History of Turning ■ Professional Bowl-Turning Tips ■ Lace Bobbins ■ Decorative Bleaching

American Woodturner

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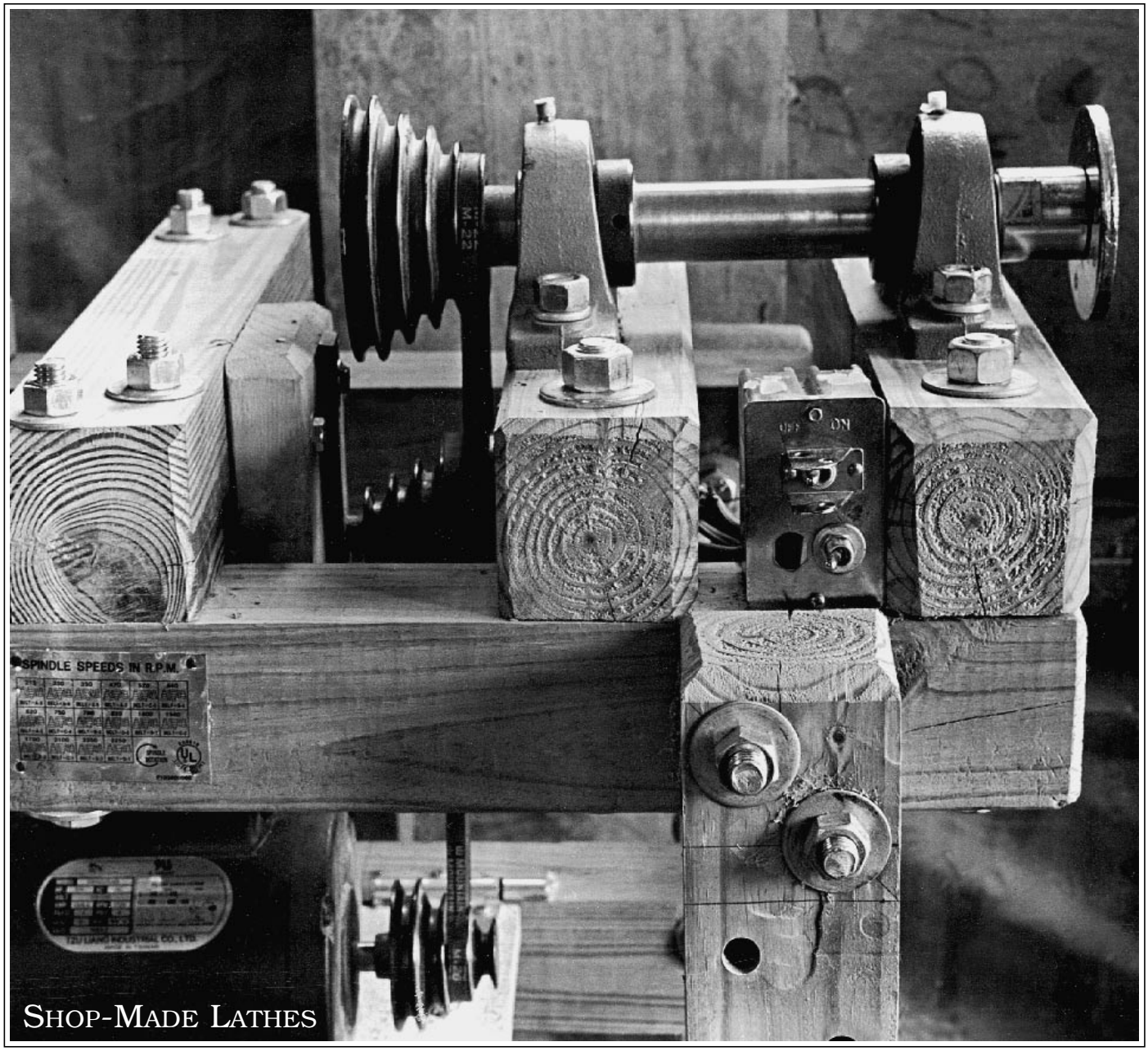

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Dedicated to Providing Education, Information, and Organization To Those Interested in Woodturning

"HOMECOMINGS," PAST, PRESENT, AND FUTURE

WHEN YOU READ THIS, THE 1996 SYMposium in Greensboro will be upon us. Greensboro will be our tenth annual symposium, the first being in Lexington, KY, in the fall of 1987. There were 13 presenters and 243 attendees. A bold start for a new organization. We have grown a great deal since Lexington. In Greensboro we will have 39 presenters and we are expecting around 700 attendees. The location and number of attendees of all past conferences are listed below:

Year	Location	Attendance
1987	Lexington, KY	243
1988	Philadelphia, PA	250
1989	Washington State	350
1990	Arrowmont	350
1991	University of North Texas	256
1992	Brigham Young U., UT	521
1993	SUNY–Purchase, NY	520
1994	Colorado State University	543
1995	UC–Davis, CA	498

Mini-conferences by local chapters soon started. In June of 1988 the Tennessee Association of Woodturners held the first and this year will be their ninth. This is Tennessee's method of raising funds in order to contribute to AAW, Arrowmont, and Appalachian Center for Crafts scholarship funds. Several chapters have had mini-symposia. Ohio had the first one sponsored by AAW. The Georgia Association has had several. I know the chapters in the Washington, DC, area have had more than one. Other areas that I can think of off the top of my head are Arizona, Missouri, North Carolina, and Texas. I'm sure I have missed some. I apologize.

I have heard comments from time to time that too many mini-conferences will adversely affect others and possibly the national conference. I disagree. I believe they definitely help our mission of education.

Some chapters have programs to involve young people in woodturning. As leaders we must involve youth whenever possible. A good example is the Blue Ridge Woodturners in the Roanoke, VA, area. They have a day-long hands-on program for high school youth twice a year. A group in Nashville, TN, demonstrates in schools throughout the school year. Texas has hands-on youth activities included in their conferences entitled Texas Turn-or-Two. There are many such programs across the country, not only by chapters but by individuals who see the need and act. We have in the past and will continue to use the national symposia, as well as our Grants Program (see pages 5–7 of this issue), to expose our deserving youth.

Symposia are a wonderful way to help fulfill the mission of the AAW. On a more personal level it is a great time to learn from others, exchange ideas, and visit with friends who have a common interest. It's like a homecoming. It has amazed me since the beginning of AAW the vast variety of backgrounds of individuals that come together with one common bond and that is the love of woodturning.

Where do we go from here? In our January board meeting, we reviewed possible locations for our symposia for the next five to six years. We felt we would like to have the conferences as close to the members as possible. We found that 50 percent of our members are located east of the Mississippi River, 25 percent are located from the Mississippi River to the western boundary of the Rocky Mountain time zone, and 25 percent in the West Coast time zone. Accordingly, we agreed on the following locations for the next five years beyond Greensboro: 1997—San Antonio, TX; 1998—Northeast area; 1999—Southern California or Washington state; 2000—Atlanta, GA; 2001—Minneapolis, MN. The board feels this plan will get symposia closer to the membership. It is our aim to make it possible for every member to attend as many homecomings as possible.

One other thing about Greensboro: as I mentioned in my last President's Page, "Growth through Sharing," June 21 through July 30 at the Guilford College Art Gallery, will be the AAW's first international invitational exhibition. We're very excited about this show, and hope all those who attend the symposium will see it. For those who can't, a comprehensive catalog is available (see the ad below). I want to recommend this publication to you as a valuable addition to your library.

—Charles Alvis, President of the American Association of Woodturners

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A Note about your Safety
An accident at the lathe can happen with blinding suddenness; respiratory problems can build over years. Take appropriate precautions when you turn. Safety guidelines are published in the AAW Resource Directory. Following them will help ensure that you can continue to enjoy woodturning.

On the cover: *Bowl lathes can be made simply from handy materials in your own shop or from salvage, the fabrication jobbed out for minimal cost. Beginning on page 14, Ernst Kallenbach describes how he developed two inexpensive designs. Cover photo: Ernst Kallenbach.*

Subscribers: If your issue arrives damaged through the mail, please contact the Administrator.

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Observations of a novice

If the label says "tung oil," it probably isn't. Varnish spatters can't be removed from your eyeglasses. Tool marks don't show up until sanding with 320. Sanding marks don't show up until the third application of finish. Center bumps in the bottom of bowls don't appear until after reverse-turning away the foot mounting.

A lathe isn't made that is heavy enough. Dust collectors don't. The number of checks and amount of warping while turning is directly proportional to the rarity of the wood. No matter how carefully you round and polish the ends of your calipers, they still will have a better burr than your best scraper. If you think the depth of you faceplate screws is sufficient, it probably isn't. Hollow-form turning should not be attempted by anyone with heart problems. Someone else caused the nicks in your tool rest. Prayer doesn't work in correcting minor goofs on flange diameters on lidded boxes. Microwaves do a good job on food. Just one more chisel will make one a much better turner. If the bark comes off a natural-edge bowl, you'll convince yourself it looks better without it. —*Chase Ambler, Asheville, NC*

North meets South

We had our first visit from our assigned AAW board member, Dave Barriger, and it is really nice to see such support from the national organization. The Northwest Michigan Chapter is off the beaten path, so we don't get many visitors from outside of our area.

Dave was great! He brought a wonderful selection of pieces he had turned from a large variety of woods not native to northern Michigan. He discussed the latest news from the national level and did an inspiring turning demonstration. He asked questions and listened to our needs and goals. He donated some Florida wood for our raffle and we came away with a boost in our treasury.

It is sure nice to see the effort made to keep communication flowing between AAW and the local clubs. Thanks to Dave for a great job and thanks to AAW for sending him.

—*Lyle Jamieson, President, Northwest Michigan Woodturners*

Chat invitation

While surfing the net, I noticed that AOL has a Thursday night woodturning chat session and CompuServe has a wood or woodturning chat, too. To date, I have not found any woodturning chat on the net. I would like to propose that we start a woodturning chat session Wednesday night, 8:30 EST. I have been using Global Chat (http://www.prospero/com.globalchat/) and have found it very easy to use. Simply download the program appropriate to your computer and go through the set-up procedures. Believe me, if I can do it you can do it!

I suggest we use "Woodturners" as our room name. I will be sitting at my computer every Wednesday evening at 8:30 eagerly awaiting a room-full of turners. I hope to meet some of you out in cyberspace.

—*Bob Rosand, Bloomsburg, PA*

On "rotations"

As a lifelong woodworker and about ten years a woodturner, I have observed a disturbing trend. When I first started turning, it was normal for one to take a piece of wood or a log, mount it on a lathe, and proceed to sculpt a vessel of some sort. The real purpose of this turning was to release from the inner bowels of the bark-encrusted log the latent beauty of the wood. Then we went into a period of chop and glue, resulting in the many faceted segmentations we often see. More recently, the trend is toward trickery, resulting in strange but sometimes beautiful forms—the wood in and of itself becoming secondary. Some call this "growing" or "progress." I label it crass exhibitionism, the same we see in architecture today. A saying in architecture is applicable, I believe, to woodturning: Architecture has never affected a culture, but rather has been the reflector of a culture.

I see now that we are calling woodturnings "rotations." Wow!

—*Sven Hanson, Mobile, AL*

More Kansas

Steve Loar's article (*AW*, December 1995) further confirms his excellence as a woodturning commentator. While I agree with almost all he says, we approach the alter of woodturning by different routes: he through the magnificence of the westworks, nave, and rood screen, I through the tilling fields and lavatorium.

Steve states: "Woodturning has developed a substantial and broad base of technically competent practitioners." Maybe. But there is little evidence of cooperative effort to achieve a consensus on which are the best methods to pass on to students. In the absence of this, and of any open criticism of the technique publicly promoted by different turners, conflicting and often substandard advice proliferates.

In his observations on the future progress of artistic woodturning, Steve ignores the major bar to an increase in the number of professional turners: *the market.* Can it sustain the present numbers, let alone a massive increase? It is apparent that many artistic turners spend much time teaching and demonstrating—do they prefer this to doing their own work? And how will the fresh flush fare when the next recession strikes?

It is also doubtful whether collectors and gallery owners, let alone their supplying turners, would welcome criticism. Steve's accurate comments on the quality of artistic turn-

ing, if directed at individual works, might affect values and destroy reputations. You just don't say, "A plagiarizes B," or "X's work is in-lathe masturbation." It's too…er…honest.

A fear of the perceived preferences and economic clout of the mass of hobby woodturners determines the woodturning climate. Our commercial media are loathe to print any worthwhile criticism, and I have yet to read much specific criticism by the turning elite, although plenty comes along the grapevine. Those in the glitterati circuit know that overt criticism will ensure the evaporation of invitations and students. Woodturning is for most professionals an economic tightrope. You don't lightly toss away your balancing pole.

The widening of turning horizons described by Steve is good. But a feature of much of the new work is a dilution of the turning content—or an increase in the presence of turning in sculpture. Woodturning, with its non-plastic working material and its machine-imposed circularity, is an unlikely and restrictive vehicle for expression, especially if you wish to communicate ideas. There has understandably been a flow of turners who have used turning as a stepping stone, and now call themselves sculptors. This makes more sense than making turning infinitely accommodating.

