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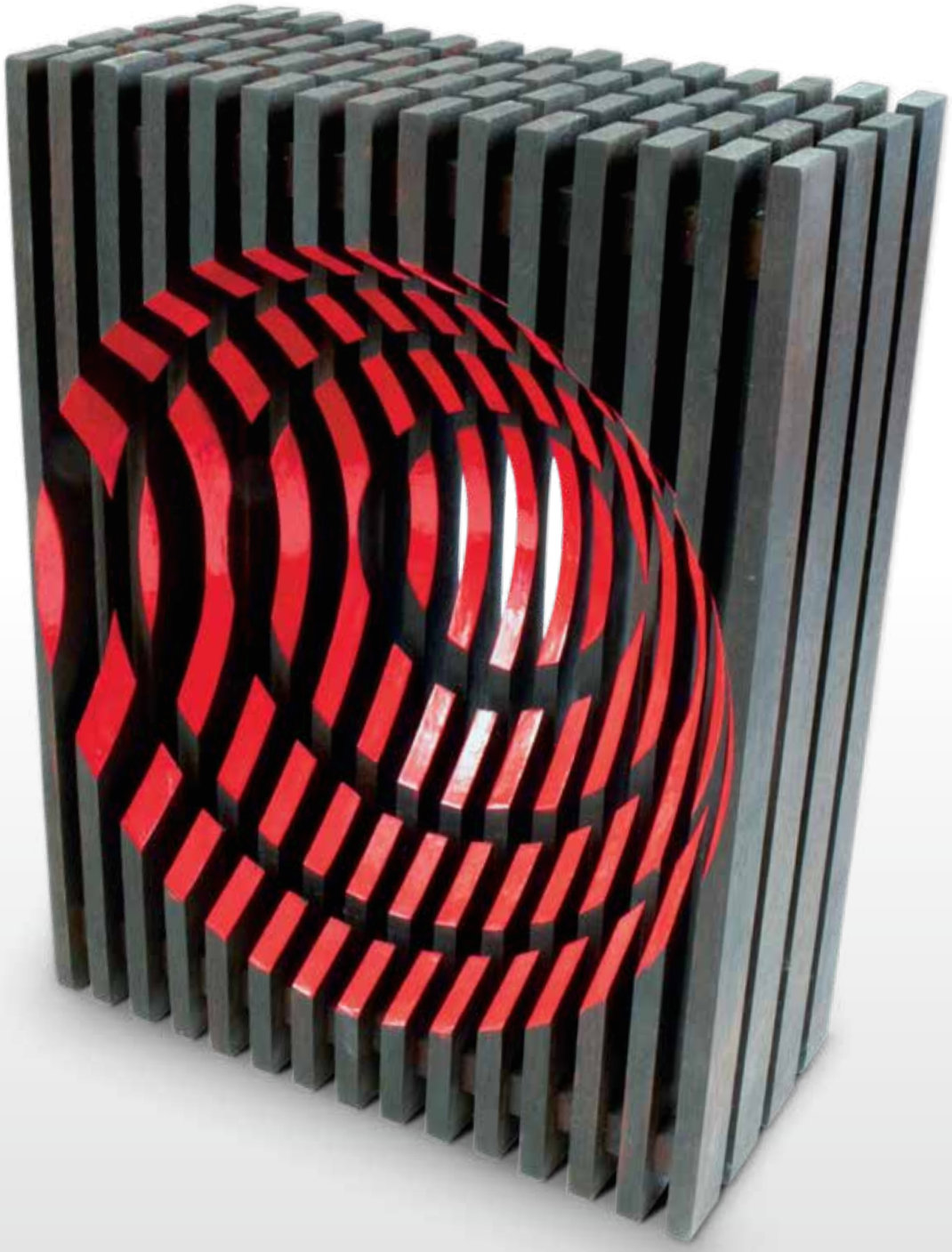
AMERICAN WOODTURNER

Journal of the American Association of Woodturners

August 2014 vol 29, no 4 • woodturner.org



WOODTURNING AT THE BARNES

WEDGE ASSEMBLIES OFFER A TANGENTIAL TWIST

DEWEY GARRETT

LEFT BRAIN + RIGHT BRAIN = CREATIVE GENIUS

Betty Scarpino

Indiana

There is much to discover beneath the surface of turned objects. As I cut and carve, irresistible relationships reveal themselves, as forms flow and blend together. In some ways, this process is similar to circumstances and events in my life as events weave together, drift apart, and eventually merge again to achieve glorious resolution.

At River's Edge, 2008, Hackberry, 15" × 13" × 11" (38cm × 33cm × 28cm)

Photo: Shawn Spence

Sister Bridge, 2005, Ash, dye, liming wax, 10" × 6" × 9" (25cm × 15cm × 23cm)

Indiana State Museum Permanent Collection

She Moves On, 1996, Maple, 2" × 10" (5cm × 25cm)

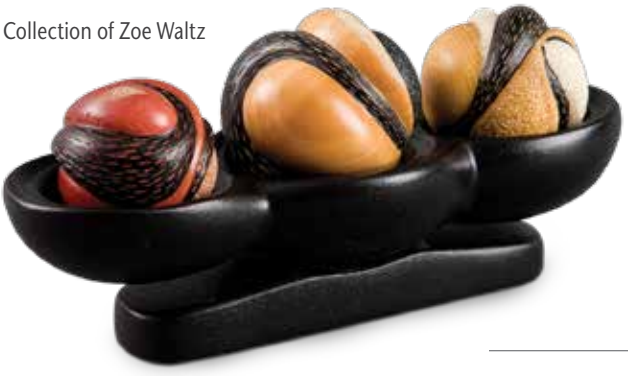
Photo: Judy Ditmer

Collection of Fleur Bresler

Three P's in a Pod, 2008, Pear, persimmon, pink ivory, maple, paint, bleach, 3½" × 6" × 3" (9cm × 15cm × 8cm)

Photo: Shawn Spence

Collection of Zoe Waltz



Undercurrents II, 2013, Maple, bleach, walnut, 11" × 12" × 5" (28cm × 30cm × 13cm)
Photo: Wilbur Montgomery

Untitled, 2008, Cherry, paint, 5½" × 13" (14cm × 33cm)
Photo: Shawn Spence

Collection of Gene Colley, Canyon Studios

Untitled, 2006, Cherry, bleach, 3" × 3½" (8cm × 9cm)
Photo: Shawn Spence

Inviolate Portal, 2007, Ash, dye, liming wax, oak, bleach, 13" × 12" × 5" (33cm × 30cm × 13cm)
Photo: Shawn Spence

Collection of Jeffrey Bernstein and Judy Chernoff

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

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GALLERY

COVER

Cover – Dewey Garrett, *Parallax in Red and Black,* 1999, Walnut (ebonized and red epoxy paint), 11" × 8" × 4" (28cm × 20cm × 10cm)

Back Cover – Arizona Woodturners Association, *Pueblo Dreams*, 2014, Various materials, 3' × 4' × 3' (1m × 1.2m × 1m) Photo: Andi Wolfe

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For tips on article submission and photography requirements, visit tiny.cc/AWsubmissions*.

MEMBER SERVICES

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Index to previous articles:
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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 online at tiny.cc/turnsafe*. Following them will help you continue to enjoy woodturning.

*Web address is case sensitive.

From the Editor

It is with a sense of gratitude and privilege that I begin serving the AAW as editor of this fine journal. I began transitioning into this role in mid-April and quickly confirmed what I had suspected—that this job will help me grow professionally and personally. Along the way, there will be difficult decisions, but one of the first I made was easy: to treat you to the distinctive work of an established wood artist you may have heard of: Betty Scarpino (*inside front cover/page 1*). Please join me in wishing Betty every success in her next endeavors.

As your new editor, I am keenly aware of the need to balance articles in the journal. The AAW comprises a broad audience with various expectations, and it is difficult to please everyone within each journal issue. But the good news is there is room enough for us all under the AAW umbrella. Beginners seeking guidance to artists seeking inspiration, we are a diverse group at various stages of development. To the best of my ability, I intend to continue offering something for everyone in the journal.

I believe *American Woodturner* is the best publication on its subject in the world. This is largely due to the wisdom and hard work of Betty Scarpino, my predecessor. It is also due to the fact that this publication is a journal, not a magazine. And there is an important difference: *AW* exists to serve the mission of the AAW, a nonprofit organization dedicated to education. The journal is ultimately defined by its role in the AAW, not by the commercial marketplace. I point this out simply to say I am here to serve you, the AAW members, through the content of the journal. So please let me hear from you with your ideas, suggestions, and feedback.

—Joshua Friend

From the President

Safety

There has been vigorous debate for the past couple of years within the woodturning community regarding safety. One side argues we should have hard and fast rules, such as a requirement that everyone wear a faceshield when turning. Faceshields reduce injuries. The other side argues that rules like this are not practical because there are always exceptions. Some feel the AAW should set safety rule standards. The AAW can formulate procedures and recommend equipment for the safety and protection of people while woodturning and can enforce these guidelines at AAW events. But no one, including the AAW, can make woodturners follow safety recommendations in their own shops, despite the fact that following those suggestions at home would decrease the likelihood of personal injury. The AAW can set the tone. At the end of the day the most important safety rule comes from the gray matter between your ears. Listen to it.

I do believe that all woodturners have a responsibility to instill a culture and practice of safety when teaching new woodturners. Each chapter can promote the culture of safety during monthly demonstrations.

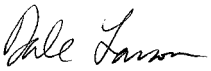
Lathe speed is one important factor in woodturning safety. Many relatively inexperienced turners have powerful, heavy machines that can spin a large block too fast for their own good. Dale Nish developed a simple formula for determining safe turning speeds. My friend John Jordan has a simpler rule: If you turn the lathe on and say, "Damn, that's fast," you are probably turning too fast. John also says speed and unsound wood are responsible for the majority of the serious accidents we know about. It's that simple.

I do think some rules can be absolute. For example, never use a spindle roughing gouge on a bowl. And I have some general rules, such as turn good wood and burn the stuff with cracks and stand out of the line of fire when possible.

The Occupational Safety and Health Administration (OSHA) is not in your shop. You have to be the safety inspector. You are responsible. You will pay the price. Wear the proper safety equipment for the function you are doing. Most of us turn wood because we love to turn and not to feed our families. Turning a project in the shortest time possible is not the goal. Safety and an enjoyable experience are the main goals in turning a nice project, not the time it takes to make it. In general, professional turners who make a living at woodturning have a good understanding of their processes and know the price for violating a safety rule. If you start to do something that rings a little safety bell in the back of your head, pause and think it through. And when in doubt, do as my friend Nick Cook says: "Don't do that."

In this letter, I have addressed some short-term, immediate hazards in a shop that can cause injury. Be aware there are also long-term, cumulative risks that can sneak up on you over time, like dust inhalation, prolonged exposure to tool noise, and carpel tunnel syndrome. Safety is a big topic; do your research and use common sense.

I want to close by thanking Betty Scarpino for all the time and work she has given to the AAW. I know Betty was paid to be editor of the journal but she went way beyond that. She was generous with her time, her business advice, her art, and at times her money. Thank you, Betty. And a big welcome to Josh in his new role as editor of *American Woodturner.*



Dale Larson
AAW Board President

Please Vote! AAW Board Election

Photos and statements of the six nominees running for election to the AAW Board of Directors appear on pages 6-7. Please read the statements and then vote for up to three candidates.

There are two options for voting: 1) by electronic ballot, available on the AAW website at tiny.cc/BoardVote (case sensitive) or 2) by paper ballot, included with this journal. The ballot contains your name and membership number. Tear off the ballot where instructed, put it in the enclosed envelope, affix a stamp, and mail it. Ballots must be cast electronically or received in Saint Paul no later than midnight CST, October 17, 2014.

We encourage you to participate in the voting process and hope you take the time to help make this election turnout significant.

AAW Annual Financial Statement for 2013

Dear AAW Member,

The auditors have completed their review of the AAW's 2013 finances, and we are pleased to report that 2013 was an excellent year for the organization. After a string of years with net losses, the finances were turned around and the unrestricted net income reached $172,194.00—a welcome and necessary contribution to the AAW's future well-being. Numerous measures have been put into place in the last 18 months designed to enhance the likelihood of rebuilding reserves. We are confident these measures will ensure the long-term financial health of the AAW.

—Philip Hauser, AAW Treasurer

Revenues and Expenses

Income

Annual Dues	$763,731
Symposium	403,805
Publications & Products	322,531
Contributions	89,969
Government Grants	6,216
Other Income	19,187
Investment	18,297
Total Income	**$1,623,736**

Expenses

Symposium	$448,417
Publications & Products	457,669
Gallery & Exhibitions	123,579
Scholarships	60,583
Professional Outreach	17,721
Other Programs	19,562
Administrative	217,844
Fundraising	15,830
Member Development	155,672
Total Expenses	**$1,516,877**
Net Income	**$106,859**
Restricted Portion	**(65,335)**
Unrestricted Net Income	**$172,194**

Balance Sheet (as of 12/31/13)

Assets

Checking & Savings	$496,706
Accounts Receivable	15,309
Grants Receivable	4,752
Inventory	36,861
Prepaid Expenses	109,780
Investment Securities	205,828
Permanent Collection	207,115
Property & Equipment	45,681
Total Assets	**$1,122,032**

Liabilities

Accounts Payable	$24,034
Accrued Expenses	29,232
Deferred Revenue	666,645
Total Liabilities	**$719,911**

Net Assets

Unrestricted	$(73,777)
Temporarily Restricted	227,012
Permanently Restricted	248,886
Total Net Assets	**$402,121**
Total Liabilities & Net Assets	**$1,122,032**

IWCS Video *We Turn as Family*

The International Wood Culture Society (IWCS) is a nonprofit, non-governmental international network of wood enthusiasts, dedicated to the research, education, and promotion of wood culture. The Society has supported the worldwide expansion of woodturning over the past two years by sponsoring AAW members' explorations abroad, including trips to China and Tanzania.

Members of the IWCS, along with a film crew, attended the AAW's 2013 International Symposium in Tampa and created an inspiring video called *We Turn as Family*. The video can be viewed here, tiny.cc/iwcsvideo (case sensitive), or by scanning to the right with a mobile device:

Prize Drawing for AAW Members

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

When you patronize our vendors, please thank them for their support of the AAW. To see a listing of each month's prizes and winners, visit tiny.cc/AAWDrawings (case sensitive).

At the end of 2014, we will draw another name from our membership roster to give away a Powermatic 3520B lathe. That winner will name a local chapter to win either a JET 1642 or five JET mini lathes. The Powermatic and JET lathes are donated by Powermatic/JET. Included is free shipping in the continental USA, or up to a $500 allowance for international winners.

2014 Donors

(Others may be added during the year.)

Anderson Ranch Arts Center, andersonranch.org

David Ellsworth, ellsworthstudios.com

Easy Wood Tools, easywoodtools.com

Hunter Tool Systems, hunterwoodturningtool.com

Mike Mahoney, bowlmakerinc.com

North Woods, LLC, nwfiguredwoods.com

Tennessee Association of Woodturners, tnwoodturners.org

Thompson Lathe Tools, thompsonlathetools.com

Totally Turning/Showcase Symposium, totallyturning.com

Trent Bosch, trentbosch.com

Powermatic/JET, powermatic.com and jettools.com

Woodturning Design magazine, woodturningdesign.com

2015 Board Candidates

The Nominating Committee is pleased to present the following six candidates who are running for the AAW Board of Directors. AAW members elect a nine-member Board to volunteer their time and energy to represent the membership in moving the AAW forward. Board members may serve two consecutive three-year terms. You can vote for up to three candidates. There are two ways to vote: 1) by electronic ballot, available on the AAW website at tiny.cc/BoardVote (case sensitive) or 2) by paper ballot, included with this issue of the journal. We encourage you to participate in the voting process and hope you will help make this election turnout significant.

Your vote must be cast electronically or received in Saint Paul no later than midnight, Central Standard Time on October 17, 2014.

—Binh Pho, Chair, Nominating Committee

Jeff Brockett, Tennessee

As a longstanding member of the AAW and as an active leader in the Tennessee Association of Woodturners (TAW), it would be an honor to serve as a member of the AAW Board of Directors. I am currently retired with a 37-year career in retail management and would bring a wide range of experience to the Board.

I have served as TAW president, secretary, newsletter editor, and have been on the TAW symposium committee for the past six years. I have helped to implement strategies and processes to grow the symposium attendance from 100 to 397 attendees. I have drawn on my vast retail management experience in strategic planning, interpersonal skills, and change management to help grow both the TAW membership and symposium.

The current AAW officers and Board members have overseen many difficult changes over the past several years. The AAW faces a significant challenge to be relevant to current and potential members with a wide range of interests and skill levels. There is a need to attract a wider demographic and diverse membership base. The emphasis should be to build a culture where AAW members and potential members see the value and return on their investment of being an AAW member. We should make every effort to exceed the expectations of our members.

As a Board member I would like to become a member of the symposium committee. We need to look at what is working well, what should be continued, and what could be done away with. I would encourage seeking the input of chapters and AAW members to determine what the symposium attendees expect and want at the national symposium.

If I am elected to an AAW Board position, I will commit the time, energy, and effort to be an integral member of the organization. I would draw on my extensive experience to further the goals of the AAW. I ask for your support and vote so that I may contribute to the AAW leadership team.

Ron Browning, Florida

I have been turning wood since I was just a boy. I did it wrong for the first 35 years, and then I found a local chapter of the AAW. At the first meeting I attended I learned the ABCs of turning (anchor, bevel, cut).

I received my education in the U.S. Navy and served on the USS Trepang, SSN 674, as a machinist's mate and engineering lab technician. After the Navy I made my living at the nuclear power plant in Crystal River, Florida, coming up through the ranks to retire as a radiation protection specialist after 31 years.

After retiring I went into business with my son and along with our wives we run a large daycare facility and private school, employing over 50 teachers.

While making a living I didn't have as much time to devote to woodturning as I would have liked. During those years I cherished the time I spent in my dad's shop with him, watching him turning various projects while helping him with various aspects of his projects.

After finding a local chapter, I became vice president and then president of that chapter, then helped organize another chapter and progressed to president of that chapter. I helped start the Florida Woodturning Symposium, served as registrar, and am currently serving as chairman.

Recently I served with Rudolph Lopez as volunteer coordinator for the Tampa Symposium. Once again, I would like to thank all of the volunteers who made the Tampa Symposium a great success.

I would like to serve on the AAW Board to help with the current effort to make the AAW more responsive to its members. I would suggest that the best way to do that is to keep it simple.

Kathleen Duncan, Washington

When I moved to southwest Washington 10 years ago, I was an aspiring woodturner. Walking into my first AAW chapter meeting, I had no idea I was taking a step that would impact my life so profoundly. The wealth of expertise and knowledge that AAW members so willingly share has made me a better woodturner and a willing ambassador. It is this willingness to share and teach one another that I value most in the AAW, whether in club meetings, open shop, symposium, the journal, or community outreach.

Experience gained from my 32-year career as a university computer scientist helped me develop skills required to listen and to work effectively with people, manage projects, and solve problems. My job entailed meeting with faculty, discerning their specific programming needs, designing, coding, and supporting web-database software for their use. I worked with staff at five other universities who purchased our software.

I have been an active member of the AAW since 2005. I am a member of three local chapters in the Portland/southwest Washington area. I have served as secretary, vice president, and president at various times. I headed two local committees at our 2007 Portland symposium. I recently began teaching woodturning as a volunteer at a middle school, which gives me the opportunity to introduce woodturning to the next generation of woodturners. It is my belief that the AAW's continued vibrancy and growth will be brought about by making woodturning more accessible to youth.

That first chapter meeting set me on a path that allowed me to fulfill my passion and love of woodturning. As your Board member, I will take my commitment seriously and work diligently with the Board to further the goals of the AAW. I would consider it a privilege to serve so that I can return some of what I have received from this community. Thank you.

Kenneth H. Evans, New York

My exposure to woodturning began in childhood as my father was a professional architectural woodturner. In my adult life woodturning became my preferred and experienced area of woodworking.

My professional career involved teaching chemistry at the high school level for 34 years. During this time I was a science department chairman and teachers union president for many years.

The Adirondack Woodturners Association (AWA), a special interest group of the 900-member Northeastern Woodworkers Association (NWA) and a chapter of the American Association of Woodturners, started in my woodturning shop in 1995. I have been president of the AWA and chairman of its symposium, Totally Turning. I have been president of the NWA and I am currently general chairman of its woodworking show, Woodworkers Showcase, in Saratoga Springs, New York. I have held this position for about five years. I have been an NWA Board member and an AWA Board member for many years.

My membership in the American Association of Woodturners goes back many years. I have served on an AAW nominating committee, an AAW symposium demonstrator selection committee, and am currently a member of the AAW ethics committee. My woodturning experiences have benefited greatly from the American Association of Woodturners, and it is time to give something back!

The AAW represents organized woodturning to a very large and diverse base of hobbyists and professionals in a manner that needs the continuous support of competent, caring, and nurturing people looking to lead AAW into a secure and effective future. My desire is to simply use the leadership skills I might have to be a constructive part of this future.

Greg Schramek, North Carolina

I am running for the AAW Board because woodturning has given so much to me, I believe I should do what I can to give back. I am a woodturner, instructor, and demonstrator and, while that may be important, a Board position requires leadership, business analysis, planning, and decision-making. I will bring those skills to the Board.

My career before retirement was in the communications industry. I have held executive positions with large companies in North America and Europe. In addition to leadership, these positions required knowledge in accounting, legal, labor relations, planning, and public relations.

Over the years I have volunteered and provided leadership as president of local United Ways, chambers of commerce, the Gaston County Council on Aging, and advisory boards of a private North Carolina college. These activities showed me that managing volunteers can be much more demanding than managing paid employees. Team efforts, desire to serve, and love of activity, not a salary, are the motivators.

I am currently serving my third term as president of Carolina Mountain Woodturners. Our club has more than 400 members and enjoys monthly demonstrations by the best turners in the world. We use high quality video and audio equipment, lathes, and turning tools for club activities. Our focus is also on educating our members and the public. Demonstrators and club members provide outstanding training classes to members and potential turners.

The AAW is a blend of artists, professionals, suppliers, and hobbyists. It is young people and not so young. It is those with exceptional skills and those striving to improve their skills. Mostly it is a vehicle that satisfies the needs of all its members by encouraging beneficial interaction among all individuals.

If elected, I will support all members by ensuring the AAW continues to be a well-run organization.

Louis Vadeboncoeur, Ontario, Canada

I have long been inspired by the AAW, what it stands for and for the contribution it has made to woodturning over the years. It is fair to say that by encouraging the unrestricted sharing of knowledge, the AAW has made better turners of us all; it certainly has made a better turner of me.

