

NECK PAIN AND THE WOODTURNER • THE BIG CHURN • EMBELLISHING A WIDE-RIMMED BOWL

AMERICAN WOODTURNER

Journal of the American Association of Woodturners

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USING A ROUTER AT THE LATHE

YOUR MOVE!
TURN A
CHESS SET

.....

CENTURY
PORCH POST



Paul Petrie, Jr.

New York

I have long been inspired to use veneers in my work. I think combining the texture and color of different woods adds an interesting effect. When I created a jig system that allowed me to use a router at the lathe for fluting, I realized routing would also work well for cutting recessed areas, which lent themselves very well for accepting veneer.

A meeting in 2018 with Matti Laaninen of Hudson River Inlay led to a discussion of his use of shell veneer in his marquetry. This discovery opened a door for me that led back to a study of the fantastic work of Frank Cummings III. His remarkable jeweled vessels have inspired me significantly. ■

For more, visit woodchuckwoodturning.com.



Sea Grass, 2018, Maple, paint,
9" x 4¼" (23cm x 11cm)



Untitled Bowl, 2019, Maple, mother of pearl,
10k gold, 4" x 8½" (10cm x 22cm)



Pearl Dot, 2018, Walnut,
flexible abalone veneer,
5¼" x 4" (13cm x 10cm)

Walnut Shell, 2018, Walnut, mother of pearl, abalone shell, 6 $\frac{3}{8}$ " $\times$ 4" (17cm $\times$ 10cm)



Maple Fluted Bowl, 2018, Maple, sapele veneer, tinted lacquer, 3 $\frac{5}{8}$ " $\times$ 10 $\frac{1}{8}$ " (9cm $\times$ 26cm)

Ode to Frank Cummings III (part II), 2018, Ash, mother of pearl, abalone, 10 $\frac{1}{4}$ " $\times$ 5 $\frac{1}{2}$ " (26cm $\times$ 14cm)



The author's lathe routing jig, which positions the cutter height at lathe axis and allows for smooth sliding on a table parallel with the bed ways. An indexing function facilitates cuts parallel to the lathe axis, with the rounded nosepiece following the contour of the turned work. For cuts perpendicular to the lathe axis, such as around the circumference of a bowl, the jig is moved into the cut and held firm while the bowl is hand-rotated. The same rules of routing on flat work, like feed rate and direction of cut, also apply to routing at the lathe.

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

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website: woodturner.org
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Journal of the American Association of Woodturners

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Cover – Turned and routed, work and photos by
John Lucas

Back Cover – Harvey Fein
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EDITORIAL

**American
Woodturner** Joshua Friend
editor@woodturner.org

**Editorial
Advisors** Betty Scarpino
Terry Martin
John Kelsey
Jean LeGwin

**Journal
Production** **Albarella Design**
Linnea Overbeck
Art Director
Production Management

**Woodturning
FUNDamentals** Don McIvor
editormcivor@woodturner.org

EDITORIAL SUBMISSIONS

Send article ideas to: editor@woodturner.org

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

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Betsy Pierre
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DIVERSITY STATEMENT

The AAW strives to cultivate an organization
built on mentorship, encouragement,
tolerance, and mutual respect, thereby
engendering a welcoming environment for
all. To read AAW's full Diversity Statement,
visit tiny.cc/AAWDiversity*

A NOTE ABOUT SAFETY

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

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

*Web address is case sensitive.

Editor's Note



Woodturners are a tinkering, problem-solving, inventive bunch. Take, for example, the engineering required to bring the versatility of a router to the lathe. An indexing wheel ensures precisely spaced cuts for flutes, recesses, and other features. This process is not new, but if it is new to you, John Lucas offers ideas for getting started (page 26). A select few, such as Harvey Fein, have taken the concept to the umpteenth degree (back cover). Tony Pfaff has found a way to automate the process using programmable electronics and a belt sander—essentially a shopmade CNC (page 52). Impressive!

Rich Foa has written his third article in the “What Aches?” series (“Neck Pain,” page 31). Rich plans to continue covering health-related topics that affect woodturners. Future subjects include musculoskeletal problems such as shoulder and elbow injuries, hip and knee problems, hand issues, and difficulties with feet and ankles. These topics call on the expertise of turners with backgrounds in orthopedics, sports medicine, or physical medicine. Rich is actively seeking help from those among us with this expertise; if you have this background and would like to contribute, contact Rich at r.f.c.woodturner@gmail.com.



—Joshua Friend

From the President



Risk/reward

Risk/reward is usually a financial investment term. The greater the risk, the higher the potential reward. But we all

know that phrase carries a big *however*!

Whether it be processing membership payments, communicating with members, or providing learning opportunities every turner needs, it had been obvious for some time that AAW's technology and website needed to be upgraded. About a year ago, the Board and staff felt a decision had to be made. AAW was more financially secure, and through membership input and planning efforts, we had a good understanding of user needs for the next five or more years. Maintaining the existing systems would at best be cumbersome and would limit our ability to fully satisfy member needs. That option, in many cases, would have also been costly.

The Board was enthusiastic, the staff felt they could, with outside assistance, manage the transition, and the benefits to the organization were clear. We knew the transition would be complicated, and there would be glitches that might bring criticism. Some members would be change-averse. Ultimately, we decided to make the change—the risk was worth the reward. In mid-December, the AAW upgraded its technology.

By now, many of you have visited the new website (still at the same URL, woodturner.org) to pay your dues, register for the 2020 Symposium, browse issues of *American Woodturner*, or view videos. You have experienced the improvements. We are still in transition, and more services are becoming available each day. As a member, you'll have a learning curve with the new website. I encourage you to make the effort—it'll be worth it. You've dealt with new technology in your car, in your photography, and in your telephone. A minor risk makes for a major reward.

I congratulate our Board and staff for taking this risk. Long-time AAW member and volunteer Jim Duxbury said it best: “I have to tell you—that website is fantastic! One thousand percent better than what we had. Nice job!”

I recently finished turning a deep vase made of nicely figured elm. Proudly, I showed it to my friend Bud, who pulled out his new LED flashlight, looked into the bottom, and said “I smell fear.” He was implying if I had taken one more cut, I would have eliminated the center mark left by the drill bit. I guess in that case, I didn't think the risk was worth the reward. I'll bet we all have friends like Bud.

2020 and beyond

Two thousand twenty is going to be a great year. We have new technology

allowing for better communication and learning opportunities for our members. Our long-term planning through Vision 2020 will focus on new user communities, with emphasis on providing local chapters with tools to better attract new turners and retain existing members. As in the past, you have a great Board, a well-seasoned staff, and outstanding committees focused on meeting member needs at all levels, experiences, and talents.

This year's AAW Symposium will be in Louisville, Kentucky. Given an outstanding group of demonstrators, a great location and convention site, and a vendor tradeshow that could melt down any credit card, Louisville shouldn't be missed. If we think of AAW as a family, then our Symposium is a family reunion. The time to register is now. Visit woodturner.org, and when you are there, make sure to get some of our AAW-branded apparel. It's high quality, really attractive, and, most importantly, makes you stand out as a member of the family. Why wait? Order a hat, smock, or shirt, and show off at your chapter meeting.

Looking forward,



Greg Schramek
President, AAW Board of Directors

STEP UP TO THE PLATE

STEP UP, ACCEPT THE CHALLENGE TO HAVE A BALL AT



AAW'S 34TH ANNUAL INTERNATIONAL SYMPOSIUM

Louisville, Kentucky • June 4-7, 2020



Michael Hosaluk
collaboration with Hub
City Woodturners, 2015

Step up, accept the challenge to up your game. You'll find experts from around the globe who will share their techniques and insights to help you bring your woodturning abilities to the next level.

DEMONSTRATORS

Nick Agar

- ▶ Wall Sculptures
- ▶ Texturing and Metalizing the Bowl Surface
- ▶ Airbrushing Your Work



The Key to the City, 2014,
Sycamore, paint, gilding,
10" x 12" (25cm x 30cm)

Michael Alguire

- ▶ Developing the Wheel



Wheel of Delicacy #2, 2017, Purpleheart, pyrography,
acrylic paint, colored pencil, 11½" x 11½" x 3½"
(29cm x 29cm x 9cm)

Stuart Batty

- ▶ Bowl Turning with the 40/40 and Bottom Bowl Gouge Grinds
- ▶ Off-Center Winged Bowl with Negative Rake Scraping
- ▶ Perfecting the Art of Cutting
- ▶ How We Remove Wood on a Lathe: Peel, Slice, Scrape, Abrade



Untitled, 2014, Sheoak, 10" x 5" (25cm x 13cm)

Simon Begg

- ▶ German Ring Turning



Untitled Butterfly
Ring Turning, 2019,
Camphor laurel, 3" x 7½"
(8cm x 19cm)

Dixie Biggs

- ▶ Simple Surface Treatments
- ▶ Need Some Relief?
- ▶ Adding Detail to Relief with Woodburning and Color



In Search of Perspective,
2018, Cherry, 10" x 34" x
3" (25cm x 86cm x 8cm)

Photo: Randy Batista

Michael Blankenship

- ▶ Three-Piece Hollow Christmas Ornament
- ▶ Crock Rim-Style Bowl
- ▶ Loose Lid Box



*Three-piece
Hollow
Christmas
Ornament*,
2019, Walnut,
maple, 9" x
2¼" (23cm x
6cm)

MORE SYMPOSIUM WOODTURNING TALENT

Trent Bosch

- Revelations in Hollowing
- Vessels and Surfaces



Carved Rim Sculpture, 2008, Boxelder, copper, 20" x 13" x 7" (51cm x 33cm x 18cm)

Bruce Campbell

- Managing Green Wood
- Turning Bamboo



Untitled Bamboo, 2019, Bamboo, largest: 7" (18cm) tall

Pat Carroll

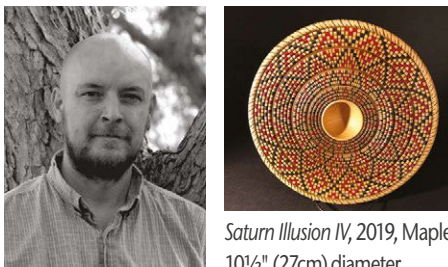
- Pewter Inlaid Box
- Four-Legged Bowl
- Textured Rim Bowl



Untitled, 2018, Elm, black ebonizing lacquer, silver gilt cream, lacquer, 14" (36cm) diameter

Jason Clark

- Nouveau Traditional Ornaments
- Return of Saturn



Saturn Illusion IV, 2019, Maple, 10½" (27cm) diameter

Nick Cook

- Light it Up: Table Lamp
- Gifts for all Occasions: Skill-Building Projects



Untitled Production Items, 2019, Various woods and sizes

Rebecca DeGroot

- Walking Boxes



Seedling, 2018, Walnut, maple, 10" x 17" x 6" (25cm x 43cm x 15cm)

Mick Hanbury

- Decorative Goblets
- Carved and Colored Platters



Goblets, 2018, Various woods, tallest: 7½" (19cm)

Kurt Hertzog

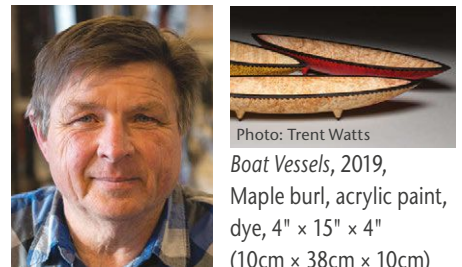
- Tips and Tricks for the Penmaker



Shorty and Stretch, 2010, Goose eggs, African blackwood, largest: 11" (28cm) tall

Michael Hosaluk

- Having Fun with Spindles
- Hook Tools for Endgrain
- Collaboration with Mark Sfirri



Boat Vessels, 2019, Maple burl, acrylic paint, dye, 4" x 15" x 4" (10cm x 38cm x 10cm)

Janice Levi

- Surface Enhancement from A to Z



Zen Worm, 2016, Maple, 3½" x 4" (9cm x 10cm)

Art Liestman

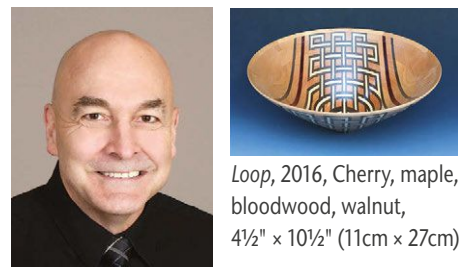
- The Lost Wood Process
- Flame Texturing of Highly Figured Woods



From the V, 2017, Quilted bigleaf maple, red acrylic, clear acrylic standoffs, 11" x 22" x 2½" (28cm x 56cm x 6cm)

Tom Lohman

- Segmented Turning, Beyond the Basics
- Bowl from a Board, Beyond the Basics



Loop, 2016, Cherry, maple, bloodwood, walnut, 4½" x 10½" (11cm x 27cm)

MORE SYMPOSIUM WOODTURNING TALENT

Pete Marken

- Creating Vortex Bowls



Vortex-4, 2018, SpectraPly, bubinga, maple, wenge, 6" x 12" (15cm x 30cm)

JoHannes Michelsen

- Full-Size Wearable Wood Hat
- Mini Hats



Mad Hatter, 2017, Bleached madrone burl, 7½" x 13" x 16" (19cm x 33cm x 41cm)

Mark Palma

- Finishing: Getting a Great Finish in Your Shop



Reincarnation, 2018, Baltic birch plywood, used blue jeans, 9" (23cm) diameter

Doug Schneider

- 25 Quick and Easy Steps to Basket Illusion



Feathers, 2019, Maple, 2" x 17" (5cm x 43cm)

Mark Sfirri

- Baseball Passing Through Baseball Bat
- Turned and Carved Stacked Spheres
- Collaboration with Michael Hosaluk



Inch Worm Bat, 2006, Quilted maple, 6" x 21½" x 3" (15cm x 55cm x 8cm)

Dan Tilden

- Exploring Natural-Edge Design
- Maximizing Expensive Wood



Maple Burl Vessel, 2018, Maple burl, 8" x 7" (20cm x 18cm)

Craig Timmerman

- Turning an Arch Bowl
- Fun with Spheres



If Bowling Was a Representation of Real Life, 2017, Maple, mesquite, banksia pod, birdseye maple/walnut/maple/black veneer, 7" x 20" x 4" (18cm x 51cm x 10cm)

John Underhill

- Clear and Color Casting: Embedded Objects in Resin



Blue and White Mica Pearl, 2013, Pinecone, mica pearl, color cast, approx. 5" (13cm) long

Molly Winton

- Embellishments Through Branding
- Turning Vessels for Embellishments



Embellished Vessels, 2017, Cherry, acrylic paint, gilder's paste, each: approx. 1½" x 2" (38mm x 5cm)

Donna Zils Banfield

- Color Your World
- Form! Form! Form!
- Designing the Pattern



Cherry Plate, 2019, Pyroengraved cherry, gilder's paste, 1½" x 11½" (38mm x 29cm)

Call for Demonstrators AAW Symposium 2021

The AAW's 35th Annual International Symposium will be held in Omaha, Nebraska, July 15–18, 2021. To apply to be a demonstrator, visit tiny.cc/Calls between May 1 and August 1, 2020. For more information, call the AAW office in Saint Paul, 877-595-9094 or 651-484-9094, or email inquiries@woodturner.org.



John Jordan shares his woodturning expertise at the 2019 AAW Symposium in Raleigh, North Carolina.

WOODTURNING TRADESHOW

Come to the 2020 AAW Symposium in Louisville, Kentucky, to see the latest and greatest woodturning equipment and products up close and in action. AAW's enormous tradeshow will be jam-packed with state-of-the-art woodturning lathes, accessories, tools, supplies, turning stock, and more. Plus, take in a range of ongoing demonstrations, see tricks and techniques, and hold extraordinary tools in your own hands.

Photo: Andi Wolfe



Visit
tiny.cc/2020Tradeshow
for Updated Info!

Vendor list
as of Dec. 20.

2 Tree Boyz Wood
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Advanced Lathe Tools, LLC
Airbrushing Wood
Alumilite Corporation
Arrowmont School of Arts and Crafts
Big Monk Lumber Co., LLC
Carter Products Company
Carter and Son Toolworks
Chroma Craft
Cindy Drozda Woodturning Tools
Curt Theobald Studios
Earth's Watch Wooden Watches
Easy Wood Tools
FedEx
Green Grove Design (dba Easy Inlay)

Hannes Tool
Harvey Industries
Hope Woodturning
Hunter Tool Company
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Woodturning Magazine (GMC Publications)
Woodturning with Tim Yoder
Woodworker's Emporium



Informative product demonstrations are ongoing in the Symposium Tradeshow area.

Photo: Andi Wolfe

Call for Videographers—AAW Symposium 2020

The AAW seeks videographers for its 34th International Symposium in Louisville, Kentucky, June 4–7, 2020. Applicants must have experience with video camera equipment, possess technical competence, and be able to make decisions regarding what is being turned, camera position, shooting angle, etc. The application process will be open from December 15, 2019, through February 15, 2020. Videographers are required to help set up or tear down and do six rotations to receive a free Symposium registration. Selected videographers will be notified by March 2020. For more information or to apply, visit tiny.cc/Calls.



Photo: Joshua Friend

Calling All AAW Chapter Newsletter Editors and Webmasters

Each year, the AAW holds the Best Chapter Newsletter and Best Chapter Website contests.

Closing date for applications is April 1. Winners will be announced at the AAW International Symposium, provided with a follow-up announcement in *American Woodturner*, and receive a certificate of achievement.

How to apply

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

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

- Content that demonstrates partnership with AAW to share, support, and deliver woodturning education
- Visually appealing layout
- Sound writing skills
- Current technical, safety, and news-related content



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

- Visually appealing layout/graphic design

- Personality and good blend of design with appropriate appeal to woodturning audience
- Easily navigated, intuitive menu, working hyperlinks
- Appropriate use of scripting, styles, databases, and search engines
- Site works with different browsers and devices
- Content that demonstrates partnership with AAW to share, support, and deliver woodturning education
- Current technical, safety, and news-related content
- New information upfront, archived material available



Hall of Fame

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

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

AAW Board of Directors Call for Nominees

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

The AAW elects a volunteer nine-member board to represent the membership and move the organization forward. If you have been a member in good standing for the past three years, you are eligible. The nominating committee will select the six best candidates. From these six, members will elect three candidates to serve a three-year term, beginning in January 2021.

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

If you are interested in serving on the board, please email the following to the executive director (phil@woodturner.org), no later than May 1, 2020:

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

The nominating committee will review application materials and conduct phone interviews. Candidates will be presented in the August issue of *American Woodturner*, and voting will occur during the month of August. Election results will be announced in late 2020.

AAW UNVEILS NEW ONLINE TOOLS FOR MEMBERS

AAW launched its next-generation technology in December 2019. The new website, still found at woodturner.org, incorporates best practices in web design, the latest in user experience principles, and is formatted with more imagery to show the people and the work that are the heart of woodturning. In addition, the

new technology features useful new enhancements, including:

- Member search results that include information about skill level, chapters, and areas of interest,
- Explore! and Video Source combined to form one robust search tool for locating both articles and videos,
- “Find a” directory that includes look-ups for regional symposia and craft schools, as well as demonstrator listings with images and live website links.

Watch for announcements about more value-added tools that leverage our new technology platform. Sneak peek: You’ll be able to search or browse photo galleries of work by “AAW Makers” (professional and artist members).



Sample of the new AAW member home page.

AAW’s 2020 Themed Member Exhibition *Step up to the Plate—Second Inning* Call for Entries

Application period: January 1–March 15, 2020

Being that the 2020 AAW International Symposium will take place in Louisville, Kentucky, this year’s themed member exhibition is *Step up to the Plate—Second Inning*. This was also the theme for the member exhibit in 2006, when the AAW held its 20th Symposium in Louisville. Sometimes a theme is so good, we just need to see a replay.

AAW members are invited to submit their work to this juried exhibition. Full details can be found on page 6 of the August 2019 edition of *American Woodturner* or on the AAW Calls for Entry page, tiny.cc/Calls. The online application can be found at tinyurl.com/Calls2020. Contact Tib Shaw at gallery@woodturner.org. To see past exhibition catalogs, visit galleryofwoodart.org.

