AMERICAN WOODTURNER

Journal of the American Association of Woodturners

Suspended Vessels

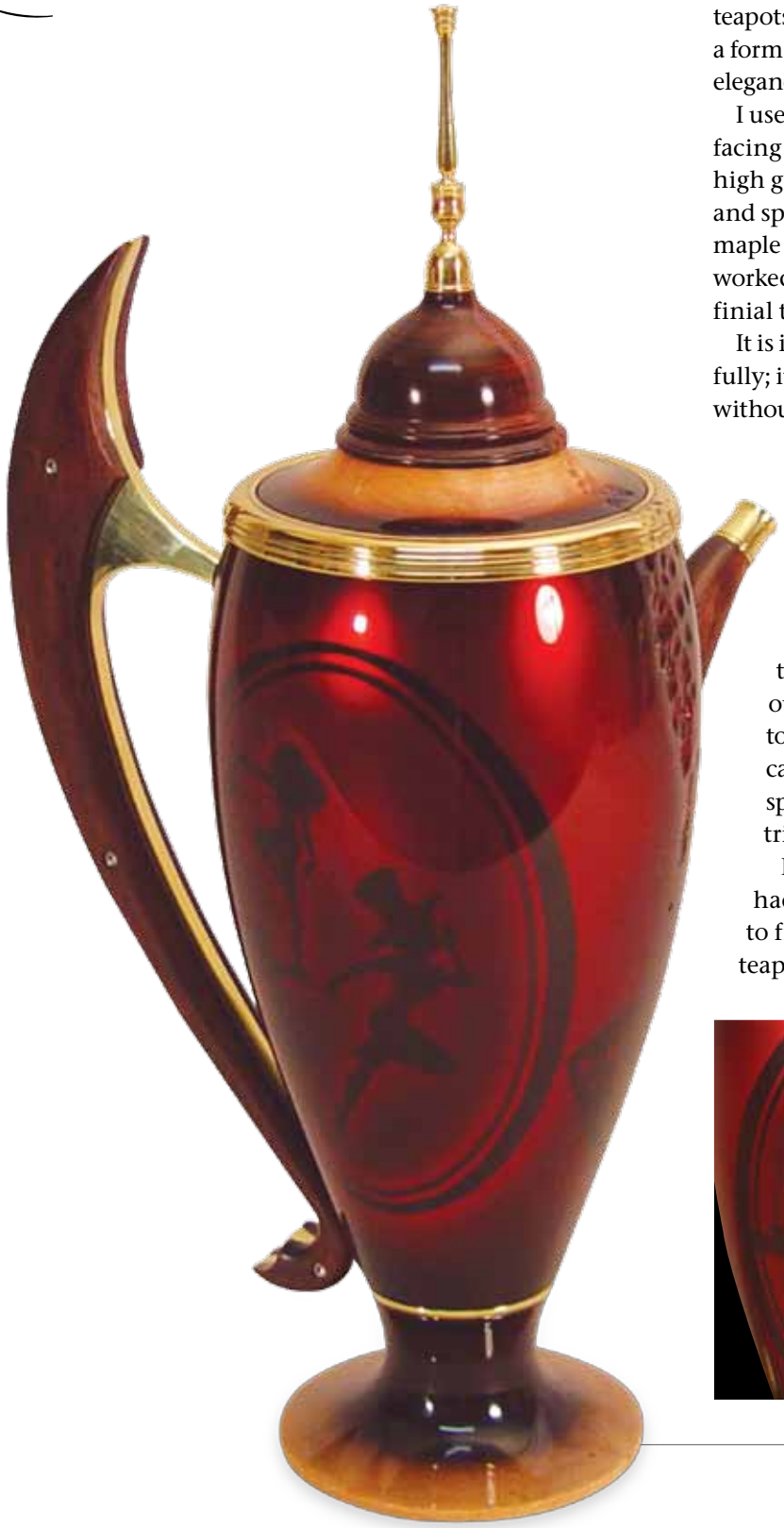
Carbide Lathe Tools

Chuck Jaws

December 2010 vol 25, no 6
woodturner.org

Create a Bracelet Box

Teapot



Someone I know asked me to make a teapot for him, so I did.

Since I am not in the habit of making teapots, I had to take extra time to dream up a basic idea that would fit the way I think, design, and work. Even though I speak a little teapot, I am not fluent in teapot. I started with two basic ideas: a canteen shape with added handle and spout, and a traditional bowl or pot form. Unexpectedly, I saw teapots as a completely different idea. I would start with a formal European classic concept to convey quality and elegance, and then I would combine it with absurdity.

I used oak for the main body, which I planned on surfacing and painting with artwork, then finishing to a high gloss. Walnut and brass were perfect for the handle and spout. I added brass accents, combined with birdseye maple at the shoulder and foot. Composite Pakkawood worked best for the neck and lid, especially with a brass finial to enhance the lid.

It is important to combine ideas and select materials carefully; it is easy to diminish a piece using materials or ideas without regard to how they will affect the work as a whole.

As I was fitting and working out the mechanics of the fastenings and positions of the handle and spout, I was inspired to mount the spout in the wrong place on the body of the teapot. I had to know, however, that I could make it work with my design concept so that the viewer would immediately understand the absurd intention. I chose a position for the spout that was obviously misaligned—one that would make it awkward to pour liquid through. To strengthen this idea, I carved dribble marks opposite the handle (where the spout normally is) to make it appear that someone had tried to pour normally, and spilled over the side.

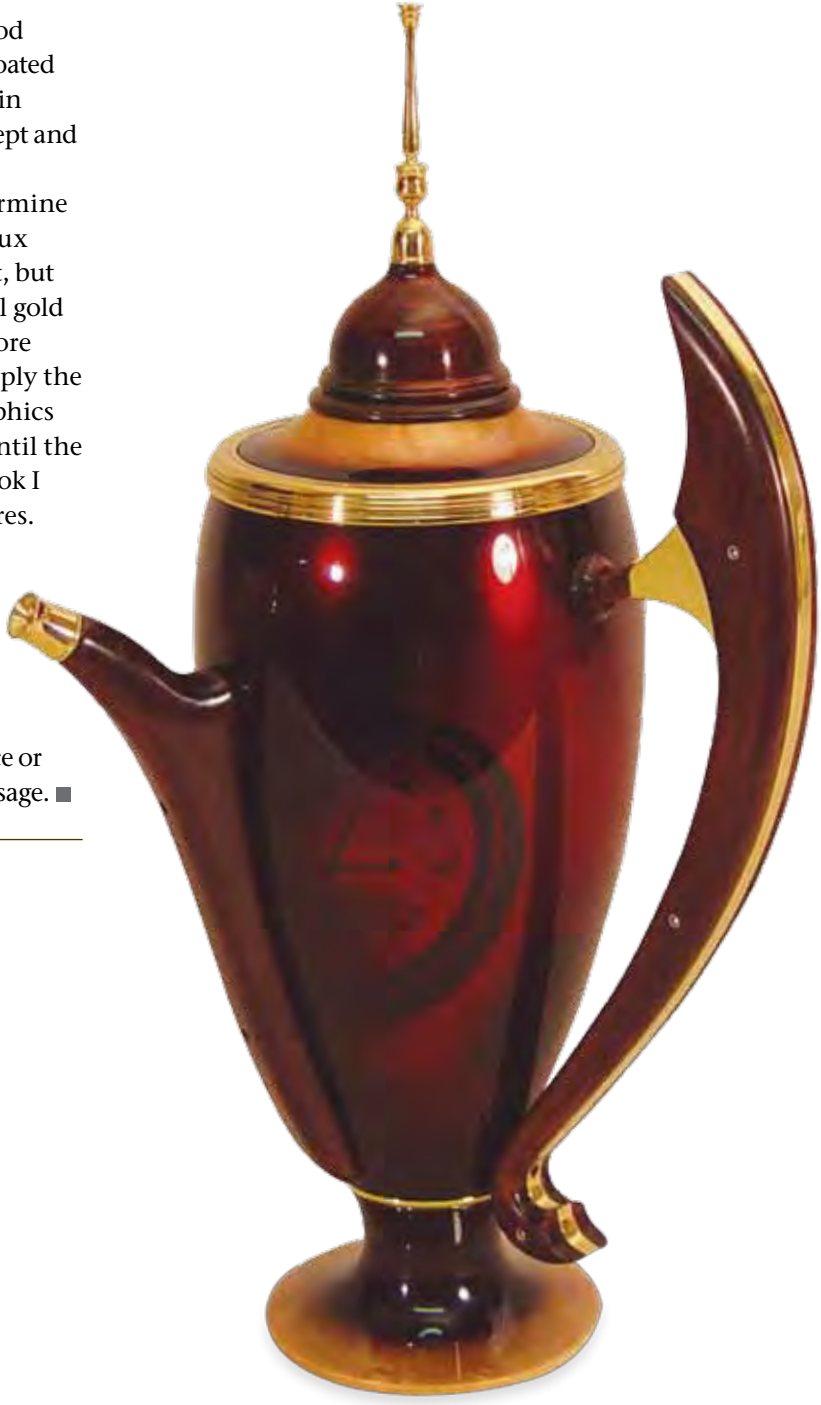
I ran into typical problems from time to time: I had made all the brass parts and mounted them, only to find that the handle was too heavy, making the teapot tipsy. I had to decide to either make a foot that was too big or add lightness to the handle. As it turned out, I had some lightness left over from another job, so added just enough of it to the brass part of the handle by way of drilling a series of lightening holes. It worked. I was able to remove enough weight to keep the teapot upright.

When all the parts were made and fitted, and the wood that was to be painted sealed, filled, primed and base-coated black, it was time to apply the artwork. I chose an Alice in Wonderland theme because it is a fun and absurd concept and it also deals with weighty philosophical questions.

With images floating in my mind, I needed to determine precisely how to portray the theme. Should I paint faux metal in order to frame out scenes? I like this concept, but I have found that painting faux gold or brass near real gold or brass does not work well most of the time. After more thought and visualizing the outcome, I decided to apply the scenes in silhouette, using ghost graphics. Ghost graphics are painted in a way that the graphic will not show until the light hits the paint at just the right angle—just the look I thought I could use to portray Alice and her adventures.

With subtle graphics, the images would not detract from the overall shape of the teapot form. They reveal just enough to draw the viewer in for a closer look. Over time, the viewer will discover new angles of interest, keeping the teapot seemingly alive. It was my intention to allow plenty of latitude to interpret the teapot in a variety of ways; an initial glance or an up-close look would easily convey my intended message. ■

—Giles Gilson



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

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ON THE COVERS

Cover – Jon Sauer, *Cupid's Wave Box*, 2010, African blackwood, Turkish boxwood, betel nut, 5¼" × 3⅜" (13 cm × 8 cm) Article, page 36. Photo: Tib Shaw.

Back Cover – Michael Gibson, untitled, 2010, Buckeye burl, African blackwood, 7" × 9" (18 cm × 23 cm).

woodturner.org

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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* and online at woodturner.org. Following them will help you continue to enjoy woodturning.

From the Editor

Many of you have talked by phone with Linda Ferber, AAW's administrative assistant, but did you know that she is a woodturner, as well as an employee? Linda's timely and unique project article on bracelet boxes is sure to spark some ideas for a special holiday gift.

Richard Raffan's article is his first in the journal in quite some time. I welcome his re-turning wisdom and clear writing style. Be aware, however, that reading his article on chuck jaws could likely result in the purchase of several new chucks and jaw sets.

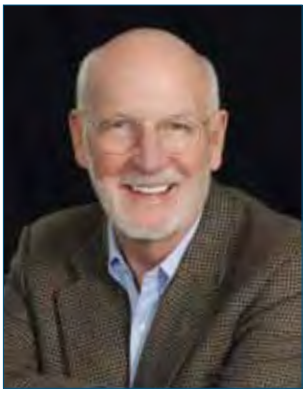
Sara Robinson's article on spalted wood is well researched, interesting, and informative. Her next article will be on health considerations of working with spalted wood. The news is good; Sara will debunk some health-hazard myths of working with spalted wood.

Did you notice that this issue contains 80 pages? The journal is thriving, authors continue to submit innovative and original articles, and the scope of submissions is ever expanding. This positive news is a reflection of the growth in the field of woodturning and the generosity of many who share their woodturning wisdom. As Editor, I have seen considerable growth in our field the past two years!

Be sure to renew your membership by December 31. There are several ways to renew: directly at woodturner.org; use the renewal form attached to the journal cover; or call the office at 651-484-9094 or 877-595-9094 (toll free). See you next year!

—Betty Scarpino

President's Letter



Congratulations to newly elected Board members, Stan Wellborn and Botho von Hampeln. Stan, who hails from Washington, D.C., brings extensive experience in publishing, and currently serves as an editorial advisor to *American Woodturner*. Botho comes to the table with excellent knowledge of business, and is the first Canadian to be elected to AAW's Board. I am pleased to be re-elected to the Board.

The Board of Directors has just returned from Saint Paul where we held our fall meeting. The future of the AAW holds a lot of promise. The Board took action on the following items:

- Interviews were conducted with candidates for the Executive Director position. The quality of the candidates is excellent, and we expect to make a final selection in the near future.

- The Board elected officers for 2011. Warren Carpenter will serve as AAW Treasurer, Jean LeGwin as Secretary, Cassandra Speier as Vice President, and I will serve as President.

- The Board reviewed the revised bylaws, which have been updated to better serve our membership as well as comply with Minnesota statutes governing nonprofit associations. The Bylaws Committee (Ron Sardo, Dale Larson, Mark Mandell, Rob Wallace, and David Walser) has drafted new bylaws, which will be submitted to the full membership for review and approval.

- The Board reviewed and approved the AAW budget for 2011. Warren Carpenter, Treasurer, together with Linda Tacke, Interim Executive Director, have worked tirelessly to improve AAW financial management processes, and I am pleased to say we will end 2010 in the black and we expect to have successful financial results in 2011.

- Dale Larson, chairperson of the Symposium Planning Committee, presented an update on plans for the 25th Anniversary symposium, which will be held June 24–26 at the Saint Paul RiverCentre. Every living AAW Honorary Lifetime Member has been invited to participate, and we have lined up an outstanding slate of demonstrators and panelists. It promises to be the biggest and best symposium ever. Make your plans to attend now!

Thank you to everyone who voted in the election and to all the candidates who ran for the Board.

With warm regards,
Tom

Excellence in Segmenting Awards

The Instant Gallery at the Hartford symposium contained a wide array of world-class segmented turnings. The Board of the Segmented Woodturners selected the work of three woodturners to be recognized at the Saturday night banquet. Ray Feltz, Don Leman, and Mike Shuler received the club's first Excellence in Segmenting awards.

Ray Feltz ventured into open segmented turning only a few years ago. He primarily uses American hardwoods and combines those with a few exotics. His work was recognized for the consistency of the open segmented alignment, joinery accuracy, and exquisite miniature scale. His open-segmented egg is an example of beautiful craftsmanship and exceptional design. More of Ray's work can be seen on his website, randrwoodentreasures.com.

Don Leman, a turner since 2003, is well accustomed to working in thousandths. His quest for precision and accuracy is reflected in the variety of his work: salt and peppermills, segmented bottle stoppers, unique vessels, and an amazing array of birdhouse ornaments, twenty-seven of which he displayed at Hartford. Don's work was recognized for the consistent accuracy of his joinery. His glue joints were flawless, and his wood and color choices showed good taste and artistic judgment. More of Don's work can be seen at donleman.com.

The Segmented Woodturners is an Internet-based chapter of the AAW. With nearly 900 members worldwide, it has become the driving force in segmented woodturning. Learn more at segmentedwoodturners.org. ■

I am constantly experimenting and challenging myself to work in ever-finer detail. When someone says it can't be done, I reply that it just hasn't been done yet. My reward comes when someone sees my pieces for the first time and a look of wonder comes across their face. —Ray Feltz

Ray Feltz, untitled, 2010, Bloodwood, yellowheart, holly, tulipwood, 3½" × 3" (90 mm × 76 mm), 3,816 segments

Photo: Hawkeye Photos

Ray Feltz, untitled, 2008, Maple, walnut, holly, 4¾" × 2" (120 mm × 50 mm), 844 segments

Photo: Hawkeye Photos

My fascination always lay with form and function, a passion that I pursued with a degree in industrial design at a time when industrial design had yet to be fully defined. When my interest turned to wood and I put tool to lathe, I again sought the challenge of the patience and precision required of my earlier days. Segmenting fulfills that need. —Don Leman

Don Leman, birdhouse ornaments, variety of woods, dimensions: shorter than 5" (130 mm), including finials

Don Leman, (mills, left to right), *El Molinillo,* 2008, Bubinga, maple, African blackwood, 9" × 3¼" (230 mm x 83 mm), 433 segments

untitled, 2009, Birch, walnut, black veneer, 9¾" × 3" (250 mm × 76 mm), 509 segments

untitled, 2007, Maple, walnut, black veneer, 8" × 2¾" (200 mm " 70 mm), 389 segments

Photo: Sharon Bierman

Apply for an AAW Grant

AAW's Educational Opportunity Grant (EOG) fund continues to be strong, thanks to the wonderful generosity of donors and buyers at our annual symposium auction. Funds are available for worthy proposals. To be eligible, entries must be received by January 15, 2011. You can complete the application form and review the guidelines at woodturner.org/resources/eog/.

Below are tips to help you with your application. The committee will not consider applications that are incomplete or vague. Please take care when applying.

- Complete the application online at woodturner.org/resources/eog/2011. Beginning with the 2011 EOG, only online applications will be accepted.
- Provide sufficient information so EOG committee members can clearly understand what you are requesting and how you intend to use the funds. Please be as concise as possible to make your points direct and clear.
- Include details of how you will use the funds. Specific needs should be itemized. Funds will not be granted for miscellaneous, incidental, or unspecified expenses.
- Explain your educational goal or experience you wish to offer. Keep in mind that these grants are for educational purposes. In particular, please explain how others will benefit as well.

Grants are limited to $1,000 for individuals and students and $1,500 for local chapters, schools, and nonprofit organizations. Your budget may exceed these limits; however, your grant request should not exceed EOG limits. For special situations, at the discretion of the EOG committee and the AAW Board, grants are available in larger amounts.

If you have questions, contact the EOG committee chair or the AAW office. The AAW Board encourages you to take advantage of this membership benefit. ■

Kurt Hertzog, EOG committee chair
kurt@woodturner.org

Gift Ideas

A variety of gifts for woodturners can be found in the AAW website shopping cart (woodturner.org/shop/products.asp). Consider these:

- AAW's 25th anniversary book, *Woodturning Today: A Dramatic Evolution* is available at preorder pricing.
- The 2010 symposium DVD. *Volume One* features demonstrations by John Jordan, Graeme Priddle, Al Hockenbery, Peter Bloch, and Keith Holt. *Volume Two* features Mark St. Leger, Sharon Doughtie, Glenn Lucas, Art Liestman, and Christian Delhon.
- AAW turning smock.
- A gift membership. It can be enjoyed for twelve months!

In Memory

Robert Elwood Shields
August 26, 1938–July 9, 2009

Bob Shields was an inveterate woodworker. His artistic design flair and impeccable workmanship are evident in his work. He freely gave his time to anyone interested in learning the craft, mentoring untold numbers. "Bob was one of the most generous people I have ever known and is responsible for my love of turning," said AAW member Steve Harris.

Bob's passion was teaching children the joys of woodturning. His four grandchildren spent time with him in his workshop, learning from their beloved grandfather the trade he loved so much. For this reason, Bob's memorials support woodturning education for youth. The monies will be used at the national symposiums to expand woodturning for our younger generation.

Susan Shields says, "It was my desire to help provide for children's education to honor Bob. His passion was woodworking, especially woodturning. He was gifted in mentoring his friends and our grandchildren, especially Clayton. Clay spent wonderful hours in the shop with his Pape."

Each time Bob and Susan attended an AAW symposium, it pleased them to see the youth receive appreciation and be honored for their talent after participating in hands-on turning. Because it was so important to both of them, Susan chose the AAW for Bob's memorial, asking that in memory of Bob Shields, friends send contributions to help support AAW's youth program at the symposiums. Susan hopes that many others will also see the need to pursue youth education and contribute.

In appreciation for all those who have already made this dream of Bob's possible, Susan thanks you. Inquiries for contributing can be made to inquiries@woodturner.org or call 651-484-9094 or 877-595-9094 (toll free). ■

Chapter Collaborative Challenge 2011

For next year's 25th annual symposium in Saint Paul, the AAW will again sponsor a chapter collaborative challenge. Each local chapter is invited to submit one collaborative work created by as many chapter members as possible, with a minimum of six participants.

Rules

- The work can be any turned object, functional or not.
- The size and weight limits of the collaborative pieces, including the packing container and all packing materials, will be those set by UPS for a single standard box (see sidebar). Assembled pieces may be larger but must fit in the single standard-size box. Size restrictions apply regardless of commercial or chapter delivery.
- The names of all participants must be on the work or on an accompanying nameplate.
- At least one chapter representative must be in attendance at the symposium to be responsible for displaying and return shipping of the entry.
- Any electrical/electronic devices in the piece must have an obvious power switch for safety and noise reduction. However, the AAW cannot guarantee that electricity will be available where the collaborative challenge is set up.

Each chapter must specify in which category they would like their piece to be judged:

- Artistic
- Mechanical/Technical
- Fantasy

Four prizes will be awarded:

- Best in Show plaque
- First Place plaque for each of the three categories

The pieces will be displayed during the symposium near the Instant Gallery. Symposium attendees will be invited to select, by ballot, their choice for Best in Show and their favorite piece in each of the three categories. Votes will be tallied prior to the banquet, during which the winners will be recognized.

In addition, the chapter's name will be engraved on the Collaborative Challenge perpetual plaque. All entries will receive a certificate of participation.

Collaborative Challenge pieces may be donated to the EOG auction through an initial silent auction. The highest silent-auction bid will be the opening bid at the live auction. If there is no silent-auction bidding, that piece will not be offered at the live auction. The chapter will receive fifty percent of the selling price. Each donated entry must be accompanied by a box and packing materials for shipment. Shipping the work is the joint responsibility of the chapter and the buyer. ■

Year-End Drawing for New Lathes!

A huge thank-you to Walter Meier Powermatic/JET, who will donate lathes for a drawing. A Powermatic 3520B lathe will go to one lucky person, just for being an AAW member. All current AAW members are eligible to win, except for Board members and employees.