Is it true that "woodturning is approaching the mountains?" I suspect that it is skirting round them. But whichever route turning takes, you know what is eventually on the other side. Yes. Another Kansas.

—Mike Darlow, NSW, Australia

Oram ornamental device

Recently I acquired an ornamental lathe attachment manufactured and sold by Sorby. It was created by M. Thompson Oram of Leeds, England. There was an excellent article in *Woodturning*, February 1996, page 57, describing the features in detail.

I have found it a fascinating new machine and would encourage some symposiums to invite Mr. Oram to the U.S. to demonstrate and explain this new concept.

—Robert J. McNeil, Cambria, CA

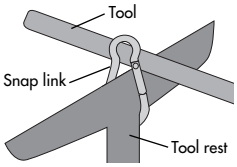
A Memorial

It is with sadness that we note the passing of Dutch Hollenbach, but we are thankful for the opportunity we all had to know him. In his thirty-four years of woodworking and teaching industrial arts, Dutch touched the lives of many. He was always willing to help any and all who sought it.

The memorial funds coming in for Dutch will be used to buy a bench grinder for the club in his honor (a sharp tool is a good tool). The balance of the funds will be used for an instructional day at Craig County Schools to promote our hobby and share our skills.

—Emery St. Cyr, Roanoke, VA

Errata



The drawing we ran on page 10 of the March '96 issue, showing a tool locked to the tool rest by a snap ring, is incorrect and possibly dangerous. The tool should be *resting against* the snap link, as it is called, and the snap link resting against the tool-rest post, as shown in the drawing above.

In the article "AAW, Then & Now," the mini-symposiums sponsored by the Tennessee Association of Woodturners were included among the local-chapter symposiums that have received support from the AAW. In fact, the TAW mini-symposiums have received no AAW financial support; rather, the TAW has generously contributed to the AAW Educational Opportunity Fund on several occasions.

YOUR HEARING

THERE IS A GREAT DEAL THAT WE DO not know about the effects of noise on hearing, especially with respect to individual susceptibility and the expected effects of a particular noise stimulus. Among the known facts:

- Virtually no one is immune from the effects of intense noise
- Loss caused by noise is permanent
- Hearing loss caused by noise exposure is not progressive once an individual ceases to be exposed
- Currently no simple test indicates susceptibility to noise-induced hearing loss, although that may change with the advent of a recent electrophysiologic test procedure.

Hearing loss due to noise may be the result of a single acoustic insult, frequently an explosion such as artillery or a firearm discharged in close proximity to the ear. Hearing loss as a result of a single acoustic event is referred to as *acoustic trauma*.

But hearing loss may also result from frequent or long-term exposure to high-intensity noise. *Noise-induced hearing loss* (NIHL) is far more frequent than acoustic trauma and is the type most common among woodworkers. Working around power saws, planers, routers, exhaust fans, and especially chain saws, woodworkers are often exposed to noise considered to be in excess of safe levels Unfortunately, the effects of this exposure appears to be cumulative. The hearing loss is insidious, acquired slowly, and frequently not apparent until damage is sufficient to display effects on receptive communication—listening and understanding speech, especially under difficult listening conditions.

Don't kid yourself that it is just lovers of hard rock music or individuals exposed to high levels of on-the-job noise that are susceptible to NIHL. While there is no predictable, absolutely safe level of exposure for every individual, damage-risk criteria currently used by the Occupa-

YOUR HEARING (CONTINUED)

tional Safety and Health Administration (OSHA) permit 8 hours of exposure to 90 dB-A in industrial settings. With increasing intensity levels, permissible exposure times decrease. Exposure at 85 dB-A is specified as an "action level," requiring employers to initiate certain policies to protect employees.

Although it is impractical to measure the sound levels of all possible noise sources in the shop, there are numerous potential problems. While normal work on the lathe is not among these, other woodworking tools, notably planers, routers, and chainsaws typically produce potentially damaging levels of noise. *A good guideline regarding the need for hearing protection is the inability to carry on a conversation at a normal level in the presence of the noise.*

Whether the underlying cause of hearing loss is acoustic trauma or NIHL, the effects appear nearly identical on an audiogram (a graphic representation of hearing sensitivity across a range of frequencies) as well as within the cochlea (the inner ear or end organ of hearing). The effects are greatest on the high frequencies, initially showing a "notch" in the graph, usually in the vicinity of 3,000-6,000 Hz, with better hearing at frequencies below and above that area. Continued exposure without protection causes the notch to deepen and widen. Physiologically, the damage lies within the inner ear. The structures responsible for receiving and transmitting the incoming signals to the brain are destroyed. And, just as your fingers will not regenerate should you be so unfortunate as to cut them off, neither are the structures damaged in the inner ear capable of regeneration.

With the increased loss comes increased difficulty understanding, especially under less favorable conditions such as with competing background sounds or voices. The greatest damage to hearing from noise occurs at the frequencies that are most critical for understanding speech. Because the low frequencies are generally unaffected, loudness sensation remains unchanged. Clinically, it is common to encounter individuals who are convinced that their hearing is unaffected because conversational speech still sounds comfortably loud. Understanding difficulties are often attributed to people mumbling or not speaking clearly.

Unfortunately, NIHL is permanent. There is currently no medical or surgical treatment to restore precious hearing sensitivity lost due to intense noise exposure. The good news is that NIHL is preventable. Although avoiding high-intensity noise sources offers an excellent means of protection, it is not practical for most people, woodworkers included. Short of avoiding all intense noise, the next best thing is to reduce the noise at its source. Replace that worn muffler on your chain saw, build sound-attenuating enclosures around especially noisy equipment, or isolate it if possible. Beyond that, the only option is the use of hearing protection.

Hearing-protective devices, or HPDs, come basically in two forms: earplugs and earmuffs. It matters not which one you choose to use—the only effective HPD is the one that gets worn! As a guide to the selection of adequate protection look for the NRR on the product labeling. That stands for Noise Reduction Rating and is based on laboratory tests as specified by OSHA or ANSI. I would not recommend purchasing any protector with an NRR less than about 23 since the NRR in most cases will overestimate the amount of protection the device will provide the "average" user.

So! How do you know if you have acquired NIHL or if the measures you are taking are effective at protecting your hearing? A baseline hearing test will provide information on the current status of your hearing. More advanced testing such as *otoacoustic emissions* (OAE) may also be used to obtain information about the status of the inner ear. Repeat testing at annual or biannual intervals will confirm whether there has been additional hearing loss. If the repeat test shows this, specific recommendations can be made to provide adequate protection.

More practically, a number of indications point to NIHL:

- Difficulty hearing in noise
- Inability to hear high-frequency sounds such as crickets or birds
- Difficulty hearing electronic alarms, beepers, electronic telephone ringers, the "beeps" from the microwave oven or other electronic equipment or the clicking of turn signals.

An almost certain sign is difficulty hearing and understanding under conditions where other listeners are experiencing no difficulty. Most if not all of these are general indicators of hearing loss and not specifically diagnostic of NIHL. However, an individual experiencing these symptoms, regardless of the potential cause, ought to have an audiologic evaluation to assess the status of his hearing and make appropriate recommendations.

Your hearing is precious. The ears and hearing that you now have are all that you will ever have. Replacements will not be issued! Do your best to protect yourself. Hearing is our primary sense. It keeps us in constant contact with the environment, it works in the dark and around corners. It even functions when we are sleeping. Do your best to conserve it. Wear your hearing protectors! —*John Penrod*

John P. Penrod, Ph.D., has been a clinical audiologist since 1969.

FOUR REWARDING GRANTS

EDITOR'S NOTE: *Each year the AAW provides a number of Educational Opportunity Grants to members, local chapters, and youth to foster personal education as well as research and other projects. Recipients are asked to provide a report summarizing the experience and/or project that the grant enabled. Following are four such reports, testifying to the variety and worth of this popular program. Many thanks to all those who have donated to the Educational Opportunity Fund, principally through the annual symposium auction. Look for next year's grant application form in the September and December issues.*

Berwick High School outreach

"Mister, what do you mean by 'an open form?'" My singular voice in the shop was joined! These students were listening! The young woman had broken the ice, and other questions followed. Interaction had begun!

We were five minutes into a demonstration for high school students at the Berwick Area Senior High in Pennsylvania. Fifty young adults were assembled, twenty-five from the art program and twenty-five senior shop students. The goals of the program were simple: to familiarize students with woodturning and the AAW. It turned out to be a very rewarding experience!

As a 1995 recipient of an AAW grant, I had proposed the outreach effort with the realization that we must interest youth in our craft. It is our way of assuring the future of woodturning. Now, on this bright May afternoon, I was explaining the traditional "twice-turned" approach to bowl-making. In addition to the hands-on demonstration we displayed roughs and finished bowls. We viewed slides of current work, courtesy of the Wood Turning Center, and we handled objects borrowed from turners and a collector.

The young student liked my explanation of "open forms," and paraphrased it to show that she understood: "Closed forms are then...," began a classmate, and the next twenty minutes flew by with lots of participation. I learned later from the art teacher, Ms. Sandy Davis, that these concepts are not taught at the high school level. She quickly added, however, that the students had easily grasped them and perhaps she would re-think her curriculum.

Ms. Davis and Berwick's shop teacher, Ed Sander, had met with me weeks before. Conceived as a two-session presentation, the event was consolidated because of scheduling problems. Either approach will work. The teachers selected the participants and arranged for a three-hour block of time. We passed that afternoon, students and teachers all learning from one another.

Was the program successful? Nine students stayed at the close; five had time for a hands-on experience at the lathe. All reported that they had access to a machine outside of school. Did they ever follow up? I do not know. Follow-up is the missing link.

For myself, the program was highly rewarding. It seems that one can learn from the interaction as well as the need to organize your presentation. (As the fortune cookie says, "To teach is to learn twice.") It was such a rewarding experience that I will do it again. My way of repaying my craft, perhaps.

Some observations and tips form the experience:

- Determine in the preliminary contacts with the school and teachers what concepts or ideas, if any, you can reinforce.
- Avoid surprises. Examine the space you will work in. At Berwick, the size of the room, physical layout, and the class size caused us to involve the audio-visual coordinators who responded with an excellent set-up.
- Avoid the biggest surprise. Inspect and actually use the lathe that is available. With not enough time to refurbish the shop lathe, I moved in and set up one of my own.
- Contact the AAW for resource materials. Membership handout materials and back issues of *American Woodturner* were cheerfully provided for the school library.
- Allow sufficient time for set-up, and arrive early.
- Allow students to handle objects. After all, we make craft, mostly. Craft can, and should, be touched.
- Start fast with action. I was wet-turning blanks as the students entered. Mr. Sander said later that he had never seen a class settle so fast.
- Allow time for questions.

Please consider taking a turn with an outreach program. Our craft will survive if we meet our need to continually attract young and talented craftspeople to our ranks. Contact you local school district and volunteer your time in return for a very rewarding experience.

—Fritz Spokas, Jr., Colorado Springs, CO

A lathe for Pinkerton Academy

Thanks to the AAW, last January 22 was a very important day to the hundreds of students who take woodworking at Pinkerton Academy in Derry, NH, each year. It was on that day that we received the letter informing us that we had been awarded a 1996 AAW Educational Opportunity Grant.

Pinkerton's woodworking program can only be strengthened through this support. The publicity that this grant brings is probably as important as the Delta lathe and tools we purchased. As a result of this grant, HUT wood products donated a Mont Blanc mandrel system for making pens and pencils. And when we called Woodcraft to make the purchase arrangements, they offered us a generous gift certificate

FOUR REWARDING GRANTS (CONTINUED)

for lathe accessories and tools to complement the AAW grant.

The AAW is not a new name to our students. Some local members have donated their time and materials to assist us in making woodturning more accessible and exciting to our students. I would encourage all members to contact their local schools to see if they can assist and support the dwindling number of traditional woodworking programs across the country.

The lathe purchased will be available to 300 students each year. We also host numerous woodshops for our students and their parents. This winter we will be offering adult education workshops in making wooden pens.

I want to share with you the tremendous number of positive responses we have received from parents whose son or daughter has brought home a wooden pen. We probably all have memories of the first project we turned. Thanks to this grant, there will be many more of us.

—Jack Grube, Londonderry, NH

An Ellsworthian weekend

I had been wanting for some time to take the turning course offered by David Ellsworth. But having recently been "furloughed" from my job, my wife and I didn't see how we could afford it. After joining the AAW, I made application for the AAW grant and, lucky me, I was selected as one of the ten recipients.

To say the Ellsworth's weekend turning seminar is a turning class would be like describing a Mercedes Benz as a car. One learns basic turning skills from David, but that's far from all. My expectations were met and significantly exceeded.

I arrived along with my classmate, Tom Trimmer, who turns toys in New Jersey, at 8am on Friday morning per instructions and parked at the end of the drive leading back into the woods to David and Wendy's home and studios. (The weather was too unstable to get together on Thursday night as most classes do.) David was waiting for us as promised in his four-wheel drive vehicle. It would ordinarily be easy to make the few-hundred-yard trek ourselves; however, this was Pennsylvania last winter, and the weather was pretty damn bad. David didn't want to spend our first day of class in a snow bank trying to get us unstuck. Little did Tom and I realize that it was going to get worse!