Sponsor a Demonstration Room in Louisville

We are offering the opportunity to express your support of AAW by sponsoring a demonstration room or event activity during the 2020 Louisville Symposium. Whether as an individual member, an AAW vendor, or as a local chapter, this is a way to visibly display your support of the AAW and our programs. We especially want to thank all the individuals and organizations that have sponsored rooms and Symposium events in previous years.

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

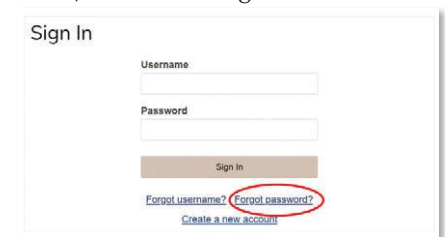
TO GET STARTED

Reset Your Password

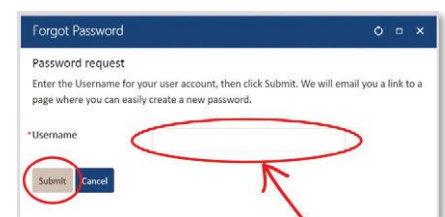
Getting started on the new website is easy. All you need to do is reset your password. Go to woodturner.org. Click “Sign in” at the top of the screen.



Next, click the “Forgot Password?” link.



Enter your email address in the “Username” box and click the “Submit” button.



Within minutes, you’ll receive an email with a link to reset your password. (If you do not receive this email, please check your junk mail folder or contact AAW for further assistance.)

Once you’re logged in, update your member profile to ensure it includes your current member information, such as chapter affiliation and areas of interest. You can also enable demonstrator and maker information tabs as needed. For instructions, visit tiny.cc/MemberProfile.

Questions?

We expect you may have questions and we are happy to help. If you need assistance, contact us by phone Monday through Friday, 8:30 a.m. to 4:30 p.m. (CST) at 877-595-9094 (toll free U.S.) or 651-484-9094, or email us at memberservices@woodturner.org.



My long-time friend (and fellow AAW founding member) Clay Foster has been on the waiting list for an organ transplant for quite some time. I asked Clay if there was anything I could do. After discussing his need for an appropriate transplant donor, I was surprised to learn that merely indicating your desire to be an organ donor on your state driver's license is not sufficient. I found that potential donors need to register with the Health Resources & Services Administration, an official U.S. government website, in order to establish an irrefutable mandate. Without completing this registration, family members can negate your wish to become a donor.

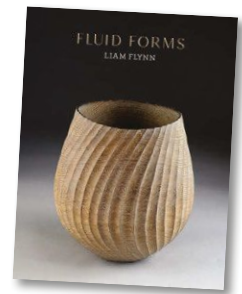
You can learn more about organ donation at donatelife.net and register to become a donor at organdonor.gov. It took me about five minutes to answer the questions and complete the form online.

There are thousands of people on the list right now, waiting for a life-saving organ transplant. More than 30 percent of those will die before they can receive a transplant. I would respectfully request that AAW members and their families consider taking the steps to commit to being an organ donor. It could save someone's life, perhaps even Clay's.

—S. Gary Roberts, AAW Founding Member and Honorary Lifetime Member, Texas

I would like to make your readers aware of the publication of *Fluid Forms* - Liam Flynn, a 128-page full-color book celebrating the life and work of woodturner Liam Flynn. Liam was one of Ireland's most renowned craftspeople, and his turned vessels have been exhibited widely throughout Europe and the U.S. *Fluid Forms*, produced in memory of Liam, who died suddenly in 2017, can be ordered at liamflynnwoodturner.com and glennlucaswoodturning.com.

—Mary Leahy



In September, six women were invited by the Southeast Oklahoma Woodturners and the Forest Heritage Center to do a two-day woodturning demonstration and competition at the Beavers Bend State Park in Broken Bow, Oklahoma. This was the first year the event, billed "Masters at Work," featured an all-



An all-women "Masters at Work" slate of demonstrators, from left: Sarah and Donna Frazier, Janice Levi, Sarah Mantooth, Diane Whalen, and Mary Brewer.

women field of turners. The women were assigned four projects, each to be completed within three hours over the two-day event. Projects included a platter, a finial on a stand, a lidded box, and a turner's choice.

—Janice Levi, Brazos Valley Woodturners

I live in Quebec and belong to a local chapter of Quebec's woodturning association, ATBQ. A friend and long-time woodturner told me about the AAW and loaned me some past issues of *American Woodturner*. It took only one night for me to realize I also needed to join the AAW.

I have learned a lot from AAW's video resources, and I love being able to read articles by excellent woodturners from all around the world—and reach out to them directly! That is exactly what I did recently, after reading an older article about sharpening. I emailed the author, who turned out to be a professional turner in another part of the world, wondering if his thoughts on sharpening had changed. Surprisingly, he wrote a long and generous answer that helped me with my decision to upgrade my sharpening station. Through the AAW, I have found a worldwide community of friends with whom I can talk and exchange ideas.

—Martin LeBlanc, Quebec, Canada

Mission Trip Employs Solar-Powered Lathes

Several years ago, my wife Lynne and I took our two sons on a mission trip to Jamaica. Our church pastor was born in Jamaica and runs a mission trip there every year with college students from both Ursinus and Moravian colleges. Even though our sons were young at the time, they were allowed to go and help. We built two 12' x 12' (3.7m x 3.7m) houses in four days, among other projects. In many ways, it was truly an eye-opening experience for all involved.

While in Jamaica, we attended services in a church that was built more than 150 years ago by Moravian

Missionaries and local people. The present-day parishioners were in the process of removing the original wood floor and replacing it with ceramic tile. The original beams were hand-hewn tropical lumber. I approached our pastor with the idea of bringing some of the wood home and turning pens and boxes to raise money for future mission projects.

After I returned home, it occurred to me I could bring lathes back to Jamaica and teach the kids there how to make pens and other small lathe projects, which they could sell to raise money for their educational expenses. Since it

is quite obvious to me that the whole world needs to eventually go solar, and since the sun shines a lot in Jamaica and electricity is expensive, I decided to see if I could make solar-powered lathes for this initiative.

A simple lathe design

I made the body of the lathes out of high-quality discarded shipping containers, but any solid scrap wood of the right size would do. To keep the drive mechanism simple, I decided to use rechargeable cordless drills as the motors. Home Depot gave me a deal on the drills when they heard about our outreach initiative. Penn State Industries donated several pen kits to get the process rolling, and Batteries Plus Bulbs (Cherry Hill, New Jersey) sold me the solar panels at cost, which helped a lot, because all of these expenses were coming out of my own pocket.

I kept the design as simple as I could, since all of this was going to people who had never used lathes before, mainly kids. Plus, all of the components had to fit in the suitcases we took with us on the plane.

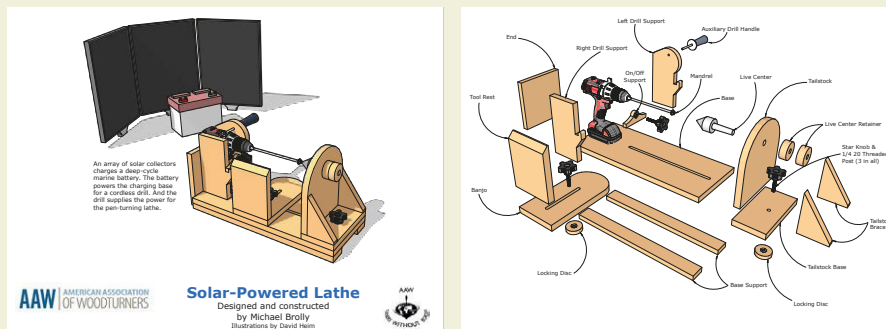
A friend of our pastor living in Jamaica donated a deep-cycle marine battery, so we would not have to carry that item with us. The battery serves as a storage unit for the solar chargers. The panels charge the marine battery, then that battery is used to charge the drill batteries. We found that you can turn several pens with one drill battery charge.

Not surprisingly, the kids were enthusiastic and loved the activity, but we taught both children and adults. It was important to us to leave a pool of knowledge, so they could collectively remember how it all worked after we left.

—Michael Brolly, Pennsylvania

Download Working Plans

David Heim has created working plans, including a cutlist and patterns, for Michael Brolly's solar-powered lathe. Visit tiny.cc/SolarLathe to download the plans.



Illustrations: David Heim

(Left) A Jamaican schoolgirl proudly poses with her turned pen.



(Right) The author's solar-powered lathe enhanced the scope of his church's mission trip to Jamaica.



Siouxland Woodturners Supports Military Pens Project

The Siouxland Woodturners is an AAW chapter that meets in Sioux Falls, South Dakota. When the club was formed, no one fathomed it would grow to its present size of forty-five turners, coming from South Dakota, Minnesota, and Iowa. We share a mutual love of woodturning, but beyond that, no one imagined the activities we would become involved with and the projects we would support. For example, we offer classes each spring and fall to introduce woodturning to the community via Community Education Classes. The community has responded well and continues to request these woodturning experiences.

Our chapter is also extremely proud of and dedicated to the Military Pens Project. Every deployed serviceman and woman receives a bullet pen made by a Siouxland Woodturners member as a small token of our appreciation for their dedication and service to our country and our freedom.

Although our club meets monthly, we meet as often as is necessary to make these pens for our warriors, generally turning around 200 pens each session.

We thank Jim Sample, Alan Lacer, and the others who formed this chapter. We are also appreciative of the support we receive from the AAW. Please check us out on Facebook and contact us if you find yourself in the Sioux Falls area—we love to meet other woodturners!

—Jim Collingwood, Siouxland Woodturners



Members of the Siouxland Woodturners pause for a photo while turning pens for U.S. military personnel.

Baltimore Club Donates Pens to Turn for Troops

In late 2018, the board of the Baltimore Area Turners (BAT) surveyed members as to what they would like included in the club's 2019 programming. A community service project was one of the most frequently noted answers. Board member Tom Szarek suggested we adopt Woodcraft's Turn for Troops program, and the idea was immediately accepted. Tom added a challenge: "Let's make 1,000 pens by Veterans Day!" Nothing ventured, nothing gained, right?

We contacted the owners of the closest Woodcraft store (Rockville, Maryland), who assisted in making the program a reality for us. Early in 2019, club members offered a pen-turning demo for the benefit of those not familiar with the process. Ron Ford announced that the first president's challenge of the year would be to turn at least ten pens. More than twenty members signed up right away, and we were off and running. The Woodcraft store was extremely generous in offering us discounted pen kits, and we were fortunate to have several substantial donations from members and non-members alike.

With a number of veterans as well as many generous supporters as part of our 60-plus-member club, we ultimately turned and donated 1,205 pens in 2019. We are proud of BAT members and greatly enjoyed making what we hope will become treasured gifts for our valued service men and women.

—Ron Ford, President, Baltimore Area Turners



From left: BAT members Lorie and Tom Szarek, Woodcraft co-owner Chris Johnstone, Woodcraft manager Charlie the pug, Woodcraft co-owner Amy Bender, and BAT members Lou Harris and Wayne Kuhn pose with 1,205 pens.

Oregon Symposium Donates Boxes to BoC

Mary Bridge Children's Hospital (Tacoma, Washington) held a Celebration of Courage for all children who have a diagnosis of a chronic illness and their families. The kids were able to receive a Beads of Courage (BoC) box donated by woodturners attending the 2019 Oregon Woodturning



Kids attending Mary Bridge Children's Hospital's Celebration of Courage, where they were able to receive a lovingly turned Beads of Courage box and handmade beads to commemorate milestones in their medical treatments.

Symposium and select a handmade bead to include in their collection.

I had the pleasure of packing up the BoC boxes that were donated at the symposium. It is difficult not to be touched by the care and love put into each box. The fine craftsmanship and careful design were evident as I packed the boxes for donation. It is difficult to put into words the emotions I felt as I imagined the children receiving the boxes and the joy we hoped they would bring. As woodturners, we can take satisfaction in knowing that our efforts are appreciated and don't go unnoticed. A huge **thank you** to all who took the time to turn a box for this important program.

Every year, the national AAW Symposium also collects boxes to donate to BoC, and I will bet your local hospital would love to get involved.

To learn more about Beads of Courage, including guidelines for woodturners, visit beadsofcourage.org/bead-bowls.

—Mark Choitz, Beads of Courage Chair, Oregon Woodturning Symposium

Tips

Leverage handle

When I saw the August 2019 AW article about drilling on the lathe ("A Primer for Drilling on the Lathe," by Dennis Belcher), it brought to mind a lathe accessory I made to help me with certain drilling tasks. Driving a large Forster bit into endgrain is no easy task, especially for us older guys. I made a leverage handle that fits onto the tailstock handwheel. It makes drilling any size hole using the tailstock a snap.

—Harvey Fein, New York



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

Padded chuck jaws

I recently turned several segmented vases. After they were completed, I decided I wanted to remount them to apply more finish. My challenge was to remount the vases after the base tenon had been turned away, without denting or marring them with my chuck jaws. My solution was to pad the chuck jaws with thin foam, which I attached using double-sided tape. After applying the foam, I sliced it along the chuck jaw joints, so I'd be able to expand the jaws inside the vase opening. This held the vase securely enough to reapply finish with my lathe turning at the slowest speed possible.

—Jim Meizelis, Illinois

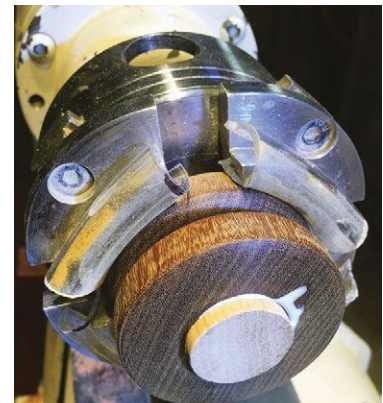
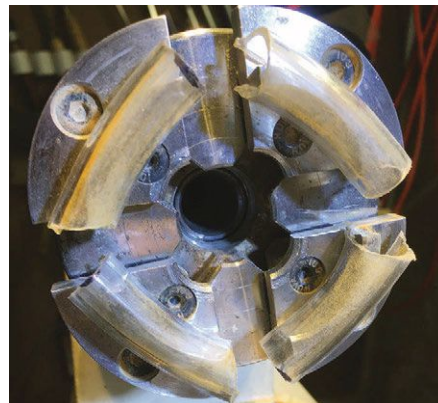


Plastic tubing protects turning

I love making yo-yos, but reverse-mounting them was a problem. The yo-yos were not always the same size, so using a jam chuck meant customizing a lot of jam chucks. I solved the problem by using some clear plastic tubing fitted over my chuck jaws.

I cut pieces of tubing and then slit them lengthwise so they would fit over the jaws. The yo-yos, regardless of variation in size, fit nicely into the chuck. They turn true and are held securely without being marred. I am also not wasting any wood in the process. I have also used this method on lots of other turning projects.

—David Burks, Missouri



Air-assisted lid release

After completing a small lid I had friction-fit into a jam chuck, I realized I had not provided a way to separate the lid from the chuck. Normally, I would have pre-drilled a hole from the back of the wood jam chuck and knocked the piece out with a dowel, but in this case I hadn't prepared and was faced with a dilemma. The inside of the lid was fully finished and I didn't want to risk damaging it. Also, the chuck wasn't just a scrap, as I wanted to use it for something else, so I didn't want to drill into it from the back.

My solution was to drill a small hole through the side of the chuck just inside the depth of the lid and on a slight angle. Then I gave it a shot of compressed air through the hole and the lid popped right out.

—Gary Miller, Ontario, Canada

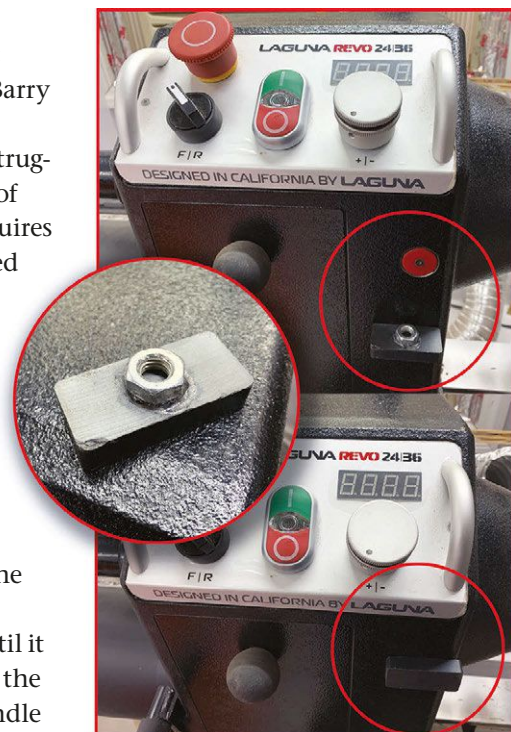


Magnet locks spindle

I read with interest Barry Green's Tip in the December 2019 *American Woodturner* (vol 34, no 6, page 14). Barry offered an alternate way to lock the spindle of his Laguna lathe. I, too, struggle when I need to lock the spindle of my Laguna lathe, as the process requires one hand constantly pressing the red locking button. Barry's method of using the lathe's toolrest to depress the button is effective, but I have found another way.

My solution requires a magnet and a screw nut, both easily found at big box stores. Glue the screw nut to the magnet. To lock the lathe spindle, depress the red locking button using the screw nut, and hand-turn the spindle until it locks. Once locked, the nut pushes the button in even farther and the spindle is locked. When you want to release the spindle, pull the magnet off and store it below the button for the next use.

—Pavle Ancevski, New Jersey



Custom PVC Collet

I made a simple collet chuck using a 4" - (10cm-) diameter PVC pipe connector. The PVC is fastened to the lathe by way of a short attachment block. At the tailstock end, it encircles a turned and quartered cylinder of wood with a custom-sized hole in the middle to secure your workpiece. Here's how I made mine; sizing the collet smaller or larger is possible using different sizes of PVC and wood blocks.

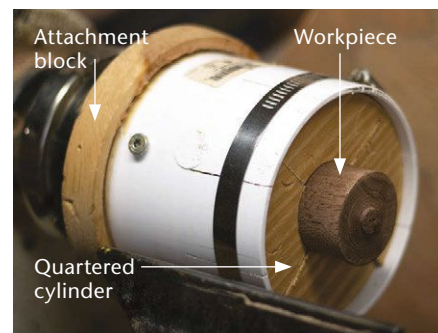
Turn an attachment block to accept the PVC connector, leaving enough material for a tenon or faceplate (mine is held in a chuck). Fasten the PVC to the wood block; I used screws and epoxy. Note that the attachment block goes only partway into the PVC. Saw several cuts into the tailstock end of the PVC.

Turn and fit a wood cylinder into the open end of the PVC and secure

it with a hose clamp tightened over the PVC. Drill or turn an opening slightly smaller than the diameter of the workpiece to be held. Then remove the wood cylinder and cut it into quarters.

To use the collet chuck, place the quartered cylinder into the open end of the PVC and place the workpiece into the drilled opening. Tighten the hose clamp, making any adjustments to center the work if needed. ►

—Gary Christensen, Florida



TIPS

Egg crate foam tool holder

Due to damage to my neck and spine, I use foam egg crate-style cushions to sit on. These wear out after a while and are perfect for repurposing. My condition makes me a bit clumsy, so I'm always looking for ways to improve efficiency at the lathe. To help keep my turning tools stay where I put them, I recycled the egg crate foam from my seat cushion to make a tool holder.

I made a wood cleat to fit between the bed ways of my lathe and attached the cleat to a scrap of plywood. Then I glued a section of the foam egg crate to the plywood. The tool holder stays put on the lathe bed and holds tools perfectly.