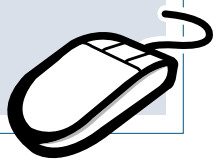
Additionally, a local chapter, named by the winner of the Powermatic, will win either a JET 1642 or five JET mini lathes, donated by Walter Meier Powermatic/JET!

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 February issue of *AW*.

Is Your Email Address Current?

AAW membership includes the benefit of accessibility of all back issues of *American Woodturner* online in the Members Only area of the AAW website (woodturner.org/member/MemberLogOn.asp). Access to this material is dependent on your email address being current in your membership record. If you are unable to log in, send an email request to inquiries@woodturner.org to update your email.

The AAW also periodically sends out notices to members via their email address. Please ensure that our records have your latest email address. Send us an email at inquiries@woodturner.org, and we will update our records. Thank you!



- Standard packages can be up to 108" (270 cm) in length or up to 165" (419 cm) in length and girth combined.
- The packages can be up to 150 pounds (70 kg).

UPS package size is determined by adding the length (the longest side of the package) and the girth (2× width + 2× height). Details of this measurement can be found at ups.com/content/us/en/resources/ship/packaging/.

Join us in Saint Paul for AAW's 25th Anniversary Symposium

June 24–26, RiverCentre Convention Center, Saint Paul, Minnesota

You won't want to miss the fantastic celebration we have planned! We have a full lineup of woodturning demonstrations that is guaranteed to appeal to a wide range of interests. In addition, all of the Honorary Lifetime Members have been invited to demonstrate or host panel discussions. Registration information will be online (woodturner.org) starting January 1. A complete list of demonstrators and events will appear in the February and April issues of *American Woodturner*.

In addition to the largest Instant Gallery of turned objects in the world, the symposium will feature three exhibits: AAW's "Turning 25," Local Chapter Collaborative, and the Professional Outreach Program's "Roots." The Collectors of Wood Art's annual forum will also meet during the symposium. "Conversations with Wood: Selections from the Waterbury Collection," will be featured at the Minneapolis Institute of Art June 17–September 4.

The AAW office is located in downtown Saint Paul, and this city will be the first site to have a repeat symposium. (The 2001 symposium was in Saint Paul.) Saint Paul is an old mill town and offers many interesting tourist attractions. While in town, you might visit the Science Center, where the King Tut exhibit will be a major attraction. The James J. Hill house (builder of the Great Northern Railway) and the former home of F. Scott Fitzgerald are two highlights of historic Summit Avenue. This grand avenue features one of the longest existing rows of Victorian mansions still displaying a wealthy Saint Paul past. Visit woodturner.org for links to other local interests and attractions.

The Minneapolis/Saint Paul Lindbergh Airport is ten miles from the Convention Center and hotels. The AAW office and Gallery of Wood Art are located close to the RiverCentre Convention Center, and we hope that many of you will stop by for a visit. Make your reservations now. See you in Saint Paul! ■

Accommodations

Host Hotel
Crowne Plaza
11 East Kellogg Blvd.
St. Paul, MN
800-593-5708
Or reserve a room online at ichotelsgroup.com
Room rates $129, single or double

Alternate Hotel
Holiday Inn RiverCentre
175 West 7th Street
St. Paul, MN
651-556-1409
Room rate $134, single or double

Be sure to mention American Association of Woodturners to get the discounted room rate.

Renew Your AAW Membership!

To have your name included in the 2011 *Resource Directory*, you must renew your AAW membership before December 31, 2010. Renew directly at woodturner.org. If you need assistance, please call 651-484-9094 or 877-595-9094 (toll free).

Two types of memberships are available:

1. To receive a journal in the mail:
   - $48 United States
   - $53 Canadian
   - $63 Overseas
2. Online access to journal only: $38. (You will not receive a paper copy of the journal.)

All AAW members are eligible to read all back issues of *American Woodturner* online in the Members Only area of woodturner.org.

Website Winner

The September contest on the AAW forum was for segmented bowls or hollow forms. Size requirements were not to exceed 10" × 10" (25 cm × 25 cm). Choice of wood and design was optional. Judging was based on originality, overall layout, and workmanship. Bernie Hrytzak judged the contest.

Congratulations to the winners!
First place, Harvey Crouch
Second place, Robert Manning
Third place, George Guadiane

Check out the AAW forum for the next contest, and thank you to our juror and to everyone who entered! ■

Longhorns, Corral Fences, Barbed Wire, 2010, Holly, bloodwood, 8½" × 8" (22 cm × 20 cm)

Friends Recognize W. Keith Adams

In May, thirty-five friends, students, and former students attended a surprise party in Decatur, Illinois, to recognize and honor Keith Adams for teaching them the mechanics and art of woodturning. Adams, 81, is a founding member of the AAW, member number 24, and has been woodturning for more than sixty-four years. In 2000 he saw a need for hands-on woodturning instruction, so he opened up his shop one evening a week to local woodturners of all skill levels. He supplies five lathes, tools, finishing materials, wood, and expert personalized instruction. The only requirements are membership in the AAW and use of a faceshield. Since he started his teaching, he has instructed more than fifty woodturners.

Keith Adams was born in Shelby County, Illinois, and raised on a farm. He enjoyed playing with wood as a child and was soon turning wooden cheese boxes into birdhouses. He was introduced to woodturning in 1945 in junior high school. In 1952 he bought his first lathe for $5! It had been owned by a retired contractor and was shopmade out of angle iron and timber. At that point, woodturning became a major focus of Keith's life.

Adams worked as a draftsman and tool engineer and later was a plant superintendent. He owned and operated a swimming club until he retired twenty-one years ago. He helped to develop the Vega Bowl Lathe. He exhibits his work at local craft and art fairs and has work in galleries, collections, and homes in the United States, Canada, Australia, Japan, England, and Germany.

Everyone who attended the party agreed that Keith Adams is a remarkable man who has influenced many woodturners. If the measure of one's life is based on what is given back, then Keith Adams stands up with the best of them. ■

—Herbert W. Thompson

AAW Board of Directors Election Results

Congratulations to Botho von Hampeln, Stan Wellborn, and Tom Wirsing for being elected to the AAW Board of Directors. Each person will serve a three-year term.

John Jordan Receives Award

The Tennessee Association of Woodturners (TAW) honored John Jordan with the club's first Lifetime Achievement Award. This award was presented in recognition of John's contributions to the craft of woodturning. John is one of the founding members of the TAW. He is a friend, mentor, tool supplier, and artist.

John Jordan is a woodturner from Cane Ridge (Nashville). Known primarily for his textured and carved hollow vessels, John has been featured in nearly every major turning exhibition for the past twenty years. His work has received numerous awards and can be found in the permanent collections of many museums and corporations, including the Renwick Gallery of the Smithsonian, the High Museum of Art in Atlanta, the American Craft Museum in New York City, the White House, the Los Angeles County Museum of Art, the Mint Museum of Craft + Design in Charlotte, the Fine Arts Museum in Boston, and the Detroit Institute of Arts. In addition, John has been a demonstrator at several national woodturning symposiums, including the American Association of Woodturners symposiums. ■

Calendar of Events

February 2011 issue deadline: December 20
April 2011 issue deadline: February 20

Send information to editorscarpino@gmail.com

Australia
2012 Turnfest! For information, visit turnfest.com.au

New Zealand
March 19–26, Artist Collaborationz, McGregor's Bay, Whangarei Heads, Northland. This collaboration event is held every two years. National and international artists working together, followed by a public auction. For information, email info@collaborationz.co.nz.

Arizona
February 18–20, Desert Woodturning Roundup, Mesa Convention Center, Mesa. Scheduled demonstrators include Mike Mahoney, Lyle Jamieson, Christian Burchard, Mark Sfirri, Stephen Hatcher, Don Ward, Al Stirt, Ron Goble, and special guest Betty Scarpino. Instant Gallery, vendor area, panel discussion, and other events. For information visit desertwoodturningroundup.com.

Florida
February 4–6, 10th Annual Woodturning Symposium, Lake Yale Baptist Convention Center in Eustist (thirty-minute drive north of Orlando). Featured demonstrators include Beth Ireland, James McClure, Franck Johannesen, Curt Theobald, Jack Shelton, Malcolm Tibbetts, Robert Rosand, and Steven Marlowe. Workshops with Dixie Biggs, Bruce Hoover, Emory McClaughlin, Don Geiger, and Rudolph Lopez. For contact information visit floridawoodturningsymposium.com.

Georgia
April 29, 30, and May 1, Southern States 11th Woodturning Symposium, Georgia Mountains Center, Gainesville. Featured demonstrators include Beth Ireland, Mark Gardner, Robert Rosand, and Steve Sinner. Guest demonstrators will be announced in January. Forty rotations, Instant Gallery, gift certificates, door prizes, large vendor area and banquet and auction Saturday evening. Information available in January at southernstatessymposium.org or contact Marsha Barnes at 828-837-6532 or ml.barnes@brmemc.net.

April 30, in conjunction with the Southern States Woodturning Symposium, Chattahoochee Woodturners will present two rotations titled "Planning and Presenting a Woodturning Demonstration," featuring Frank Penta. These sessions are for woodturners who would like to develop or improve their demonstration skills. For information, contact Jerry Chandler or jwc43@bellsouth.net.

Hawaii
March 4–31, 13th Annual Big Island Woodturners Woodturning Show, Wailoa Center Gallery, Hilo. Special events include silent auction and opening artist reception, March 4. Demonstrations will take place every Saturday. For information, contact Don Albrecth at 808-968-7049 or hawaiiwoodturner@yahoo.com or call the Wailoa Center at 808-933-0416.

Indiana
February 19–April 10, "Through the Woods, Around the Block: A Juried Exhibit of Turned Objects," Lubeznik Center for the Arts, Michigan City. Information can be found at lubeznikcenter.org.

Maryland
February 24–27, 35th Annual American Craft Council Show, Baltimore Convention Center. See the work of more than 700 contemporary craft artists and live demonstrations. For information, visit craftcouncil.org/baltimore.

Massachusetts
February 5–September 11, "Loom and Lathe: The Art of Kay Sekimachi and Bob Stocksdale," Fuller Craft Museum, Brockton. For more information, visit fullercraft.org.

Minnesota
June 17–September 4, "Conversations with Wood: Selections from the Waterbury Collection," Minneapolis Institute of Arts, Minneapolis. For more information visit artsmia.org.

New York
March 26–27, Totally Turning Symposium, City Center Convention Center, Saratoga Springs. Featured demonstrators include Richard Raffan, Dale Nish, Giles Gilson, Curt Theobald, Jennifer Shirley, Kurt Hertzog, Paul Petrie, Rick Angus, George Guadiane, John Franklin, and Andy DiPietro.

Tennessee
January 28–29, Tennessee Association of Woodturners 23rd Annual Symposium, Radisson Hotel at Opryland in Nashville. Featured demonstrators include Stuart Batty, Bill Grumbine, Michael Mocho, and Molly Winton. For information, email symposium@tnwoodturners.org, visit the TAW website at tnwoodturners.org/symposium, or call 615-973-3336.

Washington
July 23, "Creativity in Woodturning," 4th annual symposium, Komachin Middle School, Lacey. Demonstrators are Stephen Hatcher and Mike Mahoney. Two full days of workshops, Sunday and Monday, will be led by Mike Mahoney. For more information visit woodturnersofolympia.org or call Al Price at 360-791-0396.

Washington, DC
September 24–January 30, 2011, "A Revolution in Wood: The Bresler Collection," Renwick Gallery, Smithsonian American Art Museum. This exhibit celebrates the recent gift of turned wood objects from Fleur and Charles Bresler. For information, visit americanart.si.edu/exhibitions/archive/2010/bresler/. ■

The Frugal Woodturner

This latest book by Ernie Conover is a joy to pick up and read. Quite aside from its valuable how-to-do-it information, it contains a blend of history, perspective, and philosophy that will appeal to almost everyone who has an interest in woodturning. The clear prose and 200-plus outstanding, author-prepared illustrations further add to its charm.

The focus of *The Frugal Woodturner* is not how to turn wood, but how to acquire economically the equipment, materials, and supplies needed to turn wood. This book is particularly directed at prospective new woodturners who are faced with the problem of what to buy in order to try out this new hobby. It answers that need very well. (The only problem is getting the book to the tyro before he or she has already bought all the wrong equipment and given up in frustration.) Those who survive these initial mistakes and want to move forward will find the book equally valuable. Finally, it will appeal to established woodturners who are dedicated do-it-yourself craftsmen who will learn how to make tools ranging from pole lathes to specialty lathe chucks.

The book contains seven chapters. The first six cover the following topics: choosing a lathe, choosing hand tools, choosing a sharpening system, finding inexpensive wood, choosing chucks and other holding devices, and choosing inexpensive finishing products. The final chapter presents specific recommendations for a lathe and an initial suite of tools and accessories for the beginning woodturner. These recommendations are presented for three budgets of approximately $500, $1000, and $1500 (2009 dollars). In addition, for those who want to move forward on the fast track, Ernie includes an appendix that lists woodworking schools and programs of study.

The discussion of lathe choice raises many topics that should be considered, including lathe size, headstock design, power and drive mechanisms, toolrest and banjo design, and tailstock alignment. As a bonus, the final chapter also presents a brief history of the wood lathe and includes plans for building a pole lathe.

The chapter on selecting good tools is a gold mine of technical information that should be of interest to all turners. In addition to discussing the basic cutting and measuring tools, Ernie delves into the metallurgical aspects of cutting tool design, including an evaluation of powdered metal technology and carbide versus conventional tool steels. He describes how to make inexpensive scrapers and presents a very lucid short course on heat treating tool steel.

The chapters on tool sharpening, finding inexpensive wood, and inexpensive finishes are mainly directed at beginning woodturners. However, Ernie presents a design for a shopmade grinding jig that may be of interest to do-it-yourself woodturners of any level who want to dedicate one for each type of gouge grind, thus avoiding the need to readjust a single jig for each different grind.

Ernie's treatise on holding devices contains detailed discussions of lathe centers, faceplates, commercial four-jaw chucks, shopmade chucks and mandrels of various kinds, steady rests, and finally a shopmade vacuum chuck system. All turners will benefit from reading this book! ■

—Dennis J. Gooding

Turning Timbers

This small-format, self-published book is the culmination of Larry Jensen's 2009 artist-in-residence at the Indiana Dunes National Lakeshore. Contained within are forty-one images of turned objects (primarily bowls and vases), each one made from a tree native to the Dunes area of northern Indiana. Paired with the images are short paragraphs, written by Joan Gibb Engel, that discuss in poetic terms each tree.

Jensen's turned objects from native timbers are his way of showcasing the heart and soul of a tree. What is inside a tree reveals much about its life, beyond what would be stated in a scientific description.

Engel's prose is descriptive in a manner that gives a feel for the tree. For honey locust (*Gleditsia triacanthos* L.), she writes, "Sweetness and thorns. Honey and daggers. This giant pea is a tree of mixed messages. Native to the Midwest, it is well known in its cultivated forms, which are popular street décor, their fernlike, compound and twice-compound leaves filtering the sun, often shading parking lots and other harsh locales. These cultivated varieties are unarmed, but native trees brandish three-parted purplish thorns up to a foot long on their trunks and low branches."

For any turner interested in working with native Midwestern timbers, this book would be worth having. Contact Larry Jensen at rolar@comcast.net for information about ordering a copy. Price is $25, including shipping. ■

—Betty Scarpino

A Revolution in Wood: The Bresler Collection

The Smithsonian's Renwick Gallery published this hardcover trove ahead of the museum's long-awaited woodturning exhibition running from September 24 to January 30. The handsome 152-page catalog features an overview by curator-author Nicholas Bell, an interview with Fleur Bresler, color plates and commentaries on the sixty-six pieces donated to the Smithsonian, and a photo archive of the more than two hundred turnings/accessories now in the museum's Permanent Collection. Most of the Bresler objects were made in the 1990s and accessioned in 2003.

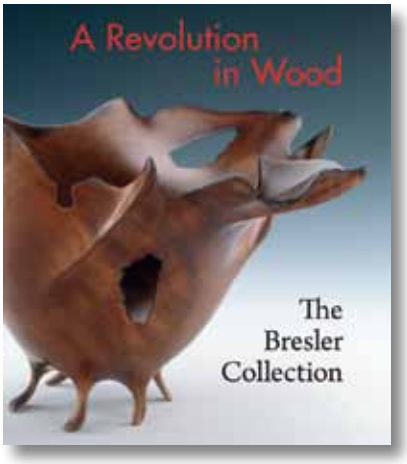
The origins of this exhibition spring to life in the dialog between Bresler and Kenneth Trapp, former curator-in-charge at the Renwick. The Bresler Collection was donated in Trapp's honor and handpicked by him from her own meticulously mounted displays. Bresler recounts how she built a diverse body of work from both famous and lesser-known artists. Although she describes her tastes as quirky and subject to epiphanies, she emerges as a disciplined enthusiast with a jeweler's eye for technical mastery and a collector's respect for artistic evolution. Both artists and budding collectors will learn much here.

In his historical overview, Bell suggests that the postwar studio craft movement failed to take woodturning seriously because the lathe fostered uniformity associated with mass production and because early practitioners never developed the craft's expressive potential. It was not until the early 1970s that revolutionaries Melvin and Mark Lindquist stoked a new aesthetic that legitimized the fat bowl, tamed spalted wood, and reveled in natural edges and sculpted surfaces. It is probably no accident that the catalog's title closely resembles that of Robert Hobbs's 1994 volume on Mark.

David Ellsworth also looms large here as a revolutionary, almost closing the open vessel, yet leaving his blind turnings impossibly thin. Nothing captures the contrast with the Lindquist style more than Bell's visual juxtaposition of Ellsworth's impish *Mo's Delight* against Mark's massive *Ascending Bowl #3*. Together these artists launched new trajectories and skills for the next generation of turners—many now included in the Bresler Collection.

The catalog's core contains high-contrast photos and text on thirty-six artists, with Michelle Holzapfel and Norm Sartorius represented by five works each, and Ron Fleming, William Hunter, and Todd Hoyer by four. Along with Hugh McKay, Janel Jacobson, and David Sengel, most of these artists came to embody the shift from traditional turning to sculpted wood art with little to no apparent debt to the lathe. Some, like Stoney Lamar, began to coax the lathe to break its own symmetries in pieces remounted on multiple axes. Others introduced color and exotic materials that complemented or even dominated the wood base. As Bresler accumulated more and more of this innovative work, her collection grew to hundreds of pieces. The Permanent Collection photo archive at volume's end enables the reader to appreciate Trapp's selection challenge for the assemblage donated to the Renwick.

The catalog gets down to business as Curator Bell accompanies the reader on an alphabetical tour of the collection. Like Stocksdale prospecting for figure, Bell peels away the incidentals to reveal the nugget. Here is prose as subtle, eloquent, and layered as its subject. For example, Mark Sfirri's, "*Glancing Figure* unfurls from a traditional eighteenth-century table leg with a padfoot to a figural form, capturing the evolution



of woodturning from functional craft to sculptural medium." Bell's loaded language may also provoke double takes among readers pondering the breakthrough in Bud Latven's slender vase or the nod to anatomical detail in Lamar's *Self-Portrait*.

Overall, this catalog does not pretend to be encyclopedic, so it is not surprising to sense a few voids here. I would like to have seen some recognition of Stephen Hogbin in the historical overview. A peer among the early revolutionaries, he was arguably the first artist to fracture the circle and reassemble the fragments to spectacular effect. His Walking Bowl series became a metaphor for a craft that had found its legs. Credit might also have gone to *Fine Woodworking*, a new breed of craft magazine that introduced Hogbin, the Lindquists, Ellsworth, and Holzapfel to hundreds of thousands of woodworkers worldwide.

Despite any gaps in its sweep, *A Revolution in Wood* easily delivers on what it set out to do: dramatically highlight and frame a magnificent collection. In doing so, it has become a work of art in itself. Bravo! ■

—David Fry

The catalog, A Revolution in Wood, *is $45 plus shipping/handling and can be ordered from americanart.si.edu.*

Tips

Powermatic 3520 brace

I have been using my 3520 Powermatic for fourteen years. I like to be able to position the headstock where I want, depending on the project. When turning a bunch of bowls or plates I like the wood mounted so that it is held between centers, toward the tailstock end of the lathe, so that I can work off the end of the lathe. (I start out with the piece of wood held between centers so I can adjust it as needed to take advantage of grain and figure.)

The problem, however, is that the tailstock or headstock would slip or creep a little when I advanced the tailstock or while turning. The spur center would spin a hole instead of digging in. To solve the problem, I cut pieces of wood to fit between the headstock and tailstock and also between the headstock and tailstock and the flip stop at each end of the lathe. I can now get that extra little bit of tension needed.

I have five or six different lengths for the tailstock to accommodate the thickness of the piece being turned. I also cut a notch in the wood at the tailstock end so that I can lay the tool I am using down while repositioning the toolrest. Cradled in the notch, the tool will not roll off the end. The wood piece at the headstock end is notched so it doesn't interfere with motor fan cover.

— Dan Burleson, Troy, MO

Turning long, thin spindles

Production turning a batch of long, thin spindles from wood with a dimension of 1¼" × 44" (32 mm × 112 cm) can be somewhat of a challenge when faced with the vibration created by the turning process. A common control method is to use a steady rest, but its use introduces a physical obstacle that requires additional time and effort to work around, limiting the production turner's efficiency.

Myron Curtis discovered that the use of twin four-jaw chucks, each with independent jaws, stiffens the overall assembly, which significantly dampens the vibration. The addition of the turner's hand wrapped lightly around the spindle blank makes for a very manageable turning configuration. An added benefit of using twin chucks, especially for slightly warped wood, is the ability to adjust the jaws independently to aid in the centering of the blank.

— Myron W. Curtis and Matthew C. Lewis ▸

Two, four-jaw chucks—one mounted on the headstock, the other mounted on the tailstock—aid in dampening vibration when turning long, thin spindles.

Myron Curtis uses his left hand to act as a steady rest to decrease vibration.

The author is turning one of 97 balusters. The lathe never stops as he measures a critical element.

Toolrests for parting tools

Years ago I made a stubby-post toolrest out of a bit of 1"- (25 mm-) wide rectangular-stock steel. This small-diameter toolrest was useful for supporting a parting tool right next to the faceplate. Unlike standard-size toolrests, this post can be positioned to allow tool support at 90° to the cut.

I have since replaced the rectangular tool post with a 1½"- (38 mm-) diameter, round rod. I use this tool post on my primary lathe, and have ground the back half of the top back at 45°. I use this toolrest frequently.

The small toolrest is also invaluable for close support of a small gouge when undercutting the bottom of a bowl. The gouge can be moved up and over to achieve a high shearing cut for blending the bottom diameter of the bowl into its side curve.