Once in the house it was breakfast Ellsworthian style prepared by David and Wendy, and we now had a clue that the weekend ahead was going to be special. This gracious couple have made their home a warm and welcoming spot that would allow anyone to feel at home. The art that decorates their home is world class, and the artists represented are the masters of their crafts. There was a story with every piece, and they happily recounted them.

David's teaching is polished, direct, and purposeful without being intimidating. He has many years of turning under his belt and knows how to convey his knowledge. The point of his lessons, however, is that the skills we take home are basic to being able to figure out for ourselves how to turn most any object we might wish to tackle. The tools and equipment are first class and never got in our way except perhaps when we first started sharpening the gouges for ourselves. The lessons we learned well enough to be able to take home and practice, practice, practice some more. I never got the feeling that he was a task master trying to get me to do things his way. It was more like "here is how I do it and this is why." A tutorial from mentor to student. The techniques he showed worked well because years of trial and error had showed him superior methods. He was quick to point out that there are other ways to reach the same goals, though not as quickly, smoothly, or safely. Tools he let us use performed every bit as well as he said they would. I did learn to sharpen them. David's teaching stresses body movement and its overall effect on the piece, whether it's a bowl or a tool.

As turners, we would progress in proportion to the amount of time we spent at our lathe. He related the story of the young man who queried Rude Osolnik about how he might become as capable a turner as Rude. Osolnik turned to the young man and said, "Stand at the lathe!" (We developed our own class axiom: " To get good at sharpening, stand at the grinder.")

I got some answers to questions that have been plaguing me for some time, questions that have nothing to do with turning skills or tool usage. What do I do if I don't want to turn pens all day everyday? How can I make my products something that will sell? How should I price them? Should the work of my fellow turners intimidate or encourage me? What makes me think I should turn for any reason other than my own enjoyment? What is the chance that my pieces could someday sell for thousands of dollars? One might wonder how we squeezed all this stuff into three days and still learned to turn hollow forms.

One answer is that we had more than the planned amount of time with David because on Friday night we had to stay at the Ellsworths', all the roads in and out of Quakertown having been closed due to flooding! I'm sure David and Wendy would much rather have had that night to themselves, but if so, there was no way to tell. We felt like part of their family. We shared thoughts and philosophies into the night. We

heard stories about the early struggles of now famous turners. It has been a long time since I've had such good laughs. We know that they had the same concerns as we have today about our own work. We know that the public was just as fickle then as it is now. We know that master turners worry about the acceptance of their pieces even today. What is in demand today may not be tomorrow.

Having finished my pieces on the lathe, I felt good. I was pleased with myself as well as surprised. But I shouldn't have been. I went to class to become a better turner. Well, I got a bonus. I came away a better person—more in touch with my abilities, more skilled, more confident. Thanks, AAW!

One more thing. David shoots pool. He turned his own cue stick. Think he's any good? You'd best believe it, chum. You have been warned!

—Richard E. Tuttle, Schwenksville, PA

Lathe for the Children's Ranch

Early this year, the Central Florida Chapter of the AAW, with funds provided by an AAW Educational Opportunity Grant, delivered a brand new Delta model 46-700 variable-speed woodturning lathe to Edgewood Children's Ranch, a privately funded non-profit home and school for youngsters from severely dysfunctional families and broken homes.

The Central Florida Chapter began working with Edgewood Children's Ranch last winter. Members volunteer to go to the Ranch once a week and teach woodturning to the youngsters, boys and girls 7 to 17 years old. Some fifteen resident students have participated in this program.

Present for the dedication ceremony from Central Florida Woodturners were Dick Codding, past president who wrote the application for the grant; Art Seigel, current president; Tom Tabbert, vice president; Dave Barriger, past president and current AAW board member; and John Sutton, who has organized and spearheaded this educational program. Accepting the lathe on behalf of the Edgewood Children's Ranch were Dr. Joan E. Consolver, Executive Director, and Ralph Wright, Woodworking/Carpentry Instructor.

Woodturners at Edgewood Children's Ranch at the new lathe presented by Central Florida Woodturners with a grant from the AAW Educational Opportunity Fund.

"They're great kids with not so great home-lives," according to Sutton. "The program we provide works like this: two or three volunteers go out to the Ranch on Wednesday afternoons. They bring with them whatever gouges, chisels, parting tools, etc. they think they'll need. They also bring wood blanks for various projects and assorted finishing materials. In some cases they bring a mini-lathe with them. I also bought a used lathe from one of the [Central Florida AAW] club members and placed it on permanent loan to the Ranch."

Between the new lathe, the old lathe in the shop, the loaner, and a mini, the Central Florida Woodturners have at least four lathes available at any one time. "Many more than that and we begin to get concerned about our ability to oversee safety procedures and to give them hands-on help," said Sutton.

The kids turn goblets, pens, pencils, weed pots, small bowls, muddles, and just plain stuff. Their imagination is their limit.

In addition to the hands-on instruction, when the Central Florida group has weekend demonstrations, they try to bring a few of their pupils over to watch, ask questions, and learn. They had four participate in the recent Dale Nish workshop. They loved it, and Dale went out of his way to address them specifically from time to time.

Dr. Consolver, who seems to prefer "Joan" to "Doctor," said, "You have no idea how much this does for these kids' self-esteem."

"I think we probably have a very good idea of that," Art Seigel said. "I hope she knows what a wonderful opportunity she and Edgewood Children's Ranch have given our members to boost their self-esteem. This type of program is a wonderful two-way street."

—Ken Keoughan, Mt. Dora, FL

EDITOR'S NOTE: I get occasional tidbits of information from Don Boles of Atlanta, GA. The latest is a source for cyanoacrylate glue and five-minute epoxy. The epoxy will run you $5.96 for 8 ounces, and 2 ounces of thin c-a glue is $5.79. I've used both and they work fine. They are available from Sheldon's Hobbies, 2135 Old Oakland Rd., San Jose, CA. 95131. (800/822-1688) Thanks, Don.

If you have tips to share send them to me, Robert Rosand, at Box 30, Bloomsburg, PA 17815.

A bunch of pen tips

While pen turning, do you ever drop a sleeve or mandrel in the pile of shavings? A good strong magnet salvaged from a stereo speaker will fish it out for you quickly. (You can also purchase a mechanic's magnet with a telescoping handle at the parts store.)

To keep from having the above happen, place the magnet in some safe, out-of-the-way place on your lathe and discipline yourself to stick the pen mandrel pieces on the magnet as you work.

I use a 7mm brad-point bit to drill out the pen blanks. This seems to be superior to the twist drills for minimizing drift and wood splitting. I have even found a way of improving the splitting problem by running the bit tip in a block of bee's wax occasionally. This seems to reduce the friction heat and improve the cutting efficiency. Now, I rarely ever split a pen blank.

If you have a special piece of wood that has end-grain checks, don't despair. I have tried this on several types of wood with good results: Mix up a solution of one-third glue, such as Titebond or Elmer's white glue, and two-thirds water. Soak the piece for two or three days, turning it daily to ensure a complete soaking. Then remove it from the solution and dry it thoroughly with a paper towel. Wrap it in a single piece of newspaper and store in a paper sack until dry. You can tell when it is dry again by weighing it at the start and then again periodically, recording the results on the outside of the paper sack. When it returns to the original weight, it's ready to put on the lathe.

I tried this several years ago and none of the pieces processed this way ever checked again. If the piece is cracked already, what have you got to lose?

—S. Gary Roberts, Austin, TX

Dust-free reflector

I use 75-watt reflector bulbs (also called track floodlights) in my flexible-arm lamps over my lathe. Since the reflector is within the glass it stays dust-free and bright compared to the metal reflector of the lamp.

—Charles Brownold, Davis, CA

Crack and void repair

I work mostly with distressed and spalted woodturnings where cracks and voids occur in most pieces. This calls for one of three decisions:

1. Repair nothing and try to feature the "defects."
2. Try to fill the defects to match and blend into the surrounding surface.
3. Fill the defects with contrasting material to provide strength and interesting detail.

Occasionally a piece is appropriate for number one and rarely for number two. I usually choose number three, using persimmon bark dust. I've tried many fillers, but I keep coming back. A supply of dust is made by holding a section of trunk (bark down) on a table sander and catching the dust on a sheet of plastic. An 80-grit sanding belt produces a fine dust that penetrates better into narrow cracks and crevices. Settle the dust into the cracks by tapping on the turning and by rubbing with a finger. Then apply thin cyanoacrylate glue (super glue), which soaks inward and dries in a minute or less. Provide for ventilation, as an acrid vapor is produced. The resulting fill expands in the crack or void, producing a very tight bond that rarely ever opens again. I have tried many dusts, but prefer the jet black fill of persimmon, producing a better contrast in most woods.

—Darrell L. Rhudy, Raleigh, NC

Tried and true

Not a new idea, but one of the best—I have come to use it daily: Substitute your ring center for the spur drive when turning spindle work between centers. The blank, being driven under modest compression between the ring center in the headstock and a live (ball-bearing) center in the tailstock turns just fine if you are exercising the correct cutting practices but stalls immediately if you take too heavy a cut or have a catch. Unlike using a spur drive, no harm is done; just snug up the tailstock handwheel and you're back in business! This method takes all the fear out of learning to turn spindles between centers, teaches improved tool control through correct pressure, removes the stress from the turner and the wood, reduces wasted stock due to catches, and for experienced production turners permits quite safe spindle changes without the need to power down.

—Mark Salusbury, Markham, ON

Router-bit-adapter chuck

Since my lathe has a No.1 Morse taper, I can't use a Morse taper collet chuck to hold the $^3/_8$-inch dowel used to mount my wine-stopper blanks. And a regular Jacobs chuck would indent and loosen the dowel. Instead, I use a $^3/_8$- to $^1/_2$-inch router-bit adapter. The dowel fits perfectly inside, and the outside fits my $^1/_2$-inch Jacobs chuck, which snugs up the adapter to the dowel. After turn-

ing, the blank slips out unmarred.

—Lyle Terrell, New Orleans, LA

Sanding dowels

If you have sanding sleeves that fit the rubber-and-metal arbors for drill press and lathe chucks, you can use a dowel of the same diameter to slip the sanding sleeve onto for hand-sanding or spindle work. I always cut a kerf along the length of the dowel with my bandsaw so that the sleeve doesn't jam up on the dowel. For another approach, take a strip of sandpaper and slip one end into the kerf and roll the rest onto the dowel. As the sandpaper wears, tear off the worn part to use the fresh paper underneath.

—Carl Swanson, Appleton, WI

Five from Palmer

1. Where tools are held vertically (business end down) in a rack behind the lathe, protect their sharp tips by taping a strip of foam rubber for them to rest on.

2. Somewhere near your lathe tools should be a $^3/_8$-inch hole drilled at an angle. Put a sharp pencil piece in the hole and always have an available marking tool when you need one.

3. Sanding with your lathe's tool rest in place is dangerous to your fingers and not very efficient anyway. Sanding on spindles should be as limited as your quality of cut can allow, and at the same speed as was right for turning the spindle. Use at least three grits in order, and if you want a soft, clean feel to the turnings, finish off with Scotchbrite. It cleans off fibers and softens edges (slightly) and doesn't get into the grain as steel wool does.

4. Be aware of where your fingers are! It may be genteel to extend your little finger when drinking tea, but it's not a good idea when working around spinning stock. Round jig corners on the faceplate to protect your knuckles, and always turn your lathe by hand to see clearances after mounting, especially on an unusual piece.

5. Lathe speed can be on your side or your enemy. Small thin pieces turn better at fast rpm, if supported; but on large-diameter pieces, going too fast makes cuts difficult to control. Large, uneven bowl stock must be turned slowly (as well as mounted extra firmly) until it is "in round" or close to it.

—Palmer Sharpless, Newtown, PA

Pin it

After opening a container of superglue, I put a sewing pin or hat pin (the latter works better because the head is bigger and you can actually get ahold of it) in the spout of the bottle. This prevents the glue from hardening and plugging up the tip of the spout. Sometimes I need to use a pliers to pull out the pin, but I'm able to keep the spout open and use up the entire bottle.

—Mary Redig, Shoreview, MN

Homespun power-sanding

Tired of paying the big bucks for those Velcro power-sanding pads and discs? Here is how I make my own. I bought some plain rubber discs on a $^1/_4$-inch mandrel. I then bought some $^1/_2$-inch medium-density foam rubber and $^1/_{16}$-inch gasket material from the San Diego Rubber Co. (check the yellow pages for a local supplier of rubber products).

I first glue the foam onto the rubber disc, and then top it off with the gasket material using a heat-resistant rubber cement also purchased from San Diego Rubber. You can then either use adhesive sandpaper or just spray regular sandpaper with 3M adhesive, and you have an easily changed and inexpensive power-sanding disc.