—Bill Straff, Florida

Hose clamp stop improves consistency

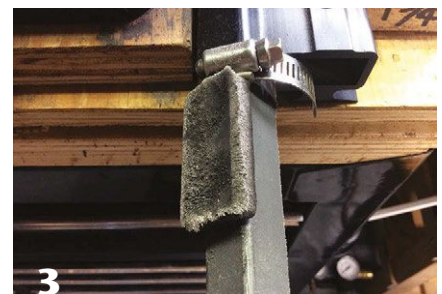
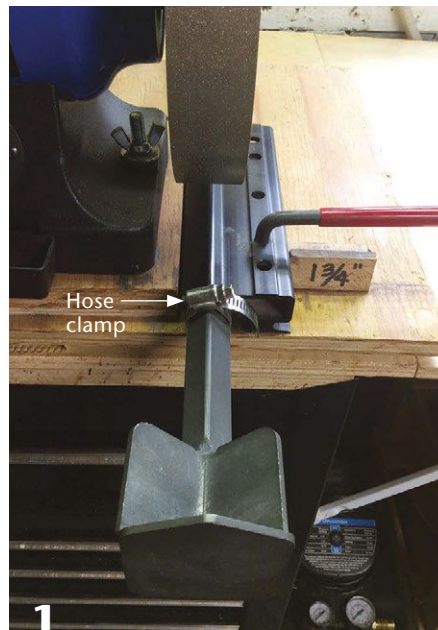
To sharpen a gouge using the Wolverine system, the V-arm must be set a specific distance from the grinding wheel each time. I have tried marking the proper distance on the arm with both masking tape and a permanent marker. While this saves measuring time, the distance from the sharpening wheel varies if I don't line up the mark precisely. I have also tried various measuring jigs, but unfortunately the distance is not exact each time I go to the grinder.

While attending a session at our local club, I found one of our more experienced turners (Ed Pretty) had solved the problem. He measured the proper distance once and then attached a hose clamp to the V-arm

as a stop, so its placement would always be consistent. If you have multiple adjustable sharpening platforms, you can set each at a specific angle and then attach a hose clamp on the bar so the angle and distance to the grinding wheel will always be the same (*Photos 1, 2*).

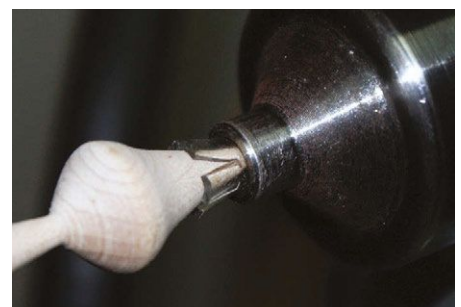
While it is always wise to wear a dust mask while grinding and sharpening tools, you can further reduce the risk of inhaling metal particles with a simple trick. I attached a large powerful magnet to the V-arm of my Wolverine jig. The magnet does a good job of capturing airborne metal particles (*Photo 3*).

—Dex Hallwood, British Columbia, Canada

**Soft-touch live center for fine finials**

When turning small, thin finials, I sometimes have trouble stabilizing the tip at the tailstock end to keep it from whipping around without damaging it. My solution was to use a small piece of 1/4" - (6mm-) diameter aquarium tubing inserted into the opening of a mandrel saver live center. I cut notches in the tubing every 90 degrees and inserted the end of the workpiece into the tubing to stabilize it. Because the small end of the finial will turn in unison with the mandrel saver, the finial will not get marred.

—Bill Vanderhoof, Florida



Calendar of Events

Send event info to editor@woodturner.org. April issue deadline: February 15. See AAW's online Calendar at tiny.cc/AAWCalendar.

Canada

July 17–19, 2020, Saskatchewan Woodturners Symposium, Regina Trades and Skills Centre, Regina. Sponsored by the South Saskatchewan Woodturning Guild, symposium to feature an instant gallery, wine and cheese, banquet, lunches, auction, and demonstrations. Demonstrators to include Jean-François Escoulen, Nick Agar, Jason Breach, Michael Hosaluk, and others. Early registration: \$320 CND until March 31 (starting April 1, \$350 CND). Deadline for registration: June 1, 2020. For more, visit southsaskwoodturners.ca.

Alaska

April 4, 5, 2020, Alaska Woodturners Association Symposium, Glass Sash and Door Supply, Anchorage. Regional symposium featuring demonstrations and instant gallery. Demonstrators to include Sam Angelo, Stuart Batty, Dave Staeheli, and Jeff Trotter. Classes available before and after event: Batty Intermediate, April 2–3 (\$300); Batty Advanced, March 30 to April 1 (\$450); Angelo Intermediate, April 6–8 (\$450); Angelo Advanced, April 9–10 (\$300). For more, visit akwoodturners.org/Symposium.php.

Florida

February 7–9, 2020, The Florida Woodturning Symposium, Lake Yale Baptist Conference Center, Leesburg. Event offers onsite accommodations with meals included, silent auction, raffles, vendors, and workshops. Demonstrators to include Nick Agar, J. Paul Fennell, Judy Ditmer, Keith Gotschall, Frank Penta, Jack Shelton, Steve Cook, and Jon Hollingshead. Workshops to be led by Dixie Biggs, Rudolph Lopez, Don Geiger, Lee Sky, and Dave Farrell. For more, visit floridawoodturningsymposium.com.

Hawai'i

March 6–27, 2020, Big Island Woodturners 22nd Annual Woodturning Exhibit, Wailoa Center, Hilo. An exhibition of local work; reception March 6; Saturday demonstrations (on March 7, 14, and 21). Come see Hawai'i's finest. For more, visit bigislandwoodturners.org.

March 21, 22, 2020, Honolulu Woodturners Symposium, MRC Sand Island, Honolulu. Biennial symposium featuring John Beaver and eight demonstrator rotations, tool sale, instant gallery, banquet, and auction. For more information and to register, visit honoluluwoodturners.org and click on "Events."

Illinois

July 24–26, 2020, Turn-On! Chicago Symposium, new location: Crowne Plaza, Northbrook. Featured demonstrators to include Andy Cole, Michael Hosaluk, Cynthia Gibson, Eric Lofstrom, Chris Ramsey, and Avelino Samuel. Regional demonstrators to include Marie Anderson, Roberto Ferrer, Keith Lackner, Clint Stevens, Doug Thompson, and Rob Wallace. Event includes a tradeshow, instant gallery, banquet, auction, hands-on pens for troops activity, people's choice award, and more. For more, visit: turnonchicago.com or email Al Miotke at abmiotke@comcast.net.

Minnesota

Multiple exhibitions, AAW's Gallery of Wood Art, Landmark Center, Saint Paul:

- January 5–February 23, 2020, *Full Circle*, an exhibition of more than fifty works recently donated to the AAW by Deena and Jerry Kaplan, Jane and Arthur Mason, Barbara Wolanin, and Andi Wolfe.
- March 2–May 23, 2020: *Nature/Nurture*, AAW's annual POP exhibition with emphasis on innovative, small-scale work by new and established professionals, women, and international artists. Exhibition and auction follows at the AAW Symposium in Louisville, Kentucky, June 4–7.
- September 8–December 29, 2020: *Step up to the Plate—Second Inning* (annual AAW-member exhibition).
- Ongoing displays: *Touch This!* family-friendly education room; *Art from the Lathe—Selections from the Permanent Collection*; gallery gift shop; and vintage and reproduction lathes.

For more, visit galleryofwoodart.org or email Tib Shaw at tib@woodturner.org.

Phil Brown (1937–2018),
Flare Vessel 97-6, Cherry crotch,
6 $\frac{1}{8}$ " × 18 $\frac{1}{8}$ " (16cm × 46cm)

Photo: Tib Shaw/AAW

AAW Permanent Collection

Donated by the
family of Phil Brown



New York

March 28, 29, 2020, Totally Turning Symposium, Saratoga Springs City Center, Saratoga Springs. Presented by the Adirondack Woodturners, the 2020 symposium to feature Art Liestman, Hans Weissflog, Michael Blankenship, Rudolph Lopez, Derek Weidman, Kurt Hertzog, Rick Angus, Louis Boucher, Brad Dinwiddie, Paul Petrie, Jr., and others. For more, visit totallyturning.com.

Texas

March 14, 15, 2020, Gulf Coast Woodturners 25th-Annual Hands-on Retreat, Jimmy Burke Activity Center, Deer Park. Event features twenty-seven hands-on woodturning classes, with nearly 100 turners and lathes. Novice through advanced turners are welcome. Includes catered lunches, instant gallery, raffle, and great fellowship. For more, visit gulfcoastwoodturners.org.

Virginia

November 7, 8, 2020, Virginia Woodturners Symposium, Expoland, Fishersville. Regional symposium featuring more than forty demonstrations and many vendors. Demonstrators to include Nick Agar, Bob Baucom, Jimmy Clewes, David Ellsworth, Joe Fleming, Barry Gross, Alan Lacer, and JoHannes Michelsen. For more, visit virginiawoodturners.com.

Washington

March 3–27, 2020, Mid-Columbia Woodturners' exhibit of member work, Gallery at the Park, Richland. For more, visit midcolumbiawoodturners.org or contact Bill Tanner at 509-539-3322.

March 21, 2020, Northwest Washington Woodturners' 11th annual all-day demo: *A Day with Nick Agar*, Anacortes First Baptist Church, Anacortes. Nick Agar will demonstrate the many techniques of turning, texturing, and coloring for which he is internationally known, including his *Viking Sunset Bowl*. For more, visit nwwwt.org/AgarDemo.pdf. Additional questions, email info@nwwwt.org or call Phil Kezele at 206-372-5123.



YOUR MOVE!

Turn a Chess Set

Mike Peace

Have you thought of turning a chess set but dismissed it as too difficult? Look at this simple but elegant design, and you might just change your mind. Turning a chess set does not require a lathe duplicator; minor differences between like pieces are hardly noticeable and simply highlight that the pieces were handcrafted. Turning a chess set is not too difficult even for a beginner, as it can be a great skill-building project. Noted chess author Irving Chernev wrote, “Every chess master was once a beginner.” This applies to turners as well.

Design and materials

The design presented in this article is loosely based on the familiar Staunton style, which became popular in the

mid-1800s and has become the standard used in chess competition worldwide. But since most of us will not be playing competition chess, there are endless possibilities for design. This is a game played throughout the world, dating back more than 1,500 years. You can be as creative and original as you like, but there are some basic design parameters to consider (*see Design Considerations sidebar*).

If you want to design your own set from scratch, you might find inspiration in the pieces shown in the Chess Set Gallery, immediately following this article. And of course many more ideas can be found on the Internet.

I suggest using a dry, close-grained hardwood, as it will hold turned details well. A plain wood is generally preferred

because prominent grain patterns can confuse our perceptions of form. Historically, chess sets have been made of contrasting woods, with some fine sets having been made of boxwood and ebony. Imported exotics can be beautiful but also expensive. Walnut, a common domestic dark hardwood, is frequently used in making chessboards and the dark chess pieces for hand-turned sets. You could also use dye to distinguish the dark pieces in your set. Inexpensive wooden sets frequently come with black paint on their dark pieces. I used Bradford pear for all of the pieces in the set shown here and colored the dark pieces with black dye.

The design you see in this article appealed to me because of its elegance and simplicity. It does not have the complex beads, coves, and collars of the typical Staunton style, yet all of the pieces are readily identifiable. Moreover, the knights require no hand-carving.

Make a storyboard, or story stick, for each chess piece to mark the location of each feature on your turning blank. I typically make story sticks from thin plywood, but because chess pieces are so small, it is fine to use thin cardboard. *Figure 1* offers full-scale drawings, which you can photocopy and glue to a piece of thin cardboard. Then use scissors to cut out the diagram for each ►

Design Considerations

- Size the pieces in descending order of importance.
- Make each piece easily recognizable to prevent confusion when playing.
- Avoid delicate detail that leads to damage if you use the set often.
- Design the pieces with a chessboard size in mind. Competition sets are large, with chessboard spaces $2\frac{1}{4}$ " (6cm) square and a king about $3\frac{3}{4}$ " to $4\frac{1}{4}$ " (10cm to 11cm) tall. A design like the one proposed here is about three-quarters that size, still large enough to

play chess comfortably for casual home play. Moreover, its smaller board can fit on most coffee or side tables, unlike competition-sized boards.

- The base diameter of the king should be about 70% to 80% of the square/space size. Too large and they are more awkward to move; too small and they look out of proportion.
- Some extra weight in the base of each piece makes them more stable.
- A felt pad on the base makes them more elegant.

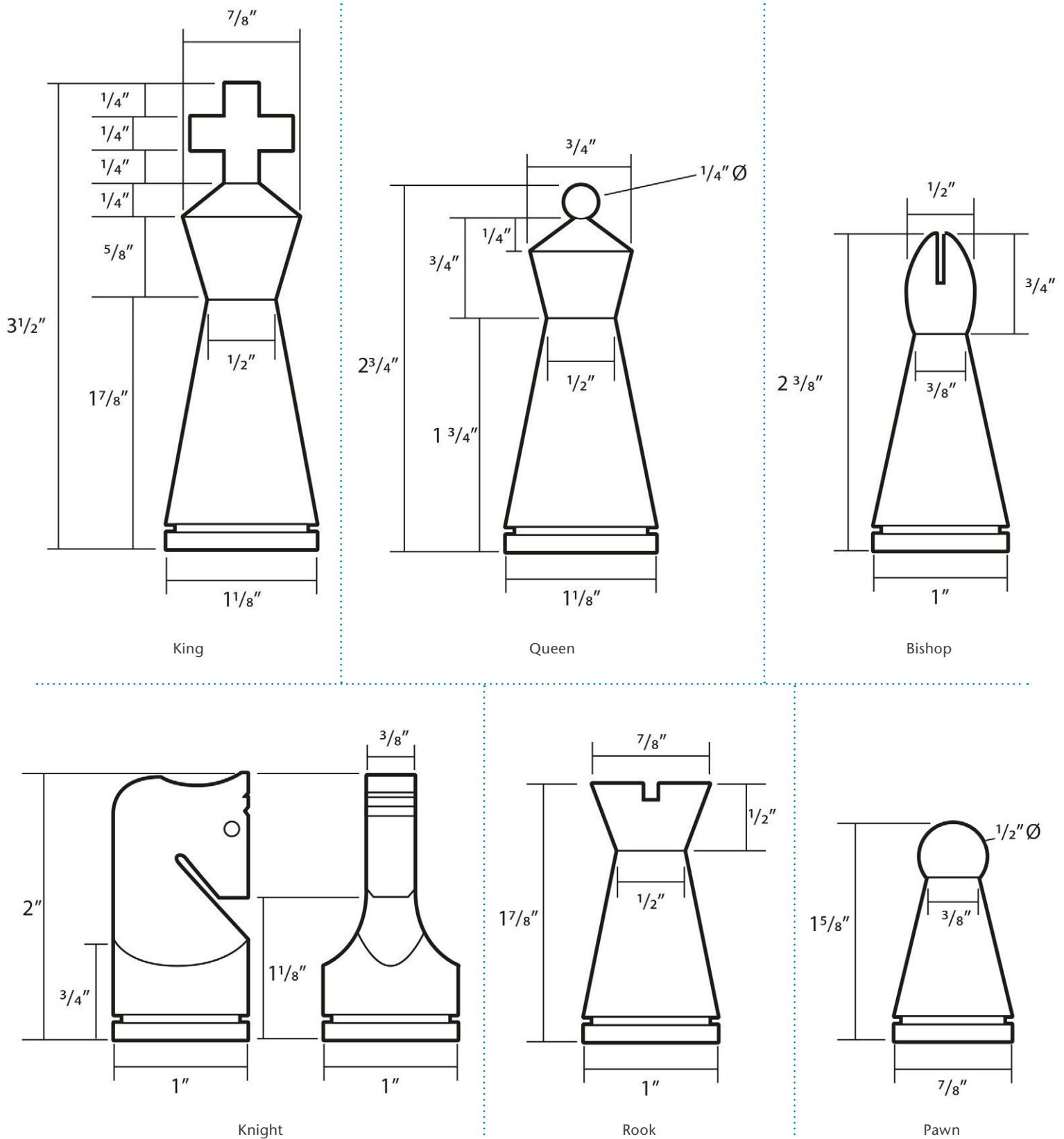


Figure 1. Photocopy these full-size drawings and glue to a thin sheet of cardboard. Use scissors to cut out each piece to use as a storyboard.

Illustrations: Robin Springett

Make story sticks from the drawings



1 Story sticks made from the drawings in *Figure 1* make it easy to mark major features and key diameters.

piece, including the measurements, as a standalone storyboard (*Photo 1*).

Prepare the blanks

Mill your rough chess blanks about $\frac{1}{8}$ " (3mm) wider and longer than the finished dimensions.

I pre-drill each blank with two holes in the bottom, one to accommodate pennies for weight and one to fit the blank on a screw chuck (see *Make a Screw Chuck Mandrel sidebar*). I prefer to drill the first, larger hole on the lathe, as shown in *Photo 2*. I have also used a

drill press for this operation, securing the blank in a wooden handscrew with opposing 90-degree notches cut in each jaw to hold the blank square. For safety, always clamp the wooden handscrew to the drill press table. I first drill with a $\frac{3}{4}$ " (19mm) Forstner bit to accommodate the four pennies I will use later to weight each piece. Drill a little bit deeper than the depth of the pennies to allow space for glue. Then drill a smaller pilot hole sized for the screw chuck. I find a hand-held drill is best for the second, smaller hole. Center the bit in the dimple left

Drill the base



2 Use your lathe as a horizontal boring machine to drill a $\frac{3}{4}$ "-diameter hole for accommodating weight in the bottom of the chess pieces.



3 The author uses a hand drill to bore a smaller pilot hole for mounting the blank on a screw chuck.

Make a Screw Chuck Mandrel

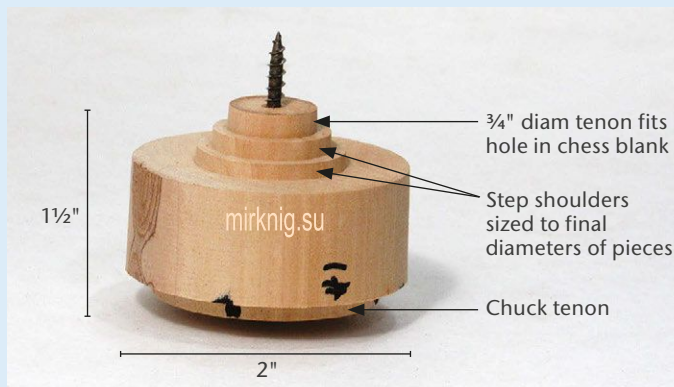
The best way I have found to hold chess blanks on the lathe is with a shopmade screw chuck mandrel. If you do not have a suitable endgrain spindle scrap, turn one to about 2" diameter and $1\frac{1}{2}$ " long, adding a tenon sized to fit your chuck.

Shape the mandrel per the photo below. The smallest, forward-most tenon is sized to fit snugly into the hole drilled in the chess blanks. This requires parallel sides and a slight chamfer on the end for easy insertion. Make the tenon shorter than the depth of the hole so when fully mounted, the blank will not bottom out in the hole; the blank's base should register against the shoulder of the mandrel. I mark a line on each side of the number 1 jaw chuck, which allows me to remount the chuck in the same position each time so it has a greater chance of running true.

You can speed up chess blank prep by sizing a second tenon, or step, at the shoulder of the mandrel to the exact finished diameter of the

chess piece. This serves as a visual gauge so you can turn the piece round without having to measure its diameter. You can make several mandrels to accommodate various base sizes or, as in the photo, add a third, larger tenon so you can use one mandrel for two different-diameter pieces.

Drill a pilot hole all the way through to accept the screw. Use a drill bit slightly smaller than the screw you will use. I drill a $\frac{9}{64}$ " (3.5mm) hole to accept a #8 screw $2\frac{1}{2}$ " (6cm). Centering the screw hole on the mandrel can be a challenge, so it is best to use a center drill to make a starter hole. With the screw chuck removed from the lathe, insert the screw from the back and mount the chess piece blank. Tightening the screw will pull the blank tight onto the tenon. Note that the screw head does not need to seat against the back of the mandrel, as much of the hold's strength comes from friction and the chess piece base making solid contact against the screw chuck.