Having received so much from the AAW and many of its members, now that I am retired and turning on a full-time basis, I felt the moral obligation to give something back to our organization through committee work. Playing an active role in the committee work of Turners Without Borders made me realize the incredible potential the AAW has to influence the course of turning and wood art in many parts of the world, and the key role our organization can play in fostering international collaborative approaches. I have also been significantly involved with the Chapters Committee, working on the Chapters Relations Initiative to build a stronger and more responsive association. I had the honor of presenting the results of the chapters working group at the Phoenix symposium. This experience has made me even more keenly aware of the importance of building a closer relationship between the association and its chapters to better serve the needs of all members.

As a senior executive of the Canadian federal government, where I served in many capacities, including executive director of Canada's Intellectual Property Office and CEO of Canada's Consulting and Audit organization, I learned first hand the importance of teamwork to get the job done and to plan for the future in a thoughtful and structured manner. I have also been involved on a volunteer basis in a number of nonprofit organizations, including as president for eight years of a significant land conservation trust, so I understand how important and challenging it is to motivate members and work with volunteers to create a better organization to serve its members.

I would greatly appreciate the opportunity to bring to the AAW Board my passion for woodturning, my experience as a senior executive, and the analytical rigor I developed early on in my career as a consulting engineer and management consultant to the betterment of the AAW.

Call for Entries
2015 Juried Member Exhibit

The theme for the AAW's 2015 juried and invitational exhibition is "Merging," chosen to reflect the location of our symposium host city, Pittsburgh, which lies adjacent to where the Monongahela and Allegheny Rivers merge to form the Ohio River. The word "merging" describes a situation where two or more objects combine to form a new, greater whole. You may consider merging multiple items into one, merging materials, merging designs, or merging techniques; artists are free to interpret the theme for themselves. Two awards will be given during the 2015 AAW International Symposium: a Masters' Choice Award of $300 and a People's Choice Award of $200.

Details

- All AAW members are eligible to enter this juried exhibit.
- "Merging" will premiere in June at the AAW International Symposium before traveling to the AAW Gallery of Wood Art in Saint Paul and other possible venues.
- This is a touring exhibition; work must stay with the show until its conclusion.
- Sales: A 45% commission will be charged on sales made during the exhibition.
- Entry Dates: Entries will be accepted on the AAW website, woodturner.org from November 1, 2014, through February 3, 2015. All applicants will receive email notification by March 31, 2015.
- Entry Fee: $30 for up to three submissions.
- You may submit up to three pieces, but no more than one piece per artist will be accepted for the exhibition.
- Work will be evaluated in the following areas: overall appeal, technical quality, originality, and relationship to theme. Each piece will be considered individually, and also by how well it fits with the overall composition of the exhibition.

Guidelines

- Work must be created at least in part on the lathe.
- Work must have been created in the past 24 months.
- There is no size limit, but only a few oversized pieces will be accepted due to space and shipping requirements. *Oversized* is defined as shipping in a box that exceeds 108" (207cm) in overall dimension (2 × width + 2 × depth + length).
- The symposium venue does not accommodate wall-hung pieces. Artists must provide a simple means to display any wall-hung pieces.
- An artist statement (up to 100 words) describing how the piece fits the theme is required. Entries may be edited for length and clarity.
- You may upload up to three images per piece. Include one view of the overall piece. Additional detail images or alternate views are optional.
- Uploaded images must be in JPG format and 2100 pixels on the longest side. (There are free image-resizing sites on the Internet. Step-by-step instructions for resizing your images using free online sites will be available on the entry webpage.)
- A full-color exhibition catalog will be produced. Artists whose entries are selected will receive a complimentary catalog.
- Shipping or delivery to the Pittsburgh venue is the responsibility of the artist. The AAW will pay return shipping fees. Work will be insured while in the exhibition and during return shipping.

Questions? Contact Tib Shaw at tib@woodturner.org.

2015 Demonstrator Opportunity
POP Artist Showcase

Each year the Professional Outreach Program (POP) of the AAW showcases two wood artists. They are either experienced artists who have made significant contributions to the woodturning field but have not received appropriate recognition or emerging artists who have the potential for making significant contributions to the field. The two selected artists each give two demonstrations and receive free symposium registration plus a small honorarium. Their work is displayed prominently in the Instant Gallery. The 2013 showcased artists were John Mascoll and Beth Ireland; the 2014 artists were Jason Schneider and Steven Kennard.

Artist applications are invited for the June 2015 AAW symposium in Pittsburgh, Pennsylvania. Applications will be juried by the POP committee. The deadline is December 1, 2014, and the application can be found at tiny.cc/CallForEntry (case sensitive).

2015 POP Exhibition Call for Entries

In an exciting change for its 2015 exhibition at the Pittsburgh international symposium, the Professional Outreach Program (POP) committee is opening its traditionally invitation-only exhibition to a limited number of juried pieces.

A highlight of the AAW international symposium since 2007, the exhibition has always featured excellent work by an invited roster of both established and emerging artists. POP is confident that this move will bring even more new faces and talents to light.

The theme for the 2015 exhibition is ***Creative Construction: a Collaboration of Materials.***

All pieces will be auctioned live at the Pittsburgh symposium with simultaneous online participation, as held very successfully at the June 2014 Phoenix symposium. Funds raised support POP initiatives, including merit and excellence awards, fellowships, panel discussions, an e-newsletter, and an online resource database.

We ask all submitting artists to document their creative process in detail.

Applications will be accepted online October 1, 2014, through January 12, 2015. Work must be new, must relate to the theme, and be small in scale (maximum size 8" × 8" × 8"). Exhibiting artists may opt to keep up to 50% of the auction price, and may place a reserve price if they wish. The $35 entry fee covers jurying of up to three pieces, but only one may be accepted into the exhibition.

Applicants must be POP members; membership is free to all AAW members in good standing and open to turners at all levels. For additional information and the online application form, visit tiny.cc/CallForEntry (case sensitive).

Winners of the 2014 Best Chapter Newsletter/Best Chapter Website Contests

Congratulations to the following AAW local chapters for winning the newsletter contest.

- **First Place:** Mid-South Woodturners, midsouthwoodturners.com, Mike Maffitt, editor.
- **Second Place:** Central New York Woodturners, cnywoodturners.org, Barbara Raymond-LaPrease, editor.
- **Third Place:** Woodturners of St. Louis, stlturners.org, Charles W. Sapp, editor.

Congratulations to the following AAW local chapters for winning the website contest.

- **First Place:** Mid-South Woodturners, midsouthwoodturners.com, Mike Maffitt, webmaster.
- **Second Place:** Massachusetts South Shore Woodturners, msswt.org, Eileen Walker, webmaster.
- **Third Place:** Alaska Woodturners Association, akwoodturners.org, Kristine Chase, webmaster.

Links to the websites of past and present winners are posted at tiny.cc/chapterwinners.

Call for Demonstrators
AAW Symposium 2015

The AAW's 29th international symposium will be held in Pittsburgh, Pennsylvania, June 25–28. To apply to be a demonstrator, visit tiny.cc/CallForEntry (case sensitive) between July 1 and October 15. For more information, call the AAW office in Saint Paul, 877-595-9094 or 651-484-9094, or email inquiries@woodturner.org.

Book Review: *Bartram's Boxes Remix*,
Center for Art in Wood, 2014, 176 pages

In 2011, Bartram's Garden and the Center for Art in Wood in Philadelphia invited artists to submit plans for works made from or inspired by storm-felled trees at the historic Garden. The challenge was to tangibly visualize the rich legacy and personal significance of John Bartram (1699-1777), eminent botanist and mineralogist, farmer, intrepid explorer, abolitionist, and advisor to the founding fathers. But it was the construction of wood shipping boxes that served as the new venture's touchstone, not so much for their artistry as for their contents: a cornucopia of New World seedlings destined for the collections of Europe's scientific and political elite. More than any of their contemporaries, Bartram and his sons were responsible for introducing or supplying scores of East Coast species, including magnolia, walnut, pine, tulip poplar, and rhododendron, to England and beyond.

Mixing it up

From the beginning, this tribute to Bartram embraced complexity and participant immersion. Selection of proposals required successive screenings among individuals and groups of artists, with the field eventually narrowed to 32 projects and 44 makers. As works went forward, wood served as the dominant material, but metal, ceramics, plastics, paint, and paper also appeared in assemblages. Even electronics and motorized parts found their way into several pieces. Process morphed into product as collaborating artists exchanged ideas and documentation preserved for publication. Blogs, storytelling, digital manipulation, and poetry added yet another dimension. Activities culminated in a two-year traveling exhibition launched at the Center this past spring. The official record of this symphonic production is the sumptuous oversized art book, *Bartram's Boxes Remix*.

Woodturners in the spotlight

In many respects, *Bartram's* reflects the Center's evolving vision beyond simple lathe-focused works. Even so, about half the displayed projects appear to feature some form of turning, including offerings from veterans Ron Fleming and Steve Loar (in concert with Christina Cassone). Except for Ron's *Franklin Tree* vessel, the exhibited projects incorporate multiple elements.

Several of these remixes play directly off Bartram's sectioned boxes. For example, Satoshi Fujinuma's *New Japanese Species for Bartram* replaces the nailed, 18th-century container with a sleek, understated set of stacked compartments with interior partitions. Each bedded cell holds a fantasy seed, pod, or botanical curiosity methodically turned, carved, and cataloged according to the maker's imagination. Like a beribboned box of confections, it aims to surprise and delight on every level.

Dixie Biggs and Ray Jones also present a sampler of lifelike seeds and fruit, but in the round. With its imposing title, winged doors, and scroll-like hinges, *Arca Botanicum* manifests a transcendent purpose. As the show curators note, "Arca, usually translated from the Latin as 'ark,' means chest or box. It's come to suggest a vessel for preserving something of profound importance... The shape is curious... It fancifully resembles a seed casing, protecting the seeds inside and carrying them to distant shores."

Satoshi Fujinuma, *New Japanese Species for Bartram*, 2012-13, Various materials, 8¼" × 6¼" × 6¼" (21cm × 16cm × 16cm)

Dixie Biggs and Ray Jones, *Arca Botanicum*, closed, 2013, Box: Walnut, cherry, boxwood; Seed/Pods: Boxwood from Bartram's Garden, 15" × 14" × 7¼" (38cm × 36cm × 18cm)

Arca Botanicum, open

(Left) **Jack Larimore,** *Enrooted Loop*, 2013, Saplings from Bartram's Garden, paulownia, shovel heads, 15" × 23" × 27" (38cm × 58cm × 69cm)

(Right) **Dewey Garrett,** *OT Box Samples*, 2012, Boxwood from Bartram's Garden, 11/16" – 4 5/16" × 1/2" – 2 1/8" (2cm – 10cm × 1cm – 5cm)

Dewey Garrett dispenses with plant specimens and relies entirely on surface decoration and occasional architectural forms to arouse interest in his boxes—some 50 of them from Bartram's boxwoods. The geometric complexities recall the scientific and political ferment, as well as the growing popularity of ornamental turning, in the late 18th century. But the deeply rooted pleasures of gardening remain uppermost for Dewey, who notes, "In my imagination, such boxes would be reserved for precious or curious seeds from a botanical collection."

Transcendence and intricacy give way to explication and utility in Fred Rose's *Sassafras*. An upright log supports a framed poster, extract containers, and turned spindles representing the various uses of the species. Drop finials display the dark fruit. The containers may allude to delicious moments during the early stages of project woodworking: "The smell of root beer filled the shop."

Several artists, including Jack Larimore, explore the extended cross-Atlantic exchange between Bartram and London botanist and merchant Peter Collinson—friend, scientific colleague, and business conduit to other collectors. Jack's *Enrooted Loop* suggests a finned boat, calendar, and global hemisphere of solid paulownia rolled into one. Coiled twigs link well-used shovel heads spanning the annual rings. Points of the compass dot the perimeter, with a penciled rhumb connecting the positions of Philadelphia and London on the end-grain. Notations on working drawings link the boat form to community and the shovels to discovery. Although Jack refers to the overlap of shovel blades as a handshake, the curators liken it more to an embrace. The twigs, meanwhile, "trace the cyclic growth of a plant and its ultimate return to the earth."

Bypassing the ordinary

Those accustomed to the standard catalog format—introductory essays followed by color plates of finished work—may need to adjust to the rapid-fire juxtapositions of *Bartram's Boxes Remix*. Interspersed among the usual photos, artist statements, and curator commentary is an assortment of notes, sketches, progress and process shots, scrapbook pictures, views of raw materials, correspondence, and poetry. The eclectic look of the publication mirrors the composite works themselves and the exhibition title. With few exceptions, the photography sparkles and layout enlivens the spacious pages, bound by stunning end papers. The pull quotes enhance the format but occasionally miss opportunities to convey memorable observations. The historical overviews by Center Director Albert LeCoff and Garden Curator Joel T. Fry, however, deftly gather the book's botanical and human-interest threads and reveal why John Bartram and his Garden still matter.

Beyond its potential appeal to mixed-media enthusiasts, history buffs, and gardeners, *Bartram's* may well serve as a model for local turning clubs eager to develop collaborative projects, especially those recycling landmark trees. Many AAW chapters have long documented their activities with sophisticated photography, videotaping, and blogging for the benefit of members. Opportunities still abound for them to incorporate these techniques more substantively into community exhibitions that skillfully showcase not only the end results, but also the planning, execution, and cooperation that made it all possible. ■

—David M. Fry

Fred Rose, *Sassafras*, 2013, Sassafras wood and log from Bartram's Garden, avocado wood from Los Angeles, Hire's Root Beer improved extract bottle, iron, glass, illustration by Mary Jo Rado, 40" × 14" × 8" (102cm × 36cm × 20cm)

Maintain Your Morse Tapers

Leon Olson

I read with interest a sidebar in the April 2014 issue of *AW* (vol 29, no 2) regarding a tip for drilling on the lathe using the tailstock. The tip offered a solution to the Jacobs chuck coming loose in the tailstock when retracting the drill bit, something that seems to happen all too often. As I read, I asked myself, "Why would a Morse taper work loose on a lathe? Is a Morse taper designed to hold only while pushing?" If you have used a drill press to drill a hole you have probably used a Morse taper to push a drill into material and then pull it out. As with lathes, most drill presses use a Morse taper arbor (male part) to attach a chuck to the spindle, or quill (female part). If a Morse taper works so well on a drill press, why would it fail to hold on a lathe so frequently? The short answer: lack of maintenance.

Potential problems

Woodturners create a lot of dust, which floats around pervasively and settles on everything, including the inside of the Morse taper in the quill of a tailstock. On a drill press, the Morse taper rarely fails because the chuck's arbor is almost never removed from the quill, so it is not exposed to shop dust. Lathe accessories with a Morse taper, on the other hand, such as live centers and Jacobs chucks, are used and removed from the lathe often and possibly kept in the open where dust and debris can readily accumulate. If you use a Jacobs chuck without cleaning both mating surfaces of the Morse taper, the chuck will not be held at maximum strength. How often should you clean a Morse taper? I clean mine every time I put a drive center, live center, Jacobs chuck, or any other accessory that uses a Morse taper for attachment in either the headstock or tailstock.

There are other reasons Morse tapers do not hold, but they are not as common. Some wood lathes have a short tailstock quill, and some Morse taper arbors are made to full length. If you try to use a full-length arbor in a midi lathe with a short quill, the quill has to be almost fully extended for the Morse taper parts to mate properly. In this scenario, there is little more than 1" (25mm) of quill travel remaining. If you were to drill a hole quickly, cranking the drill in and out with the tailstock handwheel to clear the chips, it is possible you could crank too far back and unknowingly disengage the Jacobs chuck from the quill. When you drill forward again with a loose chuck, you could damage both mating surfaces of the Morse taper.

Another problem that could occur when drilling with the tailstock is misalignment of the headstock spindle center with the tailstock center. If these two points are not concentric, you will be drilling an off-center hole into a spinning object. Worse, if the centers are more than a few thousandths of an inch off and you attempt to drill with a large diameter bit, the Morse taper of your drill chuck could work loose and cause damage. Do a quick visual check by putting pointed centers in both the headstock and tailstock and bringing them together so they almost touch. The tailstock and quill need to be locked in place when checking concentricity. If the lathe is not concentric, consult the manual for your lathe or check with the manufacturer. Most lathes can be adjusted to achieve alignment.

You should also verify that the arbor of your Jacobs chuck is not bent. Put the Jacobs chuck in the headstock with a known straight shaft such as a drill bit chucked in it and run the lathe at low rpm. If the shaft runs true, the Morse taper arbor is straight. If not, it might be time to purchase a new Jacobs chuck.

Solutions

If your Jacobs chuck is pulling loose from your tailstock quill while drilling, you can improve performance by cleaning and, in some cases, repairing the Morse taper surfaces. Clean and refine the surface of the arbor using a small, hard sharpening stone or extra fine, clean file. Gently run the stone or file across the arbor to remove any raised material (*Photo 1*). Do not clean the arbor with sandpaper or a soft stone, as the abrasive grit will remain on the surface and damage its mating surface when you reassemble the Morse taper.

To repair the female taper inside the quill, begin by cleaning the surface with a cotton cleaning swab. I use a swab whose intended purpose is cleaning the barrel of a shotgun (*Photo 2*). As you would imagine, a swab will only accomplish a light cleaning. An appropriate size Morse taper ream,

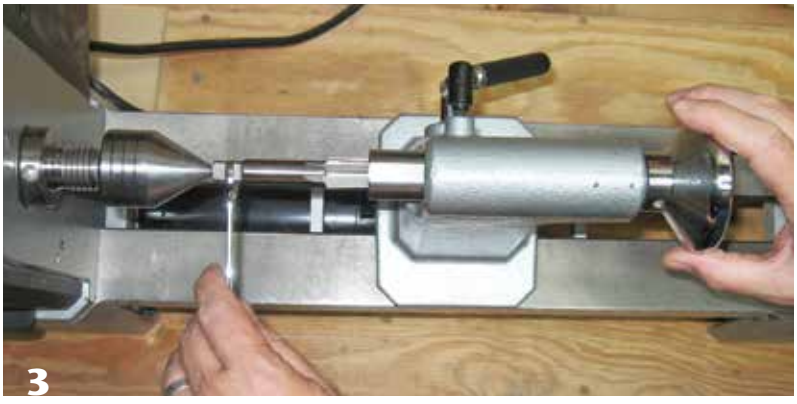
commonly available at industrial supply outlets, will do a more thorough cleaning and restoration of a damaged taper. Note that a ream is not the same as the plastic Morse taper cleaners available at woodturning supply stores, which do little more than the cotton swab.

To use the ream, extend the quill so its interior surface is fully available and insert the ream as far as possible. Use a live center in the headstock to keep the ream aligned with the quill. The ream should have a center hole in both ends for alignment. Apply light pressure by turning the tailstock handwheel. If you are only trying to clean the surface, you do not need a lot of pressure or more than a few revolutions of the ream, which is turned with a wrench (*Photo 3*). If your quill cannot be restored using these methods, send the damaged quill to a manufacturer-approved repair shop or buy a new quill.

Even when you have both the male and female surfaces clean and in good condition, a little effort is required when inserting the arbor into the quill. If you simply place it in the quill, the Morse taper will not hold well. However, never strike the chuck to drive it into the quill or press the chuck against the headstock, as that level of force should not be necessary. You can check the holding strength by noting the effort required to remove the Jacobs chuck from the quill. On many lathes, this is accomplished by backing off the tailstock handwheel; others may require a knockout bar.

Gently clean the arbor of your Jacobs chuck (or other Morse taper accessory) with a No. 4 cut pillar file. The No. 4 cut is fine, with 117 teeth per inch. To avoid galling the surface of the arbor, ensure the file is clean with no filings stuck in its teeth. Do not use sandpaper for cleaning the arbor.

An appropriate-size cotton swab, intended for cleaning a shotgun barrel, will remove surface-level dust from the inside of the quill.



A Morse taper ream is used to restore the inside surface of the tailstock quill. The author applies light pressure with the tailstock handwheel and turns the ream with a wrench.

If you want to use a setscrew to hold the Morse taper together, as was suggested in the *AW* sidebar I read, use an arbor with a shallow ring ground all the way around it. You can grind such a ring into your Jacobs chuck arbor using a small grinding wheel held in a rotary tool. If you only grind a small flat in one area on the arbor, you will have to assemble the arbor into the quill precisely every time or the setscrew will cause damage that will keep the Morse taper from mating correctly.

Awareness and a little maintenance go a long way toward keeping your Morse taper lathe accessories performing at optimal levels. ■

Leon Olson worked as a prototype machinist for more than 30 years, after having taught high school woodshop in Lompoc, California. He recently retired from Medtronic, Inc., where he made prototypes of medical devices. Leon is a member of the Minnesota Woodturners and the AAW. He can be reached at leonolson@aol.com.

Calendar of Events

October issue deadline: August 15

Send information to editor@woodturner.org

New Zealand

October 2–5, Woodturning New Zealand International Symposium, Wesley College, Paerata (just south of Auckland). Demonstrators include Cindy Drozda, David Nittmann, Cynthia Gibson, Michael Gibson, Ken Wraight, Robbie Graham, Theo Haralampou, Shane Hewitt, Phil Irons, Richard Raffan, Joey Richardson, Vaughn Richmond, Neville and Emma Walker, and Bruce Wood. For more information, visit sawg.org.nz.

California

September 12–October 19, 26th Annual "Artistry in Wood," juried exhibit, open to woodworkers and woodturners. For details, visit sonomawoodworkers.com.

September 14 through March 15, 2015, "In the Realm of Nature: Bob Stocksdale & Kay Sekimachi," exhibit at Mingei International Museum, San Diego.

Colorado

September 12–14, Rocky Mountain Woodturning Symposium, held at The Ranch, Larimer County Fairgrounds. For the latest information, visit rmwoodturningsymposium.com.

Georgia

September 19–21, Turning Southern Style XX, Georgia Association of Woodturners, Northwest Georgia Trade and Convention Center, Dalton. Demonstrators include Ray Key, Michael Hosaluk, Todd Hoyer, Nick Cook, James McClure, Frank Bowers, Vince Welch, John Jordan, Lyle Jamieson, Doug Thompson, and Tom Steyer. Vendors, instant gallery, banquet, auction, and spouse lounge. Information and registration at gawoodturner.org.

Illinois

August 15–17, Turn-On! Chicago 2014 symposium held at The Conference Center at the University of Saint Mary of the Lake in Mundelein. This event includes featured demonstrators Trent Bosch, Binh Pho, Nick Cook, Andi Wolfe, Dick Sing, Alan Carter, Lyle Jamieson, Barry Gross, Steve Sinner, and Jason Swanson. Also included are hands-on events, tradeshow, onsite meals, banquet, and auction. For full event information, visit turnonchicago.com.