I have made the same tool post out of 1"(25 mm) rod for my Powermatic lathe. Cut a length of 1" (25 mm) cold-rolled steel stock at 45°, about 8" (20 cm) from one end to create two posts. Make a second cut square across halfway up that 45° slope. Round all edges and smooth with a sander.

If you have a welder you can cut a 1½" to 2" (38 mm to 51 mm) section of ⅝" to 1"- (16 mm to 25 mm-) diameter rod and weld it to the top of a 1" (25 mm) shaft to give a bit more support for the gouge. Any wider would defeat the purpose of the narrow toolrest. Sufficiently round all the top edges of the metal to allow the post to slip in close to a bowl without the danger of marring the wood.

If you give this simple toolrest a try, I think you will find yourself reaching for it regularly.

— Fred Williamson, VA

Lubricating threads

A simple but effective method to make it easier to remove chucks and faceplates from the lathe's spindle is to lubricate the threads with a small amount of paraffin or walnut oil before mounting a workpiece. The same can be done with screws for a faceplate.

— Robert A. Pastel, MD, NY

Sandpaper holder

Clothespins epoxied to a board work great for holding strips of sandpaper. Write the grit number on each clothespin to keep the different grits separated and within easy reach.

— Pierre Delétraz, France

Got a Great Idea?

Share your turning ideas! If we publish your tip, we'll pay you $35. Send your tips along with relevant photos or illustrations and your name and mailing address to:

Betty Scarpino
American Woodturner
5246 Evanston Ave.
Indianapolis, IN 46220
editorscarpino@gmail.com

Vacuum chucking with a Stronghold chuck in place

I use the Oneway Stronghold chuck and didn't like to have to take it off to use a vacuum chuck. To solve the problem, I made a jig using a disc of MDF with a small disc of oak centered in the middle and glued in place. The oak is turned to the correct size to fit the standard jaws of my chuck. I mounted the MDF/oak into the chuck and then drilled a 1" (25 mm) hole in the middle. I slid a 1" (25 mm) dowel through the hole until it touched the end of the vacuum device in the headstock. I retracted the dowel 1/16" (2 mm) and made a mark flush with the surface of the MDF. I cut 1/16" (2 mm) off the dowel then glued the dowel into the hole at the previous mark. I then glued a piece of self-sealing foam (SSF) to the end of the dowel so I would have a good seal on that end. Then all I had to do was glue SSF to the face and make notches for the different size PVC pieces I use.

I made a variety of different-sized jigs to accommodate natural edge bowls, utility bowls, and plates, and I made a larger one to fit the large jaws of my chuck. Now, when I am ready to finish the bottom of a piece all I have to do is grab one jig for the size of jaws I am using at the time, chuck it, and I am good to go. With the largest size, I have turned wall hangings up to 40" (100 cm) in diameter, entirely with a vacuum chuck front and back. Be sure to take only light cuts and have an on and off foot switch handy.

— Dan Burleson,
Troy, MO

True Grit Correction

In the article "Sandpaper, The Nitty-Gritty" (*AW* vol 25 no 5), the statement "Simply put, grit is the number of abrasive particles that will fit in one square inch," is simply not correct, as member Don Lindsley pointed out.

This misstatement, however, has no impact on the advice given in the article.

The correct description of what constitutes the grit number is the number of strands along a straight line, one inch long, that make up the mesh in the sieve (engineers call this a linear inch). In a square inch of mesh for 80-grit abrasive, there are 80 strands going from right to left and 80 strands going from front to back, so there are a lot more than 80 holes.

The diameter of the strands is specified because thicker strands would produce smaller openings while thinner strands would result in larger openings and thus larger particles.

The actual number of abrasive particles on a sheet with a given grit number can vary depending on how the abrasive is manufactured.

—Art Scott

Golf ball depth stop

Many woodturners begin hollowing a bowl by drilling a depth hole; however, this method requires that the drill bit be marked in some manner to indicate the depth to drill. Marks can be added to drill bits with pen, pencil, chalk, or pieces of tape, none of which are easy to use with any degree of precision.

Because I have used drilled golf balls for tailstock support and numerous other applications, I wondered if a golf ball could serve as an adjustable sleeve to mark the depth point on a drill bit. Most of my bowls are drilled with a 3/4" (19 mm) Morse taper bit, so I used the same bit to drill a 3/4" (19 mm) hole through a golf ball. I can adjust the position of the ball on the drill bit to indicate the desired depth.

This system worked even better than I expected. The thick tough rubber on the golf ball keeps a snug fit. The position of the ball can be easily adjusted, yet it does not move

as the depth hole is drilled. I have also used this system with a 3/8" (10 mm) tapered drill bit.

—Emmett Manley, TN ■

EOG Grant for Dominica Pen Project

Twenty students filed into the woodworking shop at Castle Bruce Secondary School in the island nation of Dominica in mid-January to hear a gray-haired American talk about something they were told would be "a special project." I was hoping to find five motivated students who would want to learn how to turn gift-quality wooden pens, bottle stoppers, and chain pulls for lamps.

Their teachers and I explained the project and told them they would need to stay after school for two hours daily for the next two weeks to learn the skills required for making the items. When it came time to pass around a notebook for students to sign up, I held my breath. How many students would make the sacrifice? The answer came quickly as fifteen of the twenty signed up.

The teachers narrowed the group to five—or tried to. The first day, six boys showed up and then a seventh. I politely told the last student the class was full, but that he could be listed as an alternate. Undeterred, young Gustave showed up the next day, ready to learn. Seven boys (no girls could be enticed) volunteered to stay after classes for the rest of the school year with no certainty of personal gain. If the mini-enterprise of making and selling turned items showed a profit, the students could possibly share in the proceeds.

Tennis ball-sized rocks serve as hammers when the Castle Bruce students make a craft project involving rows of finishing nails along the edges of a board. With thirty students in a class and two hammers, they make do.

On my last day at the school, I encouraged the group to set up a work schedule involving alternate days, but the teenagers wanted no part of that. They wanted to continue to come in every afternoon. Nearly all of the students were descended from either African slaves or the Carib Indians who were the original residents of the island. Two hours after school is no big deal for them. Say "opportunity" and they show up.

Previous teaching

The level of interest and dedication in the students is not really surprising. A year earlier, I had a 17-year-old student in Grenada—a couple of islands closer to South America—stand at a lathe for five hours with only two breaks for water and a granola bar. On my first workday at that school, five students were waiting for me at the gate, saying "We want to see those pens." I had only spoken to a few teachers, but the word quickly spread. I have taught woodturning on three islands now. With fewer than half of the students' homes having electricity, they are not otherwise enticed with televisions, video games, computers, or even refrigerators containing beverages that would cool them down on days that year-round hover near 90°F (32°C).

All the students I have taught woodturning to show great pride in being

The extent of the problem with tools rusting when near the ocean becomes clear when you unwrap two pen mandrels on a Monday and find the Morse tapers have rusted this much by Wednesday.

Atherton Telemaque works on his 7mm Roadster pen barrels as Kelsy Graneau, left, and Darren Francis watch how he does on a donated lathe powered by a motor scavenged off a concrete mixer. It is their turn next to work on a cigar-style pen.

able to make—on their own—a satin-smooth, gleaming wooden pen, wine bottle stopper, or other item out of what had been a plain-looking slab of wood.

Problems getting started

The nuts and bolts of trying to get this mini-enterprise underway during a two-week volunteer visit (with the interfaith humanitarian group Good News Project) held challenges. It wasn't until the second Monday of my stay (my fellow volunteers were building two simple homes) that the students were able to make their first pen. While students in other classes learned to rip 8' (2.4 m) 1×6s with hand saws, the seven boys in the turning class initially had no working bandsaw, drill press, or table saw and only one working Record-brand lathe that had no live center for the tailstock. The only lathe with a live center was a donated machine of unidentified manufacture that Good News had shipped to the island months earlier, along with fifty pen kits, turning tools, and more.

That clunker of an unidentified lathe was the star of the show—for about two minutes—until the motor, also donated, coughed up a puff of smoke

in an acrid act of defiance and stopped dead during my first turning demo. Getting the motor repaired would take a while, so another Good News volunteer appropriated a motor and part of a housing from a cement mixer the group had for its homebuilding activities and brought it in as a replacement motor. The result was not attractive and OSHA would have fainted seeing the exposed V-belt, but it worked.

Speaking of *working*, the islanders used a variation of that word in connection with the drill press. The teacher said it worked, but all that meant was that the motor rotated. The two drive belts were missing. When we could not find two belts the correct lengths, the teachers removed the center pulley and got the machine running with one longer belt, attached from the motor to the arbor shaft. There were still problems to solve, though. When switched on, the pulley on the arbor shaft popped off. We needed a 1" (25 mm) nut with machine threads, but such an item could not be found in the village of one thousand that had no hardware store and only one auto mechanic.

Figuring it would not take much to hold the pulley in place, I glued three pieces of plywood siding together with epoxy and turned what would pass for a nut. But, there was yet another hurdle. The salt air from the nearby ocean had rusted the drill chuck so thoroughly that a short pipe was needed on the handle of the chuck key to get it moving again. Brute force and WD-40 got the chuck working and the students no longer had to use a corded drill to make holes for the brass tubes for the pen barrels. None of these problems was out of the ordinary for the teacher. He was used to doing things the island way.

The first pen

By Thursday of the second week, the boys had made a cigar-style pen, a key fob, and two mid-sized pens, a KC Twist and a Roadster. The plan was to put five pens in each of three compact display cases and place the pens at roadside sales tables. The tables are outlets for grass baskets and other items Carib crafters sell in several communities a few miles up the road.

Don't bother asking for a 3⁄32" (3 mm) drill bit in the woodworking shop at Castle Bruce Secondary School. The drill bits they have are too large to break and are badly rusted.

My experience on Grenada and St. Vincent and the Grenadines is there are two primary obstacles to sales. One is that school staff has little time to contact shopkeepers and make arrangements to stock the pens. The second is that the clerks and managers of the retail outlets have such small incomes that the idea of somebody spending $25 on a pen seems farfetched. One school, though, took six pens to a downtown craft table and sold five in one day. I have discovered that if the pens bear tags that identify the local wood, the school, and the name of the student who made the pen, they will sell.

Who knows, in a few years, one of the graduates of Castle Bruce Secondary School could be competing with the school at one of those roadside sales tables, running a small business of his own based on what he learned in January 2010.

AAW grant key to project

Funding for some of the equipment and supplies came from a $1,000 Educational Opportunity Grant from the AAW. Additional funding came from the Jack DeLoss Taylor Charitable Trust located in Madison, Wisconsin. It is an expensive endeavor to give a project such as this a successful start. ■

Pat Peckham had a gruff, but insightful junior high school shop teacher who challenged him to turn a two-piece lamp out of cherry. Pat came in after school to finish the project. When the lamp and its matching finial won a prize in a regional industrial arts contest, he was hooked. Still turning at age 61, he is a member of AAW and is vice president of the Wisconsin Valley Woodturners in Wausau. For more information about the Good News Project, visit goodnewswi.com.

Gian Benjamin, age 13, is one of the youngest students involved in the project. He was proud that he spruced up a nicely rounded key fob with some wire-burned rings.

Gustave Tyson almost did not get into the group learning to make pens at Castle Bruce Secondary School, but did well on a KC Twist ballpoint using figured local wood.

Kelsy Graneau shows off a cigar-style pen he made with another student. The school is refusing to sell this pen because it is the first one the students made.

Tapping Tool for Turners

Jim Duxbury

1

Using chalk, make three marks on the threaded rod, equidistant apart, and about 2" (50 mm) long. Flutes will be ground between these lines. Two nuts could be threaded onto the rod to secure the rod in place while grinding.

2

Cut the flutes in the rod. Be sure to wear appropriate safety gear.

3

Grinding three flutes will transform the threaded rod into a tap. Be sure to leave the leading edge (the cutting part) of the threads square or slightly undercut.

4

The completed tap will have all the threads removed from the end with a taper up to about 1" (25 mm) where the full threads begin.

There are many times when I need to thread a block of wood: to make a waste block or jam chuck, to devise an adapter of some sort to drive a turning, or to make an object to hold a uniquely shaped turning while it is on the lathe.

Tapping wood is distinctly different from working with metal. Considerations are many: the species of wood and its hardness, the type of grain, the orientation of the object to be made, and the realization that there is an assortment of tap sizes. One thing is certain: Tapping endgrain does not work at all.

Getting the tap started straight without losing the first half of the threads in the hole can also be a problem, especially if you have to start the tap by hand.

I finally came up with a solution that is low cost, easy to make, and more important, works every time. The tap described in this article is ¾" (19 mm) diameter × 10 threads

5

Tap the first hole into a scrap piece of hardwood. Make sure the tap is held perpendicular to the wood.

per inch (tpi). Many of the live tailstock centers now have a ¾" (19 mm) × 10 tpi. Various shapes and sizes of cups, cones, balls, or even flat ends can be custom-turned from hardwood scrap and mounted on these centers. Note: Another reason for making this particular tap is that the thread commonly used on ¾"- (19 mm-) diameter wood is only 6 tpi. Taps for wood are very limited and in many cases not available at all.

Make the tap

Making a tap is not that difficult. The material is inexpensive and easy to procure. If you fail to make this tap correctly the first time, cut off the damage and simply start over. I do not have a metal-turning lathe or milling machine. The tap is made by eye using a 4" (10 cm) high-speed grinder or a rotary tool.

Be sure to wear a full faceshield and a good particulate respirator. Grind in a well-ventilated area and keep the respirator on until the air has cleared. Protective gloves and ear protection are also advised.

You will need a short length of threaded rod and two nuts. Black steel or plated rod is fine. I am using black steel, which can be purchased at most local hardware stores. Start by cutting a 6" (15 cm) length off the length of threaded rod. Using chalk, mark three lines around the circumference of the rod, each 2" (50 mm) long and an equal distance apart *(Photo 1)*. Draw the lines lightly at first and respace them as needed to achieve even spacing. Once you have the lines spaced properly, chalk the lines about ¼" (6 mm) wide. These lines represent where the threads will remain when creating the tap. Between these three lines, grooves will be ground out.

Clamp the rod securely into a vise. Attach a metal-cutting disc onto either a 4" (10 cm) high-speed grinder or use a black metal cutting disc inserted into a rotary tool. Put on your safety equipment. Cut a U-shaped groove (flute) about 2" (50 mm) long into the rod between each of the three chalk lines *(Photo 2)*.

I removed most of the steel with the grinder and touched up the cutting surface using a black metal-cutting wheel mounted into a Dremel tool. Because this tap is a cutting tool, be sure to leave the leading edge (cutting part) of the threads square or slightly undercut *(Photo 3)*. Repeat this same cut for the remaining two grooves.

Grind off all the thread on the end of the tap and taper upward from there about 1" (25 mm) to a full thread. Check the depth of cut and configuration *(Photo 4)*. Note that ▸


6

After drawing a series of circles onto a length of hardwood, drill holes centered into those circles.

7

Use the first tapped hole to align and tap subsequent holes.


8

Thread a tapped disc onto a live tailstock center.


9

Glue and clamp two discs together using the tailstock to apply pressure.

10

After the glue has set, shape the new tailstock center to whatever configuration is required. (Note that the author is using tape to cover the bent nail.)

11

The new tailstock center is in position and ready for use.

12

A variety of shapes for tailstock centers are handy to keep in your shop. (Finishing and burn lines are optional.)

for the final cuts and shaping, I have put the two nuts on the tap and locked them together. This provides a good way to securely hold the tap in a metal-working vise without damaging the threads. These nuts are also used when turning the tap in future holes.

Tap the first hole

Now that the tap is completed, it is time to tap the first hole. This is the most difficult hole to tap and should be done in a block of scrap hardwood that will probably be discarded. The block should be about 2" (50 mm) wide by 6" (150 mm) long, and at least ¾" (20 mm) thick. Drill a ⅝" (16 mm) hole in the center of the wood, 1½" (38 mm) from the end. Clamp this block in a vise and insert the tap into the hole.

"Once you start using this tap, all sorts of things can be made. Be creative!"

This is the difficult part—the tap requires as much force pushing it into the hole as possible, while at the same time turning the tap clockwise and holding it perpendicular. I use a socket wrench with a socket to fit over one of the nuts *(Photo 5)*. The socket wrench provides a good surface to press down hard on and a long lever arm to turn the tap with. An open-end, box-end, large crescent, or pipe wrench would work to turn the tap itself and a block of wood over the end of the tap would enable downward pressure to be applied as needed. Turn the tap in about one and one-half turns and back it up one-half turn. Keep doing this until the threads have been cut all the way through.

The block just tapped is going to aid in tapping future holes to assure perfect results. The thread-cutting section of a purchased tap is less than 1" (25 mm) long. The tap just made has a continuous thread its entire length. This tap, threaded through the waste block, will ensure the tap starts perpendicular in the new hole, and advances at the exact rate to cut a perfect thread. It's magic!

Shopmade tailstock centers

Here is where this tap really makes things happen. Select a block of good hardwood 2" (50 mm) wide by 1" (25 mm) thick, and about 8" (20 cm) long. Draw three 2"- (50 mm-) diameter circles on it. Mark the centers of each, and drill a ⅝"- (16 mm-) diameter hole in each of these circles *(Photo 6)*. Place the block in a vise. Put the tap into your tapped waste block so that about ¼" (6 mm) of it protrudes out of the bottom. Place the protruding end of this tap into one of the newly drilled holes and clamp it down securely *(Photo 7)*.

Using the previous method of turning the tap, tap this hole. Notice how the tap starts square and with little or no downward pressure required. When all three holes have been tapped, take another similar-sized block of hardwood and draw three more 2"- (50 mm-) diameter circles on it. Using a bandsaw, cut

all six discs out of the two blocks. Screw one tapped disc onto your live tailstock center *(Photo 8)*. Next, lock the tailstock bearing with a nail through the locking hole so the tailstock will not rotate. Bend the nail over so it cannot come out. (A bolt and nut will also work.) Place the tailstock center into the headstock (drive end) of the lathe. Spread yellow wood glue on one surface of a blank disc and the mating surface of this tapped disc, put them together and bring the tailstock up to clamp them in place *(Photo 9)*.

When the glue has dried, wrap the bent nail in the live center with tape so you are aware of its presence. Turn the piece to the desired configuration *(Photo 10)*. (Optional: You could sand, burn trim lines, and finish with a coat of wax.) When complete, remove the tailstock center from the headstock, take out the nail and insert the live tailstock center back into the tailstock *(Photo 11)*. A few useful configurations of these tailstock centers can be seen in *Photo 12*. Many of these centers have seen hours of service. You will soon devise shapes and sizes for your own use.

Other useable items

In *Photo 13*, there are a few other items tapped with this tap. After you use the tap repeatedly, you may discover that an actual tapping handle would be nice to have *(Photo 13, top center)*. The T-shaped tool with two large, smooth gripping surfaces on the handle make the tap much easier to control. The handle is made from ash, 1½" (38 mm) square and about 12" (30 cm) long, turned between centers, burned, sanded, waxed, and then drilled and tapped.

Similarly, threaded wooden jam chucks and waste blocks *(Photo 13, center right)* can be made to fit the drive spindle in the headstock of your lathe. These taps would be cut in a similar manner from a threaded steel rod with the same diameter and thread size as your headstock drive. For any size of steel rod, you need to drill the hole to be tapped ⅛" (3.2 mm) smaller then the tap size. For example, a 1" (25 mm) tap would require a ⅞"- (22 mm-) diameter hole and a 1¼" (32 mm) tap requires a 1⅛"- (29 mm-) diameter hole.

Wooden nuts can also be made *(Photo 13, bottom)* and are often useful as trim on projects. Nuts are usually hexagonal and about twice the diameter from flat to flat as the tap size. In this case a ¾" (19 mm) nut would be 1½" (38 mm) from flat side to flat side.

Once you start using this tap, all sorts of things can be made. Be creative! The unique teardrop-shaped block *(Photo 13, center left)* was specifically designed for a situation where absolutely nothing else would possibly work. It is sanded and finished to gallery quality. And, for the life of me I cannot remember why I made it or what it was for.

There is just no end to the fun! ■

Jim Duxbury, woodturner and inventor, thinks and creates "out of the box." His turnings are unique and he seldom turns the same thing twice. Jim is a member of Piedmont Triad Woodturners, Carolina Mountain Woodturners, and Woodturners Guild of North Carolina. Jim's kaleidoscopes are custom designed and have received numerous blue ribbons. More of Jim's work can be seen on his website, duxterity.com/ec.

13

At the top is a tap with a wooden handle. Other useful items can also be made with wood taps.

It's All in the Jaws

Richard Raffan

As a professional turner, I've always looked for tools and methods of work that enable me to work quickly and efficiently without compromising my designs. In 1970 when I began to turn wood, woodturners who produced objects other than spindles used faceplates and shopmade screw chucks for bowls and other faceplate work. I got very good at turning jam chucks and filling screw holes with plastic wood so the holes were barely visible.

Blanks for endgrain objects—drawer knobs, goblets, eggcups, and scoops—were driven into a cup chuck with a mallet, and if a mechanical chuck was called for, you invested in an engineer's three-jaw scroll chuck. After a few bloody and painful encounters, you learned to keep your knuckles clear of the jaws. When Craft Supplies UK began marketing their spigot chuck in about 1978, the endgrain work for which they were designed became much easier and safer, and those of us making

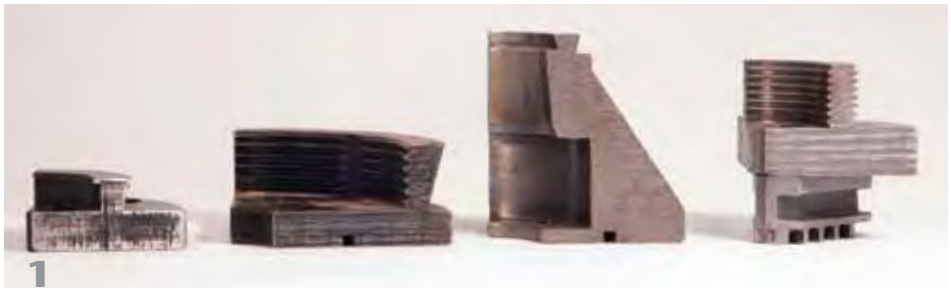
ultra-thin artsy bowls found we could take finished work straight out of the chuck, making those objects much more profitable.