—Nan Bushley, from the San Diego Woodturners WWW homepage

Hot Stuff lends a hand

Being a little heavy-handed and impatient, I have, on more occasions than I'm willing to admit, knocked an almost completed work loose from my One Way chuck and watched in dismay as it careened around the garage.

One day, while visiting Jim Young in his shop, I saw him whip out the Hot Stuff and actually glue the jaws of his Nova chuck to the spigot of a hollow form he was working on. I couldn't believe that he would ever be able to get it loose. (I have first-hand knowledge of the holding power of c-a glue, having once glued my hand to my Woodfast lathe.)

The glue worked beautifully to firm up the grip of the Nova chuck around the spigot and when Jim had finished the piece, the mechanical advantage of the chuck easily broke the glue bond. There was very little glue residue on the chuck, and it was easily scraped off. I now use this technique on any piece that starts to get a little shakey on me and it has really helped.

Oh, and about that lathe/c-a glue incident. As it happened, I was home alone that day, the solvent was just out of reach and with a sale on at Nordstroms, I knew my wife wouldn't be home for hours. I considered calling out to my neighbors, but what was I to say? "Help, I've glued myself to a 400-pound lathe and I can't get up." I don't think so.

I eventually worked myself free with a small dowel by rolling it under my fingers and palm. Although painful, this experience did help me formulate another useful woodturning tip:

"Never glue yourself to anything that you can't carry." It is not a sign of innate intelligence.

—Rich Harrell, from the San Diego Woodturners WWW Homepage

AN HISTORICAL PERSPECTIVE

From "The Art of Wood Turning"

CHRISTOPHER WILK

EDITOR'S NOTE: In early 1983 the American Craft Council staged a landmark show at the American Craft Museum in New York City. "The Art of Wood Turning" featured historical and traditional turnings from all over the world as well as contemporary work from American turners. Christopher Wilk, Curator of Furniture and Woodwork at London's Victoria and Albert Museum, researched the historical portion of the show and wrote the catalog introduction reproduced here, slightly condensed.

TRADITIONALLY, IT WAS THOUGHT that lathe turning was introduced by the ancient Egyptians, perhaps as much as 4,000 years ago. Despite a lack of hard evidence, it was assumed that a civilization as advanced as Egypt's—known to have developed the potter's wheel and bow drill—possessed the technical know-how and skill to have made the invention of the lathe inevitable. Instead, scholars now believe that the lathe was invented later, around a thousand years B.C., and that its development may have occurred simultaneously among the Etruscans in Italy, the Celts in Great Britain, and the inhabitants of the Crimea. By the second century B.C., the lathe was known to most of the peoples of the Near East and Europe.

One of the reasons that lathe turning of wood was thought to be an older craft was the assumption that it represented only a slight modification of either the bow drill or, more significantly, the potter's wheel. Although we know that the potter's wheel was invented more than a millennium before the lathe, there are nonetheless strong affinities between the two crafts that have always had relevance to working craftspeople.

Both are based on the working of a piece of material that is shaped while revolving on a fixed point or points. Originally, the lathe was vertically oriented, like the potter's wheel. With both devices the form of the material can change shape with great speed. Indeed, speed and regularity were the primary advantages that each apparatus offered. With both techniques additional work is necessary to prepare the finished product.

The interchangeable use of the terms "thrown" and "turned" to describe turned chairs up until the eighteenth century demonstrates the traditional association of the two crafts; in fact, the words "turner" and "thrower" mean exactly the same thing. One definition of the verb "to throw" offered by the Oxford English Dictionary is "to form or fashion by means of a rotary or twisting motion. To turn (wood, etc.) in a lathe." As Victor Chinnery recently pointed out, the word"turner" is from the Latin, a southern European term, while "thrower" is from Old German and northern Europe. "Throwing a pot" refers not to the physical action of forming clay on the wheel but, rather, to the revolving action of the wheel, as well as the counter-force applied by the craftsman to the spin. Both actions also clearly apply to the woodturning lathe.

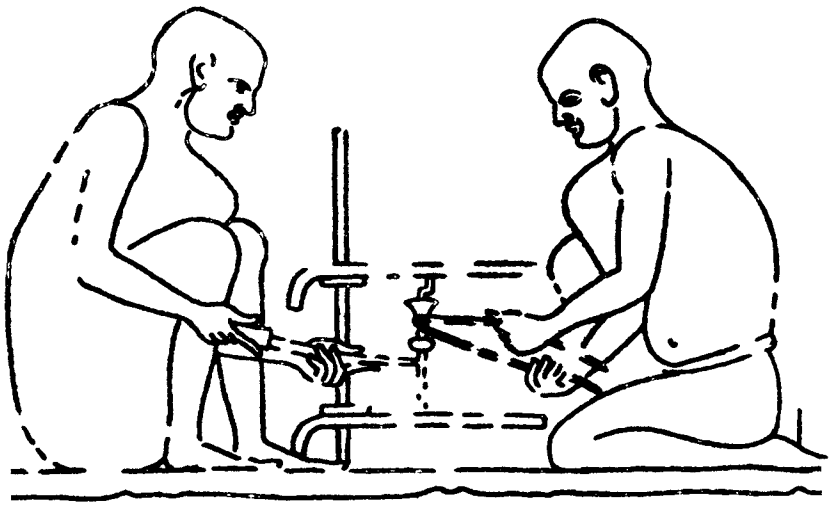


Fig. 1: Turning in ancient Egypt, papyrus painting, 3rd century B.C.

Ancient turning

It is not known for certain what the earliest lathes looked like. Not until the third century B.C. is there a representation of a lathe. An Egyptian papyrus painting (Figure 1) shows a vertical lathe being operated by two men. At the right is the assistant, who pulls on a cord to revolve the piece being shaped by the turner on the left. Pulling alternately with each hand rotates the work clockwise, then counterclockwise; cutting is done in only one of these directions. Eastern cultures craftsmen traditionally sat on the ground (as many still do), while most Western societies adopted an erect sitting posture. In the case of turning, the lathe was eventually mounted on a table frame, to be used mainly in a standing position. But because of the dearth of representations of turning, it is not clear when this change occurred.

Virtually all early lathes were powered by cord and required that

Fig 2: Turning a bowl on a pole lathe, 13th century manuscript illumination.

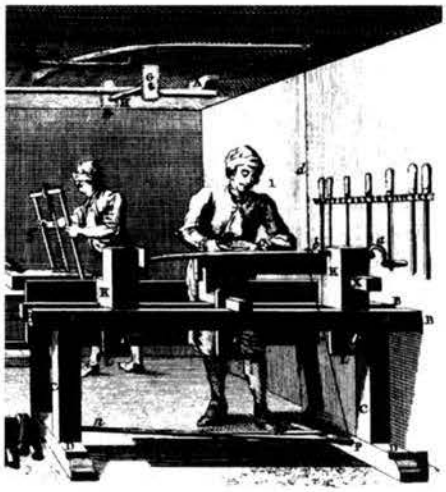


Fig 3: Carpenter's shop with pole lathe, 1775.

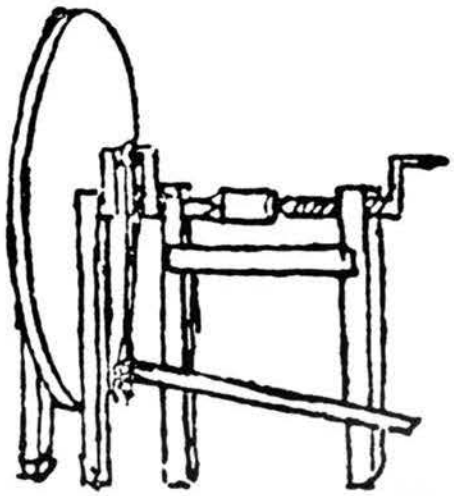


Fig 4: Spindle-drive lathe designed by Leonardo da Vinci, circa 1500.

the craftsman be assisted by a helper. The early turners made bowls, platters, beads, among other things, and in the case of Etruscans and later Roman turners, furniture parts. Legs and stiles for couches or thrones were often turned from wood or ivory.

The turned bowl or platter became the most common turned object. It was not supplanted by any type of similar metal implement—at least among the lower classes—for nearly two thousand years.

Medieval times

By the early Middle Ages, the turner had apparently become an accepted independent craftsman. Around 1150 a significant improvement was made by introducing the pole lathe (Figure 2). Although still driven by a cord, the new lathe used the tension of a bent tree branch or cut pole to provide a stronger and more convenient way of turning.

Coordinated with the pole was a treadle, which pulled down on the cord wrapped around the work itself, or on a spindle attached to the work. The treadle regulated the speed at which the piece turned. This arrangement dispensed with the need for an assistant. The pole lathe was one of the major technological innovations of medieval times; it remained the dominant type of lathe well into the nineteenth century (Figure 3).

The one troublesome feature of early lathes that the pole-and-treadle system did not address was the need for continuous motion. With these lathes, the craftsman could still work only when the work turned in one direction. It was necessary to wait until the piece revolved back and started turning in the correct direction before again applying tool to wood.

The Renaissance period

The search for a lathe that would turn in only one direction probably ended in the fifteenth century, when craftsmen began to make use of lathes powered by cranked flywheels and giant wheels powered by hand, foot, horse, and even water. The result was that turners could be more precise in their craft, that work could be speedier, and that turning on harder woods and even metals became practical. Leonardo da Vinci was one of the many inventors who designed an early continuous-drive lathe (Figure 4). Nonetheless, most turners making objects for daily use continued to employ reciprocal, pole-and-treadle lathes.

The fifteenth century also marked the beginning of the rise of the turner's trade. In 1478 an English Association of Turners was approved. This culminated in 1604 in the establishment of the Worshipful Company of Turners of the City of London. During these years turned furniture became common in Scandinavia (where it had been made as early as the thirteenth century) and in England, where the turner's art continued to gain popularity well into the seventeenth century.

1550–1800

The craft of woodturning enjoyed its greatest period from the mid-sixteenth until the end of the seventeenth century when continuous-drive lathes became more popular (Figure 5). Although turning later became popular as a hobby among the aristocracy of Europe, the most elaborately turned European objects date from the period 1550 to 1800. Naturally, in America the great period of the turner came later, from the mid-seventeenth until the early eighteenth century.

Although the history of woodturning is usually discussed in terms of the history of turning technology—i.e., of the lathe—it is also true that the use of turning in furniture, architecture, household objects, and decorative elements was mainly dictated by style or fashion—in other words, by aesthetic decision rather that technological evolution.

From the mid-sixteenth until the early eighteenth century, the styles of Mannerism and Baroque influenced both sophisticated and folk objects. Although turned elements could exist in objects designed under classical influence, the restless spirit and experimentation of Mannerism, and the dynamism and complexity of the Baroque, provided a more sympa-

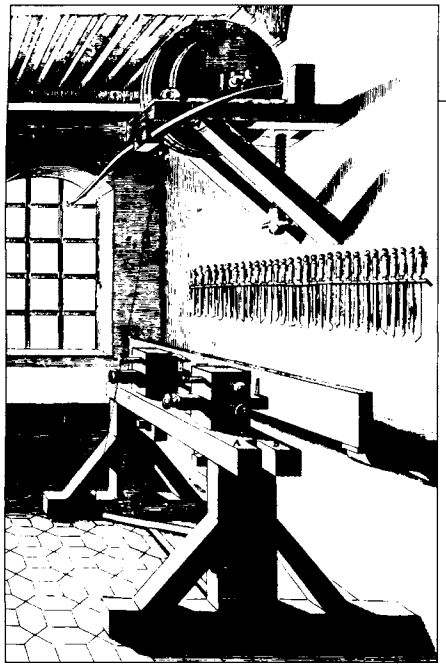


Fig 5: Pole/continuous-drive, 1749.

thetic background for the flourishing of exuberant turnings.

Typical of the elaborately turned objects of the sixteenth and early seventeenth centuries were the great turned chairs of England. Designed with either three or four legs, these massive thronelike chairs were often made entirely of turned elements. The most common were the imposing high-back, four-legged chairs. Greatest elaboration was lavished upon chair backs and arms, especially the smaller decorative elements that spanned the structural members. The seventeenth century equivalent in terms of robustness and complexity were the great turned beds of Spain and Portugal. In these beds, head and baseboards were developed into elaborate decorative screens.

Similar elaborate Baroque spiral turning was also seen in somewhat simpler objects such as candlestands made from a single piece of turned wood. Despite the proliferation of these marvels of turning, the most common turned objects remained the simplest: bowls, platters, and handles on everyday domestic objects.

Ornamental turning

The use of turning as a decorative device would never again be as popular as it had been in seventeenth-century Europe. However, beginning in 1700 the craft of ornamental turning was seized upon by the aristocracy as the latest fad. Turning as a hobby was not new, but in the eighteenth-century books for amateur turners (known as turning manuals) were sponsored by leading aristocrats. These books helped to further the popularity of the craft.