Minnesota

Ongoing exhibit: "Touch This!" featuring fascinating facts about wood and woodturning, as well as pieces you can touch. For more information, visit galleryofwoodart.org.

Montana

August 23, 24, Yellowstone Woodturners Symposium, Billings. Featured demonstrator is Kip Christensen. For more information, visit yellowstoneturners.org.

New Mexico

August 29–October 1, 2014, "The Spirit of New Mexico: Turned Wood Vessels," featuring the work of Jim McLain, Marigold Arts, 424 Canyon Rd., Santa Fe. An exhibition of turned wood vessels and sculpture by Jim McLain. Opening reception with the artist: Friday, Sept. 5, 5:00–7:00 p.m. Full information at marigoldarts.com.

Ohio

October 3, 4, Ornamental Turners International biennial symposium, Hyatt Hotel in Columbus. There will be practical, theoretical, and historical lectures as well as live demonstrations on ornamental turning. For more information, visit ornamentalturners.org.

Oregon

March 6–8, 2015, Oregon Woodturning Symposium, Linn County Expo Center, Albany. Demonstrators include Mike Mahoney, Trent Bosch, Jimmy Clewes, Kirk DeHeer, David Schweitzer, Dale Larson, David Nittmann, Molly Winton, Eric Lofstrom, Nick Stagg, and Sara Robinson. For more information, email gerrost@yahoo.com or visit oregonwoodturningsymposium.com.

Tennessee

January 30, 31, 2015, Tennessee Association of Woodturners 27th Annual Woodturning Symposium, Marriott Hotel and Convention Center, Franklin. Demonstrators include Nick Cook, J. Paul Fennell, Ashley Harwood, Todd Hoyer, and Dennis Paullus. There will be an instant gallery, banquet, auction, and opportunity for attendees to have their pieces critiqued. For more information visit tnwoodturners.org/symposium, email tawsymposium@aol.com, or call 615-973-3336. For vendor space contact mine@tds.net.

Texas

July 11–September 7, "Conversations With Wood: Selections From the Collection of David and Ruth Waterbury," Art Museum of South Texas, Corpus Christi. For more information, visit artmuseumofsouthtexas.org.

August 22–24, SouthWest Association of Turners (SWAT) Woodturning Symposium, Waco Convention Center. Featured demonstrators are Alan Carter, Avelino Samuel, Allen Hockenbery, Keith Gotschall, Mark Gardner, and Rudolph Lopez, along with 14 regional turners from the 28 chapters comprising SWAT. There will be an instant gallery, banquet, raffle, vendors, special interest groups, hands-on turning, tools-sharpening area, and activities for partners. SWAT supports Beads of Courage program and encourages attendees to donate boxes. For more information, visit swaturners.org.

October 16–19, Fourth Biennial Segmented Woodturning Symposium, Drury Hotel, San Antonio. For more information and registration, visit segmentedwoodturners.org.

Virginia

September 13, 14, Virginia Woodturners Symposium, Augusta Exposition and Entertainment Center (Expoland), Fishersville. Keynote demonstrations by Stuart Batty and Molly Winton, plus more than two dozen breakout sessions with demos and opportunities to try woodturning with the guidance of the presenter. For full details and registration, visit virginiawoodturners.com.

Wisconsin

October 25, 26, 6th Annual Expressions in Wood Expo, the Plaza Hotel and Suites, Eau Claire. Presented jointly by Chippewa Valley Woodturners Guild and West Wisconsin Woodcarvers Guild. Demonstrators include Allen Jensen, Tim Heil, Bob Boettcher, Barry Grill, Mark Palma, and Wayne Dubberke. For more information, visit expressionsinwood.net or contact Rich Thelen, rlthelen@charter.net. ■

Bayou Woodturners Teach Art Students to Make the Perfect Gift

St. Mary's Dominican High School of New Orleans, Louisiana, is steeped in tradition. When Celeste Anding, Alumnae Director at the 154-year-old school, began researching commemorative gifts for the class of 1964, she discovered the perfect solution: woodturning, a craft that spans centuries.

Intent on finding a gift crafted by local artisans, Anding attended a Saturday craft show at Destrehan Plantation, where she met Larry Pickering of the Bayou Woodturners, an AAW chapter. The two decided to collaborate; Larry's club members would instruct St. Mary's art students in the tradition of woodturning so they could make the special gifts themselves.

"Our primary mission is sharing woodturning knowledge and experience with not only our members, but also with interested visitors," explained Pickering. "Our community outreach includes demonstrations with a guest turner and workshops. We are constantly learning new techniques and ideas from each other." He continued, "Sharing our knowledge and teaching hands-on classes are part of our community outreach."

The Bayou Woodturners led three training sessions on Dominican's campus. A group of seniors and juniors in the National Art Honor Society created and personalized turned boxes made from Spanish cedar. The boxes were engraved with the school's Veritas shield as well as the maker's own artistic design and her initials, burned into the wood.

> "None of these young ladies had worked with wood before.

Jennifer Frosch, Fine Arts Department faculty member at Dominican, said the woodturning collaboration gave the students a chance to not only work with the alumnae association, but also to contemplate tradition. "The students enjoyed building community while working with the members of the Bayou Woodturners. For our students, this was an opportunity to discover a new medium. None of these young ladies had worked with wood before."

Frosch noted that making gifts instead of buying them is a remarkably personal experience: "The students were aware these gifts were for the class of 1964, celebrating their 50-year reunion. They can only imagine where and who they will be 50 years from now. This project touched upon all of Dominican's pillars, especially community."

Jim Creel, President of Bayou Woodturners, assists St. Mary's Dominican High School senior Elise Glueck during her first woodturning training session.

St. Mary's Dominican High School student Kristin Selle (Metairie) burns a design into a commemorative box.

Finished wood boxes, personalized by St. Mary's students, became meaningful gifts for members of the school's class of 1964.

Maine Chapter Marks Growth

An AAW chapter, formerly called Up There Woodturners of Aroostook County, has changed its name to better reflect recent growth. In four years the club's membership has grown from 10 to more than 30 members from three counties in Maine. To better represent its membership, the club voted to change its name to Northern Maine Woodturners. For more, visit northernmainewoodturners.com.

A Northern Maine Woodturners club project, lidded boxes with finials, inspired by Joe Larese's *AW* cover photo (vol 29, no 1).

Tips

Avoid overspray

I finish almost all my work with spray lacquer. For bowls, I usually do the inside first, then turn the piece upside down, place it over a can, and spray the outside. Overspray would get underneath and ruin the finish on the inside.

Using a balloon, I prevent this from happening, especially with natural-edge vessels. The balloon will easily follow the contour of the work and seal it tight so no spray can enter the inside. Make sure you let the finish cure on the inside before inflating the balloon.

—Joe Van Keulen, Alberta, Canada

Share your turning ideas!

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

—Joshua Friend, Editor

Shelf for Powermatic lathe

If you decided not to use the safety cage or spindle-duplicating holder on your Powermatic or JET lathe, the heavy-duty bracket can be used to support a shelf for storing woodturning equipment. I sandwiched two 2 × 4's over the bracket and tightened them together with a carriage bolt. From that support, I built a shelf to hold a sanding system, chuck wrenches, and glue. It is sturdy and useful, and there is only one bolt to remove when I need to use the safety cage.

—Ken Rizza, Georgia

Glue-up alignment

I recently decided to make some rattles to drive off the evil woodturning "catch" spirits. I tried making rattles before, but alignment problems and gluing messes resulted in poor outcomes. While contemplating putting the individual pieces together, I realized a piece of PVC would almost fit in the ring blanks that make up the body of the rattle.

To prevent the pieces from being glued to the mandrel, I wrapped plastic wrap around the PVC, and applied a light coat of petroleum jelly to prevent pieces sticking to the mandrel. In addition, I squeezed a small puddle of glue onto a plastic-wrapped board under the mandrel so I could quickly apply glue with my finger to each ring. Problems solved.

—Jim Meizelis, Illinois

No-guess microwave drying

Many woodturners use a microwave to speed up drying green-turned wooden bowls. You need to know, however, when to stop microwaving; otherwise, the wood might catch on fire. The photo on the left shows burned wood that had been heated past its dry point.

Many turners rely on a method of numerous drying steps, weighing the wood, and graphing weight loss. Next time try this simple technique. When you remove a hot piece of wood from the microwave, hold room-temperature glass over it. If condensation is formed, the wood still contains moisture. If no condensation occurs, stop microwaving. I use my reading glasses, but a clear, room-temperature drinking glass will work.

This technique works well when the wall thickness is consistent throughout the piece. If you have a vessel with walls that are significantly irregular in thickness, brush the thin areas with water for the first few trips into the microwave. This will keep the thin areas from drying out too soon and cracking, or worse, catching on fire.

—John Franklin, New York

Storage tray for Powermatic

My Powermatic 3520B came with a shallow well on top of the headstock, complete with a rubber mat. This looked like a good place to store sandpaper, pencils, and chuck keys; however, it soon became obvious it was too shallow. I decided to make a larger, deeper box for storage.

I started by cutting an insert from a piece of ¼" plywood. The insert needs to fit into the well. I drilled two 1" holes in the insert, centered 1½" from the sides and front, deep enough to hold 1" rare earth magnets, which I epoxied in.

The box itself is attached to the plywood insert. I made the box with a ¼"-thick bottom and 2" high by ½"-thick sides. I attached the insert to the bottom of the box with double-stick tape; you could also use glue. I aligned them so the box protrudes over the handwheel and the back of the lathe. I made mine 13" by 10½", but you could make yours any size.

—Dan Kozar, Pennsylvania

Customized bottle stoppers

Bottle stoppers are fairly easy to turn and are considered to be an entry-level project. Most turners add interest to their stoppers by using exotic woods or unique shapes. You could customize stoppers by recessing an insert into the top.

I have used kitchen cabinet knobs, which add texture, color, and depth. Golf-ball markers can be purchased on the Internet. Seemingly all college or military insignia are available. Jewelry—earrings and pendants—affixed to the top are attractive and even more personal if made from an item that belonged to someone special. Military buttons are especially meaningful if the customer provides the button or insignia from one of his or her old uniforms.

—Steve Mellott, Georgia

Half-Ring CANDLEHOLDERS

Largest half-ring is 4¼" × 8½" × 1½" (11.5cm × 22cm × 4cm).

John Lucas

I use the table saw with specialized jigs to cut pieces that make up rings for my segmented woodturning projects. But even with the jigs, I almost always end up with several rings that do not close completely when I'm cutting segments from scratch. I tried making half-rings and gluing them together to make whole rings. Even still, there is often one joint that remains open. Then the solution hit me: design a half-ring project that makes use of two separate halves of a ring. I could simply cut a ring in half at the bad joint and turn a lemon into, well, a half-ring candleholder.

To help visualize my design, I made a few sketches and mock-ups out of blue foam board (*Photos 1-4*). My sketches came to life and I played with size and arrangements. Once I had the concept down, I made a full-size drawing showing one possible half-ring arrangement, as well as a full-size ring to get all the dimensions and sizes for the segments (*Figures 1, 2*).

Methods

This is an excellent project for those who are new to segmented work. I offer methods that are easily accomplished by new turners. You can cut the segments on a miter saw, table saw, or bandsaw, followed by the disc sander.

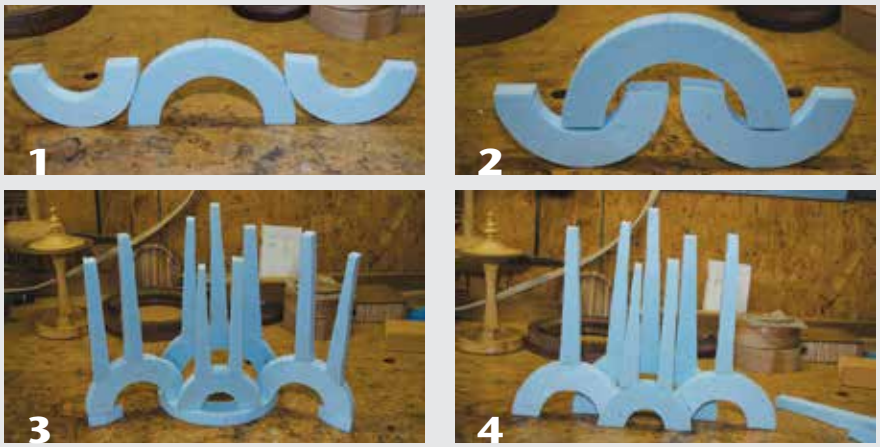
Choose any number of segments. I prefer to use even numbers because that makes it easy to glue up a half-ring and true up the joint to get a whole ring if your cuts are not dead-on. I used 16 segments for this project, but eight or 12 would be fine. Keep in mind that the more segments, the more accurate you have to be because each error is multiplied when you are gluing several segments.

I prefer using a miter sled on the table saw, mostly because it has better dust collection than my miter saw. I made a sled that rides in both miter slots. This method cuts more accurately because there is less wobble *(Photo 5)*.

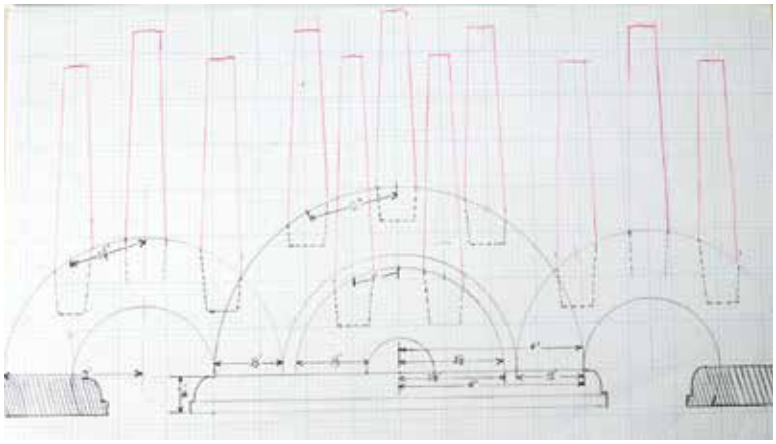
Cut and glue the segments

Cut enough segments to achieve a 90° angle when they are fitted together and check for accuracy. If your cutting angle was off, make small adjustments and continue. If they are close but not dead on, you can still use these segments. Cut enough to make a half-ring and check for 180° accuracy. If they are close, you can use them because you will true up the half-ring later. After you get it close to 180°, start cutting segments for whole rings. I clamp the segments together and look for light at the joints. Make adjustments as necessary to achieve good glue joints. For me, it took four half-rings and about five whole rings to nail it dead on. I changed sizes as I went so I would have different-sized rings to choose from for the final project.

If the half-rings are off, glue them up in pairs. I use what is known as a rub joint, which works well if you are using standard wood glue. Apply glue to two of the pieces. Put them together and slide them back and forth until most of the glue is squeezed out. Align the segments and hold them for 20 seconds. This is what I have found to be the "tack" time for this type of glue, but that may vary for other glues. I do this on wax paper to keep my workbench clean. Plus, the glue mildly sticks to the wax paper, which helps to hold the joint closed while the ▸

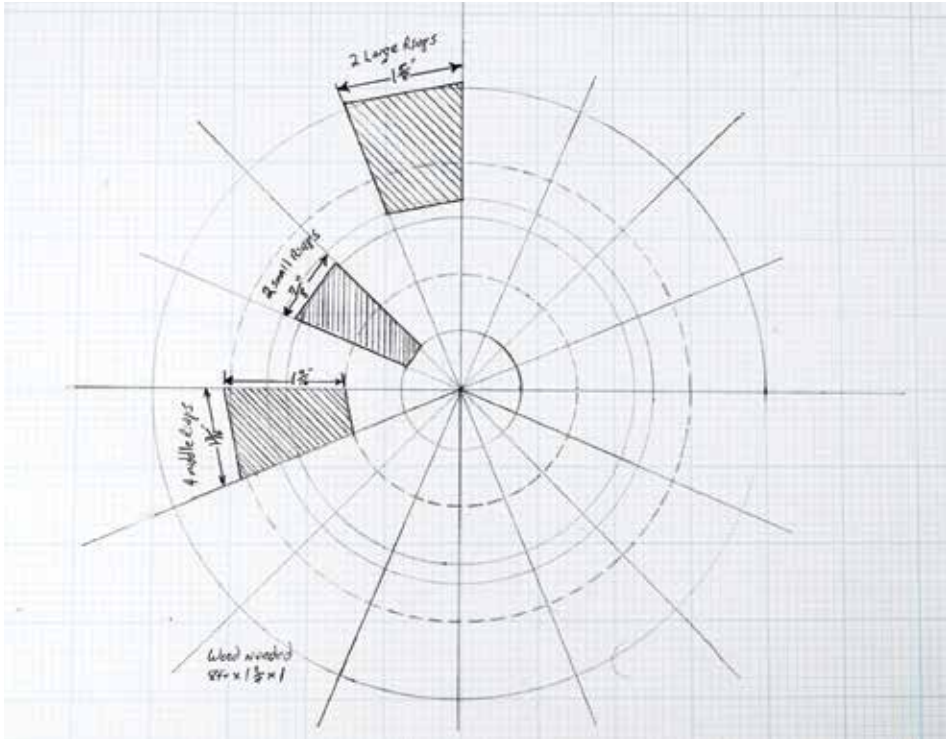


Creating mock-ups, like these in foam board, is useful for arriving at a suitable design.



(Left) Figure 1. The author's full-sized drawing of a possible arrangement.

(Below) Figure 2. Drawing a full-sized ring will help in determining specific measurements.



glue dries (*Photo 6*). After all the pairs are dry (about 30 minutes), glue them together. You are gluing up half rings, so if you chose 12 segments, you will be gluing one pair to a set of four segments. For 16 segments, you would be gluing pairs to pairs, which for me is easier to remember *(Photo 7)*.

When the half-rings are dry, check the flat surfaces (ends) to ensure they are 180°. If not, it is necessary to true them up. How to do this? If the angles are off by a small margin, a disc sander will make quick work of it. For a low-tech method, I clamp a jointed piece of wood 2" × 4" × 2' long (5cm × 10cm × 61cm) to the edge of my workbench with abrasive attached. This acts as an abrasive fence. Lay the half-ring on the workbench and slide it back and forth against the abrasive fence until it is sanded flat. This method takes a bit longer but works perfectly and is cheap. Check that the edge of your workbench is square to the fence since your rings will take the shape of that angle as you sand.

Now you have two perfect half-rings and can glue them together to form a whole ring. They probably will not match in size, but it is sufficient to align them as well as you can. I make my segments wider than my drawing shows for the rings to allow for proper sizing when I get to the lathe.

I use band clamps to glue up the whole rings. I often do not have enough of the proper size, so I end up screwing two or more band clamps together. Keep this in mind when buying band clamps because you never know what project you might attempt in the future.

Lay all the segments in the clamp and do a test fit. If the joints are off by a lot, you can still glue up the ring; just do not apply glue between two of the segments 180° apart. Often, I fit all the joints together and the last one will not join perfectly, so I wedge a toothpick or other scrap of wood into the gap and into the joint 180° across from it to help close all the other joints when I tighten the band clamp. When the glue is dry, you can separate the two halves and true up the surface, as described previously *(Photo 8)*.

Ideally, you will get all the joints perfect and the gluing process will go well without having to take the steps noted above to deal with imperfect half-ring joints. If your joints are close to perfect, it is easier to glue up whole rings. Assemble the rings on a piece of medium-density fiberboard (MDF) with plastic laminate on it. Wax the laminate so the glue will not stick to it. Once the band clamp is fairly snug over the ring, hit all the segments with a dead blow hammer to force them flat against the laminate. Snug up the clamp some more and flatten the segments again with the hammer. It may be necessary to flip the ring over to hammer down proud segments. This saves time later when flattening the rings because they will be much flatter to begin with.

I needed only three double rings for my design but had to cut many more to achieve the required accuracy on my saw. Once I arrived at an accurate setup, I found it exciting to cut and fit the rings, so I just kept going until I ran out of wood. Now I have extra segments awaiting other projects.


5
The author's table saw sled for cutting accurate segments.


6
Gluing the segments in pairs makes the process easier than attempting to glue an entire half-ring at once.


7
Glue the pairs into a half-ring.


8
Use band clamps when gluing segments into whole rings.

Flatten, stack, and turn the rings

For this project, I glued two rings stacked together to achieve the proper thickness. In order to glue the rings successfully, you will have to flatten them for a good glue joint. If you have a wide belt sander, this task is easy. A low-tech solution, similar to the method described previously for truing the ends of the rings, is to use a jointed block of wood with abrasive glued to it. But this time the rings are stationary and you move the abrasive. With the ring secured to a flat surface with double-sided tape, sand in every direction, checking frequently with a straight edge to locate any high areas. This is an effective way to flatten very thin rings, but it does take a lot of physical effort and time.

Another good method is to flatten the rings at the lathe. Use hot-melt glue to attach the ring to a large faceplate made of MDF or plywood. This method is handy for all sorts of projects and is how I learned to do off-center work, so it is worth making the faceplate. I prefer MDF for this application because the hot-melt glue is easier to remove later, but plywood works well too. To make a large faceplate,

Apply hot-melt glue around the outside of the ring while gluing it to the faceplate. Applying glue between the ring and faceplate will not hold the ring sufficiently.

Jumbo jaws offer an alternative holding method for flattening rings.

Offset the glue lines when gluing rings together.

Shape your rings with decorative beads.

A texturing tool further embellishes the rings.

Form a tenon on the faceplate for remounting the ring.

mount a disk of ¾" (19mm) thick MDF about 12" (30cm) in diameter on a chuck with a screw center. True up the face and turn a rebate for the chuck to hold it in expansion mode. Remove the MDF from the screw, turn it around, and expand the jaws of the chuck to hold it. This holding method makes it easy to use the faceplate repeatedly. I also have some that remain screwed onto old metal faceplates. This way I have several to choose from for the final project.

To help align the segmented ring for hot gluing onto the MDF faceplate, draw pencil lines on the faceplate while it is spinning on the lathe, about ½" (13mm) apart. Lay the ring onto the faceplate, aligning it as well as you can using the pencil lines as a reference, and apply hot-melt glue to about eight places around the outside of the ring (*Photo 9*). Do not apply glue under the ring and expect it to hold—it won't. Use whichever tool you are good with for initial flattening. This is one good use for carbide scrapers because the glue is hard on high-speed steel tools. When you get the ring close to flat, check often with a straightedge. Mark the high points with a pencil and scrape them down. When you get really close to flat, shear scraping works better because it removes less wood and leaves a cleaner surface. You only need to flatten one side of each ring at this point.