Fixing wood onto a lathe became even safer and easier in 1988 when New Zealand's Teknatool introduced their Nova chuck, the first of the modern self-centering four-jaw wood-turning chucks. Within months, other manufacturers, most notably Vicmarc in Australia, jumped on the band-wagon. The range of jaws available for modern chucks enables you to grab the work-in-progress in many different ways, and even attach blanks as they first go onto the lathe. Most turners I encounter seem to use only the standard jaws supplied with most chucks. They could, however, work more safely and more inventively using a range of other jaw sets.

Chuck jaw sets

Most chucks are able to grip a wide range of diameters with one set of jaws (*Photo 1,* right-hand side), which is what makes them so useful. Better yet, with the right design of chuck jaw, if you grip a tenon or diameter that is the same diameter as the chuck jaws, the jaws will not damage the wood. So for me, the most important detail on any chuck is the jaw profile. Apart from the long-nose and pin jaws that I use for gripping small spindle blanks, drills, and sanding pads, all my chucks have smooth dovetail jaws that will grip right into a corner or sit in a small V groove without marking the wood. Bowl forms that I used to have to rechuck to complete the foot or base can now be completed in two stages rather than three. And, I can make use of these jaws in several other ways that make my life at a lathe so much easier.

In *Photo 1,* only the tallest jaw (second from right) has an inner rim that will contract around a foot ▸



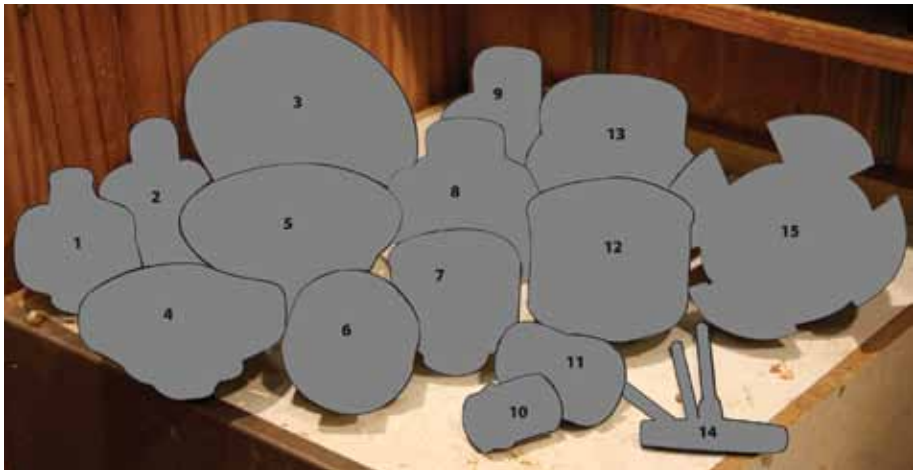
Only the tallest jaw (second from right) has an inner rim that will grip around a foot without leaving a mark.

Simple dovetail jaws can grip on next to nothing.

The detail on the shoulder of this small vase provides a groove on which the dovetail jaws grip.

All of Richard's chucks are Vicmarc brand (VM). Some of the jaws pictured are no longer available, as they have been superseded or improved.

1. Long nose jaws on VM100
2. Pin jaws on VM100
3. 210 mm multi-purpose jaws on VM120
4. 150 mm multi-purpose jaws on VM90
5. 170 mm multi-purpose jaws on VM120
6. 48 mm Shark Jaws on VM 100
7. 100 mm 2-step jaws on VM 100
8. 68 mm Shark Jaws on VM 120
9. 83 mm Shark Jaws on VM 100
10. Spigot chuck collet from 1979
11. Spigot chuck from 1979
12. 130 mm Step Jaws on VM120
13. 130 mm Shark Jaws on VM 120
14. Chuck key and tommy bars
15. 130 mm step jaws on VM120



When gripping diameters larger than the original inside diameter of the jaws, the corners of the jaws dig into the wood and leave a mark; however, those marks are not a problem when roughing the profile of a thin plate.

These simple dovetail jaws are able to grip as little as a 1/16" (1.6 mm) foot or tenon.

Remounting rough-turned bowls for completion of the profile is simplified when a shoulder is turned on the inside of the bowl after the wood had seasoned and distorted.

Deeper/longer jaws are needed for natural-edged bowls when remounting them to complete the outside profile.

without leaving a mark. The two with serrations will obviously dig into any surface for a secure grip. I never understood the purpose of the flat inner rim of the jaw on the left-hand side of *Photo 1*. That jaw, however, can be machined to a useable dovetail. In expansion mode, only the right jaw will damage the wood. Although it offers a secure grip, it requires a recess or hole at least 3/8" (10 mm) deep.

If I locate jaws into a corner, or even into a groove, as on the little vase in *Photo 2* and *Photo 3,* any bruising is nearly impossible to spot, even when you know what to look for. In these two photos, 68 mm Shark Jaws close around the groove that matches the diameter of the jaw set. Matching diameters is crucial, but so also is the shape of the jaw—that has to be a simple dovetail. Had I chosen a groove higher up the profile, the jaw corners would have damaged the bead below that groove. Jaw sets with a small chamfer on the chuck rim cannot grip in this situation.

Chucking basics

To get the best out of chucks, there are a few things to keep in mind about the jaws and also the structure of wood.

Chuck jaws are machined as a circle then cut into four parts. Four-jaw chucks can grip a wide range of diameters. However, when the jaws close around a diameter larger than the machined diameter *(Photo 4)* the jaw corners dig into and mark the wood. You don't want that on a finished bowl. The teeth-marks inflicted by large step jaws are not a problem, though, when they grip a 10" (250 mm) bowl blank being roughed out.

When chuck jaws contract around a tenon or foot smaller than the machined diameter of the jaws, contact is in the center of each jaw. If the grip is in a corner or groove, any damage is extremely difficult to spot even when you know what you are looking for. Using smooth dovetail jaws, I can mount a bowl for hollowing on a very small bead of a foot. A flat surface against the jaws is not needed (although often stated as being essential), provided there is the hint of a groove or if the bottom of a curve butts up against the inner lip of the chuck jaws.

In *Photo 5*, step jaws close around the 110 mm diameter foot of a 12"- (300 mm-) diameter bowl. (In many of these photos one jaw has been removed so you can see exactly how the jaws contact the wood. In use, all four jaws should be secured firmly to the sliders.)

Using chucks in expansion mode, the further they are opened, the less contact the jaws have with the wood. If the jaw rims are seated into a groove, however, any bruising is difficult to spot. I use expanding chucks primarily for remounting roughed-out bowls when marks left on the wood do not matter.

Photo 6 shows a small rough-turned bowl about to go over a 4"- (100 mm-) diameter step jaw that will expand into the locating groove. The groove

is turned into the warped bowl to provide a trued surface against which to locate the jaws. In *Photo 7* you see the larger 130 mm (5") Shark Jaws expanding deep inside a roughed-out natural-edged bowl. The advantage of this mounting is that you do not need to use the tailstock center when completing the profile of a part-turned bowl—you can work completely around the bowl without the tailstock center getting in the way.

Gripping or expanding?

The structure of wood is little more than a bundle of fine straws bound together. As a long bundle, wood fibers are very strong and ideal for spindle turning or endgrain projects, provided you don't try to split them or wedge them apart. For this reason alone, it is preferable to clamp around the wood (the bundle of fibers) whenever possible. If you expand the chuck jaws within the base of an endgrain project such as the small pencil pot in *Photo 8*, the outward force is likely to split the wood if you overtighten the chuck or have a catch.

When the grain runs at right angles to the lathe axis as it does in faceplate work (bowls and platters), the result of too much outward force has a slightly different result. Then, the force of a jaw against the endgrain can shunt the wood enough to break the fibers, causing a small geological fault in a bowl *(Photo 9)*.

As a basic principle, the wider the grip you have on a blank or piece of work-in-progress, the more secure it is going to be as work proceeds. I never expand chuck jaws within the base of any bowl if I can avoid it because any expanding grip will be holding onto a smaller diameter than jaws clamping around a foot. In addition, when ▸

Avoid using jaws in expansion mode with endgrain projects. The wood grain is rarely strong enough unless there is sufficient wood around the chuck jaws.

A faceplate-turned bowl is subject to cracking when expansion chucking.

You need only a narrow recess for chuck jaws to grip when the recess diameter closely matches the diameter of the chuck's jaws.

This 20"- (505 mm-) diameter jarrah burl platter was held onto the lathe using 8"- (200 mm-) diameter dovetail jaws expanding within a shallow groove. Keeping sufficient mass in the center of this platter gives more margin for error when hollowing.

Corners of a squared blank should be placed between the jaws of the chuck.

A shoulder or bottom of a curve (also see *Photo 14*) seated against the rim of the jaws provides the best grip.

Long jaws with smooth rims can grip on details of a profile without damaging the wood when the diameters of the bowl and jaws match.

The beads on the outside profile of this small vessel provide grooves for long dovetail jaws to grip.

Locate expanding jaws on small grooves or beads so that you can finish a base or attend to other details on the outside of a platter.


17
This box lid has been cut away to illustrate how a groove on the inside of a bowl can provide a shoulder for locating the jaws. In this case, the chuck is used in expansion mode.


18
If your chuck has serrated jaws that might damage the wood, there are times when you can use the jaw shoulders for holding a project.


19
Smooth dovetail jaws can grip on next to nothing without marking the wood.


20
The diameter of this small bowl matches the diameter of the chuck jaws when the jaws are almost closed.


21
The rim of this gidgee bowl fits the chuck exactly. I will turn away the foot and the jaws will not leave a mark on the wood.

there is insufficient wood around the chuck jaws, overtightening the chuck or having a catch can cause the wood to split. It is much safer to clamp around a foot and remove the foot later if it is not needed—more on that later.

Taking design into consideration, a recess in the base of a bowl for expansion chucking reduces the depth to which a bowl can be hollowed out; that can make the bowl look heavier than it really is.

I use expanding jaws only when turning large platters. For the 20" (505 mm) jarrah burl platter *(Photos 10, 11)*, I used 8"- (200 mm-) diameter dovetail jaws expanding within a groove about ⅛" (3 mm) deep in the base. Even though the base is likely to be at least ⅝" (16 mm) thick, this ⅛" (3 mm) deep rebate is more than sufficient—there is 1⅜" (35 mm) of wood surrounding the chuck and the jaws grip a diameter of just over 8" (200 mm). There is plenty of support, even though only the center of each jaw is gripping. Notice also that the base of the groove is flat so there is no space behind the jaws. This enables the dovetail to slot right into the corner of the groove with minimal impact on the depth to which I can hollow the inside (although that is not an issue when the recess is less than the height of the foot).

Gripping works-in-progress

As we start to look at chucks in action, there are a couple of very basic points to consider. Be sure to have the corners of an endgrain blank located between the four jaws *(Photo 12)*. This seems obvious, but I know that all too often it's not. If the square corners are located in the middle of the chuck jaws, the turning blank will not be secure unless you use the tailstock center to support the other end.

For an even better grip when spindle turning, turn the end of the blank to a diameter slightly larger than the jaw diameter with a shoulder that can rest against the top of the jaws *(Photo 13)*. The shoulder helps the blank remain in the chuck in the event of a catch. The blank does not need to bottom out in the chuck. With a shoulder resting on the top of the jaws, short endgrain blanks (with grain parallel to the lathe axis) need go into the chuck only ¼" (6 mm).

I do not use standard jaws; I replaced those years ago with Shark Jaws. Shark Jaws are the same diameter as standard jaws but they are longer and far superior for gripping blanks for endgrain work such as drawer knobs, boxes, eggcups, and goblets.

Longer dovetailed jaws can grip around a small shoulder at the top of an outflowing foot *(Photo 14)*. These jaws are very useful when you want to grip partway up a project *(Photo 15)*. You can grip using longer dovetail jaws in all manner of situations. All you need is a small detail to stop the jaws sliding down or out of a curve.

On small plates and shallow bowls I often undercut the rim so I can remount the bowl to complete or remove the foot *(Photos 16)*. You need smooth jaws for this: Any serrations will mark your polished wood. Similarly, the grooves on the inside of a little bowl might look decorative and define the working space of the bowl, but they are really there so I can remount the bowl to complete the base *(Photo 17)*. A tiny 1/32" (0.8 mm) shoulder is enough to locate the crisp edge of the 130 mm (5") Shark Jaws and stop it expanding further. If you only have a chuck with serrated jaws you can use the smooth jaw shoulders and not mark the wood *(Photo 18)*.

If you turn the diameter to be gripped the correct size for the chuck, smooth dovetail jaws can grip on next to nothing without marking the wood. I used 5" (130 mm) jaws to grip the 1/16" (1.6 mm) shoulder on a box lid *(Photo*

Not every bowl will fit into step jaws like this bowl does, especially wide bowls with small feet. Using step jaws, however, often enforces more pleasing proportions on bowls than their maker may have intended.

Look for dovetail jaws where the inside profiles provide a continuous arc *(right)*. Avoid jaws where the inside profile of the jaws is broken *(left)*.

19) and Shark Jaws close around 1⅞" (48 mm) details in *Photo 20*. And since the bowl in *Photo 14* was the right diameter for my large step jaws *(Photo 21)*, I can use those jaws for further work on the lower part of the bowl. I'm sure you get the idea.

Anyone making quantities of bowls would do well to invest in a set of step jaws—they enable gripping a number of different diameters without changing chucks *(Photo 22)*. Of course not every bowl form has a foot the chuck will grip, particularly wide bowls with a narrow foot, but I believe that step jaws inflict a better design on bowls whether intended or not.

After the introduction of four-jaw chucks there was quite a movement to eliminate all evidence of chucking on turned objects. Bowls with screw holes in the base, no matter how well filled and detailed, were rejected from juried exhibitions which is fair enough, but so also were bowls with rebates for expanding chucks. It all seemed a bit ridiculous to me, and it became a point of honor to get work into exhibitions with as many fixing points as possible. It was then that I began using beads, corners, and grooves, to locate the chuck jaws.

Purchasing chucks

Nova and Vicmarc chucks dominate the worldwide market, and each offers a wide range of jaw sets, as do other leading manufacturers such as Oneway, Robert Sorby, and Axminster. Check that the rims of the jaw sets can do what you want, as many are not quite what they seem at first glance.

My advice is to look for smooth dovetail jaws without irritating little chamfers or square rims and particularly without any serrations on the rims. Also avoid the sort of rims seen on the chuck to the left in *Photo 23*. The inside circumference is not continuous, which will result in the jaws marking the wood unless your turned diameter matches the chuck jaws exactly. With this type of jaw, there is no margin for error as there is with other jaw sets.

My core chucks are set up with Vicmarc step jaws for bowls and Vicmarc Shark Jaws for small endgrain work such as boxes. I have large and small versions of each. In all, I have about a dozen chucks set up and ready to go so I do not have to keep changing jaw sets. I used to think you could not have too many chucks, but the bad news for tool junkies is that you can probably make do with as few as ten. For everyone else, that takes care of gifts for some years. ■

Richard Raffan is a semiretired professional turner living in Canberra, Australia. Now best known as author of classic woodturning books and videos, he travels internationally to teach a few weeks each year. Visit his website at richardraffan.com.

Carbide Insert Lathe Tools

John English

"We can turn about 1800 hard maple handles with just one carbide cutter," Craig Jackson says.

There are some people who actually enjoy sharpening. For the rest of us, a new generation of turning tools with carbide insert tips can hold an edge forty times as long as high speed steel. And as each insert has several edges, the numbers go up from there. These tools are doing for woodturners what home appliances and power tools did for families in the 1950s: giving us back the gift of time.

Several manufacturers offer this new technology and they all have two things in common. First, they eliminate the chore of sharpening. And second, the learning curve is a whole lot shorter than for traditional tools. That's because there is a significant absence of chatter, and also because the cutters minimize the need to understand angles of approach: they cut like a scraper at the speed of a gouge.

A minor downside to carbide insert tools is that there are some limitations to the number of profiles available so far, but the manufacturers are working furiously on that and the choices are expanding almost daily. That disadvantage is easily countered by the tools' integrity. After a few trips to the grinder, the geometry on most traditional cutters begins to suffer from accumulated errors. Even the most experienced woodturners begin to lose their edge, so to speak. But these carbide inserts have the same profile at the end of a turning session as they do at the beginning. That integrity really helps when duplicating profiles.

Makers of carbide tools

Carbide Woodturning Tools

Located in Evansville, Indiana, Carbide Woodturning Tools (CWT) supplies turners with tools and hardwood blanks. The tools are made in the United States and have stainless steel shafts, carbide inserts, and ash handles.

CWT has developed five separate lines of turning tools: the S, SS, SR, S12, and SRB series. The company says that its tools "cut down turning time from 50 percent to 75 percent with far less strain on the turner." Like most manufacturers, CWT's inserts are so reasonably priced and they last so long that it simply is not worth trying to resharpen them. All of their tools are available without the handles, in case turners want to order them that way and make their own custom hardwood handles. According to the company, carbide inserts "excel in roughing out blanks, yet also are excellent in finish work." Their website states that they "believe we have the largest selection and the most cost-efficient carbide wood lathe tools of this type on the market now." All of their products carry a money-back guarantee.

The S Series tools have an essentially square insert. The SS series hold a round carbide insert that is used for inside scraping and finishing cuts in open-faced bowls as well as hollowed-out vessels with a restricted opening. This insert works well on shaping spindles, too, and creating cove cuts. It can also be used to make curves and coves on spindles because the cutter is only 12 mm (a hair under ½") in diameter. Available in both a straight shaft and a swan neck, the handles are 15½" (400 mm) long. As the cutting edge eventually dulls, it only takes about a minute to loosen a screw and rotate the insert 45° to 90°.

CWT's SR line has five different tools where the cutter is held in each at a slightly different angle (0°, 15°, 20°, 45°, and 60°). Knowing the exact angle can be very helpful when hollow turning, where the cutter is out of sight. Most turners will choose to own just one or two, rather than all five of these tools. Each one has an insert holder that is made of ⅜" (10 mm) round stainless steel stock, and this holds either a 6 mm or 10 mm round carbide insert.

Two nice aspects of CWT's tools are that they can be purchased either with or without a handle (in a standard length of 8½" [215 mm] with a ½" by 2½" tang [13

Some of the most popular tools from EWT are the round finisher (Ci0) and square rougher (Ci1), both with 16" (400 mm) handles, and the shorter Ci3m mini-finisher. The Ci stands for "carbide insert."

The Ci1-R2 (center) is a new insert for the square rougher that has a very slight curve along each of its four edges. Designed for working smaller bowls, its corners leave fewer scratches.

The Ci0 Easy Finisher has a round carbide cutter that is perfect for doing inside work on smaller bowls, and for creating large coves on spindle work. Here it is shown working kiln-dried walnut.

mm by 64 mm]), and also that each tool can be custom machined to any length for the deep hollowing turner. The company will also make any of their SR tools with a ¾" to 2½" (20 mm to 64 mm) tang, to fit in a standard arm-brace handle.

One very exciting development in this new technology is that CWT also makes a line of tools (RB) that use ¼" (6 mm) and ½" (13 mm) shafted-carbide router bits as the cutters. This opens up a whole new world of profile cutting for woodturners. Straight bits can be plunged into a bowl blank to define walls; round-over bits can be used to ease the interior transition from the sides to the bottom of a bowl; and decorative bits can be used to create interesting profiles on lips, edges, and bases.

Easy Wood Tools

A second company making carbide turning tools is Kentucky-based Easy Wood Tools (EWT), headed by Craig Jackson. He has only been turning wood since 2004, but a lifetime of training as a machinist on metal lathes gave him extraordinary insight into his new hobby. It did not take long for Craig to realize that there might be a better option than traditional tools, and over the past six years he has developed a system that dramatically reduces the learning curve for new woodturners. So, what is his secret?

Craig uses neutral bevel (more on that later) carbide insert cutters on solid stainless steel tools, and a patented handle design. All three elements work together to deliver a degree of control that instills a whole new level of confidence in turners. He works out of a small factory at the corner of Fourth and Ewing in downtown Owensboro, Kentucky. The business is only a couple of years old, but already Craig and his wife Donna, along with six employees, have sold more than 7,000 of their patented turning tools. And the sales curve is rocketing higher as word travels through the turning community, especially since David J. Marks (of *Woodworks* on the DIY Network) came aboard with his own personalized versions.

Craig met David in May 2008 and passed along a Ci1 Easy Rougher as a gift. At the AAW Symposium a month later, he discovered to his delight that the tool had quickly become David's favorite. The two decided to collaborate on a couple of tools with David's signature endorsement. Both have 20" (500 mm) bubinga handles and one is for roughing while the other handles finishing cuts.

"Most traditional turning tools rub a bevel," Craig explains. "That is, the bevel below the cutting edge rides on the wood. Because of their design and the thin nature of the tough carbide cutter, insert tools present just the cutting edge to the wood. This means that the tool is not constantly bouncing against the rotating stock, creating chatter. Vibrations are transferred to the toolrest (and into the body of the lathe), rather than traveling down the handle to the arm and body of the woodturner where they traditionally cause fatigue. The neutral bevel (the top of the cutting insert is at 90° to the work) also reduces vibration.

"Easy Wood Tools come with massive, rectangular, stainless steel shafts and their flat bottoms lie solidly on the toolrest. Because of the neutral bevel of the carbide cutters, the handle is simply held parallel to the floor for virtually all cuts. There is no need to select an optimum bevel address (by raising or lowering the end of the handle), and this reduces the learning curve. The insert cutters also cut on their sides, so the tool can be moved left or right without changing the angle of address (the handle remains at 90° to the lathe bed as the shaft slides across the toolrest). Because of their predictable nature, they are, quite frankly, safer than traditional tools. Easy Wood Tools also feature heavy stainless steel shafts, and an innovative two-step handle system."

Craig has been a machinist and industrial design engineer for almost thirty years. His degree is in machine tool ▸

Shown are three tools from New Edge, the full-length ¾" (20 mm) square and ⅜" (10 mm) diamond cutters, and their pen-turning tool that comes with four interchangeable carbide-insert tips.

The New Edge pen tool has four carbide tip profiles: round nose, skew, diamond and parting tool. All tips work beautifully on spindles and bowls, too. The tips are changed with an Allen screw.

The full-sized diamond cutter from New Edge has a very slightly rounded tip that can be plunged into the work to locate or define a groove. With sharp sides, it replaces a traditional parting tool.