The author's shopmade screw chuck mandrel holds chess blanks securely. Note the smallest tenon is sized to fit into the $\frac{3}{4}$ "-diameter hole in each blank, with the screw pulling it tight. The step shoulders are sized to match the final diameters of the chess pieces and act as a visual gauge.

by the Forstner bit and drill about $\frac{3}{8}$ " (10mm) deep (*Photo 3*).

The pawn

I encourage you to start with the pawn. It is the easiest piece to turn, and for less-experienced turners, turning all the pawns first will give you experience with tool selection and tool control, as well as confidence that will carry over to the more difficult pieces.

Mount a blank on your screw chuck. It is important to have cut the chess blanks square so they will register fully against the screw mandrel. I like to use tailstock support as much as possible, but especially when roughing, to prevent chatter/vibration. Prevent damage from the live center point by making a "soft touch" center out of wood or high-density polyethylene (HDPE), as shown in *Photo 4*.

Turn the blank round using a spindle-roughing gouge. With pieces of this size, I run the lathe faster than I usually do—1800 to 2800 rpm. Keep your tools sharp and don't be too aggressive with your cuts. The screw chuck mandrel does not hold as securely as steel chuck jaws.

Use your pawn story stick and a sharp pencil to mark locations of key features: the base recess and the bottom of the ball. Part down $\frac{1}{16}$ " (1.5mm) for the recess using a thin parting tool. I do not measure the depth but simply make it as deep as it is wide by sight. Next, I use the thin parting tool to part down almost to the depth of the neck. You can size the desired diameters with a caliper or even an open-end wrench of the correct size. But you can also download a PDF with full-scale, ready-to-print sizing templates from the AAW website (woodturner.org). Log in to your AAW account and visit tiny.cc/Chess. After you print these templates, you can glue them to thin cardboard, trim with scissors, and use them to measure critical diameters for all of the chess pieces. Check turned diameters with the lathe off.

Non-marring live centers



4

A "soft touch" of wood or HDPE provides tailstock support without damaging the wood.

Make sanding sticks for crisp edges



5

The author's shopmade sanding sticks, thin strips of wood with sandpaper glued to them, help sand details like the taper joins.

Rook crenellations



6

The author cuts the rook crenellation slots on a table saw prior to mounting the work on the lathe.



7

An alternative method is to first turn the rook, then form the crenellations, or notches, with a small round rasp or chainsaw file.

I use a spindle gouge to shape the ball at the top of the pawn, after first reducing the ball area to the correct-diameter cylinder using a parting tool. Just as you would turn a bead, start with the flute up near the center and lift, twist, and roll the gouge as you approach the top or bottom of the ball. If this cut is new to you, you may want to practice the motion by doing a few beads on a practice piece. Don't worry if the balls do not look perfect. By the time you finish your last one, you can easily turn another pawn or two if necessary to replace the first ones.

Next, shape the body with a flat taper. Your spindle gouge is a good tool for this. I would work at shaping most of the taper at the base of the ball before taking the final taper cuts. Start your taper at the top of the base recess feature. Remember

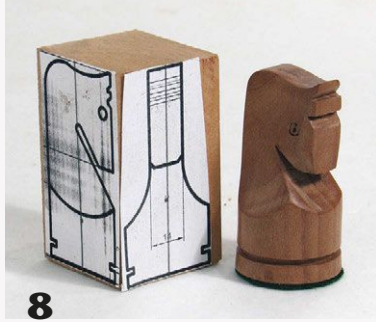
to cut with the grain—in this case, from large to small diameter. If you have some experience using the skew, that is a great tool for making a flat planing cut from the base to the bottom of the ball.

Sand the piece. On the light-colored pieces, I sand to 320 grit, apply lacquer sanding sealer, and, when dry, sand again at my final grit. A paper-backed abrasive works better than a cloth backing to sand and keep edges crisp. Make some sanding sticks by gluing strips of sandpaper onto small, flat strips of wood such as craft sticks (*Photo 5*). This is a good tool for sanding the area on all the pieces where the top and bottom tapers meet.

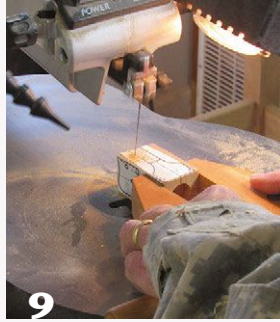
The rook

The biggest challenge with the rooks is cutting the slots, or crenellations. ►

Pre-cut knight's top



8



9

Glue the front and side patterns on the knight blank and saw out the upper profile in two dimensions before turning only the base.

Pre-cut bishop's miter



10

Cut a partial vertical slot on top of the bishop prior to turning. This can be done safely on a bandsaw holding the work in a handscrew clamp.

I found it difficult to cut slots with a hand saw on small pieces of round hardwood without skipping or causing scratches or tearout. Cutting the slots on a table saw before turning solves this problem. I draw lines corner to corner on the drilled (base) end, being sure to cross the center of the hole, and clamp the piece in my notched handscrew for safe holding on a crosscut sled (*Photo 6*). I set the blade height at $\frac{3}{16}$ " (5mm) above the crosscut sled base. After cutting one slot, turn the blank 90 degrees, line up for the cut, and cut the other slot. There are other ways to cut the crenellations, such as on a bandsaw with a proper jig, but I prefer the kerf size from my table saw blade.

After mounting the blank on the screw chuck mandrel and turning the final rook shape, I hollow out the top. You can drill this with a Forstner bit, but that would leave an unsightly divot in the middle. So I hollow with a small spindle gouge, cutting from center to the left, and clean up the corners with a small square scraper.

A simple design option is to forget cutting slots with a saw. Instead, use a small round-nose scraper to hollow the top of the rook and then use a small round rasp or an old chain saw file to cut partial notches (*Photo 7*). Use a sharp knife first to make small starter V-cuts to keep the rasp from skating, and file the slots at about a 45-degree angle. This is the approach I used on the rooks in my

Russian chess set shown in the Chess Set Gallery (page 24).

The knight

I cut the basic knight outline using a scroll saw before I turn only the base on the lathe. First, glue the printed knight pattern onto the side and front of the pre-drilled square blank. It is critical to get these patterns centered on the large mandrel hole before cutting on a scroll saw or bandsaw (*Photo 8*).

With the front of the knight facing up, cut the excess off each side (*Photo 9*), then tape these scraps back in place with clear tape. These taped pieces are an essential safety measure, as they provide needed support on the scroll saw or bandsaw table when cutting the side profile. Now mount the piece on the lathe mandrel and turn the knight's base section.

See *Variations on the Knight sidebar* for alternatives to this method.

Bishop, queen, king

Prior to turning the bishops, I cut a vertical bandsaw slot about $\frac{3}{8}$ " deep for the traditional miter. Carefully draw a line down the center of one side of the blank. Be sure it centers on the large mandrel hole. To cut the slot on your bandsaw safely, use a hand clamp to hold the blank with the marked side up (*Photo 10*).

The queen design features a coronet topped with a tiny ball. Just as you

turned the ball on top of the pawn, turn a tiny cylinder on the end of the queen a bit longer than the ball and then shape the ball with a spindle gouge. One design variation is to simply omit the ball.

The cross pattée on the king's crown is quite simple to make. Use a parting tool to form a cylinder at the top of the king the size of the cross. Then turn a flat disk for the cross bar by taking parting cuts on each side with a thin parting tool (*Photo 11*). With the piece off the lathe, carefully cut away the excess using a chisel, sharp knife, or a belt sander, leaving only the cross pattée.

Finishing

Better chess sets are weighted to provide more stability. I have used lead shot sealed with epoxy, but pennies work well also. A penny weighs 0.1 ounces, and four pennies are about right for these chess pieces. Washers also work but may cost more. If you choose to add more weight to the larger pieces, you can make the mandrel tenon longer and drill a deeper hole in the blank before turning, creating a larger cavity for more weight. These days, imported chess pieces are typically weighted with a rod of iron or steel. If you go this route, just make sure you size your mandrel and matching hole to closely match the size of the weight. I use epoxy to seal in the weights (*Photo 12*).

Add felt on the bottom to cover the glue and weight and to minimize the clacking sound during play. Felt bottoms also prevent scratching the board. Cut out a square of felt slightly larger than the base diameter and glue with white or yellow glue. Trim with scissors after the glue has dried.

Carnauba wax melted into the wood on the lathe and buffed is a traditional finish but dulls quickly with use. Lacquer is shiny and more durable. I apply lacquer with a brush while turning the lathe's handwheel to rotate the piece slowly. I sand lightly with 400 grit and apply two more coats of lacquer, allowing drying between coats. With each coat, I run the lathe at the slowest speed for a couple of minutes to prevent runs. Using several mandrels helps speed up your finishing. Simply remove the screw chuck with the piece still drying on it from the lathe and set it aside while finishing another piece. Twist the piece onto the mandrel tightly enough to hold it while turning at slow speed. You do need to bother tightening with a screwdriver if the piece is snug.

To dye the darker pieces, I sand the wood to 400 grit and apply an aniline dye mixed with alcohol. I then seal the surface with a brushed coat of shellac. After the shellac-sealing coat, I only need a couple of coats of lacquer.

Good luck turning your heirloom chess set!

Mike Peace is active in three woodturning chapters in the Atlanta area. He is a frequent demonstrator and regularly uploads woodturning educational videos to his YouTube channel, Mike Peace Woodturning. Visit Mike's YouTube channel to find a playlist of videos on turning this chess set. Before retirement, Mike worked as a software project manager. After serving on active duty in the U.S. Army, he continued service in the reserves, retiring with the rank of Lieutenant Colonel. For more, visit mikepeacewoodturning.blogspot.com.

King's cross pattée



Turn the king's cross pattée by starting with a cylinder on the end and then make parting cuts to create a disk. Carve away the excess after turning to create the cross bar.

A weighted and felted bottom



Glue lead shot or pennies into the bottom for added weight and then glue on a felt base.

Variations on the Knight

The knight, or horse, in the Staunton design, is usually the most time-consuming of chess pieces to make, often with detailed carving. Carved knights are often made of two pieces, a turned base and a separate, carved top. I used this technique when carving the knight in my Russian style set (Photo a and page 25). After carving, I cut the knight at the base and drilled a hole to fit the pin on the turned base.

Another variation is to mimic a stylized knight's helmet instead of a horse (Photo b). And yet another is to drill a hole through the blank before turning (Photo c). Multiaxis turning could also offer an alternative to carving.



Knights are often made with a carved head joined to a turned base with a peg.

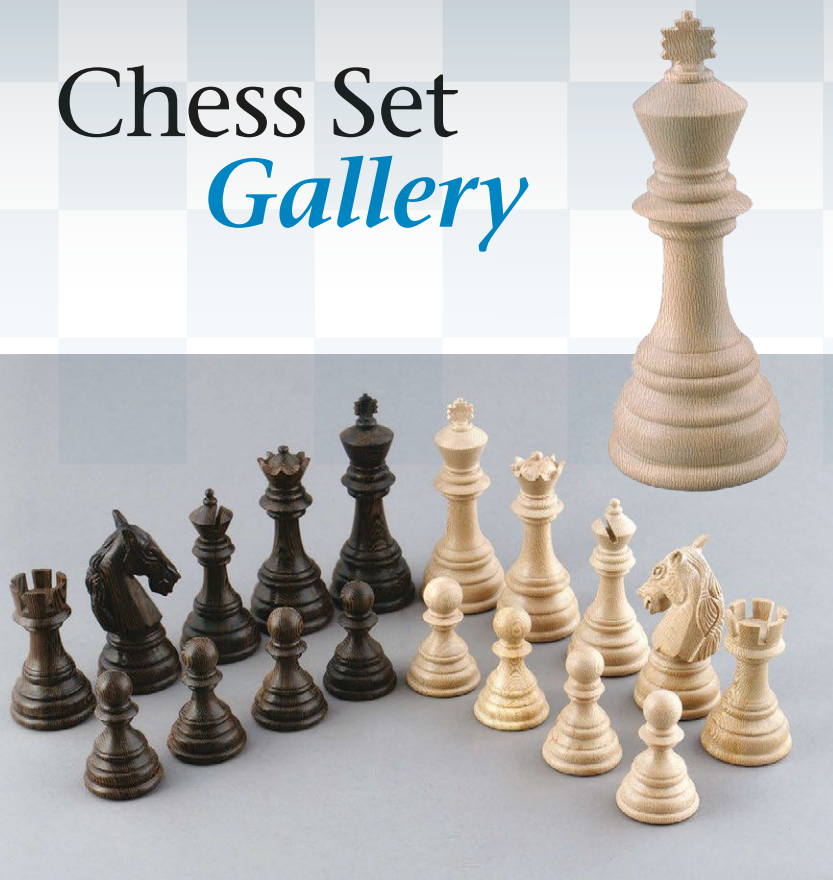


An alternative to carving a horse is to represent a helmeted knight, such as the center three in this image. They were turned only, with no carving, except for the visor slots, which were cut with a coping saw.



An unusual knight, made by Doug Korn, loosely resembles a stylized helmet. Simply drill a hole through the blank prior to turning.

Chess Set *Gallery*



Michael Kehs, Pennsylvania
2016, Wenge, sycamore,
tallest: 4" (10cm)

Hayes Rutherford, Indiana
2016, Birch and dyed birch, shellac,
tallest: 3 $\frac{7}{16}$ " (9cm)



Photo: Tib Shaw/AAW

Michael Mode, Vermont
1993, Ebony, purpleheart, persimmon, tagua nut,
tallest (when lidded): 7" (18cm)

AAW Permanent Collection
Donated by Jerry and Deena Kaplan



Allan Ferguson, Washington

2018, Claro walnut, maple,
Danish oil, tallest: 4 $\frac{1}{4}$ " (11cm)

Based on an 1800s Russian-style
set found in Mike Darlow's *Turned
Chessmen* (Stobart Davies, 2004).

Photo: Hall Brett



**Gerald Lawrence,
Mississippi**

2016, Chessmen: walnut and maple; Board: padauk and birdseye maple

Mike Peace, Georgia
2017, Bradford pear, dyed persimmon, lacquer, tallest: 3½" (9cm)
Modeled after a Soviet-era chess set.

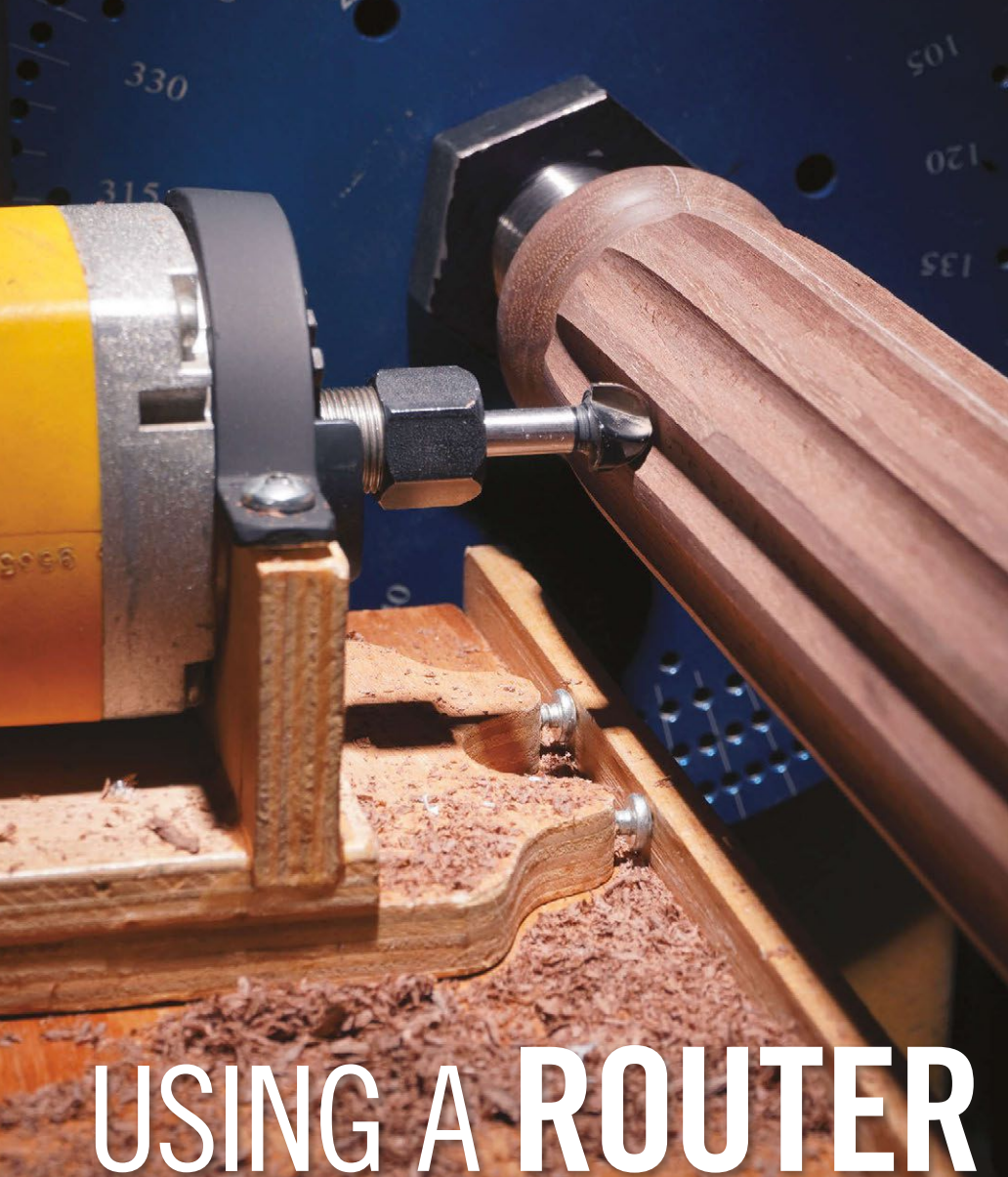


**Gidi Azar,
Kuranda, Australia**
2018, Pine, jarrah, OB Shine Juice, tallest: 4¾" (12cm)



**Luke Sellers,
Georgia**
2016, Chessmen: rosewood and maple; Board spaces: birdseye maple and rosewood veneer, polyurethane, tallest: 5" (13cm)





USING A ROUTER AT THE LATHE

John Lucas

One of my very first power tools was a router. Since it is a versatile tool, I used it for many woodworking tasks—I planed and jointed boards, made many types of joints, and of course formed decorative edges. So when I got into woodturning, it was natural for me to try adapting the router for use at the lathe, and I have found it is a great way to add interesting features to turned items. In combination with a good indexing system on your lathe, a router setup enables you to create regularly spaced features on

spindles, bowls, ornaments—almost any form turned on the lathe.

A friend had asked me to make some split-turned, fluted spindle decorations for a grandfather clock he was making. I glued up the wood and turned the spindle. Then I built a box to hold the spindle and support the router, which would be used to form the flutes (*Photo 1*). I rotated the wood, put a screw in the end to index the spindle, and then routed each groove. It wasn't long before I decided there had to be a better way.

I designed a banjo-mounted table equipped with a fence to guide the router, which was held in a carriage. This setup allowed me to bring the versatility of the router to the lathe.

Router setup components *Banjo-mounted table*

Building the banjo-mounted table can be challenging, but there are several possible approaches. The goal is to attach a post (sized to fit in your banjo and made of metal or wood) to the underside of the wood table and keep it square (*Photo 2*). I have found the simplest way is to glue a hardwood brace to the bottom of the table with a hole drilled to match the hole in your banjo. Then simply cut a piece of steel the correct diameter and length and glue it into the brace using epoxy.

If you have access to a welder, you could weld a large washer to a steel post, drill holes for screws, and mount it under the table. I have a pipe threader, so I cut threads on the end of a 1"- (25mm-) diameter rod, screwed the rod into a floor flange, and screwed the flange to the table. I also made one using all-thread rod, which allowed for fine adjustment of the table height.

You can also use a hardwood dowel as a post, but it will wear out relatively quickly. A wood post will work fine for several projects and can be replaced easily.

The size of the router table itself will depend on the router carriage you use and the project you will be routing. The table I use most measures 8" × 16" (20cm × 41cm). Equipped with a fence, this table is suitable for a wide variety of projects (*Photo 3*).