Ornamental turning consists of intricate surface decoration on either flat or rounded surfaces, as well as the production of elaborately shaped objects in their own right. Often, the two aspects of ornamental turning are combined in single objects. Complicated turning can be accomplished on traditional lathes of great precision; but the unique surfaces and shapes of what is usually described as ornamental turning require special lathes that allow both cutting tool and object to revolve independently and at the same time (Figure 6). These unusual lathes allow the cutting tool to move in almost any direction.

The Hapsburg emperors of Austro-Hungary, beginning with Maximilian I (ruled in 1493–1519) were among the earliest to adopt turning as a royal hobby. Two of his successors, Charles VI (ruled 1711–40) and Joseph II (ruled 1765–90) were both proud possessors of royal lathes.

It was in France, however, that the hobby of ornamental turning reached its apogee. In 1701, Charles Pluier published *L'Art du Tourneur,* the first manual on lathes and turning (Figure 5). Every type of lathe, tool, and project is described in greatest detail. The main topic of this "how-to" book for upper-class gentlemen was ornamental turning. It is more than likely that France's most famous turner, Louis XVI (ruled 1174–92), used the text. Unfortunately for French turners, the coming of the Revolution meant the end of royal sponsorship. Along with many of the French aristocracy, the vogue for ornamental turning was transferred to England, which became the center both for amateur ornamental turning and for the transformation of turning from a craft into an industry.

Nineteenth-century England

Credit for the interest in ornamental turning in England was due not only to the importation of a Continental passion but also to a firm of lathemakers founded in London in the 1780s by John Jacob Holtzapffel. Holtzapffel's firm remained in business until 1914, producing about twenty ornamental lathes per year. These exceedingly fine, expensive machines were prized by turners and they remain sought after today. In addition to their lathes, the Holtzapffel family gave the world of turning five out of six projected volumes in the series *Turning and Mechanical Manipulation*—an encyclopedic treatment of ornamental turning covering such minutiae as how to turn eggshell, stone, or jewels. In England, turning attracted not only aristocratic men but also middle-class hobbyists (who could not afford Holtzapffel lathes) and women (some of whom could). The first woman to acquire a Holtzapffel lathe was the Marchioness Townsend, who registered her lathe at the Guildhall Library in London on December 21, 1798.

Industry

While nineteenth-century England provided the arena for the continuation of the century-old hobby of ornamental turning, it was also the place of the industrialization of turning. The leading figure in this development was Henry Maudsley. Since Maudsley was mainly concerned with the precision turning of metal, his story cannot be told here. What is

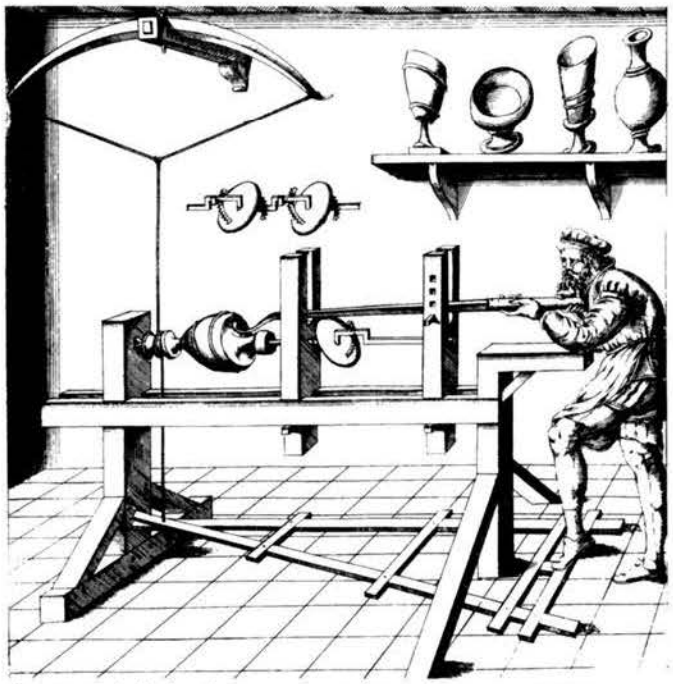


Fig 6: Pole lathe for ornamental turning, circa 1578.

Fig 7: Early 19th-century German woodturner's shop.

significant, however, is that by the early nineteenth century the technical aspects of the craft of woodturning were largely fixed in place (Figure 7). Although certain innovations, such as large-scale turning using steam engines for power, would not become common until almost the twentieth century, the technology and expertise for virtually all types of craft woodturning are largely the same today as they were more than a century ago.

The United States

The history of woodturning in the U.S. begins in the seventeenth century with the emigration of woodworkers from Holland and England. Turning in the U.S. never quite achieved the bravura quality of sixteenth-century England or later Spain, but everything from chairs to bookstands was made with elaborately turned parts beginning in the second half of the seventeenth century. One unusual aspect of turning in America was the use of so-called split turnings, which were cut in half lengthwise and applied to the front of chests. More characteristic were the simpler turnings on eighteenth-century ladder-back chairs, bowls, pestles and mortars, boxes, and even toys. All these objects were made in the traditional manner well into the nineteenth century.

Although complexity and elaboration were most often looked to for demonstrations of the turner's art, no examples of woodturning are more beautiful than the quiet, refined turnings of the Shakers. The versatility and mastery of woodturning achieved by this famous religious community are demonstrated both in the wide range of turned objects they produced—from the tiniest bobbins and pegs to larger pieces of furniture—and the subtle variation in turned shapes (best seen by comparing their unique chairs).

Architecture

The use of turnings in architecture has a long history in Western, Eastern, and African countries alike. Arabic windows and decorative screens have, for centuries, made use of small and delicate turned pieces all joined together in elaborate compositions. Heavier turnings used in doorways to churches and houses appeared in Scandinavia from Romanesque times. Ships have long been fitted with turned elements. As with stable architecture, seagoing vessels contained functional elements such as rails and balusters, as well as decorative features including sculptures and finials. In the U.S. products of the turner's shop became common in houses beginning in the 1720s, when turned balusters and newel posts began to appear with greater frequency.

The period that saw the most prolific use of turned elements in architecture was the mid-nineteenth century, particularly in the U.S. Detailing in Victorian architecture (what is sometimes called "gingerbread") was distinguished by the use of elements that were mainly cut out on a jig saw or turned on a lathe. In these houses—both free-standing country houses and urban row houses—turned elements were used not only on staircases (certainly the most common use) but also on the exterior, for structural columns, post, and even architectural screens.

African and Eastern countries

The origins of lathe turning were in the Near East, yet it was apparently unknown in continental Africa until colonial times. The only tradition of turning in Africa—one that continues today—is that of the itinerant craftsman who carries a portable lathe and generally makes bowls. The turned

lacquer bowls and platters of Japan are well known, although they are usually discussed and exhibited because of their lacquer finishes, the fact that they are turned being rarely mentioned. The origins of lathe turning in Japan probably date to the ninth century. At that time, highly organized groups of nomadic woodworkers—the lathe workers called *rokuroshi*—traveled the country carrying portable lathes and making use of local forests for necessary materials. Their work consisted mainly of small objects intended for domestic or ceremonial use.

Although little has been written on the subject, turners in India, Persia, and Arabia were visited by the English turner Holtzapffel in the nineteenth century. Indian turners were itinerant and, like the African turners, made their lathes by driving stakes into the ground (Figure 8). Persian turners used an open box as a frame for turning while Arab turners had more complete and adjustable lathes (still portable), with which they produced ornamental woodwork used for screens and oriel windows with elaborate latticework. All these craftsmen worked sitting on the ground.

The original catalog, with 53 black-and-white photos, is available for $8 plus $3 shipping from the American Craft Museum at 212/956-3535.

Fig 8: 19th-century Indian woodturners.

CHEAP BOWL LATHES

One metal, one wood

ERNST KALLENBACH

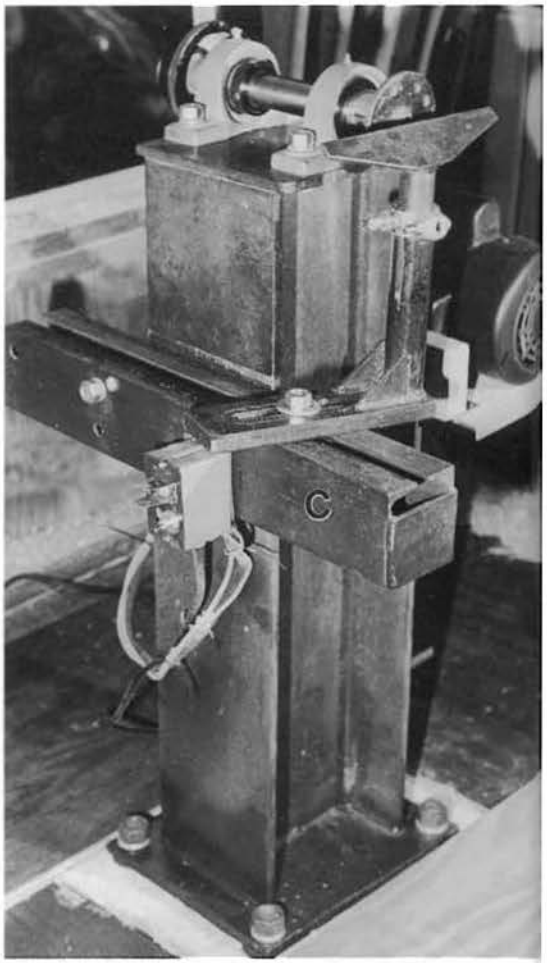
I HAVE DESIGNED AND MADE TWO BOWL lathes, both inspired by articles in *Fine Woodworking* magazine. The first (pictured below right) relies heavily on a lathe described by Jerry Blanchard in the March/April 1986 issue. Briefly, I omitted bed and tailstock from the Blanchard lathe, and added a tool rest to the headstock. The new lathe is exceptionally sturdy, has an effective tool rest, allows good access to the back side of a turning, is easy to make, and takes up little space.

My stand is a section of 8x10-inch I-beam. This is of course total overkill. I selected it because my local junk yard sold it to me for $3/foot. A $3/4$-inch steel plate welded to one end of the beam serves to bolt the lathe to the floor. The spindle bearings are bolted to a $1/2$-inch plate at the other end of the beam.

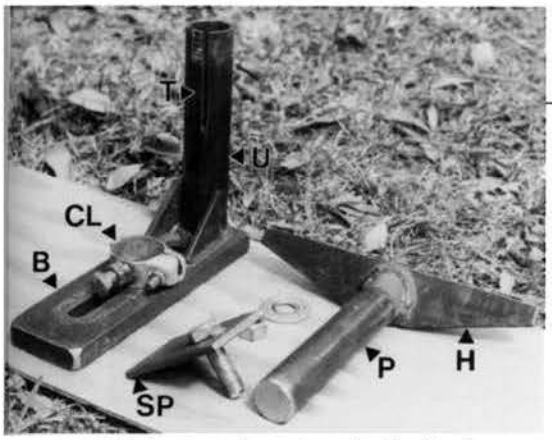
The tool-rest carrier (C in the photo at right) consists of two 4-inch channel irons welded face to face, leaving a gap of about $3/4$ inch. The wider the gap, the more easily the wood chips clear from between the irons. Several sets of bolt holes are drilled through the channel irons and the flanges of the I-beam, allowing me to mount the tool-rest carrier at various extensions and various elevations. A spacer is fitted inside between the channel irons (not visible from the outside) near the bolt holes. It keeps the channel irons from collapsing onto each other when the bolts are tightened.

The tool-rest brace (B in the photo at the top of the facing page) is $3/4$-inch steel plate, with a $5/8$-inch slot milled down its center. The brace is bolted to the carrier with a $5/8$-inch bolt. A small rectangular steel plate (SP) is welded to the head of the bolt, and both the head and the plate fit inside between the channel irons. The plate serves as a washer and keeps the bolt from turning when the nut is tightened. My tool-rest upright (U) is $1 3/4$-inch steel pipe welded firmly to the brace. A tongue (T) is cut into the upper portion of the pipe. A heavy pipe clamp (CL), from a Volkswagen shop, fits over the upright.

A hole is drilled into the side of the clamp, and a nut is welded over the hole. When the bolt in the nut is tightened, it bears against the tongue, clamping the tool-rest post within the upright.



This bowl lathe, built around a 8x10-inch steel I-beam cost $520, with a machine shop doing the metal work.



Tool rest and carrier, detailed in the text.

The tool-rest post (P) is a steel rod that fits snugly within the upright. The upper end of the post is cut at 45 degrees, and the tool-rest horizontal (H) made from $^1/_4$-inch steel plate, is welded to the post.

The spindle is $1^1/_2$-inch heat-treated steel rod, 12 inches long. One end has 1x8 threads to accept standard Delta faceplates. A step pulley is mounted on the other end. A reversible motor and an idler pulley are screwed to wooden blocks, which in turn are bolted to the I-beam.

I have turned all sizes of wood on the lathe, up to 70 pounds of unbalanced oak, and am quite ecstatic about its performance. The lathe has the potential to swing a piece with a radius of 3 feet over the shop floor. To make full use of this, I will need slower speeds (my present low end is 215 rpm) and a much stronger drive.