The round-nosed insert for New Edge's pen-turning tool is ideal for creating small coves on the rims of bowls, or decorative elements on spindles. Carbide-insert cuts are so precise they rarely need sanding.

technology, and he spent many years as the process improvement manager for Swedish Match NA (a tobacco company). When he began turning wood, the wide variety of cutting angles, catches, and sharpening methods frustrated him. After three years of looking at alternatives, he finally gave up and designed his own tools. Then he uploaded a video of himself working with the tools he created to YouTube, and immediately began to receive orders. That video has now had more than 17,000 views. He quickly began joining woodworking forums online, and demonstrating the tools in person at symposia and other events.

Easy Wood Tools now offers the following tools:

The Ci1 Easy Rougher
The Ci2 Easy Rougher
The Ci0 Easy Finisher
The Ci3 Easy Finisher, 2010
The Ci4 Easy Detailer, 2010
Two David J. Marks Pro Series tools
Three Mini Series Tools

Craig and his team at EWT are currently developing nine more tools, including a hollowing system for deep vessels. By the way, the company's nomenclature is based on the word *carbide*. For example, Ci0 is short for "carbide insert zero," while Ci1 is short for "carbide insert number one," and so on.

New Edge

Connecticut-based New Edge offers individual cutting tools complete with the initial carbide insert for less than $100 each. Their cutters include ½", ¾", and 1" (13 mm, 20 mm, and 25 mm) round inserts, a ½" (13 mm) diamond, a ¾" (20 mm) square and a ¼" (6 mm) parting tool. The wood handles are 13" (330 mm) long, and the overall length of the complete tool varies from 22" to 25" (560 mm to 635 mm).

According to the company, their "carbide inserts are coated with a titanium nitride coating for longer tool life at higher turning speeds. This helps to produce smoother surfaces while maintaining a longer-lasting sharp cutting edge. Our inserts have angles or dishes on the top surfaces to create chip flow, and a sharper cutting edge. Insert styles range from round and square to diamond shapes that can be used for different applications. Special form (shape) cutters can be ordered to meet specific needs."

New Edge offers a special line of small carbide tools designed specifically with pen makers in mind. Their kit comes with one handle and four tips, and the package sells for about the cost of a single standard-sized tool. They also offer solid carbide replacements for Vega's duplicator, which they use in-house to create the turning tool handles. New Edge also makes a 2"- (50 mm-) diameter chuck center for three- or four-jaw chucks.

Unique Tool

Joe Rollins says that his company was "the first to make carbide inserted tools back in the 1980s, the first time." That attempt yielded a very good product, but the marketing plan involved more money than they could invest at the time, so it went on the back burner until about 2002. By then, Unique Tool was established enough in Internet sales to be at ease with marketing a new product.

"We have always felt that the best road to success in the tool business is impeccable quality along with affordable prices. I saw no reason why a good carbide-inserted woodturning chisel needed to sell for any more than a high speed steel tool of good quality. So, we strived to make tooling and fixtures and develop sources of American-made supplies that would allow us to sell a fine product that could be retailed, at that time, for thirty-four dollars each." Of course, as steel and carbide prices have radically increased over the years, the company's standard chisel price is now a little more, but not much.

Unique Tool's handles are padded rubber, the shanks are heavier than

Websites

Carbide Woodturning Tools (CWT), carbidewoodturningtools.com
Carbide Depot, carbidedepot.com
Easy Wood Tools (EWT), easywoodtools.com
Hollow-Pro Tools, mikejackofsky.com/Tools.html
Hunter Tools, hunterwoodturningtool.com
Munro Tools, rollymunro.co.nz
New Edge Cutting Tools, newedgecuttingtools.com
Penn State Industries (PSI) Benjamin's Best, pennstateind.com
Spike Finch, exoticvessels.com (DVD)
Unique Tool, thingswestern.com

traditional lathe tools, and their cutters have a 7° relief and zero rake. The bottoms of their shanks are round, so they work well as both shear cutters and scrapers, instead of simply being a scraper. The tools are available in six cutter sizes and configurations, and three lengths, with custom lengths available.

"When our tools came out," Joe says, "there was a hue and cry for wooden handles, flat bottoms, and other features that would make them look and feel like traditional woodturning chisels. But we were intent on making what we regarded as the most comfortable and fast cutting woodturning tools that would not only rough cut at amazing speed, but shear cut smooth enough to render a finish ready for 320 grit paper."

Joe and his partner, Janet, are both woodturners who run a small family business. Every part of their tools is American made, with the exception of the golf grips on the larger tools. They offer full-size, pen-making, and oversized tools (including the 36" [915 mm] long Boss Hogger!) online.

Advantages to carbide

Carbide-insert lathe tools have a couple of less obvious advantages over traditional tools. Because they do not need to be sharpened, they do not get shorter over the years. Most tools come with stainless steel shafts, so they do not rust in green woodturning. They are also ideally suited to inside cuts on bowls because, unlike a gouge, they present an essentially flat cutter to the wood so there is much less of a tendency for the tool to be guided by the wood. Most of the cutters abrade on both the leading and the side edges, so they can be plunged straight into the wood, and also moved sideways to cut.

A rule of thumb is that replacement cutters for most carbide tools will cost about $1 a bowl. The cutters range from $5 to $15 or so, and that is about how many average-sized bowls they will make before running out of sharp edges.

Other manufacturers

Turners may also be interested in Spike Finch's "Carbide Stone Turning Tools" that have carbide inserts for turning alabaster on a wood lathe; Penn State Industries' (PSI) Benjamin's Best impressive carbide chisel set, which uses brazed carbide tips that are actually part of the tool (rather than just an insert); and a company called Carbide Depot that offers just the inserts, but not the handles and shafts. Eliminator also offers round carbide cutters on round shafts but no handles, and Mike Jackofsky's Hollow-Pro Tools (also without handles) have a carbide swivel tip, while Hunter Carbide Hollowing Tools offer both a ⅜" (10 mm) and a ½" (13 mm) round cutter.

Hunter, as a side note, is interesting because numerous professionals, including Lyle Jamieson, espouse its saucer-shaped insert. (According to Jamieson, the tool "produces a finished surface that needs less sanding and has less endgrain fiber tearout.") A hollowing tool from Munro Tools Ltd. in New Zealand offers a choice of carbide or high speed steel cutting tips. The last and latest word belongs to Craig Jackson of Easy Wood Tools, who is introducing a new hollowing tool as we go to press. For details, visit the EWT website and scroll down. ■

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.*

Penn State Industries (PSI) says its carbide-tipped tools may never need sharpening. For short-handled tools, they were a pleasant surprise because they hold an edge so well there is little chatter or resistance.

PSI's boxed set of three lathe tools (gouge, parting tool, and skew chisel) with brazed-on carbide tips are 11" (280 mm) long overall and are ideal for the casual turner who does not want to invest time in a sharpening regimen.

The shaft on the carbide-tipped skew from PSI is oval so it rolls gently on the toolrest which, combined with its very sharp factory edge, makes for easy chamfers, wide V-grooves, and rounded shoulders.

Salvaging Florida's Hardwood Treasure

Don McIvor

Nine straight days of freezing temperatures in the Tampa–St. Petersburg area of Florida in January 2010 left the natives shivering in their coats and the snowbirds wondering why they'd left home. Driving around the cities, it was easy to spot other lingering effects. Frost had found trees at the northern limit of their range and left some species of palms, bananas, and broad-leafed trees looking like an ancient steak excavated from the nether reaches of the freezer. During my visit a week or so after the freezing air mass exited eastward, maples nearing the southern limit of their range burst into spring bloom.

Florida supports more tree species than any other state in the continental United States. Of North America's 625 tree species, 275 grow in Florida. In addition, exotic trees from as far away as Australia and Southeast Asia have been imported to the state. Centrally located along Florida's west coast and with the moderating Atlantic Gulf lapping at its shores, the Tampa–St. Pete area lies in convenient proximity to flora from both the temperate and tropical zones. If you are a woodturner—or any kind of woodworker—in the Tampa–St. Pete area, this is opportunity writ large.

Both cities manage their trees, and especially their native trees, with pride and the serious intent of keeping them upright and in the ground. Removing a native tree requires a permit from the city, and scofflaws in Tampa face the area's stiffest penalty—a fine for as much as $10,000 for removal of a Grand Tree. In spite of these efforts, construction, disease, public safety, personal property protection, and a handful of legitimate reasons warrant tree removal. The area also experiences strong storms and an occasional hurricane that sends trees to the ground. The last hurricane to pass near the area—2005's Hurricane Wilma—toppled many rosewood trees, a shallow-rooted species susceptible to high winds. All of that wood, native, non-native, permitted or not, has to go somewhere.

About a million board feet of wood ends up in the region's landfills each year, creating an expensive disposal problem. Most of this wood must be burned or mulched. Enter Pete Richardson, an amateur woodworker and a man who thrives on making connections. Richardson has spent a lot of time thinking about that million board feet of lumber. His research suggests about 200,000 board feet of select hardwoods could be salvaged and used by woodworkers if he could intercept it and mill it into useable form. The rest is either too small or of a species whose merits have yet to be identified.

To coordinate the recovery of the urban timber, Richardson organized Viable Lumber (viablelumber.com). Viable Lumber's mission is to establish the first comprehensive, organized tree recovery and recycling program in the Tampa Bay area. To add to the product's appeal for many, the resulting lumber will be "green certified." In various stashes around town, Viable Lumber has amassed about fifty tons of logs to mill.

Richardson realized early in his research that urban timber reclamation is not an enterprise that will succeed under the direction of one man or one company. After exploring business structures from nonprofits to corporations, Richardson concluded the only way an urban timber reclamation operation could work is to function as a cooperative with profit sharing to support all aspects of acquisition, log handling, milling, storage, drying, marketing, and distribution. But woodworkers tend to be solitary creatures, with more than a few given to obstinacy, and so with his proclivity for connecting people with opportunities, Richardson has taken to herding the cats who may become the key players in this endeavor.

Within an hour's drive of the Tampa–St. Pete area lie about forty woodworking clubs, including three AAW chapters: Sarasota Woodturners, Suncoast Woodturners Club, and Tri County Woodturners. The St. Petersburg Woodcrafters' Guild, more or less at Richardson's urging, is working to become the central hub that attempts to coordinate communication among these many independent groups. It is from this extended network that Richardson has found many of the keys to the urban timber salvage effort. Through the Guild and an increasing network of contacts, Richardson is tying together arborists, turners, cabinet makers, luthiers, intarsia artists, furniture makers, flooring installers, box makers, carvers, green architects, and municipal waste managers. Oh, and a sawyer.

In mid-January, Richardson navigated us thirty minutes south of St. Petersburg to a residence near Bradenton. Here, Steve Parker has taken the plunge and purchased an LT-40 Wood-Mizer, which serves both the urban timber salvage effort and Parker's own woodturning-based business. In fact, at this point in the venture's life, Parker's woodturningblanks4u.com site is the only web-based source and outlet to the wider world for the timber recovery effort's bowl blanks. When I raise an eyebrow at the outlay of capital for the Wood-Mizer or Parker's chopped Oneway 2436 lathe, he shrugs, "I used to race cars. A new engine was $8,000, a new transmission $4,000. Woodturning is relatively inexpensive in comparison."

At the moment of our arrival at Parker's house, an Australian cypress log reclines on the cutting deck of the mill. Several slabs of the surprisingly dense wood lie stacked on a nearby trailer, where Richardson hoses off the gritty sawdust to reveal sinuous lines of cream and tan heartwood. "Wood porn!" he announces with mock prurience. Back at the mill, Parker evaluates the pith orientation and the grain figure before continuing his deft sequence of cuts. Twenty-inch (50 cm) slabs come off the mill in 2", 3", and 4" (5 cm, 8 cm, and 10 cm) thicknesses. The last slab on the mill is the center section of the tree containing the pith. Parker props it upright and carves out a series of 3" (8 cm) peppermill blanks. ▸

A rainbow poplar log is being cut into boards on a Wood-Mizer. The kerf of the blade is very thin—about ⅛" (3 mm)—contributing to the efficiency of the cutting operation and maximum use of the timber.

Australian cypress is a species none of us were familiar with; its density and beauty surprised us.

Rainbow poplar is tulip poplar, which in rare growing conditions appears to incorporate minerals from soils to display an incredible range of purple, brown, green, and yellow hues.

The day's slabs are stickered and stacked in front of shelves full of turning blanks. From here, slabs destined for turning blanks will be cut to specifications using a bandsaw, and the edges waxed to control the drying process.

Cabinet and furniture maker Joe Pettit holds his monkeypod Phoenix tabletop. The table would take first place in its division at the Florida State Fair.

A paying client arrives to rent the mill for a couple of hours. He tows a flat trailer of red cedar, much of it in limbs better suited to firewood. The first log on the mill yields both the day's first nail as well as a chunk of concrete hidden in the center of the tree. These blade-killers are the reason few sawyers risk urban trees, which often contain everything from rocks to insulators, rope, bullets, chains, glass, and the occasional bicycle left chained to the tree a few decades too long. For the urban tree recovery project, Richardson typically budgets two new saw blades and three sharpenings for each two-day milling session.

More logs from Parker's deck are hoisted onto the mill. In the course of the day, we'll add stacks of spalted pecan, spalted sycamore, and rainbow poplar to the stickered lumber piles. Other timbers milled to date include rosewood, red gum, silky oak (lace wood), camphor, Norfolk Island pine, flamewood, monkeypod, jacaranda, golden flamboyant, Java plum, red cedar, sweet gum, bishop wood, eucalyptus, red oak, live oak, holly, grapefruit, and walnut. Today's milling produces turning stock, so the slabs are moved by tractor into Parker's workshop, where they are cut into spindle, bowl, and vase blanks and sealed to slow moisture loss. When dimensional lumber is milled, it is loaded into a small makeshift kiln fashioned in a corner of furniture and cabinet maker Joe Pettit's workshop. Plans for a larger solar powered kiln are in the works.

As word of the salvage operation gets around, Richardson has started to receive calls with offers of timber from as far away as Gainesville and Orlando, but the need for heavy equipment and the logistics of harvesting and moving tons of wood from these locations has so far prevented the group from capitalizing on the opportunities.

Perhaps surprisingly for turners (most of whom it seems will try securing anything in a chuck at least once), one of Richardson's challenges has been gaining acceptance among woodworkers for some of the more nontraditional species. Monkeypod, for example, is a common turning wood in some parts of the globe, especially in the Philippines where it is used for mass-produced

(Above) Live oak, 3½" × 6½" (9 cm × 17 cm)

(Left) Flamewood, 3¼" × 7" (8 cm × 18 cm)

(Left) Camphor burl bowl, turned green, 3¼" × 6" (8 cm × 15 cm)

(Below) Lacewood (silky oak) 1¼" × 4½" (3 cm × 11 cm)

bowls, while it remains an unknown species for most turners in the United States. To gain acceptance among a wider group of artisans, Richardson often donates highly figured stock to craftsmen in exchange for the use of photographic images and testimonials. Joe Pettit of Pettit Custom Woodworks is one benefactor of Richardson's donation policy. Pettit's monkeypod *Phoenix* conference table incorporating a book-matched flamed figure took first place and enjoyed a wide audience at the Florida State Fair this year. The wood for the table was milled from an enormous monkeypod tree that was destined to be burned or mulched. Turners utilizing Viable Lumber's recovered wood include myself, Steve Parker, Bob Winter, Art Worth, and Ron Eddinger of Suncoast Woodturners, and Rudy Lopez (rudolphlopez.com/gallery.html).

Though a self-professed amateur turner and a relative newcomer to the craft, Richardson has also won more than a few friends among property owners with his heirloom turnings, which he gives back to some who have lost valued trees. Many urban trees brought down by storms or disease once towered over residents who may have spent the better part of their lives in the trees' shade. Richardson has been happy to make keepsake bowls and urns for such owners, many of whom are cheered by the knowledge their trees will continue to live on in another form. But one of Richardson's challenges remains educating the public about the recovery process and its real costs, and few tree owners understand that the economics of timber salvage necessitates that the owner pays to have the tree removed, in spite of the wood's appeal for recycling.

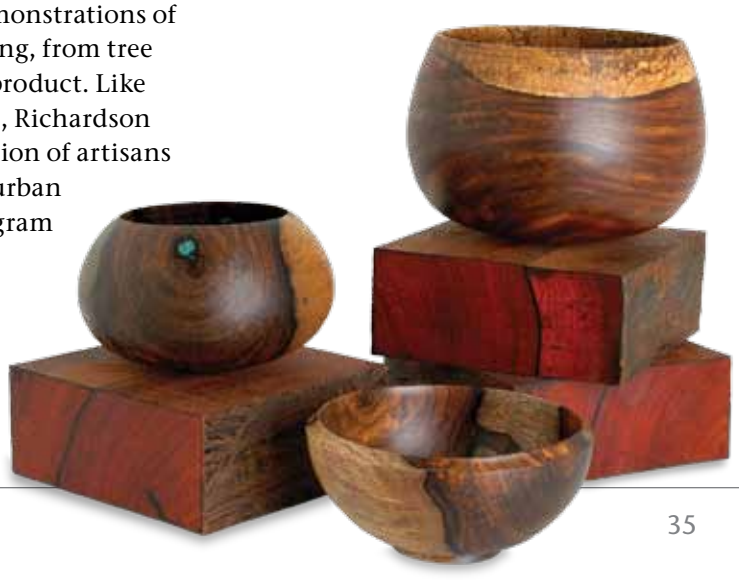
As alluring as the Tampa–St. Pete hardwoods are, securing, processing, storing, and marketing the timber remains a daunting task. But the venture has many supporters, from representatives in the state legislature to the varied artisans interested in the raw material. The venture is starting up at a time when the timber market is in an economic depression. Mills across the country are shuttered with log yards stocked with timber more expensive to process than to sell. Still, Richardson is full of inventive ideas and optimistic about the future, and Viable Lumber's "green" specialty woods may be just the ticket to weathering this economy. In the coming year, Richardson will be seeking an innovative recovery and recycling grant from the Florida legislature to support the timber recovery effort. Exposure in the state fair will likely attract more interest from craftsmen. He is planning an annual wood fair that will include demonstrations of milling and processing, from tree to lathe to finished product. Like most of the rest of us, Richardson and the loose affiliation of artisans associated with the urban timber recovery program are hoping for an upturn in the economy and increasing demand for the extraordinary timber growing in Florida's tropical sun. ■

Timber milling is a spectator sport. Sawyer Steve Parker explains the milling operation as he prepares two logs for processing. Milling days usually draw a crowd of woodphiles.

Don McIvor turns, writes, photographs, and video blogs about woodturning from Washington's Methow Valley. A companion video for this article can be found at TheWoodSpinner.net and at ViableLumber.com. You can see more of Don's work at mcivorwoodworks.com. Don welcomes comments and questions and can be reached at don@mcivorwoodworks.com.

Photos are by the author unless otherwise noted.

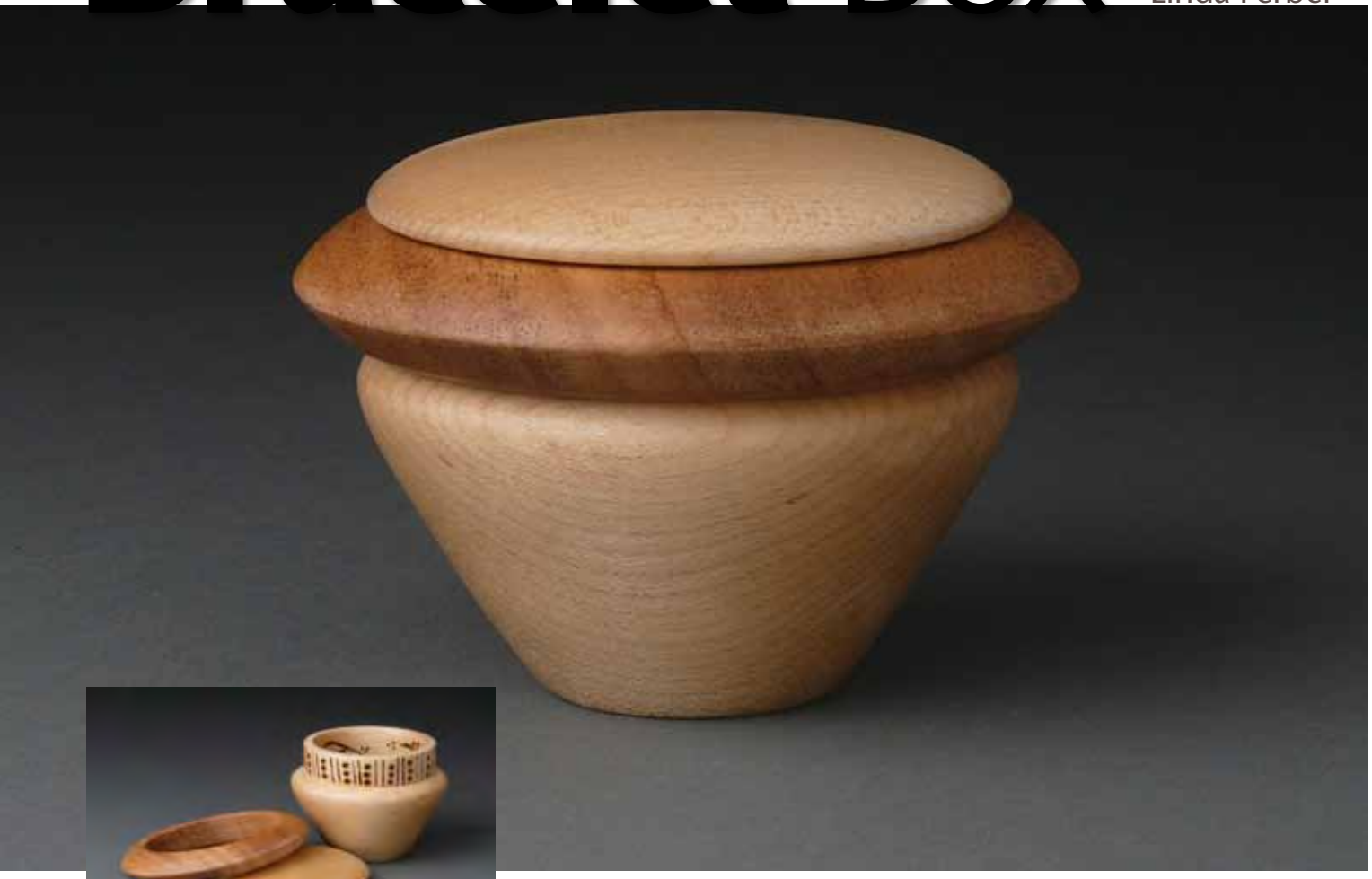
The author turned all of the bowls from Viable Lumber salvaged wood.