Using jumbo jaws on your chuck is another alternative for holding the rings for flattening (*Photo 10*).

Once you have the rings flattened, it is time to glue them stacked together. I never overlap the glue joints, but rather offset them so the glue lines do not line up (*Photo 11*). Endgrain to endgrain joints are the weakest but essentially are the type of joint necessary in mitered segmented rings. The joint between the stacked rings is where the strength comes from since those gluing surfaces run along the grain.

When the glue is dry in the stacked pair of rings, use the same procedure to flatten and shape one side of the stack. I tapered the ring from the outside ▸

15

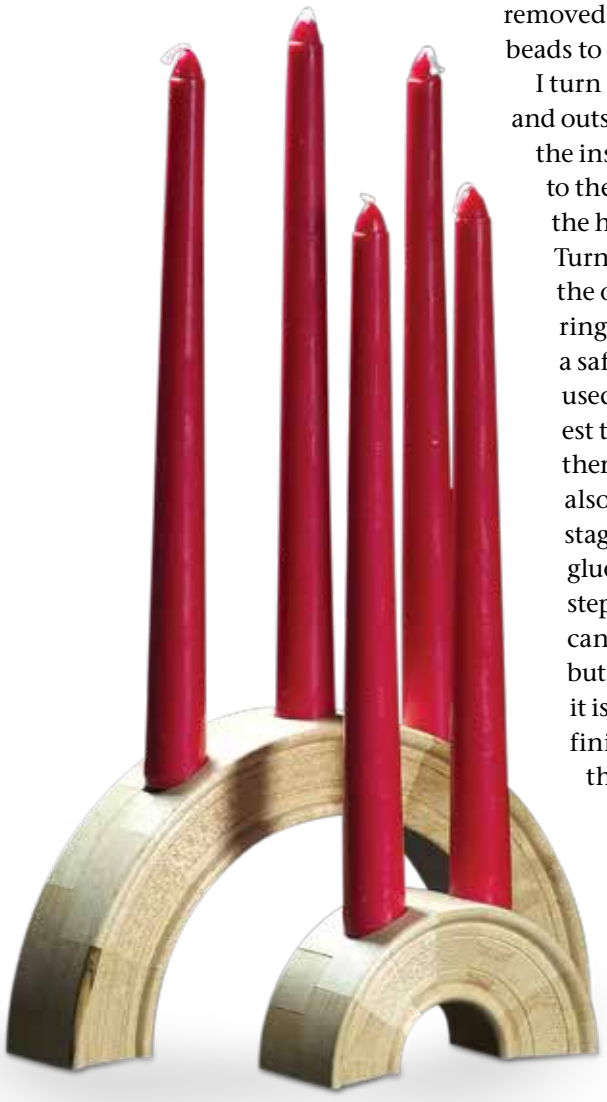
An open glue joint does not mean all is lost for this ring, but rather indicates the location of the cut line.

16

Hold the workpiece in a vise at the drill press to create clean, accurate holes. A specially made candle drill bit creates the right taper. *See Sidebar.*

17

Cutting out a section of the ring and gluing the parts back together will produce an oblong-shaped assembly.



down to the inside and then turned some beads using a beading tool. I removed the wood from between the beads to lower that surface (*Photo 12*).

I turn the face surface and the inside and outside of the ring. You can turn the inside of the ring all the way to the faceplate, but only down to the hot-melt glue on the outside. Turning into the hot-melt glue on the outside surface will release the ring from the faceplate and poses a safety hazard. For my design, I used a texturing tool to add interest to the flat surface (*Photo 13*), then sanded this side of the ring. I also applied a coat of finish at this stage, which makes the hot-melt glue that you will use in the next step easier to remove later. You can use whatever finish you like, but I use lacquer, wiped on. Also, it is good to get at least one coat of finish applied before remounting the piece, as the hot-melt glue can fill wood pores and cause finishing problems later.

To remove the ring, peel as much of the hot-melt glue off as you can, after which it should be easy to pull the ring off by hand. Turn down your faceplate to leave a spigot, or tenon, that fits exactly inside your turned ring. This will accurately align the ring when remounting it to turn the unfinished surface. As an alternative, I sometimes glue a waste block to the faceplate and turn it to the appropriate-sized tenon (*Photo 14*). Apply hot-melt glue to the outside of the tenon, remount your ring, and turn the remaining surface.

Peeling the glue off can be tricky. It comes off the MDF fairly easily but not always off the ring. You can often peel most of it off. I have also used fishing line (monofilament) wrapped around two dowels, similar to the way we use wire to burn lines into turnings. With your ring clamped in a vise, hold the two dowels apart so the monofilament is taut and pull the line through the glue with a sawing motion. The monofilament will not damage your workpiece. This is also an excellent way to release wood from double-stick tape. When you have removed as much of the hot-melt glue as you can with this technique, use isopropyl alcohol to remove the last bit of residue.

Now it is time to split the rings. If you had an imperfect glue joint somewhere in the ring, use it as your parting line (*Photo 15*). Remember, my inspiration for the half-rings came from a desire to make use of my less-than-perfect segment rings. I simply cut through the glue joint on the bandsaw and true up the bottom on the disc sander. This gives me plenty of half-rings to work with. For the design I had in mind for a candleholder, I needed one large, one small, and two medium half-rings.

The next step is to drill holes for the candles, which I did at the drill press (*Photo 16*). The mock-ups helped me find good alignment (angle) for the candles. I use a special candlestick drill bit that is unfortunately no longer available. Before I bought it, I had custom-ground a spade bit to match a candlestick taper. It had a tendency to chatter because I hand-ground it and it was not accurate. When

Shopmade drill bit for candleholders

To make a custom, tapered drill bit perfect for drilling holes for candlesticks, start with a 1" (25mm) spade bit. Do not use the kind with little teeth on the outer edge, but rather one with a flat bottom. Mark it with blue dye or color it with a permanent marker. The drill should taper from ¾" to 1" (19mm – 25mm), with the narrower measurement at the bottom end of the bit. Move up 1" from the end and make a mark. Then mark the bottom ⅛" (3mm) from each edge. Use a straightedge and draw a line connecting these two marks *(Photo a)*. Grind the taper by hand as close to the line as you can using a grinding wheel. More precise grinding will take place at the lathe.

It is useful to have an indexing wheel for this operation. If your lathe is not equipped with one, after-market indexing wheels are available. I use a 1¼" (32mm) × 8 tpi nut to hold an indexing wheel onto the lathe's spindle and a Jacobs chuck to hold the drill bit. With my setup, I am able to insert the Jacobs chuck into the spindle, even with the indexing wheel in place. Ensure the bit is centered using the live center in the tailstock to check for alignment. If the bit and the live center do not line up, gently tap the bit with a wooden mallet to align it *(Photo b)*.

Now you need a wooden center for your tailstock that will hold the tip of the spade bit during grinding. The wooden center does not have to be a live center, so you can turn a Morse taper on a piece of wood and drive it in the tailstock. Use the spade bit to drill a shallow hole in the wooden center. With the lathe off, crank the tailstock in to securely hold the bit centered *(Photo c)*.

With the spade bit held parallel to the ways of the lathe and secured by the Jacobs chuck and wooden tailstock center, you can accurately grind the taper. The grinding is done with a rotary tool and small grinding stone. I have a table that fits into my lathe's banjo to hold my rotary tool, but you could simply build a carriage that will slide along the ways. My table uses two blocks of wood and screws to clamp the rotary tool securely in place. There are also two screws that allow for depth adjustment *(Photo d)*. Make sure your rotary tool is held securely in the carriage and the grinding wheel is centered on the drill bit when set up.

Using the indexing wheel, set the bit so the cutting edge is one hole below center. This will grind the proper relief for the cutting edge. Move the rotary tool carriage up to the bit and clamp a block to the table as close to the angle of the bit as you can. A little trial and error and patience are necessary here. When you get the stone just touching the bit, tighten the clamps.

Turn the rotary tool on and make a pass or two across the bit. Adjust the clamped guide as needed. When you have it correctly clamped, rotate the bit 180° and make a few passes on the other side. Increase the depth of cut slightly and make more light passes across the bit. Rotate it 180° and grind again. Repeat this process until both sides have good clean edges. It helps to color the edge with a permanent marker so you can see the progress.

Test your new candlestick drill bit to see how well it cuts and to confirm the fit of your candles. You can do this at the drill press using scrap wood or at the lathe. Mount a blank for the small candle cups in your four-jaw chuck, hold the drill bit in a Jacobs chuck in your tailstock, and drill to a depth of 1" (25mm). Turn the cup with a small tenon on the bottom to fit into your segmented candleholders.

Mark and grind the taper on a 1" (25mm) spade bit.

Ensure the spade bit is centered in the Jacobs chuck.

Drill a small hole in the wooden tailstock center to receive and hold the bit during grinding.

The author's rotary tool setup for accurately grinding the taper. (Tailstock with wooden center removed for clarity.)

I discovered the store-bought bit was no longer available, I developed a way to make a better candlestick bit that is custom-ground on the lathe for accuracy. It works perfectly. *(See sidebar to learn how to make your own.)* You could simply drill a ¾" (19mm) hole and insert the candle, but I have found this method does not produce a perfect fit and requires extra fiddling to make it work.

Since I had plenty of extra rings left over from my overzealous cutting of segments, I made some more candleholders. I turned and drilled cups to fit in the smaller rings to make three individual candleholders. I turned more cups and took two of the larger half-rings and cut a segment out so that it glued up in a football shape (*Photo 17*). These were all fun to make, and I got my saw aligned perfectly for the next segmented project. ■

John Lucas, a retired photographer, has been working in wood for about 35 years and also dabbles in metal working. He also enjoys modifying machines, making tools, and sharing his knowledge through written articles and videos. He has taught classes at John C. Campbell Folk School, Arrowmont, and The Appalachian Center for Crafts.

WEDGE ASSEMBLIES OFFER A *Tangential Twist*

Robert Jerzy Gryglaszewski Craig

Untitled, 2014, Black walnut, dyed cloth, 4¾" × 4⅜" (12cm × 11cm)

As a retired aerospace research scientist and woodturner specializing in segmented designs, I tend to internalize concepts according to the laws of mathematics. This viewpoint has led me to develop a twist on segmented design that utilizes wedge-shaped segments that can be assembled in a multitude of configurations. The wedges, which can be cut simply on a bandsaw, can be assembled radially or tangentially on a straight or elliptical cylinder, on a regular or elliptical cone, or on a double cone, to name a few. I have performed in-depth analyses of these configurations and have built models reflecting the mathematically derived results. The beauty is that although the finished product looks complex, the methods are deceptively simple. You can use any number of wedges with any angle and do so without having to make finicky adjustments to the assembly. The wedges align themselves easily for a perfect fit.

Tangential vs. radial orientation

In a typical segmented array, the sides of all segments point toward the center, sometimes referred to as radial orientation. However, the segments can also be arranged tangentially, where the sides of all segments are tangential to the perimeter of the turned object (*Figure 1*). *Figure 2* shows the effects of moving from a radial to a tangential arrangement, with arrays formed around both a circle and an ellipse. In these examples, the non-overlapped portions of wedges form a polygon with as many sides as there are segments (*1b in Figure 2*). If the lengths of these sides are equal, you can extrapolate a circle, or core, within the arrangement of wedges (*1d*). By changing all the overlaps in equal measure, the diameter of that core will change proportionately. An elliptical core results when the non-overlapped portions vary (*1c*). Thus, when designing your wedge stack assembly, consider the core shape carefully, as it will determine the shape of your finished piece.

Arranging the wedges tangentially around a core, whether cylindrical or conical, is deceptively simple because the tangents will automatically close evenly. A conical core produces more interesting results in your turned piece because the sides of the wedges come together on a slant instead of vertically. Accordingly, a conical core assembly will produce an open vessel, like a bowl, while a cylindrical core will produce a straight-sided object.

Using tangential wedges, as opposed to radial, offers many more design options for your turnings. Imagine grain patterns that spiral around a

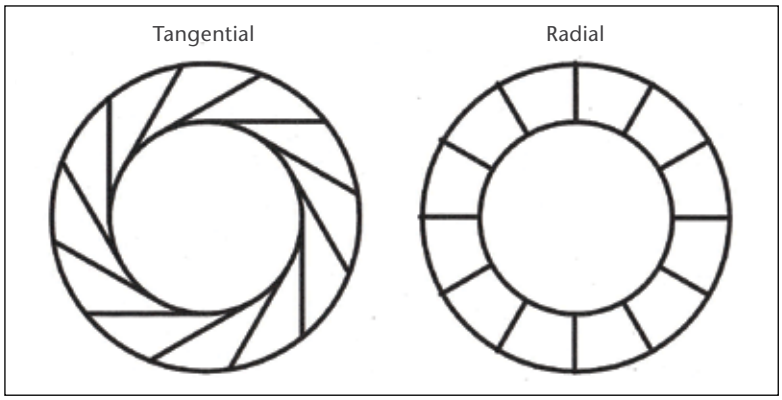


Figure 1. Tangential vs. radial orientation of segments.

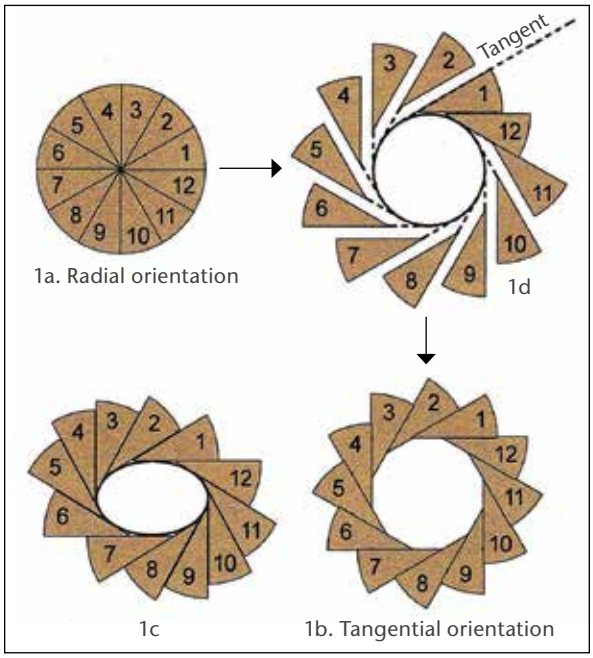


Figure 2. Assembly of wedges around a circle and ellipse.

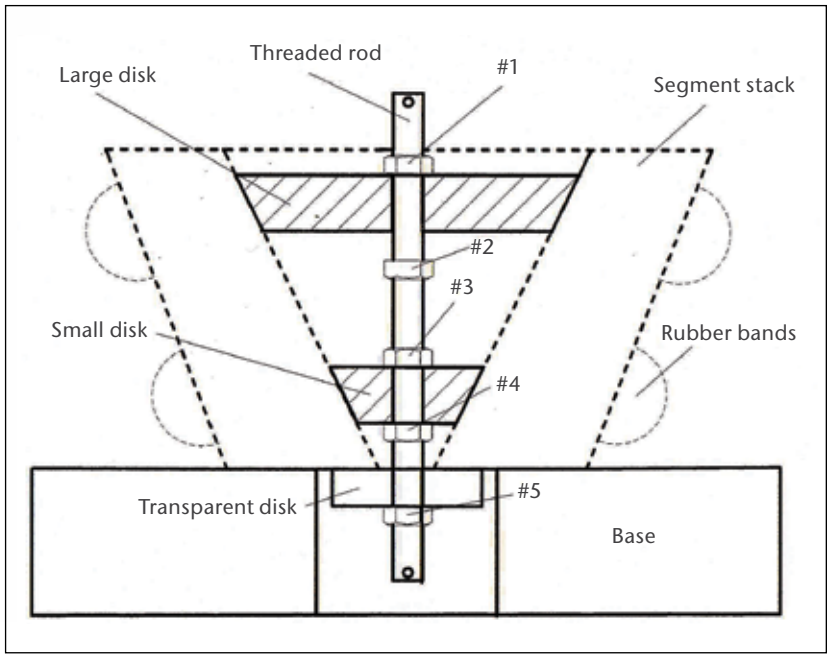


Figure 3. Adjustable conical core with assembly configuration.

vessel or a design of contrasting woods arranged to emphasize this geometry. The spiraling effect can be accentuated by including contrasting dividers that separate one segment from the next (*Photo 1*).

A tangential assembly allows you to experiment with the size and shape of a turning prior to glue-up; you can change the angle of the conical core without needing to cut a fresh batch of segments. And using tangential wedges lets you recover from mistakes. If some segments turn out the wrong size or shape, you can simply discard them; the remaining ones will still form a perfect array on a conical core. An assembly of tangentially oriented wedges forms a much stronger, more stable structure than an assembly of radially oriented wedges. The overlapping tangential joints provide more glue area and resist splitting better than radial, butt joints.

Design: experimental vs. analytical

When designing your wedge-assembled turning, you can approach it experimentally or analytically. As the name implies, experimental design allows for less control of variables, so you can wing it with whatever segments you have available. Analytical design involves establishing the dimensions of the wedges more precisely so you will have more control over the outcome of your turned object.

Experiment by dry assembling wedges in various configurations. To try different scenarios with a conical core, you will need to make an adjustable fixture (*Figure 3, construction details later in this article*).

The adjustable conical core has two beveled disks mounted on a threaded rod. The smaller disk is fixed to the rod by two nuts and the larger disk is free to slide on the rod. The cone angle is established by the distance between the disks, which is adjusted by turning nut 1. Alignment of wedges is accomplished by adjustment of the cone angle. Turning nut 1 clockwise increases the cone angle, thus reducing gaps between wedges at their outer periphery, and turning it counterclockwise reduces gaps at the inner periphery. After alignment, the segment stack is removed ▸

The spiraling effect of tangentially arranged wedge segments.

Spiral Bowl, 2014, Maple, compressed white cloth, dyed black veneer, turquoise stone, 3½" × 6" (9cm × 15cm)

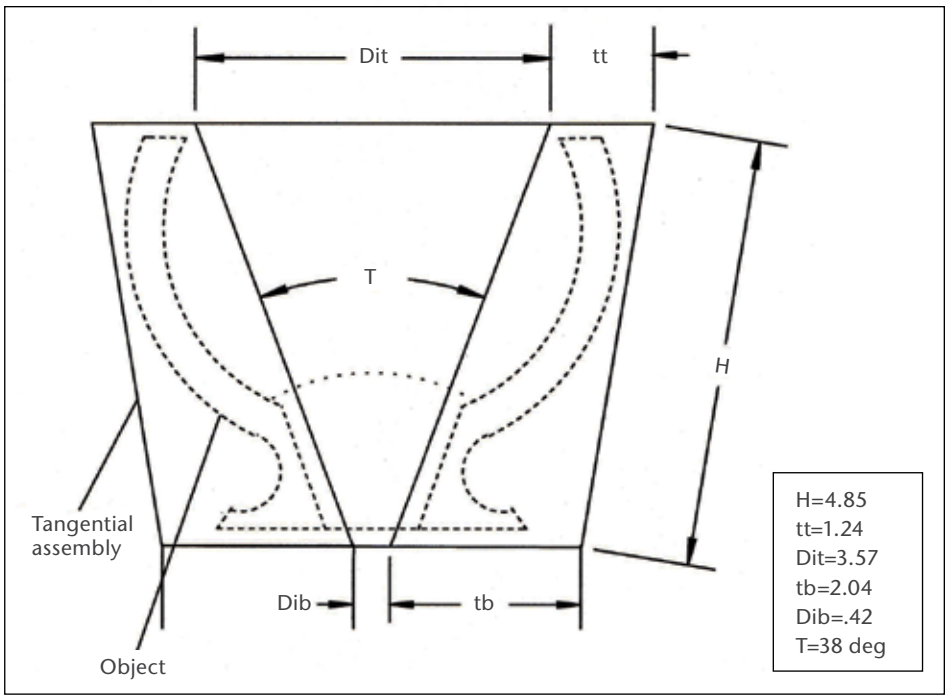


Figure 4. Geometry and dimensions of tangential assembly.

The author's stack of 40 segments. The stack measures 4.75" × 4.75" (12cm × 12cm) with an inner diameter of approximately .625" (16mm).

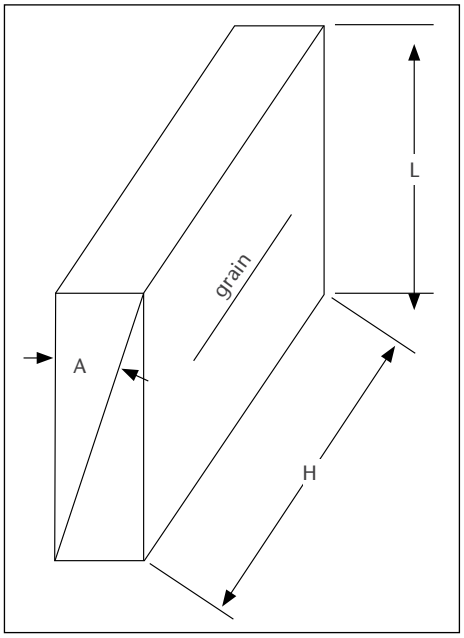


Figure 5. Wedge orientation cut from a flat board.

A sampling of cylindrical core wedge assemblies.

and the position of the larger disk is fixed by tightening nut 2 firmly against it. You can also change the configuration by changing the number of wedges.

I get accurate results quicker when I begin with a carefully thought-out plan. The purpose of designing analytically is to specify the geometry of the stack to satisfy the shape and dimensional requirements of the object you are trying to make. Begin with a scale drawing of the profile of the object you want to turn. You can use pencil and paper or a design program on your computer. Draw an outline that will encapsulate the desired object as well as the cone around which the wedges will be arranged (*Figure 4*). A drawing like this will help you arrive at specific dimensions and angles.

Making the wedge stack

For the purpose of illustrating this process, I made a wedge stack of 40 segments cut from a single round blank, so the total segment angle is exactly 360° (*Photo 2*). This stack will be used to demonstrate the methods of assembly and alignment on a cylindrical core and then a conical core. A description of how to cut the wedges from a round blank was presented in my prior *AW* article (vol 28, no 4). The wedges can also be cut from a board (*Figure 5*). If your intended project involves a tightly fitting lid, ensure the wood grain runs along the length of the wedges to enhance dimensional stability.

If desired, enhance the spiraling effect by adding dividers between the wedges. For thick dividers, I use unbacked veneer .04" (1mm) thick. When the design requires small diameters, such as at the bottom of a slender vase, I use cloth .015" (0.4mm) thick impregnated with latex paint of the desired color.