My costs, without the foundation, were $520, with a machine shop doing all the metal work. People who can do their own metal work should be able to make themselves a really heavy piece of machinery for peanuts.

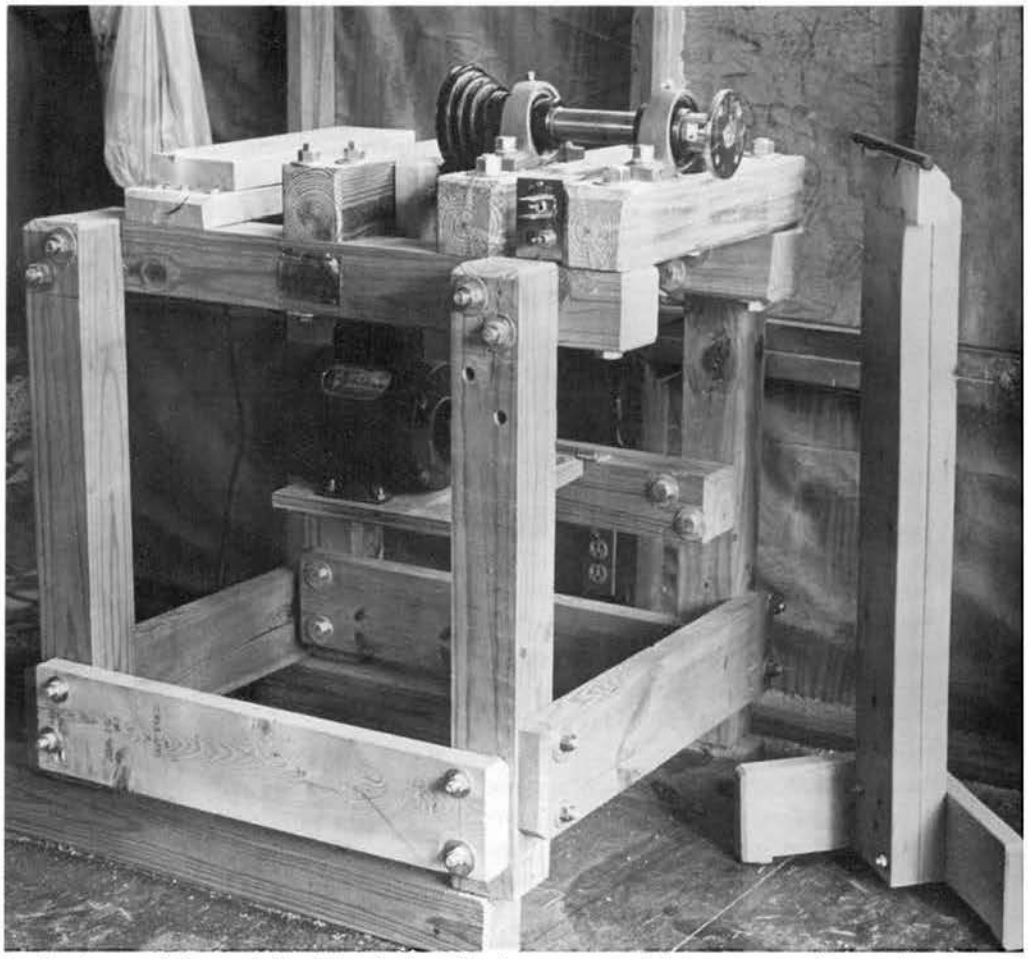
But if you're looking for real cheap, check out the wood-frame bowl lathe I first made to augment my Shopsmith. Several articles in *Fine Woodworking* convinced me that a wood frame could be effective.

My frame is made of 4x4s and 2x6s, bolted together by the heaviest bolts and washers that seemed to fit. The frame is strong enough that it can be weighted with several sandbags or concrete blocks. Since wood is not totally rigid, the bolts will loosen with time, and a periodic tightening is necessary. The spindle is the only manufactured part. It is a 12-inch length of $1^1/_2$-inch heat-treated steel rod running in self-aligning pillow-block ball bearings. As with the other lathe, one end has 1x8 threads to accept standard Delta faceplates; the other end carries a step pulley. The speed changer consists of two step pulleys (salvaged from a drill press) with a slowest speed of 215 rpm. A reversible motor drives the machine. The V-belt drive is a little weak. More weight than that provided by the motor is needed to prevent slipping.

I have not been able to devise an effective attached tool rest and have to use free-standing rests, even for small bowls.

I have made some twenty bowls with the lathe, and challenged it with an unbalanced 24-pound slab of camphor. The smoothness of the machine is a joy. I look forward to improving the V-belt drive and designing a tool rest.

Ernst Kallenbach turns wood in Gainesville, FL.


Author's wood-frame lathe (detailed on the front cover of this magazine) is made of 1x4s and 2x6s bolted together with a $1^1/_2$-inch spindle in self-aligning pillow-block bearings. The tool rest is self-standing.

DETERMINING BOWL THICKNESS

Ensuring that bowls don't turn into funnels

ABE HARPER

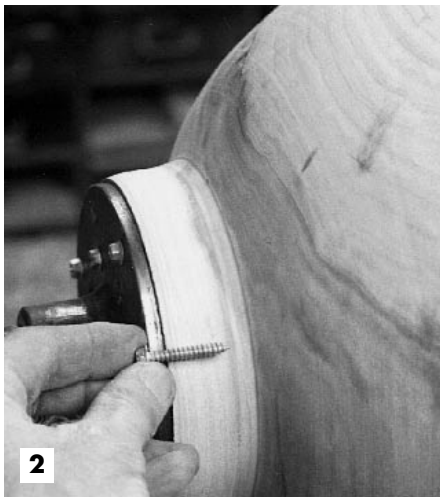
ALL MY BOWLS ARE TURNED GREEN, air dried, and turned again to final finish. At each stage the piece must be measured to ensure it dries evenly without stress and to avoid getting it too thin to true, once dry. As a full-time bowl-maker, I have had to develop accurate methods of measuring the work in progress, both to speed production and to avoid the problems of "too thin" and "oops." I have made and adopted a couple of simple tools to speed the process.

Most of my production work consists of open salad-style bowls, from 12 to 18 inches in diameter and 4 to 6 inches deep. But the techniques shown here apply to a wide variety of forms. Beginning with the green log, I orient the bowl so the bark edge is at the foot (**Photo 1**). When cutting


1

the blank, I remove only enough sapwood to create a flat for attaching the faceplate. Since the sapwood (with screw holes) will be turned away in the finished piece, I have eliminated glue-blocking (one step), have a faster, stronger attachment, and have lost no potential bowl depth. I generally don't include sapwood in my finished bowls since it dries faster than heartwood and is prone to cracking.

After rough-turning the outside shape, cut a step at the base the same diameter as the faceplate. This step will be as long as the projection of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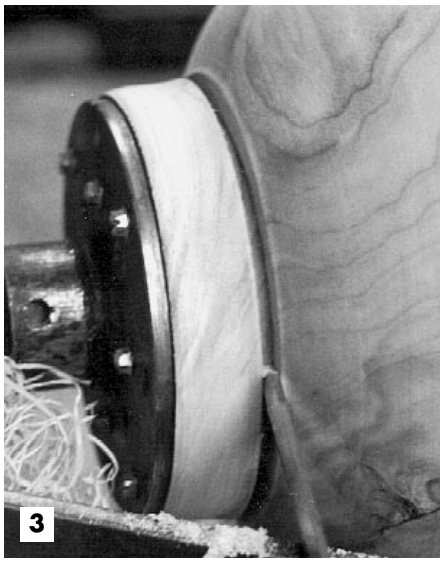
the screw into the block, plus at least $1/4$ inch for parting-tool clearance (**Photo 2**). With a $3/16$-inch diamond-point chisel, cut a shallow groove about $1/2$-inch deep that will just accept a piece of $3/16$-inch flat bar stock (**Photo 3**). I purchased a 4-foot section of $1 \times 3/16$-inch flat bar for $2 from a local blacksmith.

After squaring up the face of the blank, adjust the tool rest parallel to the face. Now insert the bar in the groove and measure to the edge of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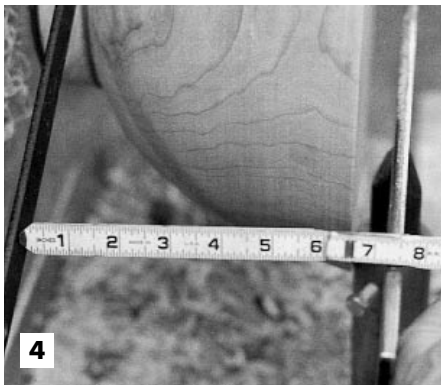

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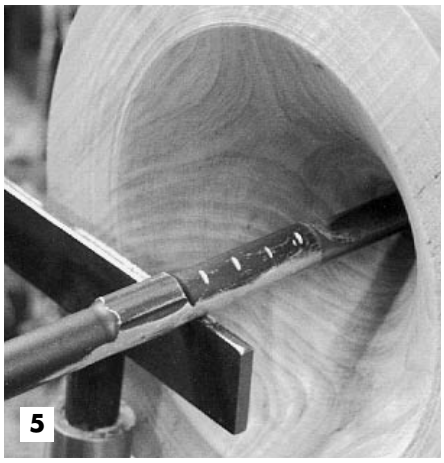
the rest (**Photo 4**). Subtract $3/4$ inch from this figure to determine the stopping point for the inside bottom cut. I have rule-marked the blades on my gouges so, by holding them 90 degrees to the bowl bottom (or the tool rest), they act as depth gauges (**Photo 5**). I use the tool rest as a reference instead of the bowl rim because I may have to recut the rim due to defects. Once I set it, I do not move the tool rest.

To measure the wall line, I use heavy wire "spring" calipers of $3/16$-inch rod (**Photo 6**). This little tool ($1.25 at hardware stores) I stole outright from David Ellsworth—thanks, David. Bend it to conform and set the points $1/16$ inch or so over the desired wall thickness, in this case $13/16$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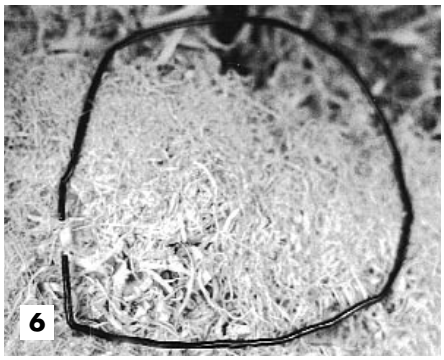
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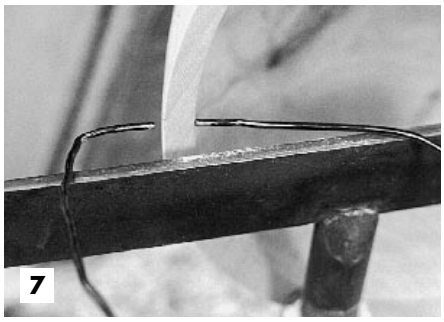
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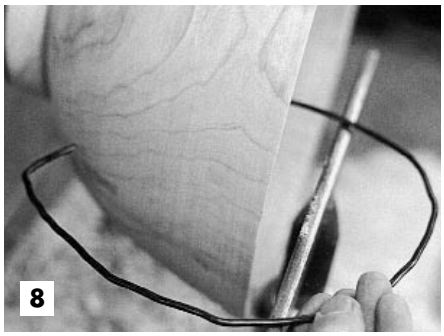
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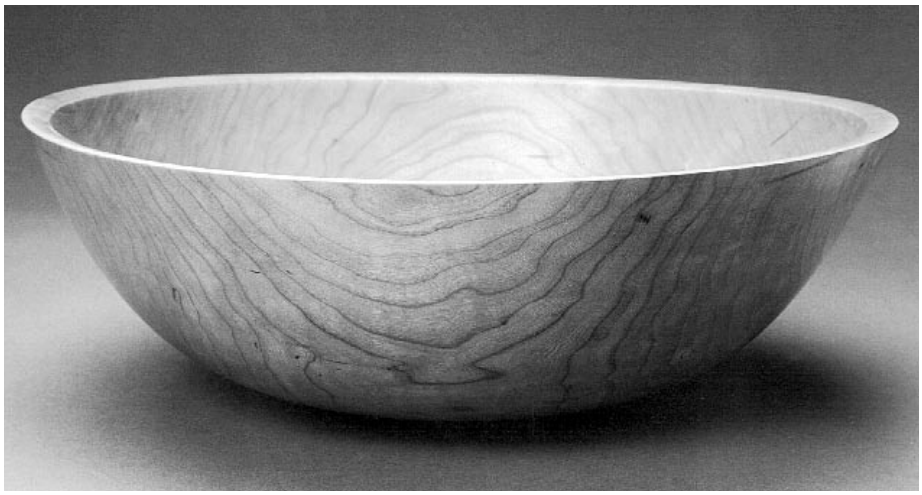

Author's wild cherry bowl, 15" dia.

inch ($^3/_4$ + $^1/_{16}$). I use these spring calipers only as a final check with the lathe stopped (**Photo 7**)—I depend on feel to get the wall line close by occasionally holding my hands inside and out as the piece rotates, feeling for variation. By gently holding the spring gauge (to avoid pushing it open) and moving it along the wall line, any variations become apparent (**Photo 8**). And that's it.