Router carriage

Build a carriage that will hold your router securely. I use a mini-router, but various sizes can be used, including a small rotary tool. I use threaded inserts set in a wood base to accept hold-down screws, but long screws with large threads would also work. You can be creative with how you secure the router to

An early attempt



1 The author's first attempt at using a router on turned items involved a box that held the workpiece and guided the router.

Banjo-mounted router table



2 The underside of several shopmade router tables.



3 The post mounts in the banjo like a toolrest.

the base. I had some scrap aluminum on hand, which was easy to bend to fit the shape of the router and strap it down. Another option is to use custom-shaped wood blocks that clamp the router in place when screwed down (*Photo 4*).

To add to the versatility, your router carriage can be attached to a variety of custom-made bases to achieve different results. There are many possibilities, depending on the router bit being used and the shape of the guide fence the router will follow. I have a base for following concave guides, one for convex guides, one for creating arcs, and a few that allow me to mount the router at 45 or 90 degrees to the work (*Photo 5*). Round-head screws mounted in front of the base allow for micro-adjustment of depth of cut.

Indexing system

You will also need a way to index the work so your routing can be made at regular intervals around the workpiece. Some lathes have an indexing wheel built in, as do some chucks. I have found the simplest way is to make your own indexing wheel, on which you can mark the number of positions you want. An L-bracket fixed to the lathe bed can be spring-clamped to the wheel, holding the workpiece in place (*Photo 6*). A home-made wheel has the advantage of offering any number of positions you choose, some of which might not be available on commercial indexing wheels (*Photo 7*). ►

Router bases/carriages



4 There are various ways to secure the router (or rotary tool) to a wood base, including wood blocks and aluminum strapping.

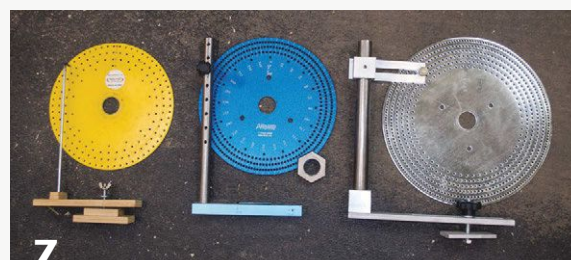


5 The author's router carriages, used for different purposes.

Indexing wheels



6



7

(6) A simple shopmade indexing wheel with marked positions and a rudimentary but effective locking mechanism—a spring clamp.

(7) Commercially available indexing wheels with locking pin mechanisms. At far left is the author's shopmade locking pin system.

JOURNAL ARCHIVE CONNECTION

EXPLORE!

Even though commercial indexing wheels come with good pin systems, I prefer to use my shopmade locking pin (shown above in *Photo 7*). Its springiness makes it easy to engage and disengage, and it will work on any index wheel and most chucks. See my August 2019 *AW* article, "A Better Index-Locking Pin" (vol 34, no 4, page 24) to learn more. Log on at woodturner.org and use the Explore! search tool.



Pencil carrier

To reduce the chances of indexing errors, pre-mark the workpiece using a pencil mounted in a block at center height (*Photo 8*). This is an easy way to confirm your index spacing before cutting the wood. I made an adjustable

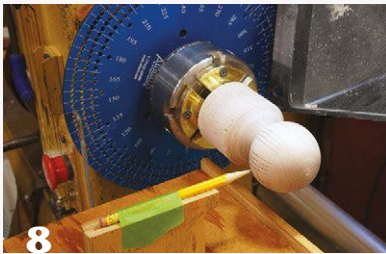
pencil block, so I can use it at various heights if needed.

Table height spacers

For most cuts, the router bit should cut on the centerline of the turning. I have found a quick way to achieve the desired

height is to make spacers out of 1" PVC pipe (*Photo 9*). If you plan to use the same router and bit all the time, then you need only one. Setting the table higher or lower than centerline offers some interesting results, so I suggest making several spacers while you are at it.

Adjustable pencil carrier



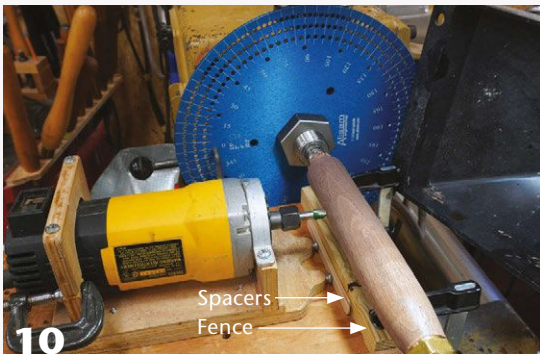
8 A height-adjustable pencil holder slides on the router table to make test marks on the workpiece prior to cutting with the router.

Table height spacers



9 Various lengths of PVC pipe fit over the table post and take the guesswork out of setting the height.

Set depth of cut



Spacers the thickness of your desired depth aid in setup, with the router bit just touching the workpiece. Remove the spacers prior to routing.
mirknig.su

A sample project

I made a tool handle with routed flutes to illustrate the basic process. Turn the handle and make the area to be fluted cylindrical (parallel to the lathe bed). Install the router table and adjust the height so the router bit is centered.

Next, decide on the number of index positions you want to use. Dividing the circumference of the workpiece by the width of the router bit will tell you the maximum number of positions possible for that workpiece. Pick a number of positions equal to or less than that number. Personally, I just eyeball it and use my pencil in the height block to mark off and confirm the positions before cutting. As long as the dimension between the pencil lines is greater than my bit diameter, I can use that index position. For this tool handle, I chose to make eight flutes using a 1/4" (6mm) round-nose router bit.

I installed a fence to guide the router and stops to control the ends of the flutes. I usually just screw, hot glue, or clamp a piece of wood to the table as a guide that follows the length of the turning. Then I glue on blocks at either end to control how far the router moves left and right.

To achieve the desired depth of cut, I use a spacer the same thickness as my desired depth. Popsicle sticks or even drill bits work well. Place the spacer against the fence, then push the router up to the spacer. Then adjust the table position by moving the banjo until router bit just touches the wood at both ends of the cut. Remove the spacer and you are ready to cut (*Photo 10*).

It is very important to push down on the router as you slide it along the cut. Since this is a plunge cut, the entire bit will be cutting at once, which will tend to pull the router upward and ruin your

Avoiding problems



11 Plunging the full diameter of the router bit into the wood will cause the router to ride upward, so keep steady downward pressure on the router.



12 Completed tool handle with routed flutes. If router burn occurs at the ends of the flutes, one option is to turn a cove at the ends, removing the problem areas. This also helps to frame the fluted area.

flute (*Photo 11*). Make several light passes until you are at the full depth.

The router may burn the wood at the ends of the flute, so approach these areas with light cuts. Another way to deal with end burning is to create ramps instead of end-of-cut blocks, so the router is guided gradually out of the cut. With this method, you are never stopping the cut in the wood, so there will be no burning. And yet another option is to simply turn a cove at the ends of the flutes after routing. That way, you simply cut away the burned ends (*Photo 12*).

Routing curved surfaces

Routing flutes on a curved surface such as the outside of a bowl can be done using a custom-shaped fence. After turning your bowl profile, mount the router table in the banjo and use a pencil to trace the bowl's curve onto a piece of scrap wood. Cut the scrap and use it to guide the router (*Photos 13, 14*). Leave extra wood at first so you

Routing a curved surface



13 A custom curved fence mirroring the bowl's shape ensures a consistent depth of cut.



14 Completed bowl with fluting routed with a round-nose bit.

can refine the curve, as the pattern may not have telegraphed perfectly.

For a purely convex surface, I use a router carriage base with two fine-adjustment screws at the front, as in *Photo 13*. If during testing you see that the router doesn't track as you want it to, simply change the shape of the guide/fence. For shapes that are not convex, use a carriage base with only one adjusting

screw as your depth guide. This will allow you to follow a concave area, although it will be up to you to keep the router perpendicular to the cut by hand/eye.

Exploring angles and bits

Setting the router at an angle to the work creates some interesting possibilities and improved results. For example, if I wanted to rout a V-groove, I could set the router ►

Angled router carriage



15 Positioning the router at an angle to the workpiece offers some advantages and increased design opportunities.

Rout for inserts



16 When sawing contrasting inserts, don't trust that the routed V-cut is a true 90 degrees. Gauge the actual routed angle by filing a piece of steel until it fits perfectly, then use the steel as a guide for setting your table saw tilt.



17

Glue in contrasting inserts



18



19

(18) Too many routed grooves to glue them all at once. The author glued in half, turned them flush, and then repeated the process for the remaining grooves.

(19) Completed hand mirror with contrasting inserts

Routing above or below center



(20) The pencil carrier, set lower than center, confirms index positions prior to cutting.

(21) Lowering the height of the router bit creates different effects on the finished piece.

straight on to the work, as before, and use a V-cutting router bit. But this type of cutter often leaves a fuzzy area at the bottom of the groove that must be hand-sanded. Instead, I use a straight-cutting router bit in my 45-degree carriage. In this case, I am cutting the V-groove with only the outer edge of the bit, which has a much higher surface speed and leaves a very clean groove (Photo 15). You can also use a 45-degree carriage with a longer round-nose bit to produce a sort of J-shaped groove instead of a U.

I like to add contrasting wood inserts to my routed grooves. With a straight bit, this is simple enough—just rout the grooves and cut wood to fit accordingly. Note that with stopped cuts, you will have to either hand-cut the slot ends square or round over your insert. Round-nose bits work well to form recesses for inserts because you can cut short lengths of dowels and glue them into your round-bottomed

groove. Using a V-groove router bit requires more attention to detail, as most V-groove bits do not form a true 90-degree angle. In reality, the angle may be 87 to 93 degrees, which means when cutting your insert pieces, you'd have to tilt your table saw blade slightly to accommodate the discrepancy. Using a straight router bit at 45 degrees produces the same problem. My solution was to file a piece of sheet metal until it fit perfectly into the routed V-groove. If you use this matched angle to set your table saw tilt, you'll have perfectly shaped inserts (Photos 16, 17).

I glue the contrasting wood inserts in place using epoxy, instead of wood glue, for two reasons. Epoxy is stronger, especially if you want narrow, pointed inserts like those on the mirror shown in Photos 18 and 19. Epoxy also works as a gap filler, so if the fit of your inserts in the routed grooves isn't perfect, the epoxy will offer some forgiveness.

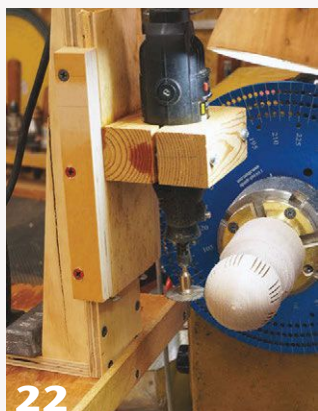
Other possibilities

Setting the router height above or below the centerline can produce exciting results. For example, if you rout grooves below center on a platter, the grooves will create the illusion that the form is rotating counterclockwise, as shown in Photos 20 and 21. If you rout the same grooves above center, the form will appear to rotate clockwise.

Finally, consider that it is possible to make carriages for other cutting tools. Rotary tools such as a Dremel or a Foreman handpiece work well and give you more options. Photos 22 and 23 show how I made a carriage to hold my Dremel at a 90-degree angle and cut slots in an ornament. I have also made a carriage for a metal air saw, so I could cut slots in the edge of a bowl, and for a biscuit cutter so I could form wider slots. Almost any tool that cuts is a possibility if you can build a carriage to hold it safely.

As I write this article and experiment in the shop, I can see many more ways of using the router or other cutting tools at the lathe. I hope these ideas will spark your imagination to expand the possibilities of your turning. ■

90-degree router carriage



The author's rotary tool equipped with a cutting wheel held at 90 degrees to the workpiece, and the resulting ornament.

John Lucas, a retired photographer, has been working in wood for more than thirty-five years and also dabbles in metalworking. He 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.

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Neck Pain

Rich Foa

There probably isn't a single woodturner who hasn't been bothered at some time by neck pain. Mostly, this takes the form of a stiff neck or "crick." Typically worse on one side, it might last anywhere from several hours to several days, benefiting from the application of heat or ice, over-the-counter pain medication, and mechanically supporting the neck. Muscle tenderness makes massage and stretching difficult. The most common explanation is having "slept wrong," although among woodturners, too much time spent peering into the bottom of a bowl while turning must be a close second. And while stiff necks are painful when we have them, and a recurrent problem for some, it may be of some relief to learn that such pain is entirely muscular and does not have long-term consequences.

Neck pain, however, can be due to more serious problems that can impair strength and coordination in one or both upper extremities, feeling in the arms and hands, and balance—with obvious and significant effects on our ability to turn. Some of these more serious conditions can require urgent medical attention and aggressive or protracted treatment. Our necks are, of course, vulnerable to acute trauma in auto accidents, sports activity, and falls. More often, however, the problems that produce chronic pain and that can produce nerve injury result from slowly evolving degenerative processes. They tend to start with intermittent symptoms and progress gradually. Things to watch for are sharp pain that radiates from the neck into an arm, localized weakness, and loss of feeling. In the most serious but fortunately rarer situations, there

can also be stiffness and weakness of lower extremities, loss of balance, and impaired bladder function.

The cervical spine

The spine in the neck (cervical spine) is constructed in much the same way as the spine in our low back (lumbar spine), and vulnerable to the same degenerative processes and injuries—with some important differences. It consists of a stack of seven more or less cylindrical vertebral bodies with cartilaginous disks in between (*Figure 1*). The uppermost vertebra directly supports the head and, in a reference to Greek mythology, is called the atlas. Cervical disks, like lumbar disks, act as shock absorbers and allow for neck motion. Behind each of the vertebral bodies is a bony arch that creates a closed canal housing the spinal cord.

The spinal cord itself is a densely packed and highly organized bundle of nerves carrying virtually all the signals in both directions between the brain and the body. Only the information gathered by the "special" sensory organs of the head (sight, hearing, inner ear balance, taste, and smell) and movement of the face and tongue are not transmitted through the spinal cord.

As with the lumbar spine, the vertebrae in the cervical spine are held tightly in place through a dense network of ligaments. And they are both supported and moved by a complex set of muscles that produce flexion, extension, rotation, and tilt—in other words, three-dimensional movement. On either side of each cervical disk is a bony window called a neural foramen. Through these pass the nerve roots that extend to our neck muscles and arms, control movement,

and carry sensory information back to the brain. The sensory information conveyed is tactile (touch, temperature, vibration), proprioceptive (position), and pain. The distribution of both the motor nerve fibers and the sensory nerve fibers in cervical roots is highly organized and remarkably uniform from one person to the next, enabling accurate mapping of an injury based on the pattern of weakness or sensory loss that results. For example, an injury to the nerve root at the fifth cervical level (C5) will produce shoulder weakness and upper-arm numbness; an injury at C6 will produce biceps weakness and thumb ►

The cervical spine

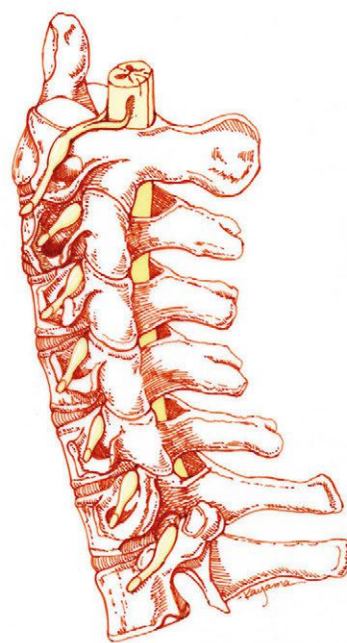


Figure 1. Illustration of the anatomy of the neck, showing the relationship between cervical vertebrae, disks, the spinal cord, and nerve roots.

Illustration: Studio Kayama

These [issues] occur gradually with aging, so the aging demographic of woodturners means we're collectively a vulnerable group.

and index finger numbness; and an injury at C7 will produce triceps weakness and numbness along the posterior forearm. Pain resulting from nerve root injury will produce a similar level-specific pattern, although pain patterns are less sharply delineated.

Things that happen in the neck are also similar to what happens in the lumbar spine. Disks deteriorate, bulge, and can herniate. Bones degenerate, lose height, and develop spurs. Ligaments can enlarge or hypertrophy. These processes singly or in combination can result in pinching of nerve roots (cervical radiculopathy), narrowing of the spinal canal (stenosis), and compression of the spinal cord (myelopathy). Disk herniations are less common in the neck than in the lumbar spine. About three-quarters of the problems attributed to pinched nerve roots in the neck stem from bony degeneration with associated disk bulging—a process called cervical spondylosis. These processes occur gradually with aging, so the aging demographic of woodturners means we're collectively a vulnerable group. In addition, the physical stresses on our bodies from what we do in order to turn wood—lifting, twisting, and working with our heads and arms at odd angles—adds to that vulnerability.

Anonymous Case Study 1

S.F. has experienced longstanding problems with neck pain that he relates, originally, to carrying a heavy book bag over his left shoulder while in school. He gradually developed recurring pain, decreased neck mobility, and "cricks."

He was prescribed cervical traction, which was awkward, cumbersome, and ineffective. He later tried acupuncture associated with electrical stimulation of his muscles. This was initially beneficial but had diminishing returns over a series of ten treatments. Nonetheless, after that, he felt overall improved. Later diagnostic electromyography (EMG) and nerve conduction testing (NCV) were inconclusive.

Ultimately, a physical therapy program that included heat, massage, stretching, range-of-motion exercises, neck strengthening, joint mobilization, and electrical stimulation produced more sustained results. S.F. still contends with an area at the base of his neck and over his left shoulder blade that is chronically tender, swollen, and tight. His neck and shoulder will occasionally "lock" and on some days he cannot turn at all. He has a constant sense of being "hunched" and "craned" when at the lathe, despite efforts to combat this, and he has trouble tolerating protective head gear due to the additional weight.

The gradual onset of neck and shoulder symptoms, possibly due to habitually bad posture, is not uncommon. It doesn't, however, help one to differentiate chronic symptoms that are purely muscular in origin from those due to underlying cervical spondylosis or other skeletal problems, or from a combination of the two. The early onset of S.F.'s symptoms points to a problem that was originally purely muscular. Areas of chronically swollen and tender muscle may be due to a gradual process of persistent inflammation with secondary fibrosis that is difficult

to overcome. Aggressive deep massage of these tender "lumps," while painful when performed, may give relief of variable duration. However, they tend to eventually reappear.

Anonymous Case Study 2

K.R. experienced a sudden popping in his neck, shoulder, and right elbow when his work partner dropped one end of a wet log that they were carrying together. Initial soreness was followed within two days by extreme pain. Over two weeks, he consulted with three different specialists and was given three different diagnoses. One said he had three compressed disks in his neck. One said he had strained a large set of shoulder girdle muscles. And one said he had damaged his ulnar nerve at the elbow. He did not undergo cervical MRI nor, apparently, other diagnostic imaging. Acupuncture gave immediate but short-lived relief. Therapeutic massage resulted in greater and more sustained improvement. He ultimately developed a program of stretching and neck-strengthening exercises. Since his injury, K.R.'s right hand cramps when he is turning. He has consequently relied on different mechanical aides such as a support-bar system for the hollowing of even small objects.

K.R.'s injury was obviously abrupt and related to a sudden and unexpected jolt at a time when he was already exerting himself. The evolution of initial soreness to extreme pain over forty-eight hours is consistent with the development of a severe localized inflammatory response with associated spasm of neck and shoulder girdle muscles. The overall mechanism of injury points to a process arising in the neck or shoulder rather than in the arm itself. Injury to the C8 root in the neck may resemble injury to nerves deep in the shoulder area (the

brachial plexus) or injury to the ulnar nerve at the elbow. What matters for K.R., however, is the resultant hand weakness, fatigue, and cramping when turning. A more concerted effort to localize the injury with MRI and other diagnostic testing might have led to more targeted therapy and, perhaps, a quicker and more complete recovery.