Prior to wet assembly, where the segments are glued, the wedges

should be assembled dry and uniformity of their distribution and alignments verified. The steps for dry and wet assembly are identical.

Assembly on a cylindrical core

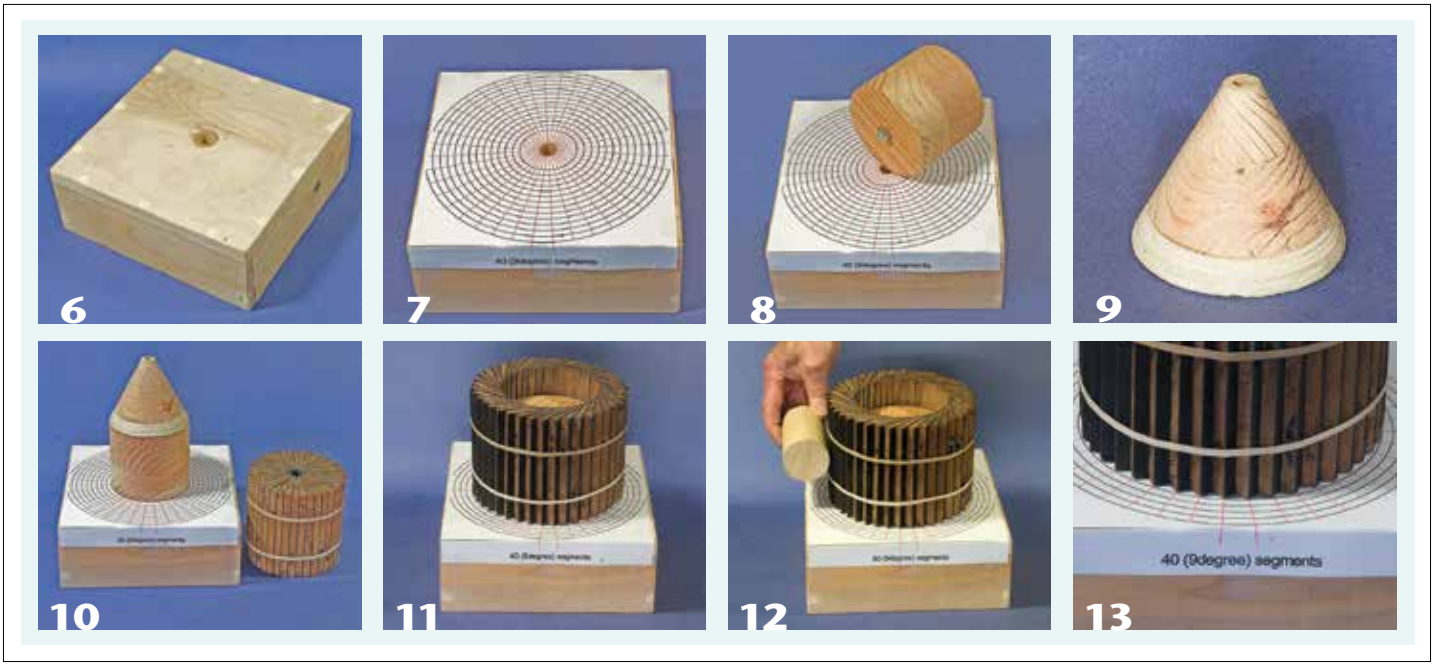
You can assemble the wedges around various sizes and cross sectional shapes of cylindrical cores. *Photos 3* and *4* show the wedge assembly on a cylindrical core, whose cross section is circular. The larger example illustrates the diameter of the core, while the smaller example highlights the useful thickness of the assembly. *Photo 5* shows the assembly on a cylinder of elliptical cross section (oval); turning an object of this configuration would require a special oval turning chuck or lathe since by design the form is not round.

I have used the cylindrical core shown in *Photo 3* to illustrate the steps of assembly, but these steps would be the same for any cylindrical core/wedge configuration.

1. Fabricate a base on which the segment stack will be assembled and adjusted. The base measures 8.5" (22cm) square by 3" (8cm) high. The diameter of the central through hole is ⅝" (16mm) (*Photo 6*).
2. Create a layout pattern like the one shown and, lining up its center with the central hole in the base, attach the pattern to the base. The number of radial lines on the pattern is equal to the number of segments in the stack. Concentric circles are spaced ¼" (6mm) apart (*Photo 7*).
3. Turn a cylindrical core with a centrally located ⅜"- (9.5mm-) diameter bolt for indexing in the base. This core measures 3" (8cm) tall × 4" (10cm) diameter (*Photo 8*).
4. Turn a cone used to insert the segment stack onto the cylindrical core. The diameter of the base of the cone is equal to, or slightly larger than, the diameter of the cylindrical core. The cone's angle is about 45° (*Photo 9*).
5. Place the cone on top of the core and wrap two No. 64 rubber bands over the segment stack (*Photo 10*).

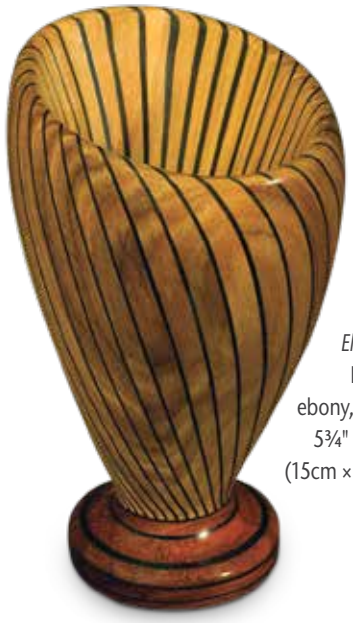
Untitled, 2014, Black walnut, ebony, 3" × 5" (8cm × 13cm)

6. Insert the segment stack over the cone, sliding segments past the cone so all the wedges seat onto the base. Remove the cone (*Photo 11*).
7. Lightly tap the wedges all the way around so they all touch the core. This distributes segments equally around the perimeter and aligns them so there are no gaps (*Photo 12*).
8. Check the spacing between adjacent segments and for roundness. Adjust by tapping as necessary (*Photo 13*).
9. Wrap 30 No. 64 rubber bands, 15 toward the top and 15 toward the ▸



(16-18) The angle of conical wedge assemblies varies according to the number of wedges used.

(19) A conical assembly of 31 wedges with 11.6° angles.



Elliptical, 2014, Black walnut, ebony, bloodwood, 5¾" × 4¼" × 2⅞" (15cm × 11cm × 7cm)

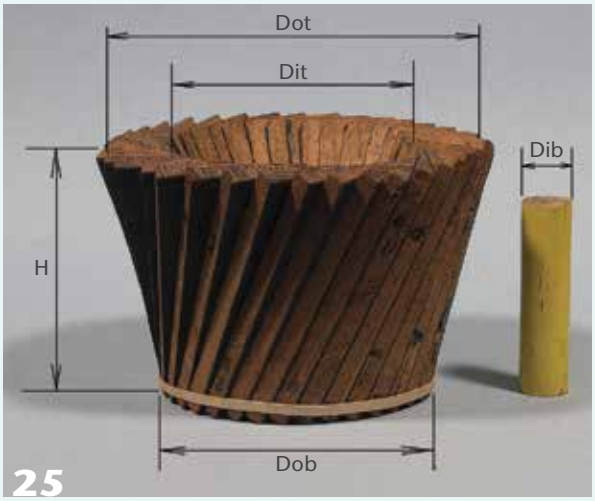
bottom of the assembly. Push all segments down. The tension in each cluster of bands is 3 to 4 lbs. (*Photo 14*).

10. Use a .002" (0.05mm) feeler gauge to check the alignment of the wedges. Insert the gauge between segments and drag it along the joint. Uniform dragging force indicates good alignment (*Photo 15*).

Assembly on a conical core

For a different effect, experiment with designs when the segments are assembled on a conical core. As noted, you can obtain different configurations by removing wedges from a complete stack. The internal cone angle of the stack and its useful thickness depend upon the number of segments used. This concept is shown in *Photos 16-18*. The segments are inclined to the vertical by an angle equal to one-half of the inner cone angle.

Due to the way the wedges align around a cone, the sum of their nominal (as cut) angles will add up to less than 360°. If you arrange 36 wedges around a cylinder, each wedge must have a nominal angle of 10° to reach 360°. But if you arrange the same wedges around a cone, you must allow for the cone's slope, so the sum of all the nominal angles will be less than 360°. Arranged around a cone, the wedges are inclined, which presents an *effective* angle larger than the *nominal* angle. This increased angle accounts for the whole stack having fewer wedges, yet the total sum of their *effective* angles is still 360°.



As an example, *Photo 19* shows the cross section of a glued conical assembly in the plane perpendicular to the cone's axis. The assembly has 31 wedges with *nominal* angles of 10° each. The segments are perfectly aligned, so their *effective* angle is 11.6° (360° divided by 31 wedges equals 11.6° for each wedge).

I used the wedge stack shown in *Photo 17* to illustrate the following steps of the conical assembly, but these steps would be the same for any wedge/core configuration. In this case, there are a total of 36 9° wedges (four wedges removed from the original stack of 40).

1. Assemble the wedges using two rubber bands. Distribute the segments equally and measure the diameter of the opening, about ½" (13mm) for this example (*Photo 20*).
2. Turn a cylindrical spacer. The minimum diameter of this spacer must be equal to or larger than the measured diameter of the opening from step 1. The length of the spacer should be about two-thirds the height of stack. The actual diameter of the spacer used in this example was ⅞" (22mm) (*Photo 21*).
3. Insert the spacer into the stack and push it down to the bottom. Move the lower rubber band to about ¼" (6mm) from the bottom and remove the upper rubber band (*Photo 22*).
4. Gently push the segments so they flare out to self-align, forming a conical assembly. Due to frictional forces between the segments, the alignment of the wedges is not yet complete. This effect is corrected in the next step (*Photo 23*).
5. Gently tap on the top of the wedges. Tapping overcomes friction and allows the segments to flare out until you reach a point where the diameter does not continue to increase. At this point, the segments are closely aligned and if you try to push the segments down, they will spring back (*Photo 24*).
6. With the spacer inside and touching the bottom, obtain the measurements shown in *Photo 25*. For each measurement, record the average of two readings taken 90° apart. Remove the spacer and measure its diameter.
7. Draw a cross section of the assembly (*hatched area in Figure 6*) using the dimensions obtained in the previous step, with the large disk flush with the top of the stack and the small disk, about ¾" (19mm) from the bottom. Record your actual measurements for the following labels shown in *Figure 6:* Dit, Ds, S, and A. The measurements from my sample stack were 4.75" (12cm), 2.3" (6cm), 1.9" (5cm), and 25°, respectively. Note that the diameter, Dot, should be measured across the valleys formed by the segments. Draw the cross section of the stack using your measurements.
8. To make an adjustable conical core, tilt the bandsaw table by angle A and cut two plywood disks ¾" (19mm) thick using your measurements for Dit and Ds as the diameters (*Photo 26*).
9. Drill 25⁄64"- (10mm-) diameter holes in the center of the plywood disks (*Photo 27*). Sand the bevels smooth. ▸

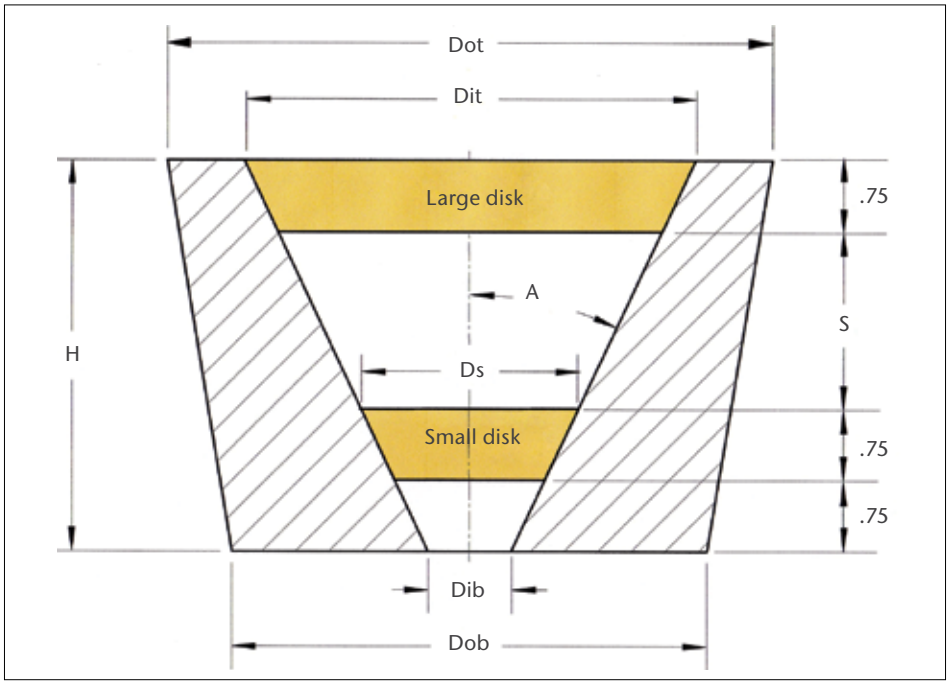


Figure 6. Disk geometry of the adjustable conical core.

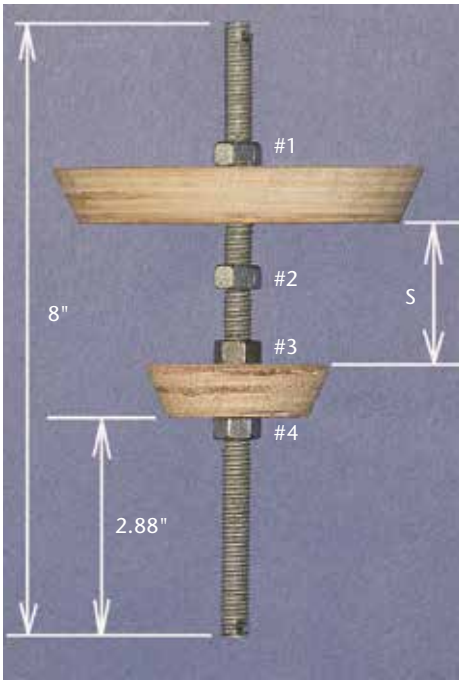


Figure 7.

10. Assemble the adjustable conical core (*Figure 7*). Cut threaded rod 8" (20cm) long and drill ⅛" (3mm) holes at each end of the rod for a nail to be inserted. The nail will be used to hold the rod and prevent it from turning when tightening the nuts. Position the two plywood disks as shown and firmly tighten nuts 3 and 4 to hold the smaller disk in place. Turn nut 1 against the large disk to position it to achieve S.
11. Make a pattern with the number of radial lines equal to the number of wedges (36 in this case) and attach the pattern to the base. Place the adjustable conical core on the base. With one rubber band placed in the middle of the wedge stack, twist the wedges to enlarge its opening. This facilitates placement of the stack over the core (*Photo 28*).
12. Position the stack over the conical core with the smaller diameter facing up. Place a smaller adjusting disk (the transparent disk in *Figure 3*) onto the threaded rod and tighten it in place with another nut. Further tighten this nut until the surface of the large disk is flush with the wide bottom of the stack *(Photo 29)*.
13. Verify the flush position of the large plywood disk (*Photo 30*). Distribute the wedges equally around the periphery by lightly tapping on the sides of the stack as needed while rotating it (*Photo 31*).
14. Check for uniformity of spaces between the wedge segments against the radial lines on the pattern. Adjust as necessary (*Photo 32*).
15. Apply 30 No. 64 rubber bands, 15 toward the top and 15 toward the bottom of the wedge stack (*Photo 33*). Lightly tap the wedges all the way around the top until there is no more movement (*Photo 34*). Now mount the stack with its wide side up and repeat the tapping process as before (*Photo 35*).
16. Adjust the alignment of the wedges by turning nut 1. Prevent the rod from turning by holding it steady with a nail inserted through it. Check the alignment using a .002" (0.05mm) feeler gauge. Uniform force required to drag the gauge along the joints indicates good alignment. Turning the nut clockwise reduces the outer gap between the wedges, while turning the nut counterclockwise reduces the inner gap (*Photo 36*). When you have achieved your desired shape, lock the position of nut 1 on the rod with a locknut.
17. Mount the stack with its narrow end up (*Photo 37*). Turn the adjusting nut (nut 5 in *Figure 3*) until the surface of the large disk is flush with the wedges, as shown in *Photo 38*. Again, use a nail to prevent the rod from turning. This step ensures the diameter of the opening is equal to that in Step 7.
18. Remove the transparent adjusting disk so the stack will slide out from the conical core. Secure the

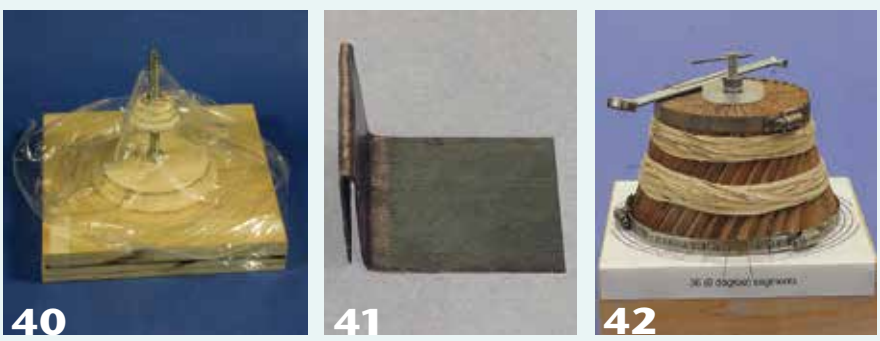
The Big Top, 2014, Black walnut, ebony, 5¼" × 4½" (13cm × 11cm)

position of the large plywood disk by turning nut 2 hard against the disk (*Photo 39*).

Wet assembly (gluing) steps

I use G2 epoxy made by System Three Resins, Inc. It is specially formulated for wood and is mainly used in the construction of wooden boats. Do not use regular wood glue for this application, as its water content may distort the shape of the thin wedges or dividers. G2 epoxy has 60 minutes working time and 24 hours curing time at room temperature. Mix enough epoxy at a time to glue one quarter of all the wedges, wearing protective gloves. If you are using dividers to accentuate your wedge segments, glue them to one side of the wedges before proceeding.

1. Place your core (either cylindrical or conical) on the base and cover it with thin plastic to avoid gluing the wedges to the core and base *(Photo 40)*.
2. Lay out the wedges in the sequence you wish to assemble them. Apply epoxy to both sides of the wedges with a straightedge with just enough thickness to wet the surfaces. With glue applied, assemble your wedge stack by repeating the appropriate steps from the assembly sections above (Steps 5 through 10 for a cylindrical core and 11 through 17 for a conical core).
3. Position and tighten two band clamps, one for the top of the assembly and one for the bottom.
4. If you are gluing your wedges around a conical core, insert retaining clips onto the bottom band clamp to prevent it from sliding up the stack. I made retaining clips by cutting small pieces from a band clamp (*Photo 41*). Holding the nail to prevent the threaded rod from turning, tighten the adjusting nut on the conical core until a .002" (0.05mm) feeler gauge cannot be inserted between the wedges (*Photo 42*). ▸



Mount and turn your wedge stack

Now it is time to take your glued wedge stack to the lathe. Here are the steps I typically use, but other mounting methods, such as using a glueblock and faceplate, would work well too.

1. After the glue has cured, remove the glued stack from the assembly base. Level the bottom of the stack, eliminating all ridges. I do this using an overarm router, but you can use other methods such as a drill-mounted sanding disk or sleeve.
2. Make a sacrificial backing plate (*Photo 43*) to hold the workpiece in a chuck mounted on your lathe. The backing plate has a dowel pin, whose diameter is equal to the diameter of the opening in the bottom of the assembly.
3. Glue the wedge stack onto the backing plate.
4. Mount the assembly in a chuck and turn and completely finish the inside and upper outside of the turning (*Photo 44*).
5. Mount the workpiece to another backing plate to allow access to the lower, outside portion (*Photo 45*). This backing plate comprises two parts: a large disk with a circular groove to index the opening of the object, and a flexible circular disk used to hold the object firmly in place. This method ensures good alignment of the object's top to its bottom.
6. Cut off the base mounting plate and proceed with turning the rest of your project (*Photo 46*).

The possibilities are virtually endless with this wedge-stack approach to making segmented assemblies. Have fun putting a new tangential twist on your next project. ■

Robert Jerzy Gryglaszewski Craig, a retired aerospace industry scientist, began turning with a piece of burl that didn't yield enough solid wood to make a thimble. He then set out to study wood's properties and gravitated to segmented turning as a way to control seasonal movement.


43


44


45


46

Spiral Tulip, 2014, Yellowheart, bloodwood, 3" × 4" (8cm × 10cm)

Small Bowl, 2014, Unknown wood, ebony, 2½" × 3½" (6cm × 9cm)

Untitled, 2014, Maple, dyed black-and-white cloth, 3½" × 5¼" (9cm × 13cm)

Apply an initial coat of thin CA using a folded shop towel.

Finishing with Cyanoacrylate

Don McIvor

Widely used as a handy adhesive, cyanoacrylate (CA) also has a place in woodturners' shops as a clear and durable finish. CA is a fast-setting, strong adhesive with industrial, household, and medical applications. It may be best known as Super Glue, the trade name of one of the more widely available products. CA is an acrylic resin that is applied to a surface as a monomer, a relatively small but highly reactive molecule. Exposed to moisture in the air, the monomers quickly combine to form a single complex polymer, binding together themselves and the surfaces with which they are in contact.

Applied to the exterior of a piece of wood, CA builds a surface film that is clear, hard, and waterproof. Multiple applications will develop a finish with great depth that can be manipulated to a uniform, high-gloss surface.

As with all finishes, there are tradeoffs to consider. CA finish works best on a smooth surface. A few voids can be filled prior to finishing, but burl figure with many voids or an object that has been textured will be better served by a different finish. The resulting finish looks like—and is—wood encased in plastic; some folks just do not like the appearance. CA is expensive and its quick-setting behavior also makes it difficult to apply over large surfaces. These two factors limit its usefulness to smaller projects, and it has become particularly popular as a finish among pen makers. As with other film finishes, if the finish becomes worn or damaged, the aesthetic is lost and the finish is difficult to repair. Working with CA presents some unique hazards that warrant special handling (see also *AW*, vol 26, no 4).

Achieving a good finish with CA is a little tricky, but with practice the technique is easily mastered. As with a lot of turning tasks, there is more than one approach and each method has its defenders. The following steps will get you past the finish line with a winning project.