When it's dry, I re-mount the bowl and, using the same groove cut in Photo 3 for reference, re-cut to a final thickness of $^3/_{16}$ to $^3/_8$ inch, depending on the scale of the piece. You will need two spring calipers, or re-bend the original to the new wall thickness. I leave the faceplate on now until the bowl is oiled and rubbed out, part it away at the groove, and then finish-turn the foot.

Using this measuring system, I can rough out several 16-inch-diameter bowls an hour, since I don't have to stop and measure. Not least important, my bowls don't accidentally turn up as funnels.

Abe Harper is a production bowl turner who offers workshops and videos from his shop in Berea, KY.

Two bowl-turning tips

Bandsawing a circle in a log

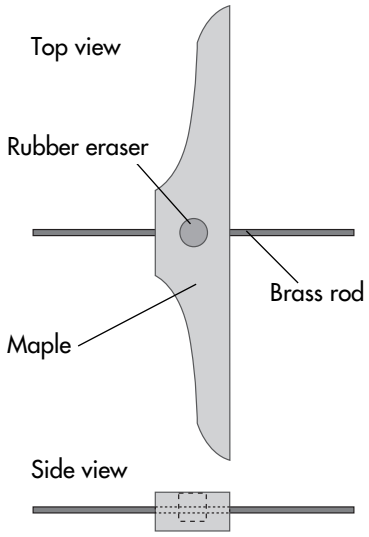
When a log has been split so that one surface is flat, it's ideal to place that flat surface on your bandsaw table and, with the stock stable, saw out a turning blank. Problem is, how do you scribe a circle on the upper surface, which is curved and uneven, so that you can follow it as you saw?

I don't. I scribe a circle the size I want on a manila folder, cut it out with a pair of scissors (actually, I have a series of various sizes already cut), and mount the manila disk with a nail lightly tacked through its center on top of the split blank. A piece of tape can be wrapped around the nail under the disk to hold it level. I then cut with the bandsaw around the periphery of the disk to create my lathe blank, a perfect circle.

—Robert Adam, Fair Oaks, CA

Easy-set depth gauge

Reverse-turning the base of my bowls and platters, I found my depth gauge too bulky. I made a smaller one out of a length of wood and a brass rod. I inset a small rubber eraser in the wood so that a hole drilled through the wood goes through the eraser. When the depth rod is inserted through the hole, the rubber holds it in the set position.



—Charles Brownold, Davis, CA

REMOUNTING DRY BOWL BLANKS

Using drum chucks for production efficiency

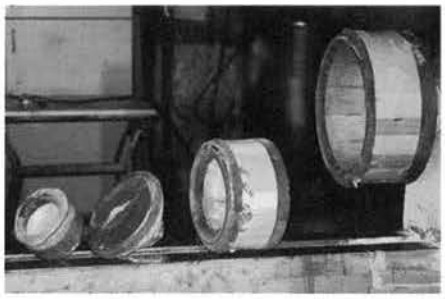
DAVID LANCASTER

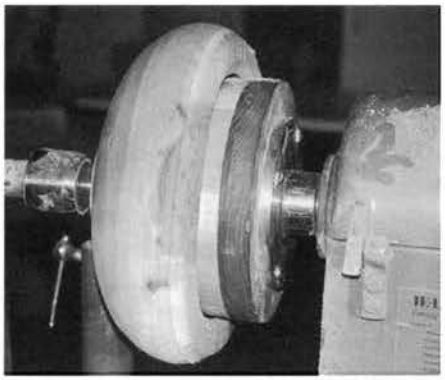
THE MOST EFFICIENT WAY TO PRODUCE bowls is to turn them green with a relatively thick wall, dry them, and re-mount and re-turn them to final wall thickness. This process allows the green wood to dry without cracking, though it does warp. The problem, then, is in remounting the warped bowl blank so that re-turning can proceed as efficiently as green turning.

Before addressing this problem, let's consider the first question of efficient green turning. The green blank can be mounted in one of several ways: between centers, with a screw center, or with a faceplate, the last being the method I use. Whichever method, we are faced with the decision: do we turn the bowl with the mounting on the bottom or the top of the bowl?

If we mount on the bottom of the bowl, in order to cut with the grain (from small diameter to large in faceplate work), we will have to turn from the left to the right. Because of the proximity of the headstock, we can't rub the bevel cutting this way—the headstock interferes with the tool handle. Instead we have to make a pulling cut, without the bevel rubbing, which is a very difficult cut to make while keeping total control. To maintain maximum control and remove a large amount of material fast and efficiently, you must rub the bevel. That's why most people, including myself, turn the bowl with its top facing the headstock. In this way you are able to turn from small to large diameters with speed and efficiency and with the bevel rubbing. You are also applying all of the pressure toward the large headstock bearings, which are designed to withstand this load, rather than the lighter tailstock bearings.

After you remove the waste from the inside of the bowl and it has been dried either by air or in a kiln (the latter being my preferred method for the speed and control it affords), you are now ready to re-mount the bowl to finish-turn.





Make drum chucks in a variety of sizes, top. Use them to mount dried bowl blanks, above, with the rim toward the headstock for efficient, bevel-rubbing cuts, free of headstock interference.

Now what do we do? Most common is to screw a faceplate to the base or to hold it with a chuck. If we do this, we are faced with the same problem just described for the roughing-out stage: working in the wrong direction. To get the most efficient cuts, we must mount the bowl with it's rim towards the headstock. But this dried bowl blank is warped and twisted considerably out of shape. So how do we hold it?

What I do is make a *drum chuck*. A drum chuck is just a cylinder of wood attached to a faceplate. It can be as simple as a solid block or a roughed-out bowl blank or a segmented drum mounted to a faceplate. When you have completed this much of the chuck, mount the faceplate on the lathe and turn the cylinder smooth. Round off the open end to eliminate any sharp corners.

Now I apply a piece of $1/8$-inch closed-cell neoprene rubber with 3M spray adhesive to the rounded end. You can make these chucks in various sizes to fit different bowls. I have them in four sizes: 3 x $3\frac{1}{2}$-inch dia., 3 x 5-inch dia., 4 x 7-inch dia., and one 4 x 10-inch dia. for large bowls and platters. (By the way, these chucks are also my vacuum chucks; more about that in Greensboro.)

Now that you have made your chuck, mount your bowl to it. The chuck should fit inside the bowl somewhere between halfway down the bowl and the bottom. Absent vacuum pressure, bring the live tailstock center into the center of the base, apply pressure with the handwheel, and lock the barrel.

Now you can finish-turn the outside of your bowl the easy way. You will be able to turn from the base to the rim with controlled bevel-rubbing cuts, employing continuous flowing motions without interference from the headstock.

I use an Irish grind on a $5/8$-inch gouge. The first cut trues the bottom and creates a spigot to grasp with a scroll chuck when the bowl is reversed for the inside. To complete the outside, continue working from the base to the rim.

Give this approach a try. It sure has made a difference for me.

David Lancaster, a production bowl turner in Weeks Mills, ME, will be a featured demonstrator at this June's AAW symposium in Greensboro.

EIGHT-PIECE RING TURNINGS

Part II: Project assembly and turning

WILLIS M. HUNT

IN PART I OF THIS ARTICLE SERIES (published in the March 1996 issue) I talked about the advantages and concerns of eight-segment ring turning. I detailed the sizing, cutting, and assembly of the segments into rings. Now we assemble the rings into a bowl blank and turn it.

Project assembly

Glue blocks (Figure 11) are good for chucking the assembly to a faceplate. They can be well under the diameter of the bowl base so as not to interfere with turning. Hollowing out the center of the end of the block to leave a rim width of 1/4 inch for gluing to the bowl base makes later separation with a parting tool easy. With Titebond II adhesive, this glue joint is plenty strong enough for all reasonable turning requirements.

Using a straightedge, check the base disk for cupping. If there is any, you should flatten the disk on both sides before mounting the bottom ring. But first, deepen the compass centerpoint used in cutting the base to preserve it as a reference. Also, it is helpful to scribe a circle on the base piece about 1/4 inch larger in diameter than the glue block to assist in centering the block.

I use Excel, one of the newer urethane glues, for laminating the rings together. Titebond II and other PVA glues work very well during assembly. However, I have found that over time as humidity changes and the rings expand laterally and then contract, these adhesives are not elastic enough to fully return to their original positions—a condition known as "creep." This creep leaves hard ridges of the adhesive on both the inner and outer surfaces at the joint between layers. These can be removed but at a cost of having to refinish—not desirable if you are selling pieces. The urethane does not "creep," if anything is stronger, and any squeeze-out is super easy to sand away. (In assembling the individual rings, Titebond II is fine, as the major direction of wood movement at these joints is longitudinal and minor.) The urethane is very slow to tack or set. But since water is the activator and the glue should be spread on only one of the two surfaces to be joined, a heavy moistening of the ring surface on which the glue is not spread will substantially reduce this "open time." The manufacturer also indicates good gap filling. This is true, but since the cured end product is a greenish foam, it is not a good substitute for close mating of the two ring surfaces.

Originally I used sand-loaded paint cans to put clamp pressure on the ring-to-ring assemblies. I have switched to the relatively new 8-inch "Mastodon" jaw extenders on a "Pony" pipe clamp assembly as a way to get a positive fix on the assembly from the start—one jaw under the assembly table, the other on the faceplate. The 8-inch jaws mean you can cope with 16-inch diameter designs. If more is needed, there is a 10-inch version that goes on a bar clamp.

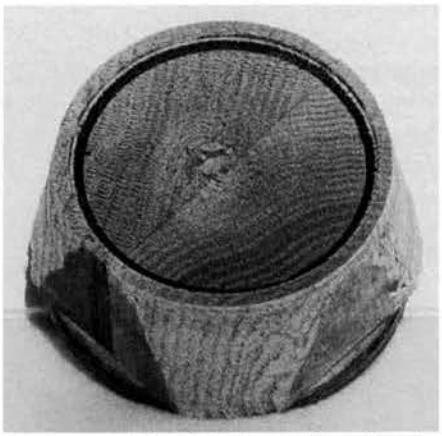


Figure 11: Glue blocks, well under the diameter of the bowl base, work well to attach the bowl blank to a faceplate.

In final assembly the key is to center each ring (and the base and glue block) as accurately as possible. Any off-center positioning in one ring will be carried out through all components. At the least, this results in imbalance vibration on the lathe. It can also mean losing the 1/2-inch continuous wood zone and, therefore, the whole project. If you're clamping as described above, starting with the base and faceplate and progressing to the rim is preferable. Starting with the rim and working down would require clumsy use of cross plates or strips to position the clamp.

I recommend the following assembly sequence:

1. Join the faceplate and glue block to the solid base piece using care to get the block centered as well as possible (Titebond II is fine here). As above, a circle with radius 1/4-inch larger than the block drawn on the base piece using the compass centerpoint helps a lot here. When the glue has cured, true the base piece on the lathe.

2. Sort the rings into a stack starting with the top ring and working through so the ring that will be next to the solid base piece is on the top of the pile. The ring surfaces marked with the rotation of the lathe should be down so that they will be facing away from the headstock in the final assembly.

3. With the first ring on the assembly table and with the rotation-marked surface still down, spray it well with water and wipe off after ten seconds or so. Apply glue to the base piece sufficient to cover the ring and join using the "squeeze-and-rub" motion. Center the base on the ring. Usually a visual centering

check is adequate, but if there is any question, measuring the distance of four opposing points on the ring to the edge of the base circle will assure. Clamp the joint.

4. When the glue has fully set (6 to 7 hours), true the ring face on the lathe. This truing gives added assurance of surface flatness for the next assembly step and allows correction for any non-centered rings. A from-the-rim-down assembly sequence would eliminate both of these valuable in-progress checks, since the last elements added would be the glue block and faceplate.

5. From this point on, the process is basically adding one ring at a time, centering, clamping, and truing the new outer face on the lathe. I occasionally glue up two or three rings at a time when I am very confident that the faces are good and flat. This is mainly with small rings that make good contact across the diameters with the 6-inch belt sander. Going one ring at a time can be a bit tedious, but the advantage is in having one face that is flattened for sure by lathe truing.

You will quickly find that with all the pieces and woods involved, a well-defined "structure" in design and execution is needed to avoid the appearance of an unattractive jumble. If the design profile calls for a straight vertical outside wall, orientation of the rings one to the next is easy. A staggered or overlay pattern, the same as in a brick wall, will develop a desirable "stair-step" pattern of vertical joint lines moving up the wall of the piece. Where there are top-to-bottom curved outer surfaces in the design, things get a little more difficult. Without compensating adjustments, these curvature changes make for irregular positioning of the steps from one ring to the next. I have found that the answer is to rotate the position of a smaller diameter ring clockwise over a 0- to $22^1/_2$-degree range, with the "brick" pattern position as one limit and point-over-point alignment as the other. Figure 12 illustrates this concept. It is a plan view looking upwards from the bottom of the assembly (for clarity, the faceplate, glue chuck, and base disk are not shown). The unshaded, completely drawn ring next to the base disk is about to be glued to the larger next one higher (partially drawn shaded ring)—following the up-from-the-bottom assembly method. The smaller ring would be rotated clockwise within the 0- to $22^1/_2$-degree boundary. If the second ring were smaller (common in the top of a closed-form bowl), the rotation would be in the opposite direction. The amount of rotation should increase proportionally within this range to the diameter change between the two rings—less for a gentle change, more for a large one. There is no absolute way of determining the right amount of rotation; this must come from experience. I do find that over-rotating slightly gives more attractive results than adjusting too little.