There are no set criteria for a “work-up” for persistent neck pain. Symptoms that begin acutely and persist for four to six weeks despite conservative management, the presence of distinct weakness or sensory loss, or evidence of spinal cord involvement warrant diagnostic testing. The most useful single test is an MRI scan of the neck that will reveal abnormalities of muscle, nerves, and disks, as well as of the bony structures of the spine (*Photos 1 and 2*). Other types of imaging studies, such as X-rays, may reveal comparable information but are less straightforward or less accurate.

Possible treatments

Conservative treatments may include heat and ice, non-steroidal anti-inflammatory drugs, short bursts

of oral corticosteroids, short-term immobilization of the neck with a soft or hard collar, cervical traction, acupuncture, massage, and active range-of-motion and neck-strengthening exercises. At the next level are epidurals—injections of steroids over the connective tissue layer that covers involved nerve roots. There is no formula for the use of these modalities. Varying combinations may be based on experience or trial and error. And, despite wide use over decades, there are really no large-scale, long-term, controlled scientific studies of their effectiveness.

Surgery on the neck is considered when symptoms persist for six to twelve weeks or longer, when there is functionally significant weakness, and whenever there is clinical evidence of spinal cord compression. The most commonly performed surgical procedure is to remove bone spurs that are directly compressing and irritating nerve roots. Surgery may also be performed to remove bulging or herniated disks and to “open” a narrowed spinal canal. The levels of the neck most likely to undergo degenerative change are

those with the greatest mobility, specifically C5/C6 and C6/C7. When disks or substantial pieces of bone are removed, surgeons will stabilize the neck with grafted bone or metallic plates. Fortunately, the neck remains flexible unless it is fused at multiple levels.

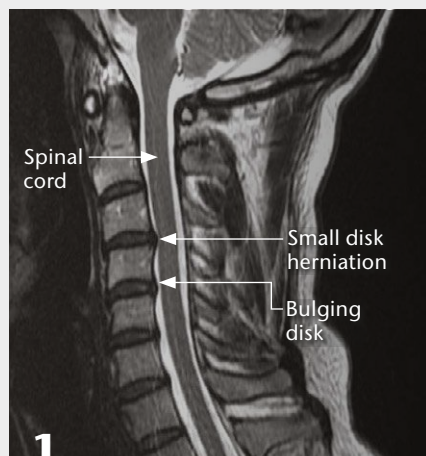
In closing

I would love to be able to tell fellow turners how to avoid neck problems. But a lifetime spent supporting our heads, bending, and turning will take its toll. And sudden jolts, odd twists, and awkward lifts are going to happen. On the bright side, habits of good posture and exercise with attention to flexibility and range of motion will diminish our experience of neck problems and may diminish the degenerative changes that come inexorably with age.

When neck problems arise, they can affect woodturning in countless ways. Consequently, whether to turn and what modifications to make become a matter of personal judgement, informed by sound professional evaluation and taking into consideration individual circumstances. Effective treatment may require changes in body mechanics and tool modifications at the lathe as well as strategies for building strength, flexibility, and endurance when we are away from the shop. ■

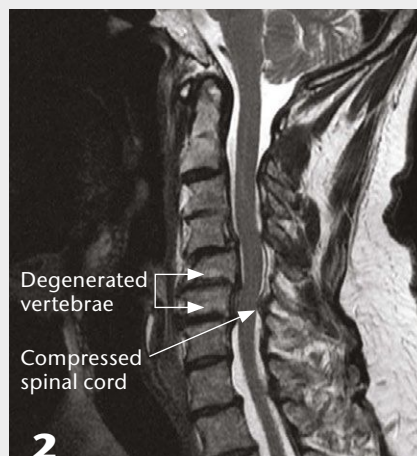
Rich Foa is a retired neurologist with a previous career in private and academic practice. He began turning about a decade ago and devotes his shop time to turning, carving, and sculpture. He is currently the president of the Chesapeake Woodturners.

Comparison of neck MRIs



MRI scan of the cervical spine showing mild degenerative changes, including minimally herniated and bulging disks at C3/C4 and C4/C5, respectively.

Images courtesy of John Whitaker, M.D.



MRI scan showing more severe degenerative changes of vertebrae and disks. There is compression of the spinal cord at C7.

For practical advice and a deeper dive into how woodturners can mitigate the effects of neck pain as it relates to lathe work, see Robin McIntyre’s sidebar article, “The Woodturner and Neck Pain: Strategies for Relief,” on page 34.

The Woodturner and Neck Pain

Strategies for Relief

Robin McIntyre Photos by Andrew Campbell.

There are several strategies you can employ to enhance your neck comfort during turning sessions. To start, if you consider that your body is your most important machine, it makes sense to perform regular maintenance on it. Making simple alterations to your turning routine can also help minimize neck-related symptoms. Note that if you are experiencing some of the more serious neck conditions noted in Rich Foa's preceding article, consider seeking medical interventions individually tailored to your needs.

Body prep—warm up and stretch

Just as you prep a blank for ease of roughing, it is a good idea to prep

your neck to enhance its function before and during turning. Apply heat on your neck and shoulders, using a heating pad or microwave pack. Perform a series of stretches to maintain and improve the flexibility and comfort of joints and muscles.

This can be done before you start turning and during breaks in your turning session. Note that neck flexibility varies from person to person, depending on several factors—general conditioning, age, gender, and pre-existing conditions—so move only within your comfort range for a gentle stretch.

Good form is one of the most important aspects of stretching. Stand upright, as if your body were

positioned between two sheets of glass, and hold your lathe for balance as needed. Move only the neck and/or shoulders during the following stretches, holding each comfortably for thirty seconds.

Shop setup and safety equipment

Consider these shop setup and maintenance ideas to ease the strain on your neck.

- **Lathe height.** Spindle at elbow height or slightly higher is generally accepted as a good choice. Also, check the height of your grinder and worktable and adjust to a comfortable height for an upright posture and neck position.

Chin to chest stretch



Ear to shoulder stretch, both sides



Nose over shoulder stretch, both sides



Backwards chin tuck



Start with the chin extended forward, then “turtle” your chin back to flatten out your neck curve.

Shoulder rolls



Roll your shoulders up, back, down, and forward slowly, then reverse the direction.

- **Shop layout.** Ironically, if your shop is set up so efficiently that you almost never have to change positions, your neck could be adversely affected by lack of movement. It is good to vary your posture and get some neck and total body movement during turning sessions.
- **Lathe operation.** When you have to strain using your hands and arms to perform tasks at the lathe, such as adjusting the banjo or toolrest position, your body tries to compensate using your neck and back muscles. Use a lubricant regularly on your banjo, tailstock, tailstock wheel, and lathe bed to ease the stress on your neck. Try a captured system for hollowing, which supports and stabilizes the tool with less strain on your neck.
- **Personal protection equipment.** The weight of faceshields and respiratory helmets and masks can add to neck strain. Try various shields and respirators to find the lightest, most comfortable models that still offer suitable protection.

You and your turning

Attention to turning form and technique is important for every level of turner and his/her body and neck.

- **Posture and position.** Good posture starts with a well-aligned foundation. Your feet should be aligned to directly support your back and neck. Wear shoes or boots that provide level support without worn-down heels. As you turn, periodically clear the shavings from under your feet, so you are standing on a clean, level surface. To help you stand as upright as possible, rather than bending forward, position your body close to the lathe.
- **Whole body movement.** Moving your body with the tool supported against your torso,

Multiaxis tool handles



These tool handles, made by Richard Wright, were turned on three axes, resulting in a non-round shape conducive to better ergonomics.

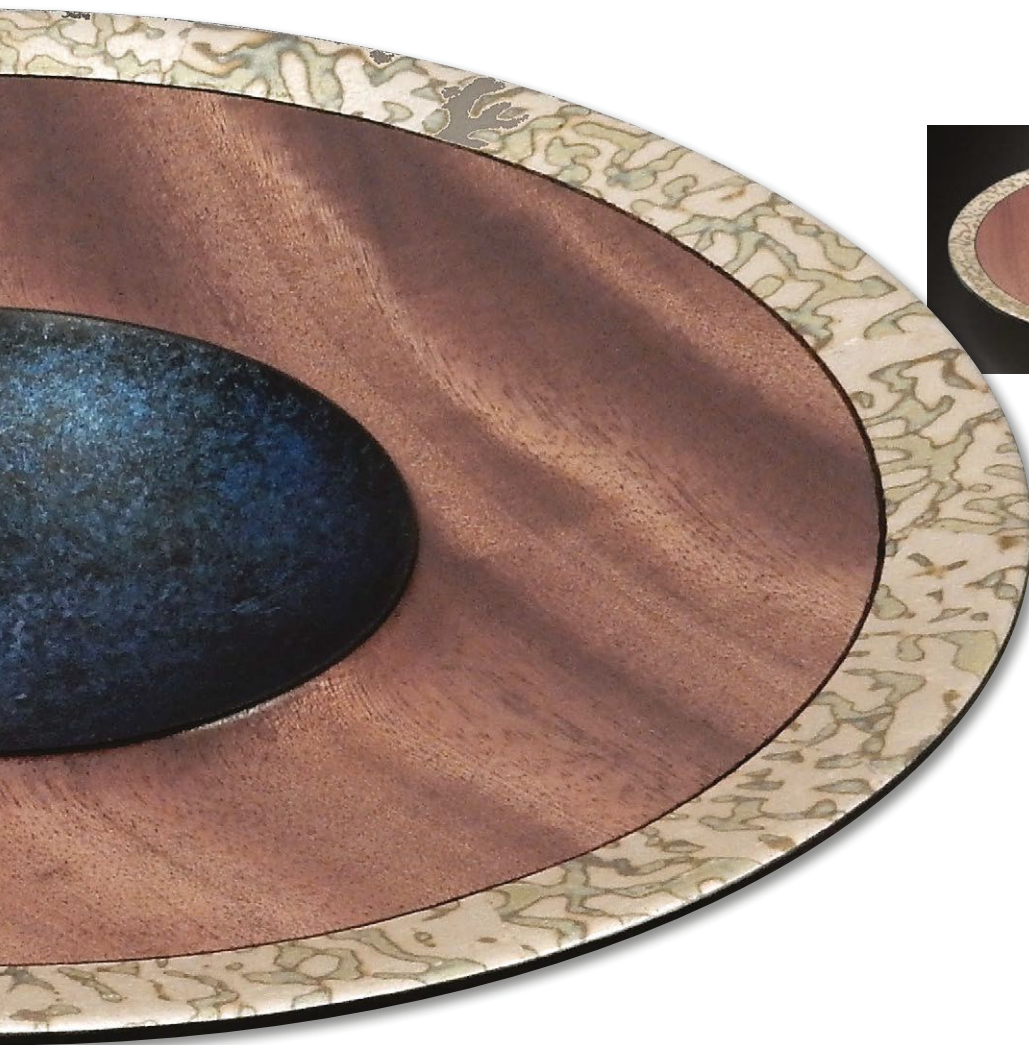
rather than moving the tool with just your arms and hands, will protect the smaller muscles in your neck. Allow the larger muscles in your legs and trunk to do the bulk of the work.

- **Good vision.** Being able to see well as you turn directly impacts the comfort of your neck. Holding your head at odd angles to accommodate visual challenges can add unnecessary strain to your neck muscles. For most turning tasks, we use mid-range vision. If you wear bifocals or poorly adjusted trifocals or progressives, you may be unknowingly tipping your head either forward or back to achieve the required range.
- **Work pace.** Take periodic breaks from your turning. Move in different ways, change your position, and give your neck a break. Subtle changes such as switching from an overhand to an underhand grip on tools can vary the position of your arm, shoulder, and neck.

- **Tool handle ergonomics.** Consider modifying your tool handles with textured wraps. Eric Lofstrom addressed this topic in the June 2019 issue of *AW* (vol 34, no 3, page 31). Also, consider turning or purchasing non-round tool handles. Both of these suggestions can lead to a lighter grip and less strain on your neck muscles.

Turning strains our bodies, and our necks are particularly susceptible. Consider making changes in your shop and approach to turning to minimize neck strain symptoms. Attention to key details can make a significant difference in the comfort and function of your neck, ultimately affording you more turning enjoyment. ■

Robin McIntyre is a retired physical therapist with both bachelor's and master's degrees in physical therapy. After working for thirty-eight years in clinical practice and teaching, Robin is now a hobbyist woodturner currently serving as the secretary, newsletter editor, and WIT liaison for the Cape Cod Woodturners.



The author's *Moon Glow Bowl*, embellished with variegated imitation gold leaf on the rim and stippled paint in the center.

VARIATIONS ON A THEME

Embellishing a Wide-Rimmed Bowl

Marty Kaminsky

Cross-section



Figure 1. Cross-section of a wide-rimmed bowl, whose rim can take center stage over the function of the bowl.

I enjoy turning wide-rimmed bowls so I can use the rim as a canvas, if you will, for coloring and other embellishment. A broad-rimmed ogee-style form presents all sorts of opportunities for creativity. Following are some of the techniques I use to decorate wide-rimmed bowls. These methods are suitable for any wide-rimmed bowl or platter, but if you'd like to make a shape like mine, refer to *Figure 1*, which shows the bowl's cross-section.

Although this article focuses on embellishment and not on the actual turning of the form, there is one consideration for turning I'd like to share. In the *opening image*, you'll notice a very narrow groove separating the gilded outer rim from the remainder of rim. The width of this groove is considerably narrower than that of a commercially available narrow parting tool. I made a suitable tool from a stainless steel butter knife purchased from a resale shop. See the *Butter Knife Parting Tool sidebar* for more.

Preparations

I'm going to detail the process I used to embellish the example shown in this article, but I encourage you to take these ideas and add your own creativity and ideas. Maybe make the first one like mine to learn the process, and for your next one, come up with a new approach. Get out your carving tools or wood burner. Dig around in the art store for interesting colors and materials to try.

The paints and gilding supplies described here are available from art

Prepped bowl



1 Seal the wood using a clear topcoat.

supply stores. If you can't find what you need locally, everything can be ordered from online sources, such as dickblick.com. Just do an Internet search for "gilding supplies" and "acrylic paints" (I prefer Lumiere brand) to find other sources.

The first step is to prepare the bowl for embellishment. With the bowl completely turned except for the foot, sand to 220 grit. I like to keep the bowl mounted in a four-jaw scroll chuck and remove the chuck from the lathe. The chuck is a good holding device during embellishment. Clean off any fine sanding dust from the wood using a tack cloth or compressed air, and seal the wood with a clear topcoat finish. I sprayed two coats of gloss brushing lacquer (without adding thinner), using an inexpensive detail spray gun (Photo 1). When the lacquer is dry, smooth the surface lightly with 0000 steel wool and then remove any steel wool dust.

Paint and stipple

I used a paint-and-stipple technique on the central bowl section. First, apply flat black gesso to the bowl (I used Golden brand). After the gesso dries, smooth it with 0000 steel wool. The resulting surface will have a slight sheen and is ready for stippling.

With stippling, paint is applied using a "dry" brush pressed straight down onto the workpiece, leaving a feathery pattern. The brush is not

Butter Knife Parting Tool



I made a super-thin parting tool from an old butter knife (Photos a, b). The knife already had a natural handle; I simply ground a short top bevel and a longer bottom bevel. The tool is

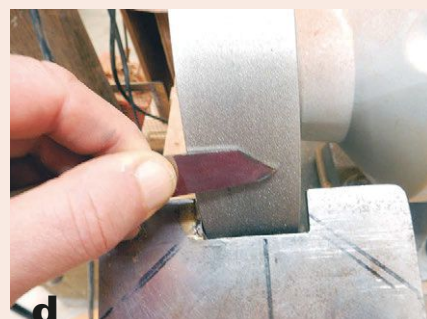
presented to the wood short bevel up.

Note there is a lot of variety among butter knives. Some have top edges that are flat, some convex, some concave. If your knife has a convex top edge, you might want to grind it flat so it won't rock on your grinding platform as

you grind the top bevel. The same goes for the bottom edge. Also note that steel heats rapidly while being ground; use moderate pressure and cool the metal frequently in water.

Set your grinder platform at around 20 degrees and grind the top bevel on a coarse wheel. Then set the platform at 40 degrees and grind the bottom bevel. It is helpful to draw a guideline perpendicular to your grinding wheel to aid in aligning the tool (Photo c).

I wanted my parting tool thinner yet, so I carefully ground each side on a 180-grit wheel (Photo d). The final thickness is approximately $\frac{1}{32}$ " (0.8mm). To re-sharpen this tool, grind the bottom bevel only, with the top bevel facing up.



literally dry, but nearly dry. To get the brush to this state, first load it with paint, then press it straight down repeatedly on scrap paper, dabbing until you get the feathery pattern you like. I used a pearlescent blue paint (Lumiere 520 Pearlescent Blue), prepping the brush on a scrap of cardboard that I had painted with flat black latex paint ▶



Dry-brush stippling



A nearly dry brush is used in a dabbing motion to create an interesting effect.



Apply gilding size



A narrow groove helps to define the area to be gilded. Apply size and allow it to dry until just sticky.

and then stippling the black surface of the bowl (*Photos 2, 3*). Since the brush is nearly dry, you may have to reload it with paint and repeat the process until you are satisfied with the pattern on the bowl.

To add a bit of subtle interest to the pattern, I cleaned the brush with water, then stippled Lumiere 576 Hi Lite Blue in the central area of the bottom of the bowl.

Gilding

Gilding the outer rim is a pretty straightforward process. For this

project, I recommend using imitation gold leaf (or for that matter, any color leaf that appeals to you). Although the application methods are similar, real gold leaf is considerably more expensive and trickier to apply than imitation leaf, which looks quite good. I used variegated imitation gold leaf. Prepare your metal leaf by cutting it with scissors into pieces about $2\frac{1}{2}$ " $\times$ $1\frac{1}{2}$ " (6cm $\times$ 38mm).

In addition to the leaf, you'll need gilding size (the adhesive for the leaf). Gilding size is available in either solvent- or water-based versions. Either

works fine, but water-based size seems easier to come by.

Paint the gilding size where you want the leaf to stick (*Photo 4*). Allow the size to dry until just sticky before applying the leaf. The instructions for the size should indicate about how long to wait, but the tackiness of the size is a better indication. Although the instructions for Mona Lisa brand gilding adhesive says you should apply the metal leaf "in about 60 minutes," I have found the adhesive is ready in only five to ten minutes. If you wait too long and lose the stickiness, just apply more size and monitor it as it dries.

Carefully lay a piece of leaf on the area where you've applied size, and press it down with a soft dry brush. Lay the next piece of leaf so it overlaps the previous piece. Press it down with the dry brush. Neatness is not a virtue in this process: there will be excess leaf hanging out all over (*Photos 5, 6*). If you miss a spot, just tear off a piece of excess leaf and press it down where needed. Continue this application all the way around the rim.

Work your way around the rim again with the soft dry brush, pressing the leaf down into the size. Then gently press the leaf down again with the palm of your hand.

Use the brush to "sweep" excess leaf away. Small fragments of leaf will end up on the inner rim and in the central



bowl, where you don't want them. Use a bit of masking tape to pick the fragments off. The narrow groove between the gilded and non-gilded areas may get leaf in it, too. Use the parting tool you used to form the groove to scrape it out (with the lathe off).

After the gilding is complete, apply more coats of clear finish, avoiding getting finish on the stippled central part of the bowl. I sprayed on two additional coats of lacquer. When the finish is dry, remount the chuck and bowl on the lathe. With a chisel-tip permanent marker held steady on the toolrest, rotate the bowl by hand while pressing the marker onto the bowl's outer rim to make a crisp black stripe—a step I picked up from Jimmy Clewes. Do the same at the transition between the rim and the inner bowl and, with an ultra-fine marker, in the narrow groove defining the inside of the gilded area (Photos 7, 8).

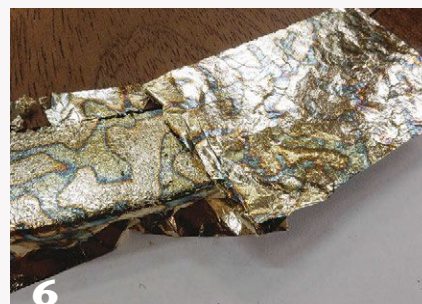
Final steps

Remove the bowl from the chuck and reverse-mount it to complete the foot. I used jumbo jaws for this purpose, but a vacuum chuck or custom jam chuck would also work. Turn away the tenon, then shape and sand the foot (Photos 9, 10). As I did with the top of the bowl, I finished the bottom with lacquer.