Applying CA finish

1. Turn the project to completion and prepare for the finish by sanding the object. Small turned objects invite close scrutiny, so it is important to take care of the details in turning and sanding. The CA's high-gloss finish will highlight poor tool work and sanding scratches. I like to sand first with the lathe running (500 rpm) and sand with the grain with the lathe stopped before proceeding to the next grit. Because the CA film will build to become the tactile surface, it is not necessary to sand the wood to a glass-smooth finish; working through 400 or 600 grit is sufficient. Remove sanding dust with a clean shop towel.
2. Next, cover the turning with a coat of thin CA glue. I do this with the lathe running (about 500 rpm). I fold a small piece of shop towel until it is about 1" (25mm) wide and about four layers thick and hold one end of this applicator under and contacting the rotating work. I then apply a few drops of thin CA to the top of the piece, quickly moving the applicator along the work to help spread the CA *(Above)*. This needs to be done smoothly and in a matter of a few seconds, removing the applicator before the CA starts to cure and grab the material. I aim for a uniformly "wet" surface and avoid the temptation to overwork the finish *(Photo 1)*. If the CA is not flowing smoothly, it is better to correct the problem with a subsequent application rather than scrambling for perfection as the CA is flash-curing. ▸

Applying an aerosol accelerator is optional at this point; the thin CA cures quickly. An accelerator speeds curing to the point where the process is almost instantaneous, a feature that becomes more useful in the next step.

3. I have used multiple applications of thin CA to finish a turning and it will work. But there are advantages to switching to a thicker, slower-curing CA formulation for subsequent applications. Insta-Bond CA Pen Finish and Stick Fast CA Wood Finish are two examples.

   I abandon the shop towel in favor of a plastic bag or heavy-duty plastic wrap to cover my finger as an applicator. With the lathe running (500 rpm), I hold the applicator to the bottom of the blank and apply a narrow bead of the thicker CA to the rotating piece (*Photo 2*). I spread the finish over the turning, aiming again for a uniform distribution. The application includes traversing the work piece once or twice to spread an even coat. Again, overworking the surface will encourage streaks in the hardened surface. It is easier to control the quality of the surface by applying several thin coats (of the thicker viscosity CA) than trying to pile on fewer thick applications.

   The finish will cure instantly with a shot of accelerator (*Photo 3*). No need to coat all surfaces of the turning with accelerator, as the process initiated by the aerosol in one area of the turning creates a chemical chain reaction that quickly affects the entire finish surface.

   The temptation to sand out imperfections after each coat is strong, but sanding between coats creates more problems than it solves.

4. I repeat Step 3 until I have applied three to five coats.

5. Once the last coat of CA has cured, I return to sanding. The objective is to *finish the finish*. Sanding too aggressively can cut through to raw wood, which could require removing all of the finish and starting over. I start sanding with 320-grit abrasive, then move through 400 and 600 grit. The goal with this initial sanding sequence is to remove any unevenness in the surface, including spirals and ridges *(Photo 4)*.

   Plastic readily clogs abrasive sheets. Those little plastic nibs ball up in the abrasive surface and create drag, which encourages them to melt and create streaks in the finish. Again, a light touch pays off, along with frequent inspection and possibly cleaning or changing the abrasive. A better solution is Abranet Sanding Screen, which has abrasives incorporated into an open-weave material. It is easy to clean, resists loading, and works beautifully for this application, as well as for sanding green wood.

6. After the 600-grit sanding, I switch to MicroMesh Polishing Sheets. These sheets (more like stamps!) are sold in a set of nine color-coded pads corresponding to grits from 1,500 through 12,000. I like to use a few drops of thinned tung oil as a lubricant to reduce loading and heat build-up *(Photo 5)*, wiping off each sheet and the turning before proceeding to the next grit. Although nine sheets seem daunting, each is applied for only a few seconds; the process proceeds quickly.

7. I inspect the turning carefully after sanding. It should now look like it is encased under glass *(Photo 6)*. If I find any scratches or uneven spots, I will re-sand. This is a rare occurrence, but experience informs judgment on how far back in the sanding chain to go.

8. There are a couple of ways to proceed at this point. I like to move to my buffing wheels, using Tripoli, white diamond, and finally carnauba wax to complete the finish. Another option is a final application on the lathe of a plastic polishing

The objective is to apply the CA quickly in a single traverse. CA adheres poorly to metal, so a little contact with the bushings is not a problem.

Subsequent applications are with CA that is slower-curing, and a thicker consistency than the first coat, using a plastic-bag-covered finger as an applicator.

A blast of aerosol accelerator readies the turning for the next coat of CA. Use plenty of ventilation.

compound. A drop or two of liquid plastic polish is applied to a cloth and then to the spinning blank before a final buffing with another clean cloth.

Variations on a theme

Some turners like to initiate the CA finishing process with a coat of cellulose or acrylic sanding sealer. This is quick and easy, but I have not discerned any great benefit by adding this step. Another practice is adding boiled linseed oil (BLO) to the sequence. Turners who use this approach add a light coat of BLO to the turned piece to enhance grain before proceeding with the CA. Another variation includes applying the CA in combination with BLO, dampening the shop towel with a few drops of BLO, followed by a few drops of CA, and then holding the applicator against the rotating piece. I am leery of this approach as I am not sure if combining oil with the CA compromises the long-term integrity of the finish. I invite you to experiment and reach your own conclusion.

Tropical hardwoods can be finished with CA, but their natural oil content presents challenges. I have had a CA finish fail spectacularly when combined with BLO and applied to teak; the overabundance of oil prevented the CA from adhering to the wood. Now my approach to tropical hardwoods is to wipe the surface of the wood with a solvent such as mineral spirits or limonene to remove excess oil and then follow-up with CA. The wood can look a bit bleached after the solvent, but the thin CA restores its character.

Handling considerations

CA emits noxious fumes as it cures. These fumes are a vaporized form of the CA monomer and irritate eyes, nose, and throat. Minimize exposure by working in a well-ventilated area, wearing eye protection, and possibly an organic vapor respirator if adequate air flow is not available. A small percentage of the population develops sensitivity to exposure, leading to flu-like symptoms or skin irritation. On even rarer occasions, fumes can trigger asthma.

The chemical reaction that allows CA to cure rapidly is exothermic—it gives off heat. When CA contacts natural materials such as cotton or wool, the reaction can generate enough heat to cause a burn and even ignite fabric. Shop towels used to apply CA also get surprisingly hot. Wearing disposable synthetic gloves when handling CA is a sensible precaution. For eye protection, wear goggles or safety glasses.

Among the list of surfaces CA readily bonds is skin. Because CA has lower surface tension than water, it also has a habit of spreading rapidly and undetectably, until suddenly fingers are fused or stuck to the lathe. Acetone can soften cured CA and commercial debonders are available.

With its capacity for rapidly bonding with free moisture, CA has a relatively short shelf life, which can be extended by keeping unopened containers in the refrigerator. Although manufacturers do not recommend the practice, I have found that refrigeration works on opened containers, as long as I make the effort to tightly cap the container. As CA ages, it begins to thicken and cure more slowly. CA can be thinned from another container of the same original viscosity, but be sure to stick with the same brand as manufacturers have different and sometimes incompatible formulations.

There are two indisputable maxims when working with CA. Never glue yourself to anything heavier than you can lift, and always work with a can of debonder within reach! ■

Don McIvor is a full-time turner and artist living in Washington. He welcomes correspondence via email at don@mcivorwoodworks.com.

4 Finish the finish with Abranet. The high spots show up as opaque streaks. Aim for a uniformly opaque surface, which is then polished with increasingly finer abrasives.

5 Sand with a MicroMesh Polishing Sheet and a few drops of oil for lubrication.

6 The red eucalyptus burl razor is well suited to a CA finish, as it will easily resist frequent exposure to soap and water.

Turning Your VERY FIRST BOWL

Old-Time Shop Teacher Demonstrates a Basic Path to Success

John Kelsey

A friend recently asked me for a bowl-turning lesson, but first wanted to understand the complete process. She wanted to know what equipment she might need to add to her basic turning setup, and what expenditures she could postpone or avoid. In particular, did she really have to spring for a scroll chuck before she had even tried bowl turning? I went digging through my woodturning literature but came up dry. I asked Ted Rasmussen, a retired technology teacher from rural Pennsylvania where shop class still matters, for a beginner lesson in turning a bowl without a big investment in special gear.

The shining path, Ted explained, would produce a bowl with no visible trace of its making (*Photo 1*) by using a pair of faceplates, glueblocks, and a shopmade jam chuck (*Photo 2*). For this lesson, we will skip finishing since that is an entire topic on its own. Here is the sequence Ted used:

- Lay out the blank, bandsaw it round, and screw a faceplate onto what will be the top of the bowl.
- Thread the faceplate onto the headstock spindle. Use your choice of scrapers and bowl gouges to flatten the foot and shape the outside of the bowl. Sand the outside.
- Glue a small disk of wood onto the foot and screw a faceplate onto this glueblock.
- Remount the blank on the lathe so you can excavate and sand the inside of the bowl.
- Turn a jam chuck to fit the rim of the bowl.
- Reverse the bowl one more time by fitting it over the jam chuck so you can turn away the glueblock and complete the base.

1 You, too, can turn a beautiful bowl like this with a few tools and a pair of low-tech faceplates on a midi-lathe—no need for a scroll chuck or a big bowl-turning lathe.

2 The jam chuck is a disk of softwood turned to fit the rim of the bowl. To mount a jam chuck or glueblock onto a faceplate, use substantial wood screws such as No. 14. Avoid thin drywall screws, as they will not hold and might break.

3 *(L to R)* A spearpoint tool and three scrapers, large and small bowl gouges, and a parting tool.

Lathe and turning tools

The cherry block Ted used *(Photo 1)* measured 9" (23cm) square by 4" (10cm) thick and weighed 13 lbs. The midi-lathe can handle a 12" (30cm) disk, but the blank for this bowl was about the largest it could drive without vibrating and stalling. You could not manage this much wood on a pen turner's mini lathe.

Ted explained that in the old days, students would begin with a sharp spearpoint tool and a scraper, which do not require much skill. Nowadays, you would begin with bowl gouges, which require more skill. We decided to show both methods in this article *(Photo 3)*, along with two half-round scrapers for finishing cuts.

Choosing wood

"Are we going to use green wood or dry?" Ted wanted to know. That's because the moisture content of the wood illuminates the path to success. Seasoned wood like our cherry square is stable and therefore predictable. Plus, you can create a useful bowl that you can finish and use right away. Green (unseasoned) wood is easier to turn but requires drying time and may seriously distort in the process. It also would require different holding methods than we have shown here.

To reduce the risk of cracking, be sure the center, or pith, of the tree does not run through the blank.

Preparing the blank

Decide which face of the blank will be the top of the bowl. Draw diagonals to find the center of the block and use a compass to draw a circle on that surface. To help envision the profile of your bowl, sketch shapes onto the side or end of the blank (*Photo 4*), although those surfaces will be cut away in the next step. At the bandsaw, cut out your bowl blank (*Photo 5*). If you do not have access to a bandsaw, use whatever sawing technology you have to cut the corners off the blank; an octagon is close enough.

Find the center of the disk (*see sidebar*) and draw a faceplate-sized circle for centering the faceplate on what will be the top of the bowl. Mark the screw locations, drill pilot holes, and screw the faceplate onto the wood (*Photo 6*). Use substantial wood screws (not brittle drywall screws) long enough to penetrate an inch into the blank. Since this surface will be the top, or rim, of the bowl, the screw holes will be turned away later.

True the blank

Thread the faceplate carrying the blank onto the lathe's headstock spindle and bring up the tailstock for added support. A level scraper cuts on center and its bevel does not rub, so set the toolrest the scraper's thickness below center and about ¼" (6mm) away from the circumference of the disk. Rotate the blank by hand to be sure it clears the toolrest.

The bandsawn blank is not going to be perfectly round and the faceplate might not be perfectly centered on the blank. Therefore, set the lathe to its slowest speed. Stand to the side when you turn it on and pay attention to undue noise or vibration; there should not be any. If there is, stop and figure out why. You might have to balance the blank by sawing off more wood. When the lathe runs smoothly, increase the speed (but not to the point where you introduce vibration) and prepare to take the first leveling cut.

Hold the small roundnose scraper horizontally on the toolrest. If you are right handed, your right hand grips the handle and powers the cut, while the left hand holds the tool down tight on the toolrest and steers it across the wood. Because the wood is irregular, the first cuts will be intermittent, as you will see if you stop the lathe to check. Take small bites and repeatedly traverse the ▸


4

Ted studies the block and decides to follow the wood's annual rings to sketch the shape of the bowl. He is trying for a catenary curve, the shape of a hanging chain and also of the St. Louis Arch.


5

Bandsawing the blank into a disk removes 25% of the original mass. Cutting a thick blank like this requires a sharp blade with no more than 3 or 4 teeth per inch.


6

Use hefty screws to attach the faceplate to your bowl blank. Drill pilot holes for the screws.

(7) Ted trues up the circumference of the bowl blank.

(8) The small round-nose scraper flattens the face of the blank. The left hand holds the tool down tight on the toolrest and guides the traverse by sliding along the toolrest. The right hand steadies the tool and powers the cut. The scraper is level and its direction of cut is from right to left (center to outside edge). Ted used the tailstock for support but removed it to make the final truing cuts on the face.

(9) With the blank trued level and round, Ted stops the lathe to outline the bowl's foot. He also sketches the profile on the disk to help visualize the wood to remove.

Faceplate management

In this era of the scroll chuck, beginning turners are not always taught how to work with a faceplate. Here are some tips.

An ordinary framing square (*Photo a*), or the square corner of a piece of wood, can help you find the center of a bandsawn bowl blank. Put the corner of the square anywhere on the edge of the circle and mark where its arms cross the edges. A line connecting those two points is the diameter passing through the center. Shift the square to draw several diameters and you will find the center where they intersect.

To center the faceplate on the blank, you could just eyeball it or use a compass to draw a faceplate-sized circle. Or you could use a shopmade centering mandrel. To make the mandrel, install a finishing nail into the end of a cylinder turned to fit the hole in the center of your faceplate. The nail serves as a marking point. Drill a hole into the cylinder while it is still on the lathe (*Photo b*) and cut the head off the nail before you tap it in.

To use the mandrel, first mark the center of your bowl blank at the intersecting diameter lines. Press the nail point into this center mark and slide the faceplate over the mandrel (*Photos c, d*). Mark the screw locations with a pencil and punch them with a scratch awl.

You want a tight and secure hold on your bowl blank, so bore pilot holes for substantial screws (No. 12 or 14) long enough to protrude ¾" to 1" (19mm to 25mm) beyond the faceplate. To gauge the depth, wrap a piece of masking tape on the drill bit (*Photos e, f*). To make the screws easier to drive, scrape a little paraffin wax onto their threads.

With the square's corner at the edge of the blank, mark the points where the square's arms cross the edges. Geometrically, these two points lie on a diameter.

Bore the shopmade mandrel while it is still on the lathe. This guarantees a centered hole for the nail point.

A shopmade centering mandrel simplifies locating the faceplate on your bowl blank.

Wrap masking tape around the drill bit to indicate the hole depth when predrilling for faceplate screws.

wood to smooth and level the entire surface (*Photo 7*).

Switch the lathe off so you can move the toolrest to the face of the blank. Rotate by hand to make sure the wood does not contact the toolrest, restart the lathe, and true the blank's face in the same way you trued its circumference (*Photo 8*). Now, with the lathe switched off again, draw the foot of the bowl onto the edge of the blank and try to visualize where you will remove wood (*Photo 9*).

Shape the outside

There is a lot of wood to remove, but it can be done safely and efficiently with good technique. Ted realigns the toolrest to the outside edge of the bowl blank and just below center. He brings up the tailstock for safety and support and begins with the spearpoint tool (*Photo 10*), a kind of scraper. With the tool firmly planted on the toolrest, he pushes the point into the wood to cut a series of grooves through its tough structure. Then he pulls the edge of the spearpoint smoothly along the toolrest to remove the loosened chips (*Photo 11*). The chips really fly as each sequence of cuts skins off a layer of wood.

As an alternative to scraping, Ted demonstrates the bowl gouge, sharpened with sweptback wings visible in *Photos 12* and *14*. Ted takes a comfortable, wide-footed stance that allows him to traverse the surface by swaying from the ankles, rather than shuffling his feet sideways (*Photo 13*). He holds the gouge down on the toolrest with an overhand grip and rotates the tool so its flute is about 45°. He swings the handle so the shaft meets the wood at about 45°, also. The gouge's bevel below the sharpened edge rides on the just-cut surface, stabilizing the cut and reducing grain tearout. When Ted presses the edge of the tool into the wood and sweeps it across the surface, the gouge peels off ribbons of shavings up to 1/16" (1.6mm) thick (*Photo 12*).

As the outside of the bowl takes shape, Ted takes increasingly thinner shavings (*Photo 14*) and pauses often to sharpen the tool: the smoother the wood, the less sanding. Nonetheless, he begins sanding with coarse 60-grit abrasive and continues until there are no visible grooves, divots, or torn grain. Then he moves through the grit sequence—60, 100, 150, and 220—which leaves the wood smooth and gleaming. Finally, he removes the tailstock and turns his attention to flattening the bowl's foot. ▸

Spearpoint scraper, bottom view.

To begin shaping the outside of the bowl, Ted cuts with the left edge of the spearpoint scraper, rapidly forming a series of grooves he then skims off with the tool's edge. He pulls the tool's handle toward the headstock of the lathe, dragging the edge from right to left.

With its flute rotated 45° and handle swung 45° to the wood surface, the bowl gouge peels off a ribbon of wood with a bevel-rubbing cut. Shape the outside of the bowl, cutting with the grain, from the foot toward the rim.

Ted takes a comfortable, wide-footed stance. To traverse the surface with the tool, he sways from the ankles while rotating his right shoulder and elbow.

The large bowl gouge makes finishing cuts. To control the action, Ted eyeballs the top silhouette of the spinning wood.

Gluing the block

The faceplate-and-glueblock technique allows you to turn a bowl with a very low foot, whereas a scroll chuck uses more of your valuable bowl wood to grab onto. But the low foot does need to be perfectly flat to achieve a good glue joint. With the tailstock out of the way, Ted pulls the large scraper across the foot (*Photo 15*). He checks with a straightedge (*Photo 16*) and repeats the cut until the wood is flat and smooth. Then he removes the bowl from the lathe and sets it aside, leaving it screwed onto its faceplate.

The glueblock is a flat disk of ¾"- (19mm-) thick wood bandsawn a bit bigger than the bowl's foot. Ted mounts it onto a faceplate and uses the roundnose scraper to true its face and edge and shave it to the exact size of the bowl's foot. Then he removes the glueblock, along with its faceplate, from the lathe and remounts the bowl onto the headstock spindle.

With a small brush, he spreads yellow wood glue onto the foot of the bowl and also the face of the glueblock. Then he uses the tailstock of the lathe with a live center that just fits the bore of the faceplate to press the faceplate and glue block into position on the bowl. Press gently at first and rotate the assembly by hand to be sure it is centered (*Photo 17*).

15 The large scraper levels the bowl's bottom.

16 The straightedge reveals deviations in the flatness of the bowl's bottom.

17 Spread glue on both surfaces and use the tailstock to center and clamp the block to the bowl. Let the glue cure thoroughly before proceeding.

18 Remount the bowl by threading the glueblocked faceplate onto the spindle. For safety, bring up the tailstock for extra support.

19 The bowl gouge removes a lot of wood in a hurry, but soon it cannot reach the wall of the bowl because the tailstock is in the way.

20 With the tailstock out of the way, Ted can swing the bowl gouge handle wide over the ways of the lathe to pare wood off the bowl walls.

21 The small bowl gouge chews through the center nub of wood that had supported the tailstock.

Excavate the inside

Once the glue has dried, Ted removes the bowl from the lathe and removes the faceplate that has held it thus far. He threads the glueblock faceplate onto the headstock (so the top of the bowl faces out) and brings up the tailstock (*Photo 18*). Then he uses the spearpoint, roundnose scraper, and bowl gouge to remove wood as before (*Photo 19*).

Ted plans to excavate the interior in stages. He will keep the tailstock in place as long as possible but soon it is in the way and needs to be removed (*Photo 20*). Using a small bowl gouge, Ted removes the post of wood where the tailstock was (*Photo 21*). He will go down an inch or so, refining and smoothing the bowl wall before going any deeper. The mass of unturned wood stabilizes the thin wall and dampens vibration (*Photo 22*). He turns his attention momentarily to the rim of the bowl, shaping it to a gentle curve (*Photo 23*), and resumes excavating, but how deep to go? Ted uses a ruler to sight across the bowl and confirm it is 4" (10cm) thick. He wants a bottom about ½" (13mm) thick, so now he can locate the ultimate bottom of the bowl by boring a hole 3½" (9cm) deep in its center (*Photo 24*). After placing a piece of masking tape around the ⅝" (16mm) Forstner bit shank exactly 3½" from its tip, ▸


22

Ted gauges wall thickness with his fingers and makes the bowl wall smooth with fine cuts before hollowing deeper.


23

The small bowl gouge shapes a gentle crest on the rim.


24

The tailstock quill advances the drill bit into the rotating wood. The process needs the steadying of one hand on the Jacobs chuck.

Connections

The wonderful block of seasoned cherry that Ted Rasmussen turned came to us from the enormous trove of Phil Brown, an AAW member in Maryland. In 2013, Phil and his wife, Barbara, hosted five International Turning Exchange (ITE) residents. The annual ITE, sponsored by the Center for Art in Wood, brings a small group of wood artists together for eight weeks at the workshops of University of the Arts in downtown Philadelphia. While they are in town, the residents also visit museums and collectors in the U.S. capital region and participate in local AAW events, such as the annual Echo Lake collaborative organized by the Bucks County Woodturners, an AAW chapter in Pennsylvania.

One of the residents the Browns hosted was Ben Carpenter. Phil gave the cherry block to Ben, who by the end of the eight-week ITE program had not turned the wood and could not easily ship it to his studio in Portland, Oregon. So Ben passed it along to me, John Kelsey, the resident photojournalist for the 2013 ITE. I offered it up to Ted, who used it to illustrate for beginners how to turn their very first bowl. Ted and I decided to give the finished bowl to Phil, who was surprised and delighted the cherry wood had come full circle. Big fun to make these connections!

(Left) *AAW member Phil Brown (left) unwraps a tarp to show an awestruck visitor pallets piled high with slowly drying slabs of choice turning wood. Phil harvested and carefully stored enough wood for several lifetimes.*

(Right) *Australian wood artist Neil Turner admires wood that Phil Brown gave to turner/sculptor Ben Carpenter during the 2013 International Turning Exchange.*

he advances the tailstock quill in careful stages, eyeballing the tape's progress toward the plane of the rim and withdrawing the bit frequently to clear the chips.