Rosewood bowls, each approximately 5" (13 cm) in diameter

Bracelet Box

Linda Ferber



Linda Ferber, *Ginger Jar Bracelet Box,* 2010, Maple, mahogany, 4" × 2½" (10 cm × 6 cm)

When we receive packages at the AAW gallery in Saint Paul, there are always wonderful surprises inside. In one such case, the contents led me to envision a bracelet box. The story begins with a package from Molly Winton that contained decorative pins embellished with wild horses running. The pins were beautiful and left an impression on me.

I had turned a couple of bracelets and had been thinking of how I could further develop the concept of bracelets. That night I was reading the symposium handbook and when I turned to the page containing Molly's work, a completed bracelet box popped into my head. I saw the finished piece and how a bracelet and box could fit together. Of course, I also saw horses running around the bracelet, but more on that later.

This project uses basic box-turning knowledge and can be accomplished at any skill level. It is the type of project that can be used to experiment with

design. Keith Tompkins's article, "Sketch for Success" (*AW*, vol 24, no 2), offers good advice for drawing designs and it helped me with this project. I drew shapes and I looked at bracelets. Then I turned a few.

After turning the bracelet-box prototype, I refined the design so that the bracelet would be part of the box itself. Getting feedback from others was very helpful in making refinements and in making my original vision work better. Each step of the process was of value and I enjoyed learning and experimenting.

The design I created is a box that fits within a bracelet. There are three parts: the bracelet, the box, and a lid. With this concept in mind, a wide variety of designs are possible. Inside the box, additional jewelry or items such as a pin, rings, or a necklace can be safely stored.

Wood selection is part of the design process. Wood with beautiful grain patterns might not be a good choice if you are painting, carving, or burning (or perhaps wild grain might actually work in some cases). Application of ornamental turning works well with dense woods and also with a variety of alternative materials. Segmented work requires wood and materials that work well together.

After predrilling a hole with a Forstner bit, enlarge the opening of the bracelet to a predetermined diameter. Draw a circle to indicate the finished inside diameter.

Fine-tune the outside curve of the bracelet. Also, shape the edge of the bracelet so that it is flat. Doing so will allow it to fit squarely on the box.

The bracelet

For the bracelet itself, I began with glued-up, contrasting wood to make a blank 4" (10 cm) square and 2" (5 cm) thick. I prefer to turn the bracelet portion first because it is easy to use the inside diameter (ID) of the bracelet to establish the outer diameter of the box it fits over.

To determine what size bracelet you want, measure the inside diameter of a known bracelet to customize the size for a perfect fit. I suggest using a Forstner bit to drill part of the inside hole of the bracelet. This saves time and also makes it possible to mount the blank into a four-jaw chuck, expansion mode.

With the hole drilled, mount the bracelet blank into a four-jaw chuck *(Photo 1)*. Using a small gouge or a square-end scraper, remove about half the depth of the bracelet to open the hole to the desired diameter. Make sure to create a straight cut for the inside of the bracelet. Next, turn the piece around in the chuck and turn away the wood in the remaining half of the inside of the bracelet.

Having the inside of the bracelet and the outside of the box straight makes the fitting of the two a simple process.

Turn the outside of the bracelet *(Photo 2)*. The bracelet in the project photos has a gentle convex curve, but you could add beads or grooves. The thickness of the bracelet itself needs to be considered. Some people prefer a lighter-weight bracelet; others do not mind heavy jewelry.

For my glue-up, part of the wood for the bracelet is short ▸

Linda Ferber, untitled, 2010, Maple, walnut, dye, 2" × 3¾" (5 cm × 10 cm)

grain, which is not as strong as long grain—a thicker bracelet would be less likely to have the wood crack in the short-grained area. Proceed accordingly to achieve a good design and a bracelet that will not easily crack.

I turn the edges of my bracelets flat. That way, the bracelet fits squarely onto the box and matches up snugly with the underside of the lid.

Turn the piece around again and remount it into the chuck. Turn the remainder of the outside of the bracelet, blending the curve together.

Sand each section as you are turning it. Apply a finish that will be durable and wear well. I find that glossy finishes show wear unevenly, so I prefer a matte or satin finish.

The box

The size of the piece of wood for the box will depend on the ID of the finished bracelet. For this box, I used wood that was 3¾" (9.5 cm) in diameter and 4" (10 cm) long.

With the wood mounted between centers, turn it into a cylinder, establishing a tenon on each end. Measure the thickness needed for the lid *(Photo 3)* and part that off. Set the lid material aside.

Linda Ferber, untitled, 2010, Walnut, maple, ash, 3" × 3" (7.6 cm × 7.6 cm)

With the box blank mounted into the chuck, turn a shoulder at the base of the box. The bracelet will sit on this shoulder. You will have also begun to establish the sides of the box *(Photo 4)*.

Turn a recess inside the box for fitting the lid. The sides of this recess need to be square and parallel to the lathe bed; however, the top edge should be slightly slanted toward the center of the box.

Measure the ID of the bracelet and transfer that measurement to the exterior of the box. Turn the sides of the box down so that they are approximately ⅛" (3 mm) smaller in diameter *(Photo 5)* than the inside diameter of the bracelet. Take care with this measurement to ensure a pleasing fit between the box and the bracelet *(Photo 6)*.

It is important to carefully plan the height of the box so that the width of the bracelet corresponds with the height of the box. Also, make sure that the base of the box extends beyond its sides to accommodate the width of the bracelet. Paying attention to these design details will influence the overall look of the finished assembly.

Hollow out the interior of the box using your favorite box-turning tool. I find that a bedan or a square-end scraper work well. For the box I made,

Turn a cylinder for the box and lid. Establish a tenon on each end. Mark measurements for top and bottom of the box.

Hollow the inside of the box. (You are turning endgrain to make this box, so employ endgrain-turning techniques.)

Transfer the measurement from the inside diameter of the bracelet to the outside diameter of the box so that the bracelet will slide easily over the outside of the box.

Check the outside diameter of the box and the height of the bracelet in relationship to the height of the box. The space between the box and the bracelet should be about ⅛" (3 mm). For this design, the bracelet should fit in the space in between the shoulder and the lid of the box.

Make a jam chuck to remount the box onto the lathe. Turn and finish the bottom of the box.

the bottom is slightly concave and there is a crisp delineation between the sides and the bottom.

When the interior of the box is sanded, remove the box from the four-jaw chuck. Using a scrap piece of wood, turn a jam-fit chuck to remount the box, upside down. Turn and finish the bottom *(Photo 7)*.

The top

Locate the piece of wood you set aside for the top and mount it into a four-chuck. Turn a tenon the diameter required to fit inside the box, taking the measurement from the ID of the opening of the box *(Photo 8)*.

Turn the inside of the lid and sand that area *(Photo 9)*.

Remove the lid from the chuck, turn it around and remount it into the chuck, using the tenon you just turned. Shape the top of the lid. I made the top of my lid slightly convex.

Measure the diameter of the lid so that its size works well with the bracelet and box *(Photo 10)*. At this point it might be helpful to remove the lid from the chuck, place it on the box and bracelet, and check the proportions. Remove more wood if necessary. Sand the top of the lid. Apply finish to any areas not yet finished.

Send me photos

Designing this box began with a dream and a question, "How could I combine a bracelet with a functional item such as a box?" After realizing my dream of successfully making a bracelet box, I invited Molly Winton, Malcolm Tibbetts, and Jon Sauer to each turn a box and bracelet in their own individual styles.

Jon's ornamental-turned box contains two turned rings. Malcolm's segmented box has three bracelets. The bracelet for Molly's project is adorned with horses running around its exterior!

The design possibilities are endless. Get out your sketchbook (or grab some paper and a pencil) and design a bracelet and box to reflect your own style and interests. I would love to see your finished project. Email me a picture. ■

Linda Ferber has been woodturning for more than ten years and enjoys the creative possibilities and personal challenges it provides. She purchased her lathe from an auction of her father's woodworking equipment, thinking it was the one machine she could use. With no previous experience, she took a bowl-turning class and joined the local AAW chapter. That impulse purchase has had a significant impact on her life. Email photos to linda@garber.org.

Photos by Tib Shaw.

Measure the inside diameter of the box to establish the dimension for the inside tenon on the lid.

Turn the inside of top. Create a small tenon for use in remounting the top and for fitting inside the box.

Turn the outside of the top. The top should have a loose fit; however, how it sits on the box should be pleasing.

Bracelet Box Gallery

Malcolm Tibbetts, *Potpourri Bracelet Box,* 2010, Banksia pod, Gabon ebony, holly, 4" × 3¼" (10 cm × 8 cm)

Molly Winton, untitled, 2010, Maple, dye, 4½" × 3¾" (11 cm × 10 cm)

Jon Sauer, *Cupid's Wave Box,* 2010, African blackwood, Turkish boxwood, betel nut, 5¼" × 3⅜" (13 cm × 8 cm)

Photos by Tib Shaw.

Dave Schweitzer

Ted Gaty

Beaded Black Bowl,
2010, Elm, dye,
6" × 14½" (15 cm × 37 cm)

Dave Schweitzer's shop is impressive. The 3,000-square-foot room, longer than it is wide, is separated into distinct work areas. A large worktable dominates the first space. It boasts a thick, plate-metal top and two vises made for holding metal objects. Acetylene torches and metalworking tools share space under the table. Sets of new turning tools, made by Dave, are stacked on a nearby table.

Farther into the shop reside Dave's shopmade lathe, several additional lathes, a bandsaw, and other woodworking equipment. Scattered throughout the entire shop are dozens of roughed-out bowl blanks and various woodturning projects, finished and unfinished. Taken as a whole, the shop's contents reflect the many skills Dave has mastered during his forty-year career in machinery and metalworking, and more recently the skills he has learned in his decade-long passion for woodturning.

Dave's considerable energy and creativity are focused on making things from wood. He has become an accomplished woodturner, gaining the respect and friendship of his fellow Pacific Northwest woodturners. More than that, though, Dave is a valued resource for his woodturning community.

A little history

Dave grew up in central Michigan in an area settled by folks of German descent who prided themselves on self-reliance. He spent many hours on friends' and neighbors' farms, taking a special interest in anything that "moved and made noise." At a young age, Dave learned how to drive farm machines; and if they broke, he learned how to fix them. Dave proved to be good at fixing machines and at improvising solutions to mechanical problems. He became a "go-to" guy for neighboring farmers as a teenager.

After graduating from high school, he and his brother loaded up his brother's MG, and with only sixty dollars between them, they headed west to the 1962 Seattle World's Fair. For Dave, this was to be a one-way trip—he still lives in the greater Seattle area, on the southern shores of south Puget Sound near Shelton.

Relying on the skills he learned on the farms in Michigan, he worked for years at various jobs that involved servicing and fixing machinery. Eventually, he ended up in partnership with an excavating contractor maintaining their fleet of machines. During that time, he realized there was a need for an improved water truck for contractors. He bought a used water truck and redesigned it to work more efficiently. This truck was so successful that he started buying trucks with just the cabs and chassis and began fabricating his own water tanks and nozzle systems for them. He built up a fleet of water trucks and started his own company, Water Truck Services ▸

A day's work of roughed-out madrone burl bowls occupies a tabletop in Dave's shop, drying.

Incorporated. Dave's wife, Louise, whom he married in 1964, was the bookkeeper and dispatcher for the company. In 2000, after forty years of hard work, he retired and sold his business. He then turned his attention to his newfound passion: woodturning.

Woodturning, a new life

After retiring, Dave looked for an art medium. Having worked with metal most of his life, he considered metal sculpture, but because wood is easier to work with and was readily available in the Pacific Northwest, he decided to try woodturning, remembering his woodturning experience in a 1960s high school shop class.

It is not surprising that Dave's first project was to build himself a lathe and then design and fabricate his own woodturning tools.

Dave starts his woodturning projects with a large section of log or burl, which he then cuts into blanks. After roughing out the blanks into bowls, platters, or vessel forms, he allows the blanks to dry and then eventually re-turns them to finish the piece at some later date. Of this work, Dave says, "I have spent many hours, days, weeks, months making shavings, practicing form and tool control and, as a result, I have learned to produce a wide range of work of always increasing quality and scope."

Along with his mastery of more traditional bowl and vessel forms, Dave likes the challenge of trying something new, such as his banksia seedpod winged bowl or *Desert Moon*. Recently, he has incorporated blown-glass finials on his vessel forms. He even participated in the making of the finials. Yet, no matter what Dave makes, his attention to detail, his superb craftsmanship, and his love of wood all are evident.

Soon after retiring, Dave joined the AAW and started attending local woodturning demonstrations. He became part of the local woodturning community, and gained the friendship of Bill Luce and Steve

Desert Moon, 2009, Elm, maple, 15" × 23" × 9½" (38 cm × 58 cm × 24 cm)

Maple Bottles, 2010, Maple, range in size from 3" to 10" high (7 cm to 25 cm)

Mirror Image (HM1), 2010, Holly, maple, 11½" × 6" (29 cm × 15 cm)

Mirror Image M B, 2010, Holly, maple, 13" × 6½" (33 cm × 17 cm)

Spring Arrives No. 16, 2010, Maple, glass, 18" × 9½" (46 cm × 24 cm)

Hatcher, two well-known woodturners. Bill says of Dave, "The more you know Dave, the more amazing you realize he is. Not only is he a very good turner, his approach to turning and life is to see past unnecessary complexity and get right to the heart of an issue, whether it be design or a woodturning technique or tool. He can create amazing flutes on a vessel with a sanding disk, or create an absolutely stunning deep lacquer finish using a rattle can, and make everything in between."

Steve Hatcher, with whom Dave has collaborated on several projects, says of Dave, "There must be a thousand woodturners in the Northwest who will attest to Dave's amazing skill as both a woodturner and a teacher. But he is much more than that.

Akin to his gift of bringing the best qualities out of a piece of wood, Dave has a gift for bringing out the best qualities in the people he befriends. His friendship is truly the gift that keeps giving."

Recognition of the quality of Dave's woodturning has steadily grown over the years. In 2002, his entry took second place at the King County Fair Juried Art Exhibit. He has work in several galleries, including two of the most well known in the Pacific Northwest, The Real Mother Goose in Portland, Oregon, and the Northwest Gallery of Fine Woodworking in Seattle. He has been in several exhibitions including the 2008 "The Box Show" at the Northwest Gallery of Fine Woodworking and "Woodturning on the Edge" at the Prichard Gallery, Moscow, Idaho. In 2009, his work was included in "Restful Places" at the AAW Gallery of Wood Art in Saint Paul. His entry at "The Box Show" placed second.

Dave's skills as a teacher and a demonstrator have also grown. In addition to teaching in his own shop, he demonstrates in the Pacific Northwest and Canada. Among other topics, his demonstrations cover pith location, balancing the rims on natural edge bowls, and boiling wooden bowls. One of his props is a set of dowels, cut and beveled like gouges to illustrate how various bevels and grinds affect tool performance and use.

In 2007, he demonstrated at the West Coast Round-Up woodturning symposium, where he shared demonstrating duties with John Jordan, Al Stirt, Richard Raffan, and others. In 2010, he was a presenter at the Utah Woodturning Symposium.

Dave is living life at its fullest. He is testimony to what can be done through hard work and focused attention and proof that a person can learn a new set of skills, at a high level, a second time around. ■

Ted Gaty began his woodturning career, like many others, making bowls and candleholders. His work has evolved into creating multimedia abstract wall hangings and art pieces that utilize turned-wood forms.

Untitled, 2010, Banksia seedpod, 1½" × 9" × 2" (3.8 cm × 23 cm × 5 cm)

Suspended Forms

Neil Scobie

I first made a suspended form in 1995 and I have made a few different ones since then. It would be hard to know where the original idea of suspending vessels on legs originated, but my inspiration came from seeing the work of Canadian, Michael Hosaluk and Australian, Stephen Hughes.

Michael toured Australia in 1987, which is when I first met him after organizing his demonstration in my town. In his usual way, Michael inspired us all with his free-thinking attitude and willingness to have a go at anything.

Stephen Hughes, one of Australia's premiere artistic woodturners, led the way with innovation, which included suspended vessels. Stephen says that his work was also influenced by what Michael presented. In 2003, I met Graeme Priddle from New Zealand and saw that he was also using tall, finely shaped legs to suspend his Starfish series.

When I decided to create suspended vessel forms in the mid-1990s, I was careful to design pieces that had *my* stamp on them. If you would like try and make one of these vessels, I suggest you use the information from this project, become inspired, and create your own versions.

I will show a variety of ways to make legs and also different ways to attach them. There are many options, more so than are in this article. Over the years, I have made suspended forms with three and four legs, but I prefer three legs—the piece looks more elegant.

For this project, I used Australian red cedar for the vessel and silver ash as a contrast for the legs. Most timbers would be suitable, but my advice is to choose wood without defects. You are going to spend a lot of time creating your masterpiece, so select the best wood available that will showcase it.

Turn the vessel and rings

Start by placing the turning blank between centers on the lathe and turn the outside profile. Turn away the background area, leaving two raised rings. Also, turn a spigot for the chuck on the bottom end *(Photo 1)*. Make sure that you do not make the bottom section too small in diameter at this point in the process.

In order to mark the positions where the three legs will be attached, wrap masking tape around the top raised ring to determine the length of its circumference *(Photo 2)*. On the tape, mark a line at the beginning and end of the circumference, unwind the tape, and stick it onto a table. Divide the length between the two marks by three and you will have your divisions of where to place the legs.

Put the tape back onto the raised section and transfer the marks onto the wood. To place marks on the bottom raised ring, position the toolrest parallel to the two raised sections and draw a line along the top of the toolrest down to the bottom raised section.

Suspended Form, 2008, Rose mahogany, Aluminum legs, 7½" × 3½" (19 cm × 9 cm). The form was turned on three centers and the legs were shaped from solid aluminum. Painted by Liz Scobie.

Hollow the vessel

To hollow out the inside, I like to begin with a saw-tooth drill bit about 2" (50 mm) in diameter to drill out most of the waste. I find this a lot quicker than

Turn the form to shape and leave two raised rings.

Wrap masking tape around the top ring and mark the circumference. Remove the masking tape and mark the tape so that you have three equal parts. The legs will be attached at those three points.

Untitled, Rose mahogany, silver ash, 9" × 3½" (23 cm × 9 cm)

hollowing out all that wood *(Photo 3)*. At the bottom of the drilled hole, leave enough waste so you can hollow the last part to a suitable rounded shape to match the outside profile. I start with a ½" (13 mm) bowl gouge to remove more of the waste *(Photo 4)*. This gouge has low-angle grind on the front so I can rub the bevel all the way down the inner wall.

If you will be carving the vessel after turning, leave the walls at a thickness to allow for carving whatever shape you have designed.

Closer to the bottom I use a different tool. A round-nose scraper will work fine, but my preference is the Rolly Munro Hollower *(Photo 5)*. With this tool I can change the articulated angles to safely and easily cut at the bottom. Also, by retracting or protruding the shield over the cutting cup, the tool will cut more or less aggressively. There are many tools on the market for doing this type of hollowing. Select the one that suits you, just take care not to tear the fibers of the wood.

Sand the inside

Sanding the inside is easy if you make a cylindrical soft sander *(Photo 6)*. Cut a piece of ¼" (6 mm) steel rod to about 8" (20 cm) long. Next, drill a ¼" (6 mm) hole into one end of a ⅝" × 4" (16 mm × 100 mm) piece of wood. Epoxy the steel rod into the wood. When the glue is cured, insert the rod into a Jacobs chuck mounted in the headstock of the lathe and turn the wood part into a shape that will match the curve of the inside of your vessel.

Using contact cement, glue on a strip of ⅜"- (10 mm-) thick sponge rubber. If need be, the rubber can be trimmed by using an angle grinder with a 36-grit sanding disc on it. The next step is to glue hook-and-loop hooks onto the rubber using contact cement. You have just made a foam-backed sanding cylinder for sanding the inside of a vessel.

I generally start with 120-grit abrasive with the bowl bank rotating and the electric drill rotating at the same time. Progress through the various abrasive grits, and the job will be completed quite quickly. I stop at 600 grit. ▸

Use a saw-tooth drill bit to drill out most of the inside waste.

Use a bowl gouge with a low-angle grind on the bevel to turn out additional waste.

A Rolly Munro hollowing tool works well to trim up the waste at the bottom of the vessel.

A shopmade cylindrical drum sander works well to sand the inside.

Carve the form

I like the idea of the form looking like it was a piece of cardboard overlapping to create a stair-step on the rim. Having drawn on the shape, I start by cutting the step on the rim using a small pull saw *(Photo 7)*.

There are a few ways to remove the waste wood on the rings between the protrusions that will be left for attaching the legs. You could use a die grinder with a spiral burr *(Photo 8)*. This is a reasonably fast way to remove the waste, but if you do not own a spiral burr or a die grinder, then you could use a shallow-fluted carving gouge. I used a small fishtail gouge, which happens to be my favorite gouge *(Photo 9)*. Carving with a carving gouge is a relaxing, peaceful way to get the job done.

To clean up closer to the raised buttons, a Dremel-style rotary tool with a small round-end burr is ideal *(Photo 10)*. To sand the area where you have removed the waste, a small sanding disc in a drill or angle sander in a Dremel works well. I have used a small shopmade hook and loop sander about ¾" (20 mm) in diameter *(Photo 11)*.

Carving the folded area is best done with a V-shaped carving tool *(Photo 12)* and a carving knife. The folded section also needs to be carried through to the inside, so a die grinder can be used in the same fashion as the outside *(Photo 13)*. You will also need to use the V tool in this area.

Finish carving by shaping the inner and outer top edges of the form to look like folded cardboard or whatever form you have designed.

After the carving is finished, sand inside and outside while you still have the chuck spigot to hold the vessel in place. To sand the carved groove, abrasive paper wrapped around a credit card works well to keep the angles of the fold sharp.

Remove the spigot

Make a mandrel using a piece of wood mounted into a four-jaw chuck. Turn the profile to a shape similar to the inside of the vessel, but slightly smaller in diameter. Wrap either foam or leather around the mandrel to protect the sanded surface of the inside of the vessel. Place the turned form over the mandrel and for holding the vessel in place, bring up the tailstock and have the revolving center touching the middle of the spigot *(Photo 14)*.

Turn the spigot down to about ⅜" (10 mm) in diameter and sand the area you have turned *(Photo 15)*. Saw off the waste and hand sand the last part on the end.

To finish the vessel, I carved a small V-groove outlining the rim and the carved groove. I then stippled the area inside the V-groove using a small ball-shaped burr *(Photo 16)*.

Use a pull saw to saw the waste off the top of the form.