I generally don't make more than one of anything, as I lose interest and want to move on to something new. Yet I've made quite a few variations of these wide-rimmed bowls and plan to make more. Each one is unique, and with each I get more and more adventurous with embellishment techniques. Keep in mind, this isn't really a bowl—it's a canvas for your creativity. ■

Marty Kaminsky, a member of the Gulf Coast Woodturning Association and the AAW, has maintained a lifelong interest in photography, woodworking, and other art forms. An engineer by trade, Marty took up woodturning in 2000 and has taught and exhibited the craft widely. Marty can be reached at martykaminsky@gmail.com.

Apply metal leaf



A dry brush is used to press the metal leaf into the tacky size. Additional pieces of leaf slightly overlap subsequent pieces.

Defining sections



Permanent markers are used to add definition to embellished areas.

Turn the foot



Reverse-mount the bowl to turn away the tenon and form the foot.

THE BIG CHURN

Keith Gotschall



“SURE, I CAN TURN THAT FOR YOU... WAIT, HOW BIG?”

So began the conversation on a recent project for a developer in Denver, Colorado. The job was to turn the crank and bucket bail handles for a replica ice cream churn—but on a massive scale. The churn was to be the actual building that housed the ice cream shop. The developer would provide the material—all I had to do was turn the shapes. Easy, right? Well, even with the best of intentions, that is never the way it turns out. There is always more to do on these kinds of projects, unforeseen hurdles to overcome.

Project materials

A separate company had made up the rough turning stock in Douglas fir. It was dry, cracked, roughly jointed, and poorly glued. The blanks were 2' (0.6m) wide and 6' (1.8m) long, made of two pieces. They had been assembled using polyurethane glue, which expands as it dries but is not intended to be a “gap-filling” glue. The blanks had some terrible gap problems. It seemed the joints were opening more and more the farther in from the edge I got. There were areas in the blank where I could stick a metal rule deep into the joint.

On the plus side, the people who assembled the blanks had done a pretty good job of knocking the corners off and also provided the hole through the middle that would be needed for installing the handles at the jobsite. My educated guess was that the blanks weighed 500 pounds each. I normally prefer to glue up my own stock and thus be able to assure myself it was done correctly. However, this is what I had to



Old Town Churn ice cream shop in Fort Collins, Colorado, with custom-turned crank and bail handles.

Photos: Trent Bosch

use for this project. How could I ensure it wouldn't come apart?

Another question was, how do you price a job like this? I have done my share of large turnings, porch posts twice as long and moldings with a diameter of 78" (2m), but this was the heaviest by far. How long would the work take? What other costs would I run into? This was all guesswork. I quoted a price I thought would make them wince, but they excitedly went for it anyway. Great, now I had to turn it.

The material arrived in the back of a large pickup truck, driven by the client and a couple friends. Between the four of us and a hydraulic cart, we got the blanks into my shop. I started looking over the material I would be turning, and my heart sank. The cracks and bad joints were going to be a problem. I showed these flaws to the client, sharing my misgivings and explaining that I couldn't guarantee the end product wouldn't split apart, as I hadn't put it together myself. I also noted that the wood is a species that will crack farther as it weathers in the elements. That was all fine by him, and he just asked me to do my best.

Preparations

The lathe I would be using was made by John Nichols for the late David Nittmann. It has the capacity to turn 12' (3.7m) lengths and can handle up to 26" (66cm) diameter if the banjo isn't in the way. It has many accessories. A couple of 12" (30cm) faceplates would be the obvious choice to keep the blank from ripping apart from rotational forces, and I was diligent in using every screw hole. The faceplate was also a way to bridge the center hole.

Connecting one faceplate to the headstock would be straightforward, but attaching one on the

Custom workholding



2 A typical live center in the tailstock wouldn't suffice for this large turning. Some custom metal work connected a large faceplate to a bearing on the outside of the #3 Morse taper tailstock quill.

tailstock end presented an issue. At first, I turned a plug to fill the hole in the handle blank but quickly discounted the idea. I decided my preferred cup-type tailcenter wouldn't be up to the task, as it might rip out just from the weight alone. At a local ranching store, I acquired a large connecting pin that could be threaded securely in the center hole of the faceplate and, with a bit of metal lathe work, connected to the large bearing already supplied with the tailstock quill (*Photos 1, 2*).

Satisfied with the workholding support, I was ready to consider the speeds at which I would turn (*see Lathe Speed sidebar*). The thought of dialing up the speed on something this heavy and large was daunting. However, I wanted to be turning at the highest speed that was safely possible. How to work that out ahead of time was the question. The common practice of slowly increasing the speed until I felt vibration and then backing off seemed too dangerous. So I calculated what the surface speed would be on a 2'-diameter workpiece at various rpm and marked my speed dial on the

Speed control



3 Marks applied to a standard speed control give an idea of rpm and, by calculation, an idea of surface speed. This controller is on a pedestal stand, so the author can keep it close at hand when working on longer pieces.

control box with those numbers. I still had variation and could make judgement calls as I turned, but these marks helped me approach the job with confidence (*Photo 3*).

For many years now, I have used a pair of chain hoists to mount long materials onto the lathe. I prefer the pair of hoists to a single point of lift like an engine hoist, as it allows fingertip control at each end ►

of the stock. Positioning the work exactly on center was a bit fiddly, but not effortful (*Photo 4*). Once the blank was mounted, I gave the stock a spin by hand and found that one side was indeed heavier. That would unfortunately keep my speed low, as the out-of-balance load could rip itself from the lathe at too high a speed.

I set up my toolrests, putting a couple together to get the length needed. The banjos just barely fit under the largest part of the turning, and I also borrowed a floor stand with a long toolrest

(*Photo 5*). The longer toolrests are very important to the ease of turning and also the efficiency of the whole job. When time is money, you don't want to waste time moving the banjo and rests back and forth.

The turning

The actual turning was straightforward, most of it done with a large spindle-roughing gouge, spindle gouge, and skew. Large piles of chips accumulated quickly, and I am of the opinion that it is better to sweep shavings

away as your work proceeds. Standing on them is uneven and raises your height in relation to the lathe, which should begin at the optimum height.

I performed some test runs, standing well out of the way, just to see how the lathe would handle the weight. It is a pretty burly machine, and its DC motor provided a natural braking when switched off. With the lathe affixed to the cement floor with masonry anchors, I was confident the setup could be used safely. Starting slowly (100 rpm) and speeding up as I

The Question of Lathe Speed

"What speed are you turning at?" This question hangs in the air during most of my demonstrations. I hesitate to give a quick, oversimplified answer when, in truth, the number on the rpm readout means little to me compared to surface speed and other factors.

I almost never consult the rpm readout on my lathe. Instead, I tune in to a brew of sensations—the sound, the vibrations, how the tool is cutting, how the wood is reacting to being cut, and the question, what is the repercussion of going too fast? These factors are connected with experience and tell me what I need to know.

Ultimately, I want to turn at the highest speed possible without compromising safety. But if in a demo I offer a specific number, such as "950 rpm," that isn't helpful unless the person asking has aligned that number with experience. Most professional turners are hesitant to answer the speed question without explanation because we'd lock ourselves in to saying that a certain speed is reliably fine. In reality, it is a hard question to answer definitively.

Experience will help you consider the available factors: What is the type and condition of the wood? And of the machine? What type and size project is being turned? How does the grain lie? Is the weight balanced? How thin are we going? How much experience do you have?

Calculating SFM

The late Dale Nish used a formula, predicated on the wood being sound, the lathe solid, and the attachment perfect. He reasoned that the speed (in rpm) multiplied by the diameter of the workpiece should equal between 6,000 and 9,000. So a 10"- (25cm-) diameter blank might start at 600 rpm and finish around 900 rpm. I think this is a sensible baseline. That said, of more use to me is knowing the surface speed, or surface feet per minute (SFM). This can be measured with a gauge (*Photo a*), but here is a basic formula:

$$\text{Diameter (in inches)} \times \text{speed (rpm)} \times \text{Pi (3.14)} \div 12 = \text{SFM}.$$

So the outermost surface of a 12"- (30cm-) diameter platter blank, at 840 rpm, is moving at 2,638 feet per minute. That's very close to half a mile per minute. Experience tells me I'd be quite comfortable turning a 12" platter at 1000 rpm (3,140 SFM), and this information helps me set speed ranges for larger work like the churn handles. With blanks 2' in diameter and 6' long, what rpm would

be safe? At 400 rpm, the surface speed would be 2,512 feet per minute—plenty fast enough, given the potential repercussions of going faster with visibly flawed wood.

Another recent commission had me turning an 83"- (2m-) diameter molding (*Photo b*). At 100 rpm, the outside edge was screaming along at 2,172 feet per minute—fast enough for clean and safe cutting.

Yes, the faster the lathe is turning, the easier the cutting. But be careful not to oversimplify the question of lathe speed. If in doubt, opt for a slower, safer speed.



a Determining surface speed, with either a gauge or formula, provides useful information in setting lathe speed.



b The large diameter of this molding meant the author could turn at sufficient surface speeds without getting the lathe above 100 rpm.

turned the blanks to dimension (400 rpm), I checked diameters frequently with a large caliper custom-made for this project. This was done with the lathe off, which is not my normal method of work.

Turning at speeds this slow is more challenging than turning at higher speeds. The tendency is to push the tool at a higher feed rate than it can actually cut. A machinist would say a slower feed rate is needed. It seems agonizingly slow to move across with a push cut, but it is necessary to get a smooth surface.

As with turning smaller-sized work, once I hit my diameters, I turned the details. This part proceeded quickly—a few 5"- (13cm-) wide beads and I was happy. The sanding was another issue. I used a 5" orbital sander and did much of the work with the lathe off. On a project like this, sanding to 120 grit seemed fine enough. There was no torn grain to worry about, but some tool marks were evident. I had worked the shape in well, it just needed sanding to make a homogeneous surface. I never try to do any shaping by sanding, and on a project of this size, it would be pointless. Luckily, the wood was dry enough to sand and it all came together pretty quickly (*Photos 6, 7*).

Delivery

Delivery was arranged—a four-hour drive in a covered pickup when a snowstorm was imminent. A couple of guys on the other end brought the manpower to four people. I had brought some ¾" (19mm) black pipe to act as handles in the center holes. Trying to grasp a 2'-diameter handle is a non-starter. We were just able to crab our way through a door and into an area where the handles

Chain hoists



Two chain hoists allow easy control of longer heavy turnings, which makes finding centers easy. The hydraulic table was crucial in moving the heavy material around by only one person. Note the cradle that supports the finished turning.

Long toolrests



A long toolrest is worth making if you don't have one. Here, a secondary floor stand rest helps cover the length of the turning, which eliminates the need to reposition a shorter toolrest.

Completed handles



The turned and sanded handles: at left, the crank of the churn and at right, the bail handle.



would be stored until installation. Only afterwards did I notice we had bent one of the pipes pretty badly. Even after turning, these handles were very heavy. Knowing they would be suspended well up in the air, above families out for an ice cream treat, I talked the customer into a design change that included iron bands to hold the wood together in a safe manner. Ultimately, those details fit well with the overall look.

The churn handles were a challenging commission, but a welcome change from my everyday work. The client was pleased,

and I think I have earned a free ice cream cone. Would I do it again? Yes, but next time my fee would make the customer wince a bit more! ■

Keith Gotschall is a full-time woodturner in Salida, Colorado. His background is in fine furniture making, but he has been turning professionally since 1998. Keith fills out his production turning schedule with demonstrations and hands-on classes all around the country. Email Keith at keithgotschall@icloud.com, or check out his website, keithgotschall.com.

CENTURY PORCH POST

*A Turn
for the
Better*



All in the family: Tim, Terri, Tyler, and Emily Scarrow comprise Century Porch Post, whose custom-turned products adorn many a home.

D Wood

In 1921, the Morgan Woodwork Organization of Oshkosh, Wisconsin, produced a book aimed at house aspirants, primarily women. *Building with Assurance* contained suggestions for the ideal kitchen, vestibule, breakfast nook, library, and pergola by means of colored interior perspectives featuring the lady-of-the-house, exterior renderings, and several hundred black-and-white drawings of every aspect of a home. Morgan's aim was to inform the public of possibilities that could be passed on to and/or interpreted by an architect. For the architect, Morgan provided specifications of its wood products. These products

included plain and fluted columns, both round and square.

Building with Assurance tells the potential homebuilder:

The love of the colonnade or column effect in architecture is legendary. It has come down to us from the days of the Grecian amphitheatre and temple. Yes, the use of the column extends back to the more obscure pages of history when man was compelled to seek shelter under boughed roof supported by crude rustic columns. Indeed, the colonnade is an imitation of nature itself. No wonder then that in the modern home the colonnade lends such a

pleasing suggestion of largeness, naturalness and comfort.

This blurb offered a considerably condensed and romantic version of architectural history, yet the references to antiquity, expanse, nature, and shelter were intended to create an aura of permanence. What the writer failed to note was that ancient buildings and rustic lean-tos were made of solid elements, whereas Morgan Woodwork manufactured only the appearance of solidity. Its columns were hollow with beveled, jointed staves glued together.

In the following decade, A.F. Schwerd Manufacturing Company of Pittsburgh and the Hartmann-Sanders Company of Chicago published catalogs. Schwerd's stated that its columns had staves with lock joints that were insignificant compared to the strength of its waterproof casein glue. Hartmann-Sanders' catalog boasted of its Koll's Patent Lock-Joint Staved Wood Column adhered with waterproof cold water glue. All three companies finished their columns with white lead paint.

One assumes that 100 years ago, when white pine, white cedar, and redwood trees were more abundant and of larger girth, columns would have been turned from solid timber. Not so, according to this brief sampling. Thus, it is ironic that a Canadian company, Century Porch Post, Inc. (CPP), markets its solid timber columns with the words "traditional" and "age-old craftsmanship."

Incognito

Whereas the heritage factory operated by Hartmann-Sanders had the requisite workforce and machinery to fill 40,000 square feet and produce its purported "Column of Quality," CPP has four employees in a 1,000-square-foot space, plus 600 square feet for wood storage. The company is located in a residential area in the village of Hillsburgh (population 3,800) in southwestern Ontario. Passersby see a modest clapboard home with a single car garage: there is no signage to indicate a business. Stacks of timber and timber waste are nowhere in sight. One might have an inkling that something other than domesticity takes place on the property if a drive-by coincides with trucks that regularly pick up crates of columns, newel posts, and spindles for destinations in the United States, England, Ireland, and Canada. But nothing else betrays the activity that occurs therein—bird-song belies the industry.



Emily Scarrow preps a turning blank at the drill press.



Tyler Scarrow working with multiples, a key competency of Century Porch Post.



Large-diameter column caps and bases, as well as pedestals, are turned by hand.



The garage, extended towards the rear of the yard, is where Century Porch Post keeps up with the orders that come to the workshop via cyberspace. The output is primarily porch posts for owners wanting to replace damaged or aging elements in vintage buildings, as well as builders filling requests for new structures in a by-gone style. The company does interior fittings, including stair railings and legs for tables and kitchen islands,

all of which are made on demand. One thousand board feet of lumber in clear Canadian pine and hardwoods from around the world are regularly delivered to the premises and stored under canvas behind the workshop. This concentration on household exterior and interior joinery replicates the mission of CPP's industrial predecessors.

Yet the company thrives on the occasional eccentric job, indicative ►



CPP's bread-and-butter machine: an automated, large-capacity Wema lathe.



of twenty-first century culture: an 11'- (3.4m-) long baseball bat for Paddy O's Sports Bar in St. Louis, Missouri; timber missiles for the Canadian military's parades and public displays; replica Civil War cannons for re-enactments; and Hawaiian darts that revive a sport called *Moa Pahe'e*. Its clientele include Starbucks; Disney World's Golden Oak Resort and Disney Cruise Line; Stratford [Ontario] Shakespeare Festival; and entities in the film and television industry. Not all of the work is turned, but CPP's standards have ensured repeat orders from significant customers.

A family affair

Who or what is this modest entity? Century Porch Post comprises the Scarrow family—Tim, his wife Terri, son Tyler, and daughter Emily. Tim and Terri were high school sweethearts who grew up not far from where they now live. Tim was employed in a number of jobs—merchant navy, landscape gardening, house framing—until consecutive redundancies proved frustrating. He says, "I was laid off six times and the last time, I thought, 'This is driving me nuts.'" The last job, truck driving, was the last straw: He started searching for a business that would offer continuous engagement and income.

Tim's exposure to woodworking was with his father. He played around with his dad's small tools and inherited a 3' (1m) lathe from that collection. He tried using the lathe, but his accomplishments were not inspiring. Years later, he watched a friend who owned a bigger lathe and became fascinated with the process of peeling layers off a timber blank. He built a lathe from bits and pieces he had and found, then spent five years mastering the practice of hand-turning. Tim recalls, "I learned some techniques from my friend, but it's like learning to play guitar. You have to learn on your own. So I spent a lot of time out in the garage turning." The lathe he built and practiced on was 8' (2.4m) in length.

Why did Tim devote himself to such a long lathe? "I liked the idea of doing posts, doing bigger stuff. Spindles were fun, but they didn't have the wow factor of something bigger." As he began to feel confident about his production, he put images on eBay and requests started rolling in. eBay shoppers saw the 8' posts and asked if he could do 10' (3m)—then 12', 14', and 18' (3.7m, 4.3m, and 5.5m).

Each porch post, column, newel, spindle, and table leg is treated with the same respect as a piece of fine furniture. Tim cringes when a local builder heaves a column into the back of his truck. Dented and scratched are not how he wants his products to arrive at their destination.

That same lathe can now do posts up to 20' (6m) long.

Tim is the turner, while Terri, Tyler, and Emily keep him supplied with product to turn. Tyler prepares post blanks, some of which happens in the slower months. Tim says, "We have an inventory of blanks for porch posts that we try to make up in the winter as much as we can because we know we need that precious time in the summer. So when we've got time, we make up blanks for 5¼" × 8' [13cm × 2.4m] porch posts. Each glue-up of blanks will allow us to make four designs. If a customer has five on the order, we'll make four and pull one from the back. If they need three, we'll make up four—because that's how we're most efficient."

Porch posts range from 3½" to 7" (9cm to 18cm) in diameter and 8' to 10' in length; columns are 5" and 7" (13cm and 18cm) in diameter and of varying lengths. Posts and columns are unfinished solid, clear pine, ready to be painted or stained at the customer's end. Column caps and bases, as well as pedestals up to 36" (91cm) in diameter, are achieved by jacking up the lathe and turning them by hand.

In addition to supplying the turner and lathes with prepared timber, the Scarrows have other jobs. Terri explains: "Tim will be turning and I may be packaging some smaller stuff on my own here. Tyler will be sanding or cutting wood to length over there. We all just make sure we're in different areas." Tim jumps in: "Our daughter Emily, when she's here [she had been on maternity leave], she's sanding spindles on the edge sander down there or table legs. Everyone's in a different stage of either the same order or different orders." From March to November, the family often works six-day weeks to keep up with orders.

Terri is also responsible for a critical part of the operation: Internet presence. Following the success of his early eBay sales, Tim created a website that would



Proud business owner Tim Scarrow poses with a run of columns: "I liked the idea of doing posts, doing bigger stuff. Spindles were fun, but they didn't have the wow factor of something bigger."

capture the audience that didn't use eBay. At this stage, Terri was employed elsewhere, but the increase in business, thanks to the web, necessitated her dedication to the household computer. CPP's products and prices are set out on its webpage—centuryporchpost.com—with orders arriving via that source or by phone. The company does not advertise. Terri uploads images on Instagram, Facebook, Pinterest, and

Twitter and tries to keep up-to-date with posting the latest testimonials that acclaim work received. She is assumed to be an expert on Victorian and Colonial architecture, answering questions and offering opinions on the appropriate style of porch post or height of a handrail. CPP's launch eighteen years ago coincided with the burgeoning of the Internet, and the technology has served them well. ►



Another specialty of CPP is reproducing existing patterns for replacement/refurbishment projects.