Now he can continue hollowing until the drilled hole-bottom appears (*Photo 25*), alternating between the spearpoint and roundnose scrapers and the bowl gouge. He refines and smoothes the bowl wall as he goes. The heavy half-round scraper makes the final smoothing cuts that fair the bowl walls into the bottom (*Photo 26*). Then comes the complete sanding sequence on the inside, from 60 grit through 220 (*Photo 27*). Sanding the wood takes as long as excavating it, maybe longer. Ted wears a dust mask while he patiently works through the full grit sequence.

Finishing the foot

The last step is to turn away the glueblock. But how can we hold this almost-completed bowl on the lathe without leaving any hint of how it was held? Ted makes a jam chuck. Center and screw a faceplate on a disk of 1"- (25mm-) thick softwood a bit larger than the inside diameter of the bowl's rim and mount it on the lathe. True the disk and cut a shoulder where the bowl rim will sit. Taper the shoulder a little at a time so you can sneak up on a good friction fit, to center and hold the bowl in this orientation


25
The depth of the hole indicates the inside bottom of the bowl. The toolrest is angled to be as close as possible to the cut.


26
The large scraper pares the wood and leaves a smooth surface. The scraper's mass helps dampen grain-tearing vibration.


27
Ted tears sheets of abrasive into strips and trifolds each strip to attain three fresh sanding surfaces. Switching the lathe direction from forward to reverse, he keeps the abrasive moving across the wood surface. The fold of paper towel backs up the abrasive and protects his fingers from frictional heat.


28
The jam chuck is a trued disk of softwood a bit bigger than the bowl's diameter.


29
Shape the edge of the jam chuck to fit the mouth of the bowl.


30
Ted presses the bowl snugly onto the jam chuck.


31
Turn the glue block off the foot of the bowl, leaving the tailstock in place as long as possible.

(*Photos 28–30*). With the tailstock brought up for support, Ted turns away as much of the glueblock as possible (*Photo 31*), finally pulling the tailstock away and gingerly scraping the last traces of glueblock and glue off the lovely cherry wood.

Study project

Ted and I had planned to present this story as a study project with learning as the goal, never mind a finished bowl. We were going to saw the bowl in half and assess its cross-section; this exercise gives you valuable feedback about variations in wall and foot thickness. We still think you should do that, as you would learn a lot. But we have to confess: we chose not to (*Photo 32*). Cut it or keep it, you will always treasure your first bowl. ■

John Kelsey and Ted Rasmussen are members of the Lancaster Area Woodturners, an AAW chapter.

Ted's sample bowl was too nice to cut for cross-section examination.

From the Journal's Online Archives

Did you know that every issue of *American Woodturner*—all the way back to the first newsletter printed in 1986, vol 1, no 1—is available online at the AAW's website, woodturner.org? AAW members have free access to this vast library of information, as well as a searchable index to help locate specific topics. This is a valuable asset available to all AAW members.

Many journal articles, including those listed below, are back in print via the AAW's *Getting Started in Woodturning* series. These handy paperbacks consolidate information in topic-specific volumes and are available through the AAW's website.

For more information on bowl turning, check out these previously published articles. Visit woodturner.org and click on the *American Woodturner* tab, followed by *AW* Journal Archives.

"Twenty Ways NOT to Turn a Bowl," by Nick Cook, Spring 2006. Nick's comprehensive article will help beginners avoid pitfalls and safely turn bowls.

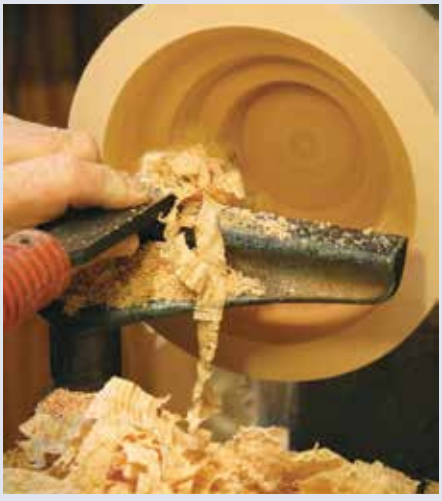
"Faceplates—A Simple Solution to Attachment," by Jim Rodgers, Spring 2009. Faceplates come in a variety of sizes and styles. Jim provides an overview, including using the appropriate screws.

"Scrapers: A Eulogy," by Richard Raffan, April 2012. Richard explains his methods for using scrapers to achieve clean cuts on bowls. Photos offer various profiles to achieve a variety of results.

"Real Woodturners DO Use Scrapers," by Russ Fairfield, Spring 2003. If you want to learn more about the effectiveness of burrs on scraper edges, Russ's article explains it in detail.

"Turning Lumber: Bowls and Plates from Rough-Sawn Boards," by Betty Scarpino, June 1994. Betty offers several solutions to safely remounting dry-wood bowls for returning bottoms.

The spindle roughing gouge and skew chisel—not safe for bowl turning (Nick Cook, AW vol 21, no 1).



Learn more about using scrapers (Richard Raffan, AW vol 27, no 2).

Russ Fairfield describes how to get a good burr (AW vol 18, no 1).

What you need to know about faceplates (Jim Rodgers, AW vol 24, no 1).

Woodturning *at the* Barnes

Did an early champion of modern art foresee the rise of artistic turning at the end of the 20th century?

Two Wall Ensembles. On the left, two candlestands share an arrangement with Renoir. A mortar and pestle reaches into the frame of a late Cézanne on the right.

Peter Exton

In 2008, while a resident of the International Turning Exchange in Philadelphia, I was able to immerse myself in the city's fabulous array of cultural offerings. Among its gems is the Barnes Foundation, by any measure one of the most significant private art collections in the country. Assembled by Dr. Albert C. Barnes over several decades in the first half of the 20th century, the collection encompasses a breathtaking number of masterworks by giants of post-impressionist and early modern art, including paintings by Picasso, Cézanne, Van Gogh, Renoir, Matisse, and many others. By one count, there are more Cézannes in the Barnes than in all the museums of Paris, and the total collection is valued upwards of $25 billion.

One other thing—the Barnes has turned wood. Lots and lots of it, carefully placed throughout the gallery spaces, exhibited alongside all those famous names. Woodturning and Matisse, woodturning and Picasso, woodturning and Degas, Klee, Monet, Seurat, Rousseau.

A different kind of art museum

If you haven't heard of the Barnes, you're not alone. We might all be very familiar with this spectacular collection if not for Dr. Barnes's unfortunate response to critical rejection of it early on. In 1923 he staged an exhibition of his new European paintings, including works by Matisse and Renoir, at the venerable Philadelphia Academy of Fine Arts. The press and arts establishment were not prepared for what they saw and reacted brutally. The show was called "grotesque," "debased," "an abuse." Barnes bitterly dismissed the critics as ignorant and resolved not to privilege them with seeing his collection again. He installed it permanently in a specially designed building next to his home in the tony suburb of Merion and restricted access to it for the remainder of his life and for decades more through his will. The art didn't travel, and there weren't many reproductions. Essentially shuttered away, the collection was seen by few and influenced fewer.

In recent years financial problems forced a relaxation of rules for access

Paul Cézanne, French, 1839-1906, *The Card Players (Les Joueurs de cartes),* 1890-1892, Oil on canvas, 53¼" × 71⅝" (135cm × 182cm)
The largest and most complex of a celebrated series based on a card game, one of 67 Cézannes in the Barnes collection.

Wall Ensemble. Two Modigliani paintings bracket this arrangement, which includes turnings in a writing desk and a straight-back armchair. Metal key escutcheons and hinge halves punctuate the top of each column of paintings.

to the Barnes. When I visited at the original Merion location—it was moved with much controversy into Philadelphia in 2012—I had to call ahead for a ticket, but unlike author James Michener, I didn't have to pose as an illiterate steelworker. Like everybody else, I went for the paintings. Starting with Cézanne's *Card Players* in the main hall, room after room is filled with wonderful works. In one room, on the same wall, there are ten Matisses, eight Picassos, two Braques and a Soutine arranged around a large Modigliani. A single visit can't really take it all in.

As I moved through the galleries, it quickly became clear that this place is a bit different from other museums. The rooms are carefully arranged displays of paintings as well as other objects. The walls are an earthy pinkish tone somewhere in the range of clay gardening pots. The paintings, often mounted too high to allow close examination, are not presented with individual artists, locales, styles, or time periods together, but are instead mixed without apparent purpose throughout the galleries. There are no labels or commentary on the walls, only booklets identifying paintings and some of the objects. Scores of small pieces of ironwork, mostly ornate hinges and keyhole escutcheons, are hung on the walls with the paintings, and furniture and other wood objects are also displayed.

After a while I became aware that each room had at least one wood object in it with turned wood as part of the piece. I began to note each room with woodturning as I made my way through. In the end, every display space save the main hall, with only one large sideboard, contained turned wood. Twenty-three of twenty-four spaces, totaling more than eighty individual works, over half of the wood pieces in the collection.

In the years following that first visit, I have wondered about Dr. Barnes and the woodturning in his collection, and whether there is anything we can learn from his attraction to it. As a defender of cutting-edge developments in fine art when his contemporaries could not see its value, Barnes seems to have had a good sense of where art was headed. Is it possible he also could have anticipated the recent boom in woodturning as a way of making art?

Ensembles

The room arrangements—he called them "ensembles"—are the design of Dr. Barnes, and they are intended to instruct the viewer. A physician, chemist, inventor, and wealthy businessman, Barnes rejected established art education after the 1923 exhibition and developed his own ideas about art, insisting that art could only be appreciated properly through "systematic study." He set up his foundation as an educational institution, where he taught his theories to carefully screened students who had not been misguided, in his opinion, by the art establishment. The combinations of paintings and other works he put in the rooms served to illustrate his ideas. The absence of identification is intentional; we are encouraged to form our own thoughts about what makes good art, rather than rely on a famous name or curatorial comment. The collection has been preserved as Barnes had arranged it at the time of his sudden death in a car crash in 1951.

The turned wood

Most of the turned wood is familiar in its form, the bulk in American ▸

Yarn Winder, unidentified maker, United States, late 18th-19th century, Ash and walnut, 49" × 23" × 20" (124.5cm × 58cm × 51cm)

Almost entirely turned and unusual for its stick-figure form, putting a little fun in function. Lengths are measured out by wrapping the yarn around the crosspiece as it revolves.

Candlestand with Six Legs, unidentified maker, geographical origin unknown, 18th century, Wood, 25" × 13" × 13" (63.5cm × 33cm × 33cm)

Several furniture pieces in the collection have more than the usual three or four legs.

Candlestand, unidentified maker, geographical origin unknown, 19th century, Maple, tulip poplar, and possibly ash, 26½" × 16" × 16" (67cm × 41cm × 41cm)

An unusual treatment of the table base, enabling short legs to provide ample stability.

furniture pieces of the 18th and 19th centuries, mostly chairs and tables. Barnes also acquired some functional but visually quirky pieces, including a yarn winder and screw candlestands with tabletops and candle-arms that can be raised or lowered as needed on a threaded central column.

The collection includes many other candlestands and Windsor chairs, both types a showcase for woodturning. The candlestands are all different, as if illustrating how a simple idea can generate many interpretations. Philadelphia is known for the early production of Windsor chairs, regarded historically as belonging to the tradition of the turner, and Barnes acquired many variations of the style. His focus on this light yet sturdy, clean-lined utilitarian chair type is interesting because it developed alongside the very ornate Chippendale style also made in Philadelphia. He chose to display only Windsors. It's worth noting that although Windsor chairs were almost always painted when made, Barnes acquired many that were not. It is difficult to know without close examination whether these are rare unpainted pieces or have been stripped and refinished. In any event, as a collector in furniture-rich Philadelphia, Barnes was not necessarily buying the most valuable wooden things he could find. He was focused on form.

One chair is very intriguing, and a little weird. Identified as a 17th-century Great Chair from England, it is entirely turned except for the seat. Although imposing like a throne, it has only three legs, which frame the triangular "three-square" seat. A clever design of the rear supports transforms the arms and back into a cubed space to accommodate the sitter. Most of the turned elements are both tapered and beaded, their clean, precise balance and uniformity revealing a high level of technical skill. The front legs extend above the arms where they stop abruptly in a virtually flat slice across the broad end of the log. With all the other carefully considered aspects of the chair's composition, it is difficult to dismiss this as clumsy design. It could be just the opposite: the flat ends are ideal for draping a patrician hand, displaying the jeweled rings of power. Harvard University owns a similar piece known as the President's Chair. *(See sidebar.)*

Why so much turned wood is in the collection is probably linked to Barnes's educational aims. He saw connections across the arts and thought them significant—a shape or pattern found in an important painting could also be found

in a common piece of furniture or a wrought iron hinge. To demonstrate these connections, he brought together objects with his eye on form, which may have attracted him to the distinctive contours of woodturning. Moving through the galleries, it becomes evident that turned spindles, tabletops, beads, and curves add to the range of form in each ensemble, while helping also to break up and soften the effect of rectangular frames and furniture pieces, especially the large chests. The distribution of turned pieces throughout the collection begins to make sense in the overall Barnes scheme, explaining why most rooms have a mixture of many things, including paintings from multiple artists and periods. In each ensemble, Barnes provided himself a wide vocabulary of form for discussion.

Craftspeople are artists

Barnes professed a high respect for the work of craftspeople. "We regard the creators of antique wrought iron just as authentic an artist as a Titian, Renoir, or Cézanne," he told the painter Stuart Davis. Although he didn't think the ironwork rose to the same level of expression as a Cézanne, he did feel the ironworkers "express something of their own experience," a phrase that could apply to much fine art of the current century.

Through the context of form, Barnes stressed his belief that art is always in transition, evolving over time. Shapes and patterns descend from "what has gone before, but modified by new environment." He developed lectures with furniture on this theme, once using examples of chairs spanning several centuries "to show the gradual transition of the early features into what they became later." He had used this method for many years with the paintings, to "show how the modern painters are legitimate successors of the old masters."

Although Barnes did not specifically predict a creative breakout of ▸

The Harvard President's Chair

The Barnes Great Chair is certainly uncommon, but its "three-square" design is not unique. A very elaborate version from the same era, known as the President's Chair, is owned by Harvard University. Each spring the president of the university sits in it during graduation ceremonies, as well as during other formal occasions.

Edward Holyoke brought the chair to Harvard while president in the mid-1700s; no one is sure where he got it. It has been used by Holyoke and several other presidents for their official portraits and has also inspired poetry and some mild student mischief (a kiss the fee if a young lady sat in it).

According to Robert F. Trent in the catalog for the 1982 exhibition New England Begins at the Boston Museum of Fine Arts, the President's Chair is likely from Wales or western England, probably late 16th century, based on the medieval ornamentation. Three other virtually identical examples from the same shop are known.

The heavy structure over the back leg makes the chair very unstable. Making holes for the tenons of the many cross members was likely as difficult as it looks, and many are loose. As a bit of flourish, half a dozen loose rings, like those on a turned baby rattle, dangle from dowels on the back.

Originally, the front posts had flat tops like the Barnes chair. Apparently dissatisfied with the appearance, Holyoke "added" the two oak handgrips now there. Over the years, some have taken this to mean that Holyoke actually made them, but this is doubtful. As turners know, cleanly shaping two large matching balls out of open-grained oak is not as easy as it sounds, especially if your day job and social standing keep you from getting any practice.

Great Chair, unidentified maker, England, 17th century, Various woods, 38¼" × 26" × 19¼" (97cm × 66cm × 49cm)

Although unsteady, the Barnes version of this three-legged design encourages development of the back post and supports for visal effect. The seat is missing its cushion or padded insert.

"The President's Chair"; Turned Three-Square Great Chair, unidentified maker, Wales, 1550-1600, European ash, American oak handgrips, 46½" × 32½" × 19⅜" (118cm × 82.5cm × 50cm)

Harvard Art Museums/Fogg Museum

(Above) Windsor Armchair, unidentified maker, United States, c. 1800, Wood, 31" × 23½" × 16¾" (79cm × 60cm × 42.5cm)

This well-used bow-back Windsor features simple turnings and a very worn front member of a four-stretcher substructure.

(Right) Comb-back Windsor Armchair, unidentified maker, Pennsylvania, c. 1780, Wood, 46" × 23⅜" × 27" (117cm × 59cm × 69cm)

Long, lean, and elegant, with finely articulated turnings, this chair contrasts sharply with the Great Chair in the same room.

woodturning sometime in the future, such a development is consistent with his attitude and beliefs. Respectful of the artistic capabilities of craftspeople and believing that art continually changes, he likely would interpret the recent surge of artistic woodturning as a transition in line with his theories.

A complicated man

If we can assume that Barnes anticipated in principle that craft woodturning could evolve into fine art, trying to figure his thinking more precisely than that is very difficult. Barnes didn't leave his educators any examples of a connection he drew between a particular work of wood and a painting, and his archives provide very little guidance beyond his comments to Stuart Davis about the iron.

Speculation about his thinking is also confused by some aspects of how the collections are displayed. Although Barnes was drawn to radical, rule-breaking work in painting, his ensembles fall into a predictable pattern that in any other context would come off as decoration. Typically, he placed a large painting in the center of a wall, with a large chest or furniture piece centered beneath it. This painting is then flanked by a balanced arrangement of smaller paintings seemingly chosen for the graduated sizes of their frames. Metal work and other objects are hung above and beside the paintings to complete a neatly balanced display. The pattern continues to the floor, where the large furniture piece is flanked by pairs of

similar tables, chairs, or andirons for yet more symmetry.

The interior of the new museum replicates almost exactly Barnes's layout in Merion. A look at the floor plan reveals that the rooms are arranged within the building just like the ensemble displays, with gradually smaller spaces bordering the central main gallery. Wow. A building and displays that follow his rigid rules, showing painting after painting that celebrates breaking the rules. Barnes was a very complicated man.

Barnes claimed a high regard for iron workers as artists, yet a regular feature of his ensembles is the detached halves of ornate hinges, hung separately on a wall to balance an arrangement. By doing this, Barnes disregarded the intent of the maker, undoing the craftsman's composition to serve his own purposes. In most cases, it is unlikely the halves are hung in their correct orientation. Going further, Barnes often combined a hinge half with a keyhole escutcheon to create something entirely different, of his own making. Rather than suggest something important about the nature of art, these contrivances seem like garnish from found objects, except these objects are repurposed fragments of someone else's finished work. Whatever his motivation, many a modern craft artist would regard it as a rude attack on their art, born of ignorance about craft. Hinges are quickly separated and convenient to hang. Owing to time-tested construction techniques, the turned furniture elements could not be easily pulled apart, so those compositions remain intact. No painting was similarly vandalized.

A key to understanding?

Just when it seems Barnes didn't really respect craft artists, there is Room 22, where he displayed anonymous, handcrafted wooden masks and sculpture from Africa together with Picasso paintings famously inspired by that art. Clearly, he wants the viewer to ponder, who is the genius here? Why not both? Certainly Picasso saw art in the Africans' woodwork. Why should the medium matter? Throughout the collection, with his wood, metal, and other objects, Barnes brought the different traditions of fine art and craft closely together for direct comparison and contemplation.

Despite the contradictions, it seems safe to say Barnes wanted us to appreciate that there is art in craft. When he put a chair featuring turned elements below a painting, it is possible he wanted us to consider that the painter and the furniture maker have much in common when producing their work, and one might borrow from the other just as Picasso had borrowed from the African wood artists.

Barnes believed that change in art was inevitable; he expected it. Although he couldn't know the form change might take, it is reasonable to think he was looking far beyond the individual chair, anticipating some kind of creative transition in wood. We know now that the turnings in the chair have evolved into all manner of works pushing the boundaries of the medium, descending from "what has gone before, but modified by new environment."

If we could ask Dr. Barnes, he just might say he saw it coming all along. ■

Thank you to the staff of the Barnes Foundation for help in researching this article. All images © The Barnes Foundation, except The President's Chair, © Harvard University.

Peter Exton paddles his canoe in the headwaters of the Susquehanna River in Otsego County, New York, hub of American hop culture in the 19th century. He brews beer, taps maples for syrup, and bakes a respectable anadama bread. He also turns wood, on view at peterexton.com.

Vincent van Gogh, Dutch, 1853-1890, *Houses and Figure*, 1890, Oil on canvas, 20½" × 15⁵⁄₁₆" (52cm × 40.5cm)

Painted within months of Van Gogh's death, this is one of hundreds of works by important artists virtually unseen for most of the 20th century.

Screw Candlestand, unidentified maker, United States, 20th century, Wood, 34" × 15⅝" × 17¾" (86cm × 40cm × 45cm)

Standing only a few feet from Van Gogh's *Houses and Figure*, this candlestand allows adjustment of both the candleholders and the tabletop beneath.

DEWEY GARRETT

LEFT BRAIN + RIGHT BRAIN = CREATIVE GENIUS

Terry Martin

Dewey Garrett is one of the great innovators of the contemporary woodturning world. His polite and modest manner conceals a fiercely intelligent mind, capable of researching and developing unique ways of turning that both build on and defy tradition. How Dewey arrived at this level of achievement is a story of dedication and hard work.

Dewey Garrett

Photo: Terry Martin

Early influences

As with so many wood artists, Dewey's story began at home. He grew up in Richmond, Missouri, a town with a little over 4,000 people. "Both my parents were natural craftspeople," he says, "and in the 1930s and 1940s they built their own furniture and my mother ended up doing the turning. They both used the local high school shop and my mother always told me how much she respected the teacher there, so he was probably the one who taught her how to turn. My father had a little Craftsman lathe that would swing maybe 8 or 10 inches (20cm to 25cm)." Dewey proudly holds up a lamp and says, "My mother made this lamp, which I'm pretty sure she designed herself. She also made handles for drawers that my father made." He continues, "She'd turn a spindle out of two pieces separated by paper and then split it to make two really nice drawer pulls. She made wall sconces the same way and I think she turned legs for tables." Growing up in such a family, it is not surprising Dewey's interest in woodwork started early: "I was allowed to play with the drill press and the lathe and eventually I made something on the lathe. Of course it was all scraped."

Despite his early interest, Dewey never took woodshop at school, probably because he was always busy with science projects. His abilities surfaced early and even as a high school student he was selected to take a project to a national science fair. After high school Dewey got a scholarship to Northwestern University, after which he went to Los Angeles to work for Hughes Aircraft. While there he obtained his Master's degree in engineering. Dewey says he was engaged in cutting-edge research right from the start: "I ended up in the laser department where we worked on laser designators and rangefinders and the department I was in was the first to bounce laser beams off the moon to measure the distance."