A die grinder can quickly remove waste between the points where the legs will be attached.

Using a fishtail gouge to remove waste between the raised sections is a peaceful way to work.

A rotary tool with a small round-end burr is ideal for cleaning up around the raised points.

Make the legs

There are lots of options on how to make the legs. You can cut them out of solid timber, but be aware that this will result in short grain on the curved sections, which will make the legs somewhat fragile. If you can, choose a piece of timber with a grain that runs as close as possible to the curve of your legs *(Photo 17)*. Finding a piece of timber with just the right grain could be a challenge. The legs in *Photo 18* have the grain running across the length from the side view, so these legs will be rather fragile.

A second option is to make legs out of straight-grained timber and then steam bend them to shape. I have done this before but there is a fair amount of messing around and then drying the moisture back out of the timber.

I prefer to laminate the legs so that there is no short grain, which results in the legs being more robust. I realize that


A small shopmade disc sander facilitates sanding next to and in between the raised points.


To cut a groove, use a V-shaped carving tool.


A die grinder can be used to remove wood on the inside of the fold.

there is not a lot of pressure on the legs (the vessel is lightweight) but I want to be sure that when I send a piece to a gallery, the legs will not break.

When laminating timber it is important to match the grain so that the laminates will not be visible. Start with a block of wood, 2½" (64 mm) thick and straight grained. Place a mark across the grain on the side of the wood at the top so that you will know in which order the slices came off the saw. Use a sharp bandsaw to saw the laminates. Cut three laminates to about 3⁄16" (4.5 mm to 5 mm) thick. After sawing, run them through a thickness planer or thickness sander to achieve a thickness of about 3⁄32" (2 mm to 2.5 mm). The length of the laminates should be a bit longer than what you need for the legs so that the length can be trimmed after gluing.

Make the mold

Use a piece of 2½"- (64 mm-) square timber and draw the shape of the legs on it. Using a bandsaw, cut on the line so that you will have two halves of a mold in which to clamp the laminates together. Place a few lines across the mold so that you can line them up when gluing *(Photo 19)*.

Cover the curved section of the mold with clear sticky tape so that the glue will not adhere to the surface. To glue the laminates, use a good-quality clear PVA that will dry clear and cover the surfaces to be bonded. With glue spread on the surfaces of the three pieces of laminate (do not spread glue on the two outside surfaces), clamp the assembly between the two halves of the mold, taking care to line up the lines *(Photo 20)*.

When the glue is dry, divide the laminate into thirds and mark the lengths for each leg. Use the bandsaw to cut along the lines to obtain three legs. Shape them using a disc sander and a sanding drum *(Photo 21)*. There will be a lot of hand sanding to do after the initial shaping.

Attach the legs to the vessel

To attach the legs to the raised sections I have found the best method is to drill ▶


Suspended Erosion, Red cedar, aluminum, 9½" × 4½" (24 cm × 12 cm), turned and carved with small raised sections and shaped aluminum legs


Position the vessel upside down onto the mandrel. Bring up the tailstock for support and turn away most of the spigot.


After the bottom of the vessel is shaped and sanded, saw off the remaining portion of the spigot.


To finish the vessel, I carved V-grooves to create a border and stippled inside the border area.

a 1/16"-(1.5 mm-) diameter hole in the middle of each raised section about ¼" (6 mm) deep. Cut pins from metal rod and sharpen one end to a point. (Brazing or welding rod is ideal.) Place the pins into the holes with the pointed end out and push the legs onto the pins. That will mark the place to drill a hole into the leg.

Drill the holes into the inside of each leg, making sure that you set the depth of the drill so that you do not drill through the leg *(Photo 22)*. Once the legs are fully sanded they can be glued onto the turned form using epoxy resin, leaving the metal pins in place. Take care not to use too much glue—it is a bit hard to clean off.

Options for legs

Instead of having raised sections on the turned form you could add the raised section to the legs themselves *(see red cedar vessel below)*. In this case the metal pin will go into the leg through the raised section and into the laminated part of the legs. This option makes the turning and carving of the form easier, but adds a little more work to making the legs. You will also have to leave the turned form thick enough to drill and glue in the metal pins.

Another option is to make the legs out of aluminum. Use plate aluminum ¼" to 5/16" (6 mm to 8 mm) thick and about 2" (50 mm) wide. Draw on the leg shape using a permanent marker. Sawing is done on the bandsaw by rubbing candle wax onto the blade to stop the aluminum adhering to the blade. Shaping is done with a die grinder burr and sanding is accomplished using the sanding pads that you use for sanding wood. Sanding will need to be carried out up to about 2000 grit, followed by metal polish.

If you shape the metal legs in the same manner as the ones cut out of solid timber, the processes will be the same, but the metal legs take a lot more time to create.

Inspiration

There are many possibilities for creating your own versions of vessels suspended on legs. I have presented the techniques required to create a suspended vessel, so now let yourself be inspired by the forms that appeal to you the most in nature, on buildings, or even in everyday objects. ■

Neil Scobie contributes regularly to American Woodturner. *He lives in Lower Bucca, New South Wales, Australia.*

17

If possible, use timber that has a grain that runs similar to the curve of the legs.

18

In these sawn and shaped solid-timber legs the grain is running across the length at the curved areas, which will result in relatively fragile legs.

19

The mold has lines across it for lining up during the glue-up process. The three strips of sawn timber will laminate into legs that are strong-grained.

20

When clamping the mold together, take care to line up the lines so that the thin strips of laminate will conform properly to the curve.

21

Three band-sawn laminated legs are cut from the glue-up; the front leg has been shaped.

22

The pins are in place in the turned form and holes in the legs are drilled.

Alternate design with laminated legs and raised sections on the legs. Red cedar, ebonized jarrah 10" × 4" (25 cm × 10 cm)

Inspiration for Suspended Forms

Neil Scobie contacted three woodturning friends to ask how they were inspired to create suspended forms.

Michael Hosaluk

My first turnings with legs were a series of tables I made in 1985 from ColorCore, a plastic, painted wood. These tables led to a series of vessels, into which I incorporated furniture concepts of traditional joinery, through tenons and dovetails. These vessels were displayed in 1985 at Arrowmont.

Since then, I have incorporated some form of footed, suspended, or raised form into my vessels. A 1987 series called Ceremony, explored new and natural materials. With another series, I used lamination that included openings in the vessels to accept objects that suspend conical shapes.

When I traveled through Australia, I created my Traveling series, which was a conceptual rendering of my travels. I still explore that series. A common thread that runs through this work is the transforming of material, technique, and ideas related to my personal life and events.

Michael Hosaluk, *Ceremony,* 1990, Ebonized elm, moose antler, porcupine quills, 24kt gold, 12" × 5" (30 cm × 13 cm)

Graeme Priddle

My earliest influences on suspending forms go back to being exposed to South Pacific objects such as kava bowls, Asian ceramics, and suspension of sails with spars. *Outrigger Vessel* is an example.

In my early years of woodturning, the frustration of refinishing the bottoms of bowls and hollow forms that had warped led me to carving three integral feet. I am sure the carved feet were influenced by the work of many artists and craftspeople including Steve Hughes and Michael Hosaluk; however, Alby Hall and Rolly Munro from New Zealand would definitely be my first inspirations toward suspending forms.

When I started turning in 1990, Alby and Rolly were altering and suspending forms in organic ways. One of my favorite pieces is Rolly's *Kina,* which consists of multiple-turned forms cut, altered, rejoined, and suspended on a multitude of spines. This combination of techniques excited me enough to seriously propel me into woodturning.

I remember seeing Steve's and Mike's work, and was amazed by Steve's carved vessels hanging from three supports. Those vessels had a South Pacific feel to them. I took note of Mike's simple ways of altering turned forms and his use of turned rings for attachment of legs, as well as his incredible range of using other media and applying embellishments.

Apart from the techniques and ideas these artists shared, they also inspired me to think outside the round, to look inward for sources of inspiration, to work with passion, and most important, to have fun!

Steve and Mike were not the sole influences in my suspension of forms—the list of those who have influenced me is long—but those two artists are right up there!

Graeme Priddle, *Point Break Matai,* Mulga, acrylic paint, copper, metallic thread, 8½" × 5" (22 cm × 13 cm)

Stephen Hughes

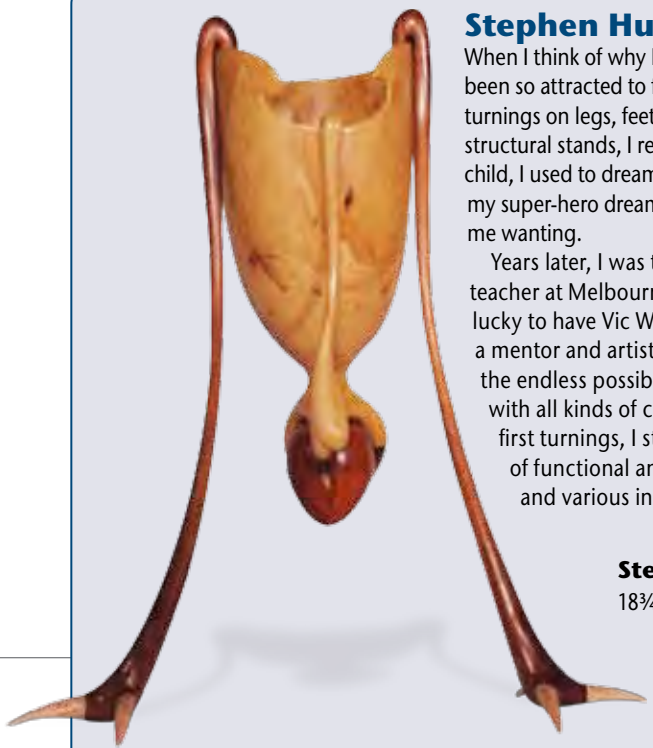
When I think of why I have been so attracted to floating my turnings on legs, feet, and various structural stands, I recall that when I was a young child, I used to dream I could fly. The realization that my super-hero dreams were just illusions always left me wanting.

Years later, I was training as an arts and crafts teacher at Melbourne State College when I was lucky to have Vic Wood as one of my lecturers. As a mentor and artist, Vic inspired me to explore the endless possibilities of combining lathe work with all kinds of creative techniques. From my first turnings, I started enhancing the surfaces of functional and sculptural forms with carving and various inlaid materials.

I was attracted to morphing forms and my Talisman Seed series was one of my first recognizable groups of work as they started to sprout carved corkscrew tails.

In 1988, I met Michael Hosaluk at the Australian Bicentennial: Woodturning Down Under Seminar organized by the Brisbane Woodturners. I was immediately in awe of Michael's creative talent. Seeing Michael's fish and porcupine vessels with legs sent me in a spin and my work immediately grew all manner of leg shapes and suspended stands and has continued to evolve.

Many of my works are now also winged, as I try to make them look like they could defy gravity...and fly.

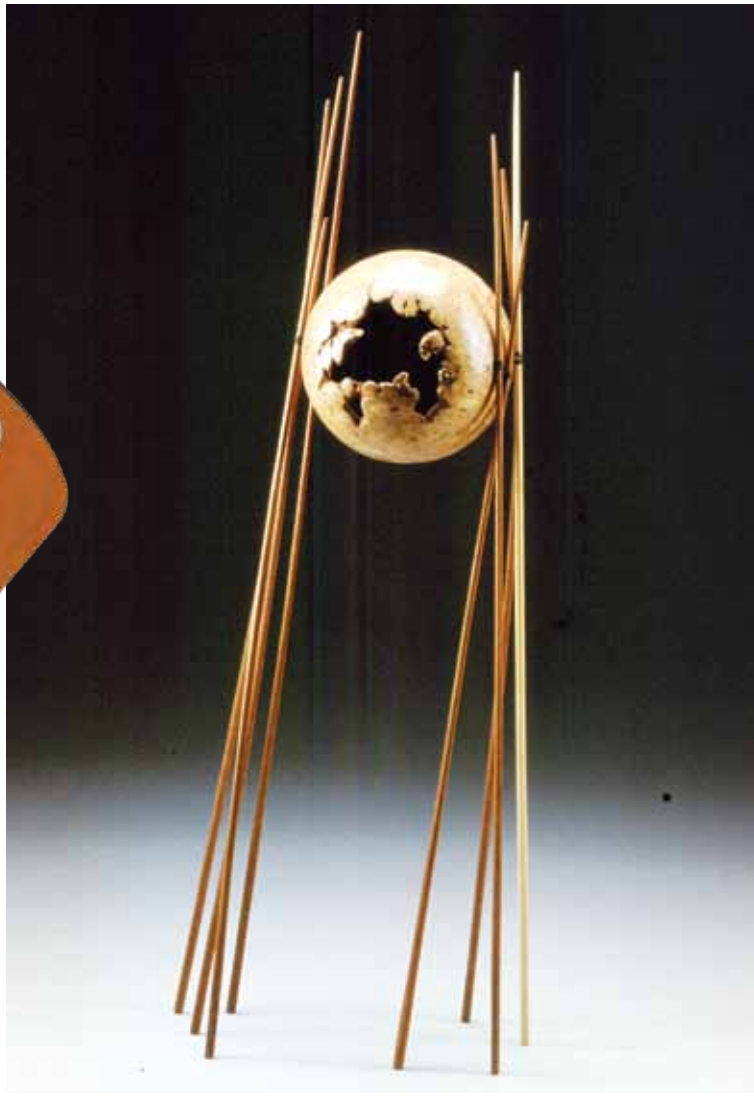


Stephen Hughes, *The Awakening*, 2009, Sandalwood, blackwood, red gum, ash, 18¾" × 16½" × 7½" (45 cm × 42 cm × 19 cm)

Suspended Forms Gallery

Steve Loar, *Bowl for the Coastal Tribes,* 1985, Maple, plywood, dyed veneer, paint, 13"× 16"× 12" (33 cm × 40 cm × 30 cm)

Collection of David Ellsworth



Christian Burchard, *Carry Me Angel,* 1990, Maple burl, ash, walnut, 22" × 6" × 7" (55 cm × 15 cm × 18 cm)

Photo: Rob Jaffe

Gary Sanders, *Marble Falls,* 2009, Rosewood burl, boxelder burl 2⅞" × 6¾" × 4¼" (7 cm × 17 cm × 11 cm)

Collection of Binh Pho

Alan Carter, *Circular Reasoning,* 2010, Jatoba, wenge, maple, sycamore, rosewood, brass pins, 12" × 7" × 4" (30 cm × 18 cm × 10 cm)

Alan Carter, detail

Christian Burchard, *Gift for an Unknown King,* 1989, Maple burl, bay laurel, walnut, 24" × 8" (60 cm × 20 cm)

Photo: Rob Jaffe

Steve Loar, *Take a Bow,* 1987, Spalted beech, sycamore, acrylic, 11" × 13" × 17" (28 cm × 33 cm × 43 cm)

Collection of Ric Stang

Cryptex detail

Suspension detail

Alan Carter, *The Secrets Within,* 2010, Eucalyptus burl, ebony, Indian rosewood, maple, 19" × 10" × 10" (48 cm × 25 cm × 25 cm)

Michael Hosaluk, *Traveling Bowl,* Australia, 1993, Wood found on a walk (vessel), maple, copper, hair, quills, acrylic paint, dye, 16" × 12" × 9" (40 cm × 30 cm × 23 cm)

Collection of the Minneapolis Museum of Art, Gift of Robyn and John Horn

Michael Hosaluk, *Tribute,* 1993,
Elm, willow, linen thread, milk paint,
20" × 14" × 10" (50 cm × 35 cm × 25 cm)

Alan Carter, *Reliquary—But Wait! There's More!,*
2009, Jatoba, cherry, figured maple, African
blackwood, wenge, brass rods,
20" × 7" × 10" (50 cm × 18 cm × 25 cm)

Christian Burchard, *First Steps,* 1989,
Maple burl, walnut, 22" × 7" (56 cm × 18 cm)
Photo: Rob Jaffe
Collection of Marc and Beth Heller

Spalted Wood

Sara Robinson

Anyone with a firewood pile should be familiar with spalted wood; the winding black lines, punky white pockets, and brilliant rainbow colors are hard to miss. Unfortunately, nature's artwork does not come with a manual, and working with spalted wood requires not only different tools but also a different mind-set. As many woodturners already know, spalted wood cannot be mounted on a lathe and expected to behave like sound wood. The physical properties of spalted wood have been drastically altered by decay mechanisms and, as such, special care must be taken when working with this unique material.

Background

Spalting is generally defined as any penetrating color found on wood, and it is caused by fungi—very specific fungi from very specific groups. Wood-decay fungi (*basidiomycetes*) and mold fungi (*ascomycetes*) are primarily responsible for spalting, with several species in each group doing most of the work. Basidiomycetes contain two distinct subgroups, white-rot fungi and brown-rot fungi. It is important to distinguish between these two groups, as brown-rot fungi are very destructive and are generally not used for spalting (pecky cypress excluded). White-rot fungi are responsible for the white, soft areas in spalted wood, and are often responsible for the black lines (zone lines) as well.

Mold fungi primarily cause the colors on spalted wood, although some soft-rot fungi also play a role

(*Xylaria polymorpha*, "Dead Man's Finger," being a prime example). Very few molds are capable of causing a penetrating color, and those that colonize and color only the surface of wood are not utilized for spalting.

Wood-inhabiting fungi rely on wood for their survival—the wood provides for the nutritional needs of the fungus. However, different types of fungi utilize different components of the wood, meaning that different types of spalting result in different surface and structural changes. All wood-inhabiting fungi initially consume the easily available surface sugars in wood. This type of colonization changes the permeability of the wood, but does not alter its strength. Once the easily available sugars have been utilized, only fungi with specific degrading enzymes can continue colonization. Mold fungi do not produce these enzymes, and thus generally cannot penetrate deep into the wood. For this reason, fungal pigment can be difficult to achieve internally. Luckily, there are two types of pigments in fungi: those that bind to the cell wall, and those that are released extracellularly. Pigments that are released (and therefore not bound to anything in particular) can diffuse through the wood independent of the fungus. Hence, a deep, penetrating color can be achieved without extended fungal colonization, assuming you chose the correct fungi!

Basidiomycete fungi can produce enzymes that degrade wood's structural components. The degradation of structure leads to massive changes in strength. In particular, white-rot fungi degrade lignin (a feat brown-rot fungi cannot accomplish), leaving behind soft, spongy areas. This structural change is primarily what makes turning spalted wood such a headache for those unfamiliar with the process.

Basswood, blue stain, water-based finish

Basswood, blue stain, purple stain, water-based finish

Sugar maple, white rot, zone lines, green stain, wax finish

Curly birch, pink stain, white rot, zone lines, wax finish

Curly birch, pink stain, white rot, zone lines, yellow stain, wax finish

Maple burl, white rot, urethane oil finish

Common problems

If you have ever turned birdseye maple, then you have some idea of how changes in wood density can affect turning. To begin with, changes in density create more chatter. This happens because softer areas cut more easily than harder areas, creating dig-ins. With spalted wood, you get the added joy of loose fibers. When the "glue" that holds wood components together is degraded, entire fiber sections can peel off, creating divots in the piece that are too deep to sand out. In addition, soft, punky wood does not hold together well. Too much pressure in a weaker area can lead to a piece blowing up on the lathe.

Sanding spalted wood on the lathe can be especially tricky because of density differences. Even a piece that had no chatter when turned will probably develop chatter after extended sanding. Again, this happens because the softer areas of the wood are cut more quickly than the sound areas. Sanding spalted ▸

Sugar maple, white rot and zone lines, water-based finish

Sugar maple, blue stain, white rot, zone lines, wax finish

Aspen, green zone lines, blue stain, pink stain, black zone lines, white rot, purple stain, water-based finish

Birch, pink stain, wax finish

Curly birch, zone lines, white rot, water-based finish

Birch, zone lines, white rot, blue stain, water-based finish

Basswood, zone lines, white rot, wax finish

Sugar maple, white rot, water-based finish

Beech, zone lines, white rot, lacquer finish

wood on the lathe for even two to three minutes can quickly put surface waves into a formerly round piece.

Even off the lathe, spalted wood can present problems in workability and finishing. The increased permeability of the wood in fungus-colonized areas means that more finish will be absorbed in spalted areas than in sound areas. Continuing to add coats of finish without first directly addressing the spalting leads to pieces with differential luster between sound and spalted areas.

Solutions

When I was learning to turn in high school, I was taught that a properly sharpened and appropriately utilized tool could create a finish smoother than anything I could achieve with sandpaper. I have no doubt that this philosophy holds true for sound wood; however, spalted wood requires some extra maneuvering.

With that said, the greatest gift you can give yourself if you plan on turning spalted wood is to always keep your tools sharp. Do not even mess around with, "it still has a decent edge" or "I can probably get another bowl out of this one." Super-sharp tools are the only things that will save you from hours of tedious sanding to repair divots. However, the tools are not going to do all of the work. Spalted wood that is only pigmented will turn well, and depending on the fungus involved, may turn almost identically to sound wood. The big difference is found in the white-rotted wood (soft and spongy), especially when it is surrounded by zone lines (hard clumps of melanin over undecayed wood). Throw a little sound wood into the mix and you have a recipe for frustration and disaster.

There are a number of options available for changing the density of wood. Solutions of methyl methacrylate, for


Beech, pink stain, unfinished


Beech, lacquer finish


Beech, oil finish


Beech, oil finish


Beech, water-based finish

instance, can be pressure-treated into the wood to give it a more uniform density and harden the punky areas. Various types of cyanoacrylate (CA) glue can be directly applied to punky areas for an instant hardening. Epoxy can be used to fill already-made divots and keep the area from becoming worse.

Although all of these hardeners work well, their major side effect, for me, is unacceptable: They cause an ambering or at least a darkening of the applied areas. One of the biggest joys of spalted wood is the color contrast—the blacks against the pure whites, the pinks on a pale wood. Adding yellow to the mix can ruin the contrast and, if you spalted the wood yourself, ruin months of work.

Of course, you do not have to stabilize the wood. Leaving the divots and cracks creates a textured surface—a look that some people appreciate. You can also repair torn grain and divots by sanding, although sanding on the lathe will get you nowhere fast. Your best bet for repair without chemicals is to remove the piece from the lathe and sand by hand with the aid of a drill press. Sanding discs for drill presses that work with hook-and-loop-backed abrasives are easily available. The piece can be ▸


Boxelder, pink and blue stain, unfinished


Boxelder, pink and blue stain, unfinished


Boxelder, pink and blue stain, lacquer finish


Boxelder, pink and blue stain, oil finish


Boxelder, pink and blue stain, water-based finish

Sugar maple, pink stain, unfinished

Sugar maple, pink stain, lacquer finish

Sugar maple, pink stain, oil finish

Sugar maple, pink stain, water-based finish

Controlled Spalting

Because there is a higher market value for spalted wood, woodworkers and turners routinely search for ways to induce spalting into their clear lumber. Actual scientific research into spalting did not begin until very recently—2007 in fact—which means that conjecture and home recipes for spalting have had around thirty years to develop and grow (that would be thirty years since the Lindquists brought spalted wood to the forefront of our collective consciousness).

