wood in the world. Paul Richelson has done a great job and participated in wood events across the country, as well as maintaining an ongoing display of wood art. We've given them a number of works, when they had a moratorium on acquiring work, so that they would have a broad and current spectrum. We've been very supportive, because they have shown such an interest in the work. Essentially, we've tried to appreciate them as much as they have appreciated the field."

The relationship between Martha Connell and the Mobile Museum of Art makes clear how influential a dealer can be in promoting art in the public realm and placing pieces in museum collections. She makes a strong case for the important role that museums play: "Having work in museum collections gives validity to an artist like nothing else can," Connell says. "Museum recognition also gives validity to a medium or field. I feel strongly about the special role that museums play in the recognition of artists and in the education of the public about all kinds of art. Not everyone can afford to own art, but museums are there for anyone who wishes to partake of the visual feast that a museum offers. Museum collections give credibility to the creativity of the artist and document and preserve this creativity for future generations." ■

Kevin Wallace is Director of the Beatrice Wood Center for the Arts, Ojai, CA.

Michael Peterson, *White Stone Desert III,* 1989, Bleached maple, 5½" × 11" (14cm × 28cm)

Members' Gallery

2009, Curly black mesquite, 2½" × 3" (64mm × 76mm)

2008, Blister maple, 3½" × 4" (89mm × 102mm)

Michael Stafford's Boxes

I am a woodturner who came to this hobby while looking for ways to dress up my flat-woodwork jewelry and decorative boxes. I became enamored with turned wooden boxes because of the challenge to turn lids that fit perfectly. Boxes allow the use of small pieces of interesting wood to create something useful and beautiful. I am a member of the Woodturning Guild of North Carolina.

—Michael

2009, Sheuda, 3¼" × 2¼" (83mm × 57mm)

2009, Masur birch, 2½" × 3½" (64mm × 89mm)

Marvin Ewing and his winning entry to the Kentucky State Fair.

In August 2009, more than 620,000 people attended the Kentucky State Fair. While there, they could view the woodturning entries that were competing for prize money, ribbons, and the inaugural Best in Show permanent trophy, sponsored by Woodcraft. The bowl awarded Best in Show was on display at the local Woodcraft store in Louisville.

—Al Bissmeyer III

John Taliaferro, honey dipper, Oak, 7' (213cm)

Photo: David Van Giesen

The Southwest Missouri Chapter's monthly challenge in April 2008 was to turn a goblet. John Taliaferro decided to turn one on his shop-made lathe. His goblet began as a 1,000 lb (454kg) hunk of spalted hackberry. A week later, after turning was complete, it weighed 50 lb (23kg) and could easily hold 40 gallons (151 L) of liquid.

For the March 2008 challenge, John turned a rather large honey dipper; it doubles as a hall tree. Made from oak, the final product weighed around 160 lb (73kg) (the piece of wood was originally 840 lb [381kg]!).

Recently, John purchased an old Oliver lathe; it weighs a mere 1200 lb (544kg). It took a forklift to move the monster into his workshop. After measuring the lathe's capacity, John figured that he could mount a Mini Cooper bumper to bumper and the car would never touch the ground.

John Taliaferro *(left)* and his sidekick-tool sharpener, Mike Ilkiw, stand next to the large goblet.

Photo: David Van Giesen

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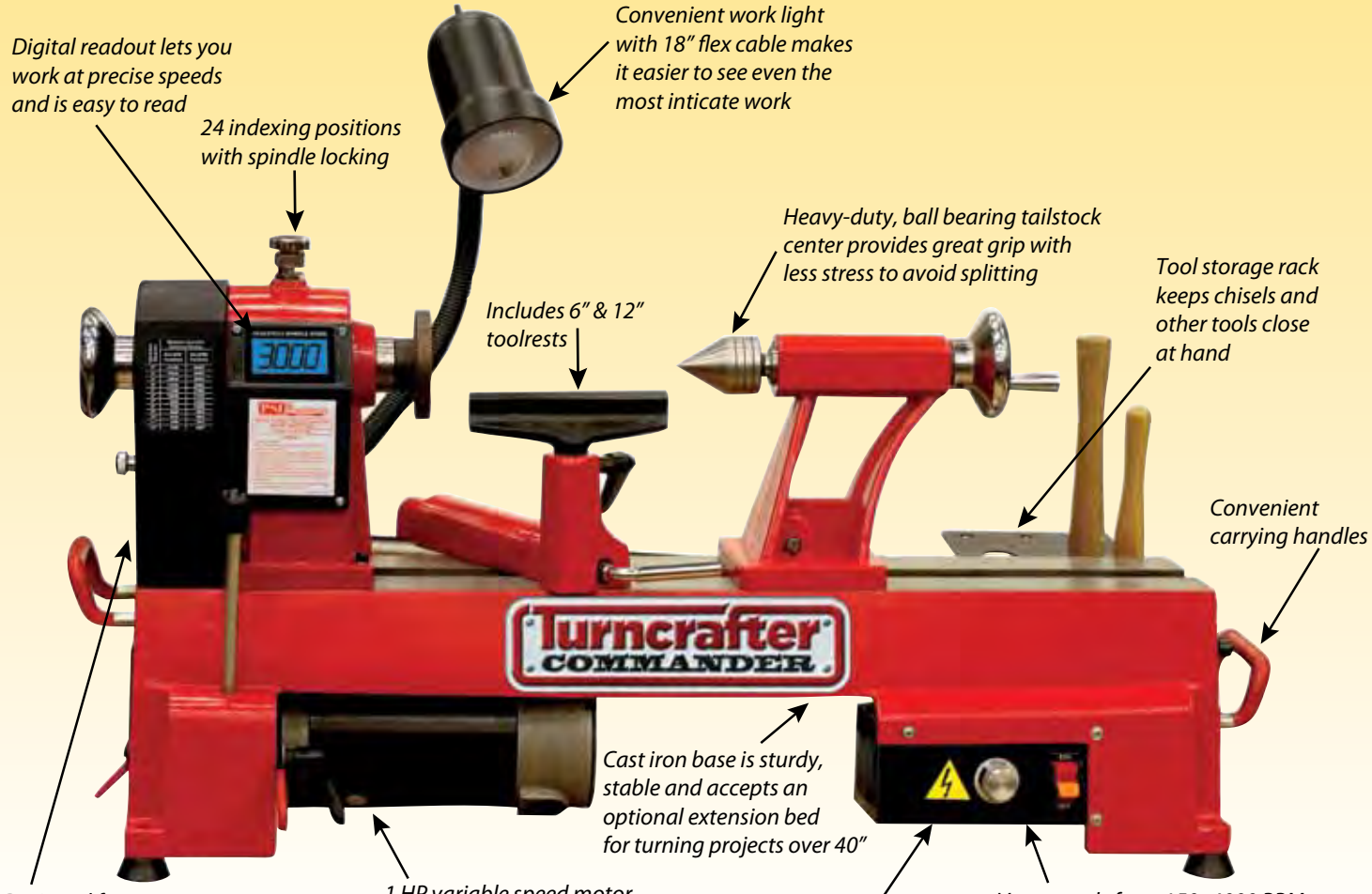