Size matters

The premises have been expanded once and although Century Porch Post—due to the aura of its online presence—would like its customers to *think* the work comes from a factory, there are no plans to expand. Tim's ethos has not altered from the time he was 40 and started the business: "I loved being out here. I loved making these things. Just trial and error, learning how to do it. But I wanted to do it right, I wanted to do it better than anybody else. So I looked at other people's porch posts at the big box stores—they're hollow, they're finger-jointed, they're poor cut quality with tearout. I thought, 'I can do better than that, I know I can do better than that.' So we make our poles only out of solid wood; we use clear pine—never knotty pine. We try to do the top, the best quality that's available because I would be happy buying it."

Quantity of demand *did* require lathe and equipment expansion. Tim purchased a wider jointer but had a hard time finding a lathe to do the lengths he wanted. Finally he found a 10'-capacity German Wema lathe, which he extended to 12'. This machine can make duplicate columns and is considered the

breadwinner in the shop. CPP has sixteen patterns for porch posts and can duplicate any unusual pattern already existing on a customer's porch. During his almost twenty years of turning, Tim believes that about 1,000 designs have passed through the shop.

Each porch post, column, newel, spindle, and table leg is treated with the same respect as a piece of fine

Not unexpectedly, historical societies are much appreciated: their efforts to maintain and repair architectural heritage mean work for CPP.

furniture. Each is stamped on the bottom with the Century Porch Post logo, and exterior products have a weather seal top and bottom to eliminate the wicking of water into the timber. Items are shrink-wrapped and then a crate is built to house the entire order with plenty of padding for further protection.

Tim says, "We package really well. There's a wow factor when they open up their crates. They're all quite impressed. We always get compliments." He cringes when a local builder heaves a column into the back of his truck. Dented and scratched are not how he wants his products to arrive at their destination.

The on-demand model means that space is not needed to store finished products. As soon as an order is completed, a photo is taken and forwarded to the customer. Along with the image, Terri advises that the balance of the payment is due (CPP takes a 50% deposit) and as soon as the money is received, the package is sent. Turnaround time is four to five weeks, depending on the size of the order. Costs are inclusive of packaging and shipping: there are no hidden charges. Add-ons, like custom design or splitting, carry additional fees that are spelled out from the beginning. When the package is sent, Terri emails the tracking number. Thus, in addition to workshop production efficiency, the paperwork is also efficient and user-friendly.

For the first five years in business, Tim was transportation manager as

well, due to frustration with getting sense out of brokerage firms. “At first, I would drive it down [to the U.S. border]. Every Friday, I would crate the work and drive it down. I downloaded a page from the Internet that said I could bring stuff over the border duty free. So I tried it. I would go to a trucking company that I found online in Buffalo and I’d show the border guard this piece of paper. Every time I showed the paper, he’d say, ‘Oh! Duty-free. That’s interesting.’ He’d pass it back and wave me through. Then we were getting busier and busier and I couldn’t afford to take the day off any more. Through Terri’s help, we found people online—brokers so we could start shipping from here and [Canadian] trucking companies.”

Quality assurance

CPP’s primary clientele for porch posts and columns are American, including Alaskans and Hawaiians. They’ve appealed to that market by naming some of their porch posts after U.S. states. Pockets of Victoriana buildings, like in Ocean Grove, New Jersey, and Martha’s Vineyard, Massachusetts, provide plenty of steady customers. Tim describes the situation: “Ocean Grove has a hardware store. The place is Victorian house after Victorian house after Victorian house with lots and lots of turnings. The owners go to the hardware store and the store comes to us. They say, ‘Terri, we have another one. Can you make this post?’” The most recent Ocean Grove order was for four finials.

Not unexpectedly, historical societies are much appreciated: their efforts to maintain and repair architectural heritage mean work for CPP. But Tim gets excited by the unusual commissions: “I really enjoy doing the unique. The more unique the better.” And he continues to be

astounded by the reputation he has built: “The customers that we supply kind of blow me away. Starbucks. Big name stuff—they’re coming to us. We’re very, very proud of that. And they’ll call not for just one order, there will be orders. Because they’ve loved the quality of what we’re doing and what they’re getting.”

Tim and Terri paid a visit to Martha’s Vineyard a few years ago to see where their product was going. They talk about the experience with pleasure and pride: “All the quaint cottages and everything that have turnings everywhere. This house is pink and yellow and that one’s blue and green. One after another

after another. We were walking and noticed, ‘Those are ours! I believe those are ours, those spindles are ours!’” And if their grandchildren ever travel to the Vineyard, the Scarrows can be confident that their solid quality porch posts will still be there. ■

For more, visit centuryporchpost.com.

D Wood designed and made furniture to earn a Diploma in Crafts and Design at Sheridan College in Canada and an MFA at the Rhode Island School of Design. In 2012, she earned a PhD in Design Studies from University of Otago.



(Top left) A historic “century” house with all CPP reproduction turnings: porch posts, newel posts, spindles, spandrels, and railings.

(Top right) More than 100 spandrels CPP turned for a house restoration project.

(Bottom) A production run of table legs, commissioned by a furniture company.

MEMBERS' GALLERY

Pete Marken, Alabama

When I began turning wood more than twenty-five years ago, I started with simple bowls and lamps. But I quickly felt the need to try something more challenging and started turning urns and vases. I became a segmenting enthusiast about ten years ago and focused on standard segmented work as well as open segmenting and twister-style pieces. Segmenting opened possibilities for my turning that hadn't

been available with non-segmented work. The designs and effects are endless. You are limited only by your imagination.

Some segmenters are concerned only with the complexity and number of pieces in a work, ignoring form. I was guilty of this in the beginning but now focus on form, finish, and keeping things simple. My current workload comprises a 50/50 split of traditional and segmented turnings, and I am now beginning to teach and demonstrate both styles.



Viking Bowl Variation, 2019, Cherry burl, 5" x 8" (13cm x 20cm)



Collaboration, 2018, Spalted sycamore, jatoba, wenge, maple, glass dolphins made by David Sandidge, 6" x 11¾" (15cm x 30cm) excluding dolphins



Vase with Diamonds, 2017, Jatoba, maple, yellowheart, ebony, 10" x 8¼" (25cm x 21cm)

Pete Marken will be a demonstrator at AAW's 2020



International Woodturning Symposium in Louisville, Kentucky. For more, see page 5 of this edition of *AW* or visit woodturner.org.

Myra Orton, Tennessee

My woodworking journey began at age 12. My father was always supportive of my tinkering in his workshop, and he showed me how to use my first power tool, a jigsaw, after he saw me struggling to cut a pine plank for a birdhouse using his large hand saw. I quickly discovered I enjoyed power tools and the problem-solving involved in making wooden objects.

After studying under artists Andi Wolfe, Jennifer Shirley, and Clay Foster, I began looking at each of my turnings as a blank canvas where I could express thoughts and feelings through surface embellishments. As I embarked on finding my own voice, I drew inspiration from the environmental beauty of Middle Tennessee and lush, vibrant

rain forests. I began creatively incorporating their elements into several series of turnings, including *Gleaming Crystals* and *Rain Forest Treasures*.



Gleaming Crystals Under the Harvest Moon (*Gleaming Crystals* series), 2011, Holly, pyrography, various paints, 3" x 3¼" (8cm x 8cm)



The Creek of Blue (*Rain Forest Treasures* series), 2013, Cherry, pyrography, various paints, 3¼" x 3½" (8cm x 9cm)



Michael Roper, Colorado

I am a third-generation carpenter/woodworker, having learned the trade as a teenager by working with my grandfather and uncle. My experience includes a wide range of work, such as exterior framing, hardwood floors, custom interior beam work, timber framing, and built-in furniture. I fell in love with woodturning while studying in the Fine Woodworking program at Red Rocks Community College (RRCC), where in 2011 I earned an associate of applied science (AAS) degree, graduating with honors. I have been teaching woodturning classes at RRCC since then.

I live in the mountains above Denver, where the forest, mountains, and wildlife inspire me to leave my turned work as natural as possible, with a focus on the inner beauty of the wood. I use local, sustainable woods as much as I can. Recently, one of my pieces was accepted into the permanent collection of the Kirkland Museum in Denver. You can follow my adventures in woodturning on Facebook and Instagram @roperwoodturning.



Three Hollows, 2018, Boxelder burl, 5" x 11" x 5"
(13cm x 28cm x 13cm)

Photos: Kreg Hamburger



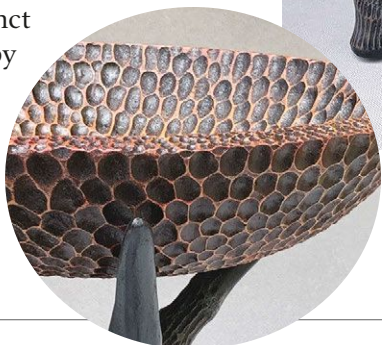
Spalted Birch Vessel,
2017, Spalted birch,
12" x 7" (30cm x 18cm)

Topo Erosion, 2015,
Sandblasted Russian
olive, 8" x 10" x 10"
(20cm x 25cm x 25cm)

Rick Cannon, Tennessee

I love wood. Learning the different ways it can be used, from rough framing to fine art and craft, is a seemingly endless path. I've learned that there are woods from other parts of the world that are different from those in my backyard. Also, when the wood is cut at an alternate angle, the grain looks different. If it is cut at an angle and then turned or carved—again a different outcome. Quilted maple lights up, and zebrawood shows off. Add texture or color; the options are endless.

I've also learned that there is a network of people like me, learning and then teaching others what they've learned, only to learn still more. We should absorb what we can and then apply it using our own distinct voice. I have been inspired by the work of Melissa Engler, Graeme Priddle, and Jacques Vesery. I believe everyone should spend a little time with their favorite turners. ►



Sacrificial Cherry, 2019, Cherry,
mahogany, acrylic paint,
16" x 10" (41cm x 25cm)



Untitled, 2019, Quilted maple, zebrawood,
cherry, 11" x 6 1/2" (28cm x 17cm)

MEMBERS' GALLERY

Tony Pfaff, Minnesota

When I was a child, warm toast and cut apples were typically served on a utilitarian wood plate. Today, that same plate is well worn but still in use, and its warm texture has inspired me to make more wood plates. I've found a way to add scalloped edges, but it is still a basic form used for serving family treats.



White oak plate, 2019,
10" (25cm) diameter

Automatic indexer

Many lathes come with good indexing functions, but the process can be slow, having to manually secure the spindle with each division. I devised an automatic indexer using a microcontroller called Arduino, an open-source hardware and software platform used for endless programming tasks such as LED blinking lights.

The materials I used are readily available online, as are plans for a wide range of projects. For my application, the key parts included:

- Arduino-compatible board, about \$20
- Stepper motor, which turns the lathe spindle a discrete distance with each Arduino command (typically 1.8 degrees for 200 steps per full rotation), \$20-100
- Stepper motor driver, which integrates the low-voltage signal from the microprocessor and then controls the higher-voltage powering of the motor coils, \$15
- AC/DC converter, \$25
- Teenager. Seriously, many high schools use Arduino for their robotics teams, and it seems a good number of young people are familiar with programming microprocessors.

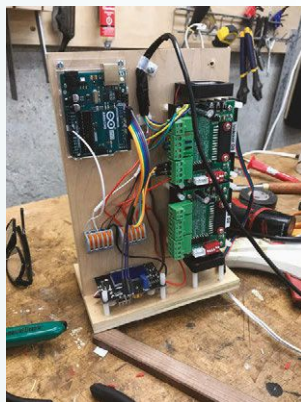


Walnut plate, 2019,
11" (28cm) diameter

Network with your nieces, nephews, grandsons, and neighbor kids to find help. I knew nothing at first but, with a bit of help and time learning online, was able to get my system fine-tuned in a few months.

I attached the stepper motor to extruded aluminum, which itself is bolted to the lathe's headstock. Timing belt pulleys and a belt then transfer the step rotation to the lathe spindle. I sourced these materials from McMaster-Carr (mcmaster.com).

After getting the first rotary axis movement up and running, I programmed the same Arduino to produce small linear motions with a jig attached to a retrofitted belt sander. When the two motions alternate (rotary motion of the workpiece and linear motion of the sander) for a given amount of repeats for the planned divisions, a scalloping effect is created, all with the press of a single button. ■



Electronics board with stepper motor drivers and Arduino microprocessor.



Automated, shopmade two-axis CNC for the wood lathe, using a belt sander to form a scalloped rim.



To see a brief video of Tony's automatic indexing system in action, visit tiny.cc/Pfaff or scan the QR code.



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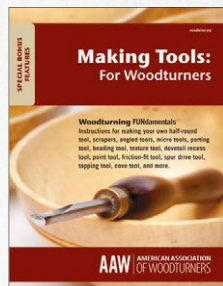
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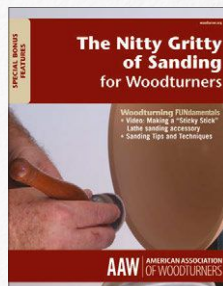
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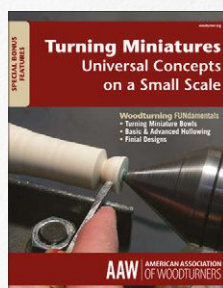
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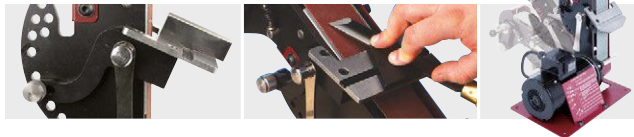
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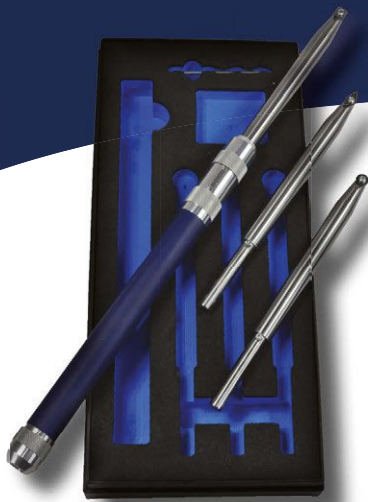
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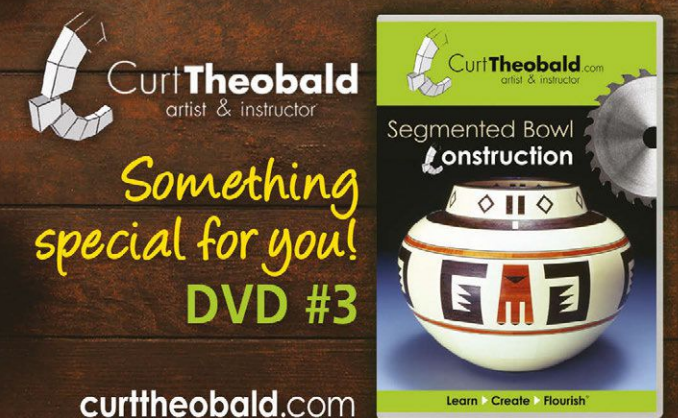
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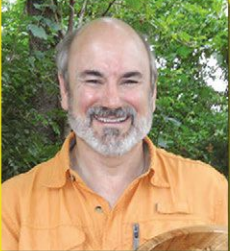


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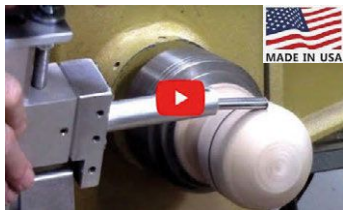
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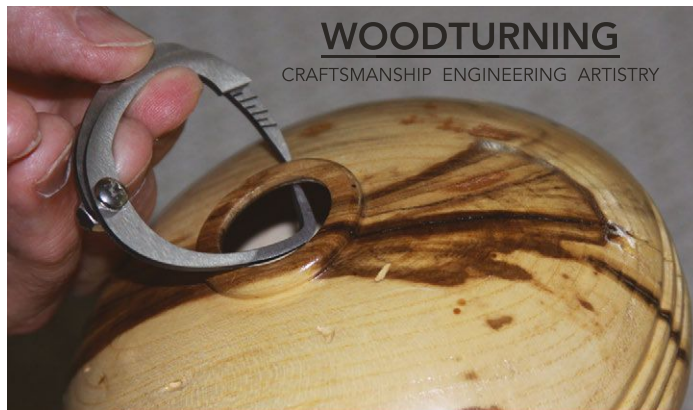
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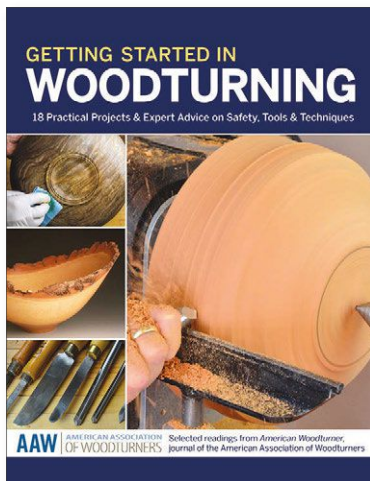
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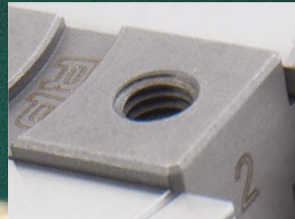
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HARVEY FEIN NEW YORK

Those who know me would say I'm in love with the mechanics of things. I need to know how things work.

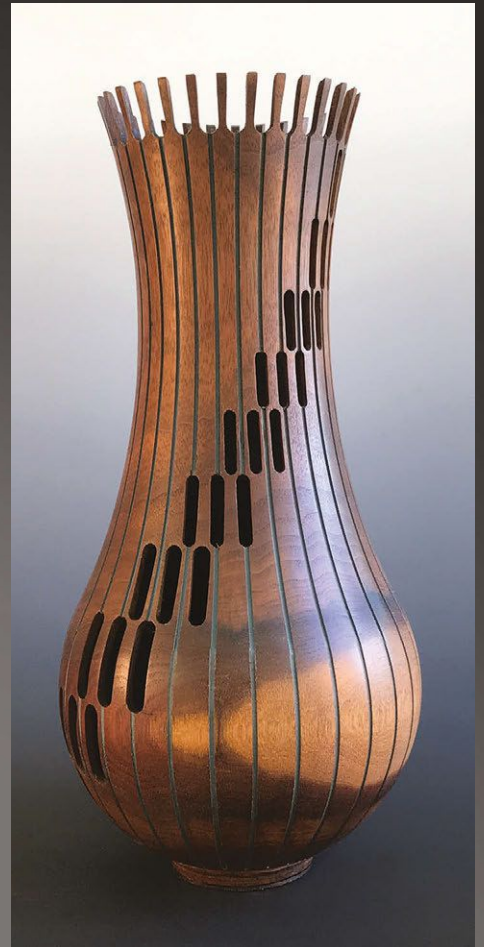
As I moved away from imitating the many generous teachers and critics I encountered both in person, on the page, and in videos, I saw that my creativity and skills as a machinist and maker—I have been manufacturing window treatments for forty-five years—were showing up in my turnings. What started as a desire to insert pieces of a contrasting wood into the rim of an open-form bowl eventually evolved into the fixture that enables me to make the work I create today.



An engineering feat, Harvey's shopmade fixture comprises, among other things, a lathe with sliding bed, wing, and rocking head, a central pivot, routers, motors, and an array of parts such as bars, chain and angle drives, and sprockets. It is capable of making radial cuts, clockwise and counter-clockwise arcs, wavy, straight, and custom shapes, and cut-through or surface embellishments. See a video of this remarkable setup at tiny.cc/HarveyFein (case sensitive).



(Above left) Untitled, 2018, Maple, stain, milk paint, 11¼" × 4" (29cm × 10cm)



(Above right) Untitled, 2019, Walnut, milk paint, 14" × 6" (36cm × 15cm)



(Left) Untitled, 2006, Amboyna burl, gold leaf, brass, 8" × 8" × 8" (20cm × 20cm × 20cm)