In 1981 Dewey moved to the Lawrence Livermore National Laboratory in Livermore, California, to work on big laser projects. It was during this time that those early influences from his parents resurfaced. He went to the local library to look at woodworking books and eventually bought a house in Livermore with a garage big enough for him to make furniture. Around 1983 Dewey wanted to make a stool with turned legs, so woodturning once again became part of his life: "I used my Shopsmith clone to turn the legs and not long after that I tried making bowls. That pretty seriously interrupted my furniture making."

Evolution of a style

Dewey has been a careful collector of his own work. Looking around his living room, it is possible to see how his own turning followed the different stages of the woodturning revival, from simple

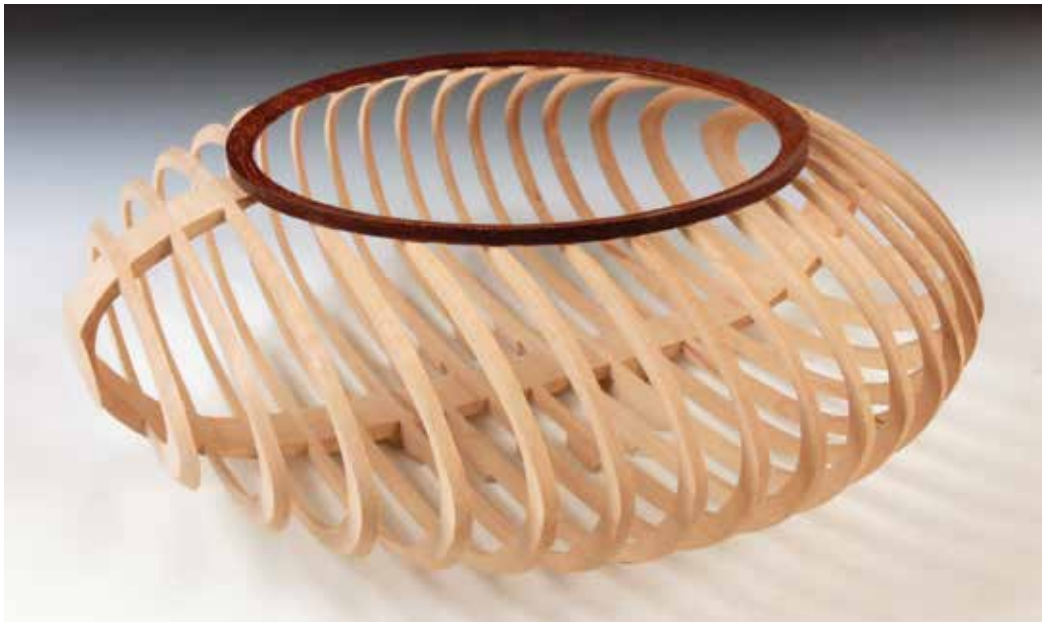
furniture parts to basic bowls, natural-edged bowls, and an early foray into hollow vessels. "I eventually decided I didn't want to do the same as everyone else," he says. Unlike many who start out with that ambition, Dewey was particularly well equipped to succeed, and the turning world soon started to take notice. There had never been a turner like Dewey before and that is still the case.

Dewey's professional discipline as an engineer is constantly reflected in his alter-ego world as a creative turner: "I work on one theme until I run out of ideas and by then I hope that I have a new theme to work on. I've produced my lattice series and petal series, my sphere series evolved into the columnated sphere series, which evolved into my columnated vessel series, which evolved into my gridded series and suspension series—and so on. One way or the other, they all evolved from each other."

Around six years into his turning life, Dewey started creating his *Moiré* series, perhaps the first truly original work he made. "I blew up a fair number trying to work out how to make them," he says, "but there are few things in turning that I have given up on. Once I could do it, I went through stages of trying different lattice separations, different shapes, removing the rim, and so on." Dewey pauses, then continues: "I was pretty dumbfounded myself that I had an idea that was so individual. Even now it's still hard for me to think of my work as art. I tend to think of it as problem-solving or engineering."

In 1992 Dewey made *Moiré in Maple and Padauk*. He still considered himself a beginner at this stage: "This was when I discovered that a left-brain and introverted engineer might have some right-brain characteristics too. I worked on the process for several years with lots of failures. My final process was first to mill thin wood slats and spine pieces, and then to mill thin wood filler or sacrificial slats. I assembled and glued the pieces into a square block, but the sacrificial pieces were held by compression with no glue. After I bandsawed the block to round, I made and attached the segmented rim and turned the outside to shape. After taping the outside, I turned the inside to shape, removed it from the faceplate, and finally removed the fillers and cleaned it all up. My success rate with these improved from about 25% to 75%, with some impressive failures. My last pieces were made with no rim and named *LIM (Less-Is-More)*. I never made any after *LIM #3* and it is in the collection of the Center for Art in Wood."

Dewey also started his *Petals* series in 1992. An early example is *Petals Bowl*. Dewey explains that this shallow bowl included inset petals made by turning rings of glued-up plugs. "The plugs are crossgrain cylinders," he says, "unlike dowels which have the grain running along the cylinder axis. By properly arranging the plugs in a circle, the cutting goes with the grain." In 1993, Dewey made a more complex permutation of this series, *Walnut Petals*, by combining the ideas of his skeletal *Moiré* ▸

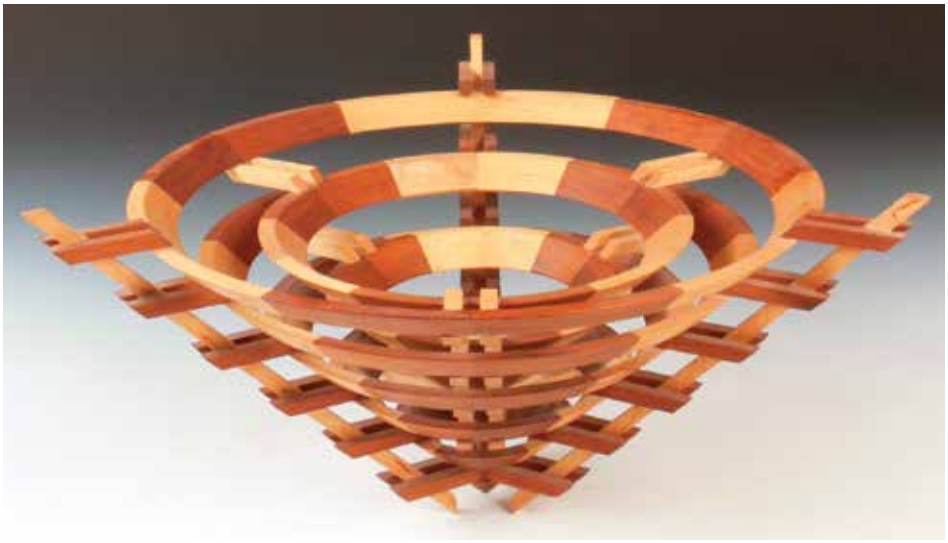


(Top) Moiré, 1992, Maple and padauk, 24¼" × 11" (61cm × 28cm)

(Bottom left) Petals Bowl, 1992, Maple, 4" × 10" (10cm × 25cm)

(Bottom right) Walnut Petals, 1993, Walnut, 3½" × 9" (9cm × 23cm)

Temple Sphere, 1994, Oak, 9" dia (23cm); Inset: Interior detail



(Above) Recursion, 1998, Maple and Padauk, 7" × 13" (18cm × 33cm)

(Right and below) Colosseo in Oak, 1998, Oak, 10½" × 14" (27cm × 36cm) (dome view); Inset: colosseum view, 7¼" high (19cm)

series with the solid turned plugs. Even this early work was guaranteed to elicit the response, "How did he do that?" Dewey's explanation understates the difficulty: "After learning how to make rings of crossgrain plugs, I assembled a bowl blank made up entirely of plugs and a small solid base. Modern glues are very strong and the grain orientation allows this type of vessel to be turned without additional supporting material."

In 1994 Dewey started his amazing series of spheres with interiors that take "How did he do that?" to a different level. *Temple Sphere,* the first in the series, is a perfect example of how he was able to blow away all preconceived notions of how turning can be presented. The sphere was made by assembling lengths of wood that are square in cross-section, but shaped to leave a void in the center. Individual lengths are pre-turned and once the assembled block is turned to a spherical form, the sphere is cut open at an angle to reveal the inside. In this example, the outside is carved to accentuate the sections of the assembly, while the inside contains columns and a ceremonial font. Dewey is impressively capable of inside-out thinking.

Dewey is a relentless problem-solver and each piece represents years of careful development. By 1998, his work was achieving a degree of sophistication that placed him among the great innovators of the turning revival. *Recursion* is a perfect example, as Dewey explains: "This open-form vessel is assembled from glued-up, segmented rings and additional supporting arms. For pieces like this, I make a sketch on a gridded page and then make the measurements needed to cut and turn segmented rings. I made many open-gridded and scaffolded forms with this method. This piece includes a form within a form and the name alludes to the potential for repetition."

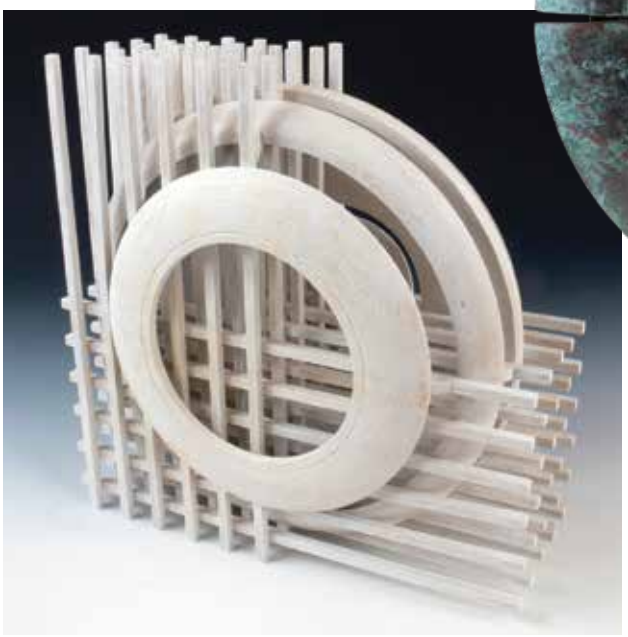
Dewey's experiments soon led him in a completely new direction. "After making a number of spheres," Dewey explains, "I wanted a way to mount or display them and that led to the colonnaded base. I enjoyed making the architectural elements, and the series evolved to making vessels that could be suspended in a colonnade to make a colosseum. In *Colosseo in Oak*, the bowl can be inverted to make another architectural form with a dome." These pieces look more like the work of an architect than an engineer, and as it turns out Dewey did some liberal arts coursework in architecture while in college. The influence remained and he has often included architectural features in his work.

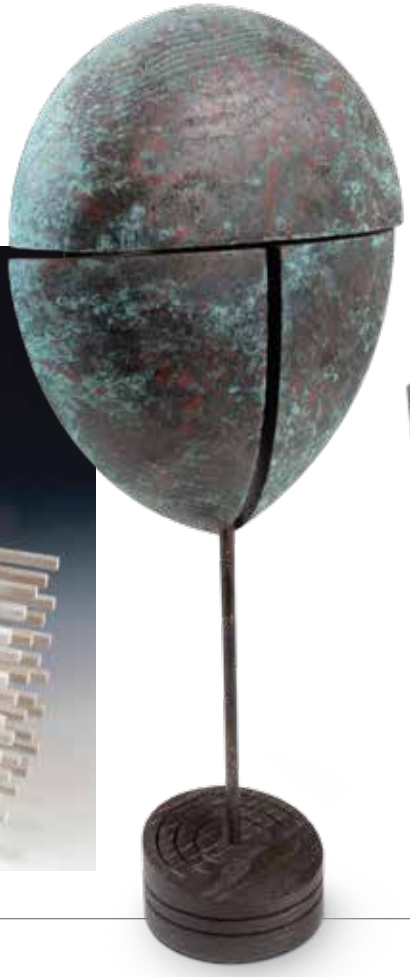
Each of Dewey's new series combined previous work with insightful new ideas. One result of this fruitful process was *Parallax in Red and Black,* made in 1999. Dewey describes it as an exploration of open space and the view one obtains as the observer moves around the piece. "As I had discovered earlier, temporary methods of gluing the pieces together create a lot of work, so these were made with a new method. I cut many strips of the walnut wood and many sacrificial strips of a softer wood. The pieces were then assembled into a block on a large wooden faceplate and held together by compression from a number of peripheral bolts. After turning, the individual walnut pieces were separated from the sacrificial bits, reassembled, and glued into the final form. This method, like most of mine, is tedious but offers many possibilities."

Gridded Bowl, made in 2000, is one of another series of carefully developed pieces that explore bowl forms and open spaces. Dewey describes these as "bowls being made with scaffolds." The vessel is built up from a number of segmented, turned rings that are assembled with a grid of ¼" (6mm) spacers. He says he especially liked the option of resting these pieces on one side instead of the usual orientation.

Despite Dewey's claim that it is hard for him to think of his work as art, it was probably inevitable he would eventually create work that indisputably deserved that description. *Lifeform*, made in 2000, would not be out of place in any contemporary sculpture exhibition. This piece is assembled from turned forms that are cut apart and reassembled into a new shape based on a scarab motif. "Making forms on stands was a new challenge for me," says Dewey, "but I am happy with this base made from a simple turned cylinder that was remounted so a curved and slanted top could be cut. In this series of pieces, I was interested in exploring patinas, so I learned how to treat the surface."

In 1990 Dewey was given some pieces of palm tree to see if he could do anything with them. He describes how he had to devise new ways of working with the material, which is not necessarily a pleasant experience: "Palm is very different from our familiar trees. Its fibrous ▸





(Left) Gridded Bowl, 2000, Oak (bleached), 6½" × 13" × 13" (17cm × 33cm × 33cm)

(Middle) Lifeform, 2000, Oak (with applied patina), 15" × 7" × 4" (38cm × 18cm × 10cm)

(Right) Parallax in Red and Black, 1999, Walnut (ebonized and red epoxy paint), 11" × 8" × 4" (28cm × 20cm × 10cm)

(Left) Red Palm, 2005, Palm (dyed), 8" × 8" (20cm × 20cm)

(Right) Natural Palm Vessel, 2004, Palm with walnut rim, 7¼" × 6¾" (19cm × 17cm)

structure is kind of like celery, with long vertical fibers surrounded by a soft, wet pith." *Natural Palm Vessel* was turned wet, re-turned, and then wire-brushed. Dewey explains that the wet, sweet pith of palm attracts bugs and will develop mold quickly. The discoloration of the mold is often unattractive, so he finishes the work with sodium hydroxide (lye) and hydrogen peroxide. It's not a complete solution, as Dewey makes clear: "The strong whitener removes the objectionable color, but the piece ends up bland and pale. However, I soon discovered I could apply dyes to bring the work to life. To turn, dry, re-turn, wire-brush, bleach, and dye each piece takes many days."

Computer software: another tool

I once heard someone say of Dewey's ornamental work, "Of course that's all done by the computer." It is time to set the record straight, and who better to explain than Dewey himself: "It's unfortunate that some people cast aspersions on the idea because they don't understand it. For example, some equate computers and programs with mass production, whereas I'm producing one-off things. Hundreds of years ago people made rose engines where, although the tool was fixed in position, it was also rotating, and the piece itself was moved longitudinally, latitudinally, and rotated as well. I started with a machine that emulated a rose engine and did the kind of patterns that other ornamental turners do, but I quickly discovered I could do other things and that is what I always find more interesting. I don't want to do what other people do."

Dewey explains that in the early days a rose engine was controlled by someone pumping a treadle, and that the mechanisms geared everything together. "When I saw that demonstrated," he notes, "I realized it is a simple thing to put motors on and, instead of controlling the motions with a complex set of gears,

(Left) OT Birdfeeder, 2008, Faux ivory (cast urethane resin), 10½" × 6" (27cm × 15cm)

(Right) White maze, 2009, Maple (bleached), 4" × 9" (10cm × 23cm)

OT Boxes, 2009, Urethane resin, 3¼" × 4" (8cm × 10cm), 4" × 1" (10cm × 2.5cm), 1½" × 4" (4cm × 10cm)

"Some of my pieces, such as the boxes pictured on the left and right, use cuts that could be readily made with the motions available to the ornamental turning machines of the past. Their patterns are built up from repeated, intersecting geometric cuts. Other pieces, like the box in the center of the photo, use computer-generated contour patterns that I describe as three-dimensional Damascene patterns. These cuts are simple to create with computer software but might be difficult to do on the old machines.
—Dewey Garrett

linkages, and other physical means, I do it by just moving the motors in synchronized ways, controlled by the program I write. With a computer-controlled machine, you just change the program instead of the gears. It's all fascinating, but for me the form remains the goal, and the computer and software are just tools used in the process."

Dewey uses *OT Birdfeeder,* made in 2008, to explain a number of the techniques he can create with the software he writes. It is composed of seven sections with threaded joints. "Joining component parts this way was common in traditional ornamental turning," he says, "possibly because of the limited size of the ivory stock that was used, but also because it facilitates the complex work and mitigates loss when a mistake is made. Historically, the favorite materials for ornamental work have been African blackwood, ivory, and boxwood. I'm allergic to African blackwood so I use it as little as possible. We look for plainness of grain, hardness, and ability to take and hold detailed cuts." He continues, "I searched for something that had the look and machinability of ivory, and now I use urethane resin that I cast under pressure in simple cardboard molds. Urethane is highly reactive with water until cured and pressure casting helps eliminate the tiny bubbles that can form. After casting the material, I hand-turn the piece to shape, then cut the threads and ornamental patterns on my OT machine."

In 2009 Dewey made *White Maze* from a large maple tree that was taken down across the street from his house. "I turned the blank green and later re-turned and decorated it with warped-maze patterns. It is a large piece for OT work since good concentricity is a strict requirement and it was at the limits of size that my machine can accommodate. I bleached the piece to emphasize the form and carving."

In Dewey's house I saw a large set of shelves holding around 400 lidded boxes, but only when I picked them up did I realize each of them is unique. These are Dewey's *OT Boxes*. He explains, "Each box and lid is handturned from hard wood or from cast rounds of faux ivory, then decorated on the OT machine. I typically decorate the bottom, the inside bottom, and the inside of the top to create hidden surprises and to explore different designs." ▸

OT Boxes, 2010, Walnut and cast urethane resin, 5" × 2¼" (13cm × 6cm)

OT Towers, 2011, Various hardwoods, 7" × 2¼" (18cm × 6cm) (largest)

Dewey's lathe he uses for hand-turning pieces before applying ornamental work.

Photo: Terry Martin

The cutter reproduces the design Dewey has programmed it to cut.

Photo: Terry Martin

Dewey with his shopmade ornamental lathe.

Photo: Terry Martin

Dewey's *OT Towers* embody a wide range of techniques from his repertoire of ideas. These wonderfully complex tower boxes require what Dewey calls his typical workflow: "The component parts are handturned, fitted, threaded, and decorated using my software and OT machine. Each piece has several threaded joints, and every section on the largest piece is threaded to adjacent sections. The columns in these pieces are cut with a helical motion of a tiny cutter. Each column includes a tenon cut at the top that is fitted to a corresponding mortise in the piece at the top of the columns. Other cuts include basket weave decorations and architectural openings, niches, dentils, and brickwork patterns." The lightness and complexity are astonishing—truly original work and every one a masterpiece.

When I asked Dewey about other turners he admires, he noted David Ellsworth, John Jordan, Michael Petersen, Michael Hosaluk, Gorst duPlessis, John Sauer, and Jean-Claude Charpignon. "These people either make you stop altogether, or they make you feel there is still room to do something totally new and unexpected," he explains. "I'd also include Albert LeCoff because of what he has done for the field."

Although he is a retiree, Dewey's work is clearly of professional standard. When asked if he thinks you can make a living as a wood artist, he says, "I think it's possible, but it's a rare number who can live solely off it. Of course you can make that statement about art in general. It's a nice dream to think you can make your living that way, but I don't think it's unfair that you also have to teach, make tools, or demonstrate."

When I asked Dewey to sum up his turning career, he told me that after he took early retirement at 55 and became interested in ornamental turning, it "aligned with things I knew how to do." He will happily spend hours working on problem-solving or programming, sometimes realizing that four hours have passed without his noticing. "It feels pretty good," he says. "I'm having fun and I don't know what else one can ask for."

For more, visit deweygarrett.com. ■

Terry Martin is a wood artist, writer, and curator who lives and works in Brisbane, Australia. He can be contacted at eltel@optusnet.com.au.

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I love lots of color. Much of my inspiration comes from the myriad colors, shapes, and patterns found in flowers. The natural world offers patterns in wind-blown snow, shapes of trees, and tangled vines. It would come as no surprise that I grew up working in my father's flower shop.

You can see the influence of first-generation woodturners such as David Ellsworth, Michael Hosaluk, and Al Stirt in my work. I learned much from them and seek to apply their techniques in new ways. ■

African Wild Flowers, 2011, Cherry, milk and acrylic paints, 8½" × 7⅜" × 1⅝" (21.5cm × 18.75cm × 4cm)

Red Snow Vase, 2009, Poplar, acrylic paint, 6" × 3½" (15cm × 9cm)

Mr. Green Fins, 2008, Poplar, copper, acrylic paint, 7" × 6" (18cm × 15cm)

Craters and Sun, 2012, Cherry, milk paint, 8" × 8" × 1⅜" (20cm × 20cm × 3.5cm)

"New" Antique Candlesticks, 2013, Cherry, milk paint, tallest: 6" × 4" (15cm × 10cm)

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PUEBLO DREAMS

2014 Chapter Collaborative Challenge Winner

Each year leading up to the AAW symposium, AAW chapters are invited to participate in the Chapter Collaborative Challenge (C3). Symposium attendees vote for their favorite entries in various categories, and this year's Best in Show winner is *Pueblo Dreams*, made by members of the Arizona Woodturners Association, including Larry Sorensen, Jason Clark, Ana-Marie Lappegard, Ken Lappegard, Kathy Marshall, Rick Fowke, Rich Faiborne, Dale Gillaspy, Lea Montaire, J. Paul Fennell, Cal Vander Kooi, Ed Pabst, and Jack Dohallow.

For more information about how your local chapter can create an entry for next year's C3 at the symposium in Pittsburgh, visit AAW's website at tiny.cc/C3 (case sensitive).

Pueblo Dreams, 2014,
Various materials,
3' × 4' × 3'
(1m × 1.2m × 1m)

Photos: Andi Wolfe