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advertisingindex

AAW's Membership Prize Drawings

Continued from page 4

The end-of-the-month inaugural drawing for prizes will begin in March 2010. All current members of the AAW are automatically entered into the drawing.

When you patronize our supporters, please thank them for their support of the AAW. Watch future journals for new prizes to be added to the list.

March prizes

A portable carving stand plus a three-DVD set, *Decorative Utility Bowls, Sculpting Wood: Beyond the Lathe*, and *Vessels of Illusion,* provided by Trent Bosch, trentbosch.com

$100 gift certificate toward abrasives supplies from The Sanding Glove, thesandingglove.com

A Teknatool Nova G3 chuck with No. 2 jaws and insert, provided by Craft Supplies USA, woodturnerscatalog.com

A five-DVD set, *From the Tree to the Table, Bowl Basics, Mike Mahoney on the McNaughton Center Saver, Hollow Forms and Urns with Mike Mahoney,* and *Making Heirlooms,* provided by Mike Mahoney, bowlmakerinc.com

$100 gift certificate from Thompson Lathe Tools, thompsonlathetools.com

$100 gift certificate from Hunter Tool Systems, hunterwoodturningtool.com

April prizes

A five-DVD set, *Open Bowls, Shop Stuff, Hollow Turning, Tools for Hollow Turning,* and *Signature Gouge/Sharpening Jig*, provided by David Ellsworth, ellsworthstudios.com

$100 gift certificate from Thompson Lathe Tools, thompsonlathetools.com

A 16 oz. bottle of walnut oil and an 8 oz. container of wax, from Mike Mahoney, bowlmakerinc.com

$100 gift certificate from Hunter Tool Systems, hunterwoodturningtool.com

A Teknatool Nova G3 chuck with No. 2 jaws and insert, provided by Craft Supplies USA, woodturnerscatalog.com

May prizes

$100 gift certificate toward abrasives supplies from The Sanding Glove, thesandingglove.com

A Teknatool Nova G3 chuck with No. 2 jaws and insert, provided by Craft Supplies USA, woodturnerscatalog.com

$100 gift certificate from Thompson Lathe Tools, thompsonlathetools.com

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$100 gift certificate from Hunter Tool Systems, hunterwoodturningtool.com

Year-End Drawing for New Lathes!

The next issue of *AW* will provide more details about a drawing for a Powermatic 3520B lathe that will go to one lucky AAW member. Additionally, a local chapter, named by the winner of the Powermatic, will win either a JET 1642 or five JET mini lathes, donated by Walter Meier Powermatic/JET. Included for all lathes is free shipping in the continental U.S. (or up to $500 shipping allowance for Canadian or international winners). Winners will be announced in the December issue of *AW.*

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"Blossoms" by Rob Martin

Rob Martin is a professional woodturner from Alberta, Canada. Inspired by a china ginger jar, this peppermill won first place in a contest sponsored by Packard Woodworks. Made of hard maple, the peppermill was textured using wood-burning, and colored with ink and satin acrylic varnish. Two finger/thumb holes were added to the body to provide a handle. 4" x 6-3/4" c.2007

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Phyllostachys Hexagonos

David Belser, *Phyllostachys Hexagonos*, (bamboo hexagons), 2009, Bamboo, cherry, epoxy, 14" × 3" (36cm × 8cm)

Collection of Dr. Michael Goldberg

First-place winner at the "30th Annual Box and Container Show," Northwest Gallery of Fine Woodworking, Seattle.

I was playing with a handful of bamboo sticks that I had painted black for another project and had discarded. I realized that bamboo sticks naturally pack together in a dense hexagonal or honeycomb structure and that I could remove some of them, while the others would remain in place. It occurred to me that this collection of bamboo sticks might look interesting when turned. After many failed attempts, I arrived at a spherical box.

David Belser will be one of the POP Committee's Emerging Artists at the Hartford Symposium. More of his work can be seen on his website davidbelser.com.