The advent of the Internet greatly expedited the transferal of spalting myths, with the current result being that most everyone knows someone who knows someone who has spalted wood with fertilizer, beer, negligence, and so on. The primary problems with such techniques are twofold. First, wood is meant to decay, and spalting is simply a part of the decay process. Any wood will spalt, given conditions within the tolerance range of fungi. Whether you leave your wood in the forest covered with leaves or pour beer on it in your shed makes no difference. Second, there are millions if not billions of fungi in the world. Replication of colors (even reliability of colors) is what differentiates controlled spalting from "found" spalting. Hence, just leaving your wood lying around isn't inducing anything—it's just moving nature's recycling operation from one location to another.

With that said, controlled spalting is quite possible and relatively easy if you have the right tools. The next time you head to your favorite box chain store, consider picking up the following:

- heavy-duty plastic storage tubs with snap-on lids (any color EXCEPT clear)
- two cheap spray bottles
- bleach
- rubbing alcohol (at least 91%)
- vermiculite

The trick to controlled spalting is getting the wood inside, away from the airborne fungi that could potentially land on your wood and colonize. Plastic storage tubs come in a large variety of sizes, so it should be no trouble to find one that fits your size requirements. For the spray bottles, you'll want one filled with the rubbing alcohol, and one filled with a 10 percent bleach solution. Spraying down the inside of the tub with bleach and alcohol helps to kill the mold fungi on the surface. Any mold fungi residing on the plastic are *not* the kind you want on your wood; not only do their pigments not diffuse, but the pigments often contain antifungal properties, which will either stunt or completely hinder the growth of your fungi.

The vermiculite is optional. When wetted and used to surround your wood, it helps maintain appropriate moisture content to encourage fungal growth. If you don't use vermiculite you will need to douse your wood with water every so often to keep its moisture content around 30 percent. Do not use soil for moisture control—the humus can leach out and cause discoloration of your wood.

Wood prep

Once your bin is sterile and filled with wet vermiculite, you need to prep your wood. For turning, I suggest cutting the blank into the shape you plan on mounting onto the lathe, or even just rough turning the bowl. Rough-turned bowls will spalt more quickly than bowl blanks; however, bowl blanks have a lower rate of spalting failure due to their larger mass and ability to better hold moisture.

Spray all the surfaces of your bowl/blank with the alcohol, and wait for evaporation. Repeat the process again. Once the alcohol has completely evaporated (I should probably point out here that any sort of alcohol one might drink is not appropriate for this exercise), the fungus can be added to the wood and the wood can be buried in the vermiculite. Multiple pieces of wood can spalt in the same tub, and the closer you place them together, the better; it helps keep moisture inside.

Fungi

You have two options here: the cheap option with a moderate success rate, and the expensive option with an almost guaranteed success rate. The cheap option entails going outside, picking whatever mushrooms you find growing on deciduous logs, rubbing a broken-off section on your wood, and hoping for the best. You can hedge your bets by being selective in your gathering and picking only those fungi that are known to spalt well, like *Trametes versicolor* (Turkey Tail) and *Xylaria polymorpha* (Dead Man's Finger). It's also helpful

held against the rotating paper and selectively sanded. This technique is particularly helpful for removing divots, since the problem area can be directly addressed without harming the rest of the piece.

An additional benefit of sanding by hand is that it takes less time than sanding on the lathe. As mentioned before, because the softer areas sand much more quickly than sound areas, a wavy surface on the wood is created when a bowl is sanded on the lathe. Sanding by hand gives you the flexibility to sand out problem areas and simply touch up the rest of the piece, without changing the intended profile of a bowl or vessel.

Finish

Now that the wood is off the lathe and sanded, you might as well finish it by hand. (Remounting could be done, but the piece will no longer be perfectly round.) At this point, all spalting types become equally challenging to finish because of the increase in permeability. Spot treatment of CA glue can take care of the problem, but again, you get color change.

Oil-based finishes can be selectively applied first to spalted areas with a pipette (eye dropper) before finishing the entire piece. It will take more coats to get a heavy luster with spalted wood, so be prepared for repeated applications. I do not, however, recommend oil-based finishes, because an ambering occurs on the wood. If I spend several months spalting a piece of wood, the last thing I want is to change its color with the finish.

All of the problems of punky spots, surface texture, divots, and ripped grain can be dealt with using a thick water-based finish. Water-based finishes, while giving a different textural feel to the wood than oil, sit only on the surface of the wood. This means that the punky areas are not absorbing more finish. In addition, the water-based finishes tend to fill in areas of ripped grain. Also, there is the benefit of not having dangerous noxious fumes to contend with. ▸

if you select the current year's fruiting bodies instead of older, dried specimens.

If you are short on time and patience (or just really, really want spalting to work), you will need to buy an active culture of the fungus you are interested in. These cultures, which are the mycelial part of the fungus (the "root" part, not the mushroom part), will shave at least two weeks off your incubation time, since they are already actively growing. An added bonus is that you can obtain fungi that do not make fruiting bodies, which is common in many of the brightly colored molds. Unfortunately, cultures can easily run $100 or more per plate, and must be purchased from culture collections such as the American Type Culture Collection (ATCC), or directly from universities with mycology labs. The good news is one culture will last you forever if you make copies of it before use. Guides for fungus culturing are available for free download at: web.mac.com/kaysa_gabriel/Northern_Spalting/DIY.html.

External conditions

The best way to accelerate spalting is to keep the fungi hot, moist, and in the dark. Placing the bins in your bathroom is a great way to encourage growth. If possible, you'll want to keep temperatures around 80° F, and the wood's moisture content around 30 to 35 percent. There is no magic potion for spalting—no amount of beer, fertilizer, urine, dirt, or leaves will speed the process. Nitrogen-based additives may have some positive effects, but unfortunately, they are often sold in combination with many other "things," especially in fertilizer. In the end, the best additive for your wood is heat and water.

Timeframe

This is a very sticky topic to discuss. The time it takes for a fungus to completely spalt a piece of wood depends on a menagerie of variables, such as wood species, type of fungus, fungus species, and the size of the wood piece. Expect a minimum of two months of incubation time under ideal conditions. If you are looking to get multiple colors, each must be put on separately, which can extend incubation time into years. Although there is no specific time for complete colonization, I can tell you that, in terms of incubation time (in general, listed from quickest to slowest growth):

- white rots
- soft rots (like *Xylaria polymorpha*)
- pigments

and for pigments:

- blue
- pink
- purple
- yellow
- orange
- green
- blue/green

for size:

- rough-turned bowls
- circular bowl blanks
- logs

Knowing when it is time to turn

If this is your first time with controlled spalting, I recommend placing many pieces of similar size and of the same species in your tub, with only one fungus. After about two months, pull a piece and turn it. If the spalting is not sufficient, wait another two weeks, then pull another. Once you have an idea for how long your chosen fungus takes to colonize your wood species at a particular size, you will no longer have to work with replicates.

Do not rely on visual external appearance to judge internal spalting. If you are doing things right, the surface of your wood will probably turn black and slightly sludgy with time, making any sort of visual assessment impossible. Also, just because a piece of wood is green on the outside does not mean that it is green on the inside. Fungi are tricky like that.

A number of resources exist to help you both find appropriate spalting fungi and to assess the necessary length of incubation. Fine Woodworking Online runs a blog dedicated to controlled spalting (finewoodworking.com//blog/woodworking-life/tag/spalting). This blog covers myths, procedure, and every summer highlights different spalting fungi. Northern Spalting (northernspalting.com) contains another spalting blog, DIY guides, fungus culture information, links to scholarly work on spalting, and so on. Be warned: The Internet is rife with incorrect information about spalted wood, so be sure to check out information about the article author before taking any information you read as fact.

Good luck!

A final word

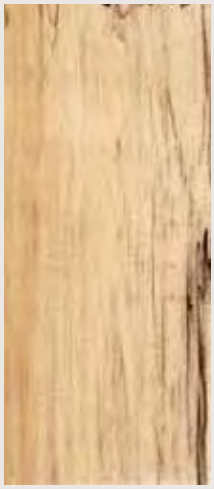
Spalted wood is more difficult to turn than sound wood. Understanding the basic principles behind the decay and its effects on wood can facilitate an easier turning session, with more satisfactory results.

Although spalted wood is frequently used for vessels and other decorative works, I have seen it used for spindle turning as well. A note of caution: Wood spalted with pigment fungi is generally strong; however, wood with white rot and zone lines has lost a great deal of its strength. Spalted spindle turnings, no matter how well stabilized, shellacked, or reinforced, should never be used for load-bearing applications (table or chair legs, for instance).

It is advisable not to turn pieces that are spongy to the touch when wet. This type of spalted wood is unstable and has been decayed beyond the point of potential usability. These are the pieces that are very likely to blow up when turning. At the very least, wear a faceshield.

Working with spalted wood requires time, patience, seriously sharp tools, and a positive attitude. I wish you the best of luck with your next prize piece of spalted wood and hope that the science behind the craft aids in the adventure! ■

Sara Robinson has a PhD in forestry (within the field of wood science) from Michigan Technological University and currently works as a postdoctoral research fellow at the University of Toronto. She runs her own Applied Mycology Lab, where graduate students and undergraduates from all backgrounds and disciplines can explore the interactions of fungus on wood. You can visit her website (northernspalting.com) to learn more about spalting, and stay up-to-date with the latest developments in spalting research.



Sugar maple, zone lines, bleaching

Sugar maple, white rot, zone lines, lacquer finish

Sugar maple, zone lines, white rot, oil finish

Sugar maple, white rot, zone lines, water-based finish

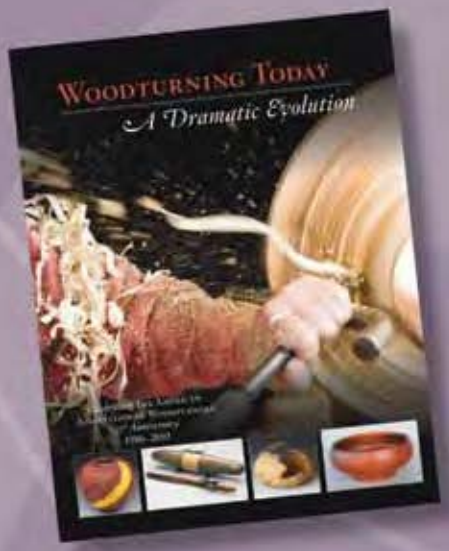
Sugar maple, pink and blue stains, unfinished

Sugar maple, pink and blue stains, oil finish

Sanding pin cherry with blue stain, zone lines, bleaching. The glue line on left-hand side of the bowl is cyanoacrylate.

Sanding epoxy on sugar maple with pocket white rot and zone lines

Sanding pocket white rot and zone lines on sugar maple



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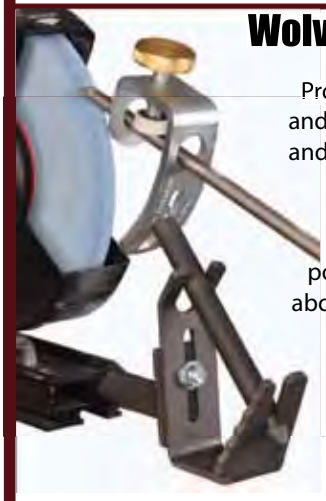

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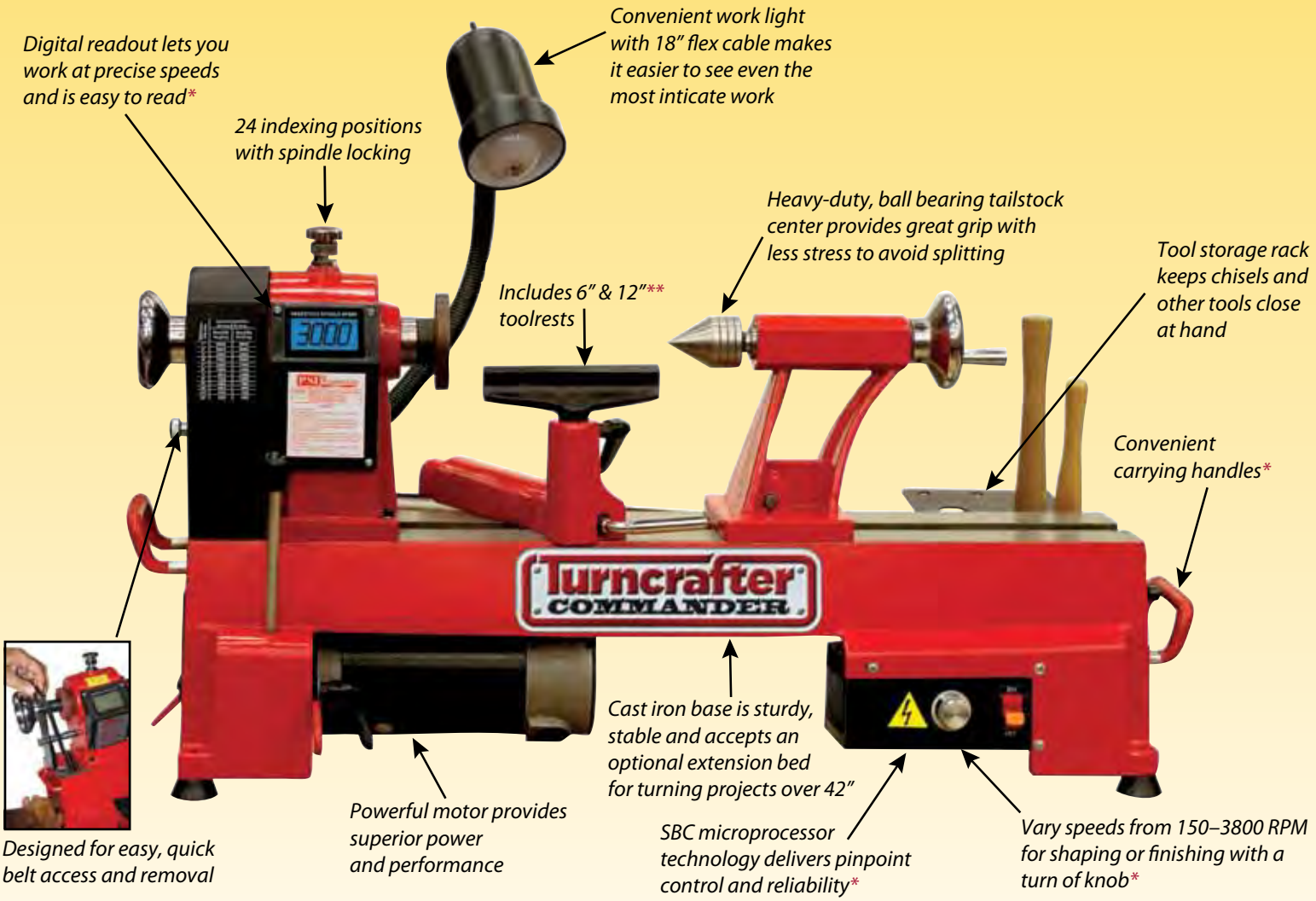

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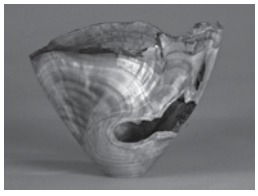

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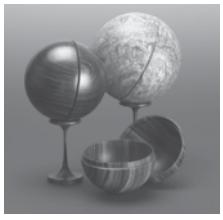

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Members' Gallery

On the Cliffs, 2010, Cherry, 12¾" × 2¾" (23 cm × 7 cm)

Tony Marsh, Florida

My Sea Urchins series came about one sunny day when I was walking along the beach and came upon thousands of sea urchins, washed onto the sand. I gathered as many as I could carry, took them home, soaked them in bleach and then cleaned them out.

After filling the insides with expandable foam to make them stronger, I drilled a center hole and inserted a plastic tube. The wood sections of the candleholders are attached with a male/female stud so that no pressure is put on the shell of the urchin.

Photos: Dr. Devin Marsh

Smelling the Surf, 2010, Black and white ebony, 3½" × 2¾" (9 cm × 7 cm)

Allen Jensen, Colorado

Untitled, 2009, Boxelder burl, 6" × 8" (15 cm × 20 cm)

Allen was one of the presenters at the Rocky Mountain Woodturning Symposium in Colorado last September.

Michael Gibson

This piece of buckeye burl was beautiful even before it was turned. It is one of my favorite pieces.
—Michael Gibson

More of Michael's work can be seen on his website, michaelgibsonwoodturner.com

Michael Gibson, untitled, 2010, Buckeye burl, African blackwood, 7" × 9" (18 cm × 23 cm)

AMERICAN WOODTURNER

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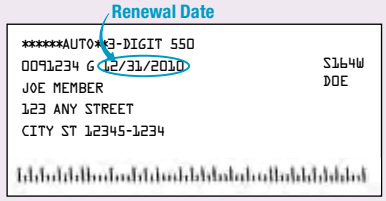

2. Log on to the members area at **woodturner.org** to renew.

3. If you have questions, email inquiries@woodturner.org or call 651-484-9094 or 877-595-9094 (toll free).

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Non-U.S. Members: Please pay by credit card, check in U.S. dollars drawn on a U.S. bank or Postal Money Order.

☐ Please send me a print copy of the 2011 AAW Resource Directory.
☐ I will help organize a local chapter.
☐ List me as a host for traveling woodturners.

Membership Types & Annual Fees

Individual		Business/Professional		International	
☐ Online	$38	☐ General	$74	☐ Online	$38
☐ General	$48	☐ Supporting	$250	☐ General *(Canada/Mexico)*	$53
☐ Family	$53	☐ Benefactor	$650	☐ Family *(Canada/Mexico)*	$58
☐ Youth *(under 25)*	$19	☐ Patron	$1,500	☐ General *(Overseas)*	$63
☐ Supporting	$125			☐ Family *(Overseas)*	$68
☐ Benefactor	$500			☐ Business/Professional	$79
☐ Patron	$1,000				

☐ Please renew my AAW membership as checked above.

☐ **Sign me up for 2 years!** I will pay twice the annual rate.

Please provide information ***only*** if there are changes.

Member Name _____

Business Name _____

Address _____

City _____ State _____ Zip _____

Country _____

Home Phone # _____

Work Phone # _____

Cell Phone # _____

Email Address _____

Website _____

Renew online at woodturner.org or return renewal form and payment to AAW, 75 5th St W, St. Paul, MN 55102-1724

If your email address has changed, send your updated information to inquiries@woodturner.org.

REGISTRATION FORM • PAGE 1

☐ **Yes,** I am traveling to Saint Paul for the 2011 AAW Annual Symposium June 24–26 at the Saint Paul RiverCentre
Demonstrations end at 3:15 p.m. on Sunday, June 26

The symposium is open to anyone with an interest in woodturning. The full registration fee includes demonstrations, instant gallery, and trade show. Purchase banquet/auction tickets separately. Please register at the earliest possible date to assist us in planning the banquet and demonstrations.

Register online by June 13 at woodturner.org

Or mail by June 6 to:

AAW Annual Symposium
222 Landmark Center, 75 5th St W
St. Paul, MN 55102-7704
Phone: 651-484-9094 Toll free: 877-595-9094
Fax: 651-484-1724
Email: inquiries@woodturner.org

Name: _____

Spouse/Domestic Partner: _____

Address: _____

City: _____ State: _____ Zip: _____

Home phone #: _____

Email address: _____

Enclosed is: ☐ Check ☐ Cash ☐ Money Order

In the amount of: $ _____

Please make checks payable to:
American Association of Woodturners

☐ Visa ☐ MasterCard

_____/_____/_____/_____

Exp. date: __ __ - __ __ CVV: __ __ __

Signature: _____

see you in **Saint Paul**

Get out of your shop and be part of the fun and excitement of the world's largest woodturning event at the AAW 25th Annual Symposium!

See you June 24-26 in Saint Paul!

Register Early and Save!

	Member	Nonmember*
Through May 15, 2011 —	☐ $250	☐ $310
After May 15, 2011 —	☐ $300	☐ $360
After June 13, on-site registration only —	☐ $350	☐ $410

Includes demonstrations, instant gallery and trade show. Banquet/auction ticket must be purchased separately.

	Member	Nonmember*
Spouse/Domestic Partner —	☐ $150	☐ $150

Registration includes admission to all turning events. It does not include banquet/auction ticket, which must be purchased separately.

	Member	Nonmember*
SINGLE-DAY REGISTRATION —	☐ $175	☐ $200

Per day attended. Does not include banquet/auction ticket, which must be purchased separately.

☐ Friday ☐ Saturday ☐ Sunday

☐ **YOUTH REGISTRATION** (10 through 17)
I plan to bring one youth for free, full registration. See the AAW website (woodturner.org) for special youth registration and parental consent forms.

	Member	Nonmember*
STUDENT REGISTRATION —	☐ $100	☐ $150

Student ID required (25 and under). Does not include banquet/auction ticket (separate purchase).

BANQUET/AUCTION/COMMEMORATIVE GIFT

Fee:
Through May 15, 2011 — ☐ $55
After May 15, 2011 — ☐ $65
After June 13, on-site — ☐ $75
Check the AAW website (woodturner.org) for updates.

☐ I would like to volunteer to help at the symposium.

*Nonmember fees include a one-year AAW membership. Rates are higher for those living outside the United States.

For cancellation through May 15, 2011, a $50 processing fee will be deducted. After that date the registration fee is non-refundable.

The American Association of Woodturners is an international non-profit organization dedicated to the advancement of woodturning. Our purpose is to promote education, information, and organization to those interested in turning wood. Membership is $48 in the USA, $53 in Canada, and $63 overseas. This includes a subscription to our journal, *American Woodturner*. If you have questions or need more information, please contact:

American Association of Woodturners
222 Landmark Center
75 5th St W
St. Paul, MN 55102-7704
Tel: 651-484-9094
Toll free: 877-595-9094
Fax: 651-484-1724
Email: inquiries@woodturner.org

Need some inspiration? You'll find it at the AAW Annual Symposium instant gallery.

See you June 24–26 in Saint Paul!