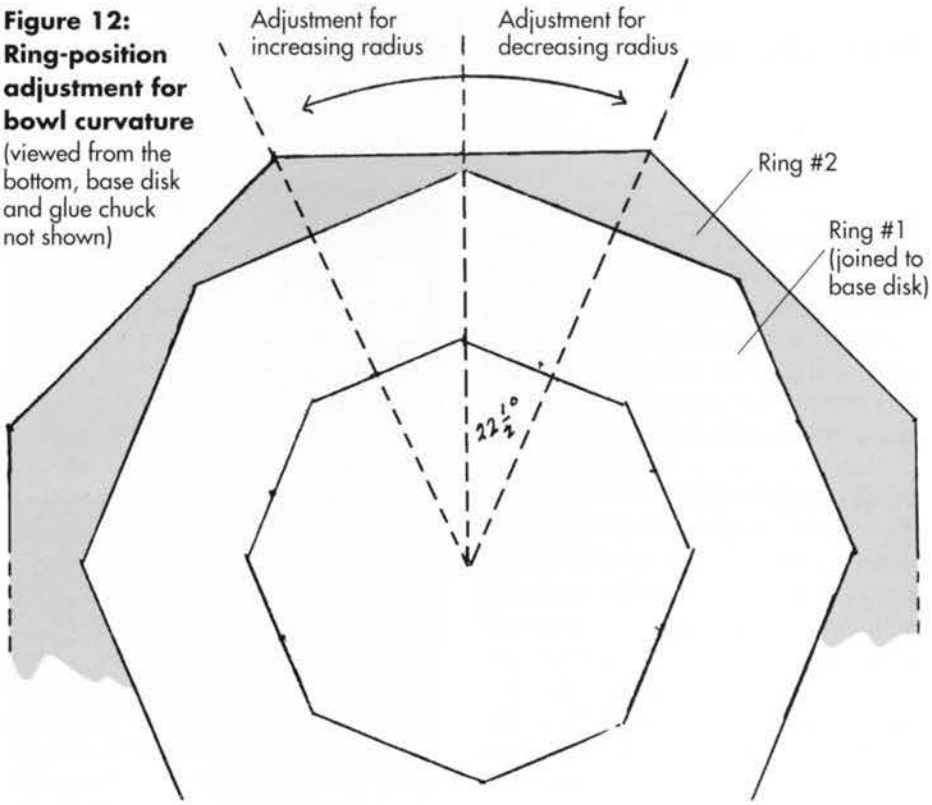


Figure 12: Ring-position adjustment for bowl curvature (viewed from the bottom, base disk and glue chuck not shown)

If you're using a thin top-band ring, position it by matching up its flats and points with those of the top ring. In effect, the thin ring becomes an integral part of the top ring. This avoids having the two larger rings on each side of it positioned the same, resulting in a break in the stair-step pattern.

At last! On to the lathe

From here on, normal turning and finishing techniques all apply. The following sequences have proven helpful.

1. If the assembly (Figure 13) is very large or has a large-diameter top ring, it is helpful to glue a scrap piece across its diameter on the top surface. Despite best efforts, the assembly is likely to be somewhat off-center in some of its parts. The scrap piece can be used as a place to seat a rotating tailstock center to provide support until the worst of the rough and off-center material has been removed.

2. Rough down the outside of the

assembly first. Wear face protection and go easy since large splintered pieces can fly out. By taking this to the point at which the surface irregularities disappear, most of the serious imbalance from off-center will have been taken away so that vibration is minimized. Go no further on the outside surface for the moment.

3. Remove the rough inner surface. Here it is wise to use a lighter touch and a really sharp tool since you are cutting against the grain for a short way into each segment. This should leave you with most of the $1/2$-inch continuous wood zone intact.

4. Now return to the bowl's outer surface to finalize the design profile. Then switch back to the inner surface to finish to final thickness. For this inside wall finishing, the lightest touch with the sharpest tool will be well-rewarded in reduced sanding time. I suggest you put aside the current rage for the thinnest possible walls. Remember that the bowl at this point is a mass of relatively low-strength and somewhat flexible glue joints. Wall thicknesses of less than $1/8$ inch can flex significantly at the joints or break at very low levels of "catch" with the gouge. If you hear the piece begin to "ring" or "howl" while thin-wall cutting, back off, resharpen the tool, or go to sanding. The sound is air movement from flexing vibration, and the bowl form is an excellent megaphone (the same effect as your hi-fi loudspeaker). Continued cutting will often create a "diamond" pattern on the surface which may be impossible to sand away without losing the project.

5. Inside at the bottom, start an increasing inward curve from about the upper edge of the first ring (next to the base) down through the base and carry through to about $1/8$ inch into the base. Used instead of an angled corner at the junction of ring and base, this provides a wider surface area at this glue joint (for added strength) and a reduced exposure of the joint to residual water from cleaning, salad dressing, etc. It also provides a clean cut through the glue at this junction and eases finish-sanding.

6. Overall appearance is improved if the top or rim ring is cut down to 40 to 60 percent of its original thickness. The use of thin top bands, eliminates a "top-heaviness" in the final piece. (The inevitable exception is in Figure 1 of Part I: Here the dramatic flare to almost horizontal wants to be accentuated.)

7. Power sanding works very well with these turnings, especially on the rough spots on the inner surface if there has been any tear out. The fiberboard-backed sanding discs in 80 and 100 grits allow some final surface forming and the Velcro-to-foam rubber types in 120 to 320 grits are great for finishing up.

8. Despite best efforts, gaps between rings will sometimes turn up. If relatively small, they may respond to treatment by filling with sanding dust of the species used and injecting with thin cyanoacrylate (e.g. "Hot Shot") adhesive. You can minimize this problem by taking care when you surface the rings and during assembly. Unfortunately, there is no way to check prior to turning.

9. Initially, consider staying with wood combinations that are close to each other in density or hardness (mahogany and walnut, cherry and beech, maple and birch). This is particularly helpful in working with project designs with deep interior walls, such as tall vases. Differences in density tend to show up as "lumping" where the softer species responds to cutting, scraping, and sanding more than its harder neighbor. Eventually, you will develop work habits to meet this problem (mainly sharp tools and varied sanding pressure) so that any combination can be used without penalty.

Good luck! I'll appreciate comments, pro and con. Do give these turnings a try. They are an enjoyable challenge and very satisfying.

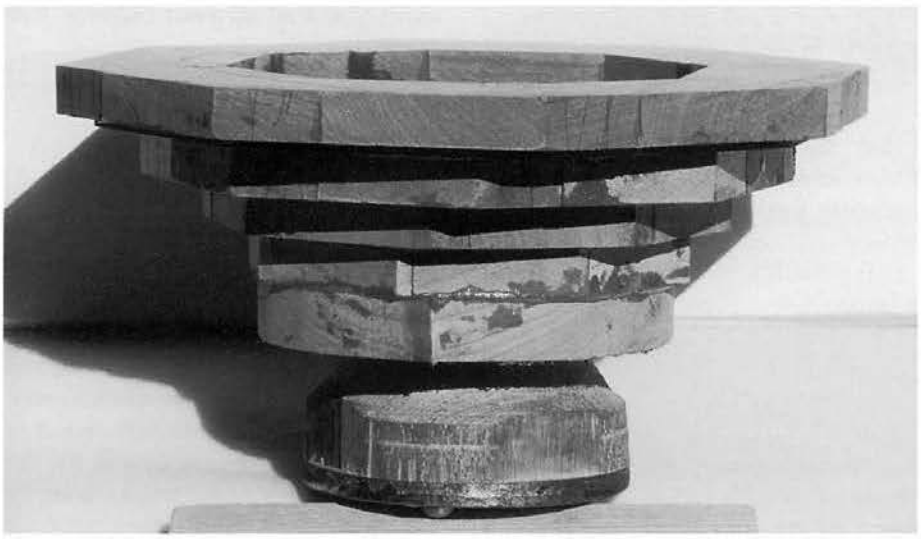


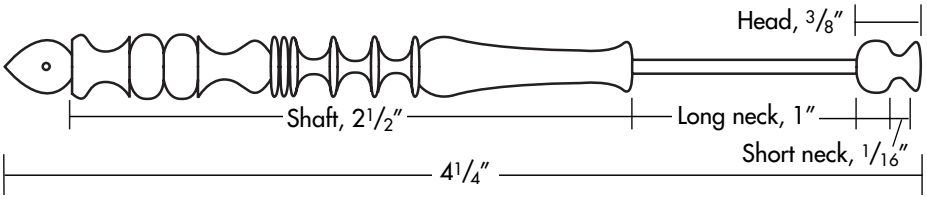
Figure 13: In large assemblies, which may be out-of-balance, it is advisable to add a scrap piece across the top surface to receive a tailstock center during turning.

Will Hunt turns in Lexington, MA. Part I of this two-part article series appears in the March 1996 issue of American Woodturner.

LACE BOBBINS

What they are, how and why they're made

HARVEY HELMKE



LACE BOBBINS ARE SMALL SPINDLES that are used to hold a single thread during the making of lace. A piece of lace may require up to 200 bobbins. These are then moved over one another, twisting or inter-lacing the threads to form a pattern. Some forms of lace can be made only by hand and are more valuable than gold. But to many lacers the satisfaction of making lace and then passing on these precious pieces to children or grandchildren is worth more than money can buy. Many bobbins are in themselves works of art, and some have sentimental or historic value.

The shaft of the bobbin is strictly ornamental, giving the woodturner an opportunity to express him- or herself. Bobbins also afford the chance to work in many of the exotic woods that would otherwise be prohibitive. Because each bobbin requires a piece of wood only 3/8 by 3/8 by 4 3/4 inches long, there is not a lot of waste in wood or money. Bobbins are not difficult to make and require a minimum amount of time and tools. At the same time they provide a very good way of improving skills.

There are approximately 3,000 lace makers in the U.S., and most of these work with two or three lace pillows at a time. Each pillow requires from 12 to 200 or more bobbins. Many lacers also collect bobbins and try to decorate their pillows with as many different bobbins as possible. All of this adds up to a large demand for bobbins. There are only about three or four commercial bobbin makers in the U.S. This means that many of the bobbins purchased by lacers come from overseas.

To sell your bobbins all you need do is locate a lacer or a lace group and let them know that you are willing to make bobbins for them. It won't take long before they will beat a path to your door. One rule you must always follow is: QUALITY ABOVE ALL ELSE. One bad bobbin can do more harm than 1,000 good bobbins, because most bobbins are sold by your reputation, which is to say, word of mouth. It's very hard to overcome a bad report. From just one lace maker telling another about my bobbins, I now have bobbins in most states in the U.S., most countries in Europe, and Australia and New Zealand as well. In the past five years I have made approximately 20,000 bobbins and 5,000 needle work tools.

Requirements are simple: you must have a lathe, large or small, and a few basic tools and basic turning skills. Some of the tools can be purchased at your local hardware store and some you may already have:

- 1/2-inch skew or some sort of roughing tool
- 1/4-inch skew
- 1/8-inch gouge
- 1/16-inch parting tool (two if possible—one is ground to make a round scraper used to form the short neck)
- 3/4-inch flat file (used to flatten and smooth the long neck)
- 5/32-inch chainsaw file (used to make small coves)
- Tailstock live center

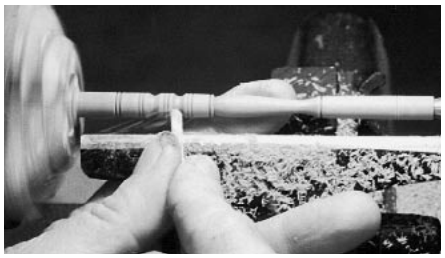
With these tools you can make ninety percent of the bobbin styles currently available.

Mount the blank in a four-jaw scroll or four-jaw independent chuck. If one of these is not available, a soft piece of pine mounted on a small faceplate with a small cone cut in the center will suffice as a driver. You need a live center in the tailstock, preferably with a cone-type center.

As you follow the steps below, note the occasional use of the left index finger under the work; it is not so much for support as to sense vibration, indicating too much tool force.

1. Rough-turn the blank to approximately 1/4 to 5/16 inch round and lay it out using either a cardboard pattern or a piece of wood with nails imbedded into it to mark the various sections of the spindle. Making this pattern or layout tool assures you that all your bobbins will be the same length and have the same dimensions throughout, even while they vary in detail. The head of the bobbin (and what will be the thinnest section, the long neck) is on the tailstock end, or to your right.

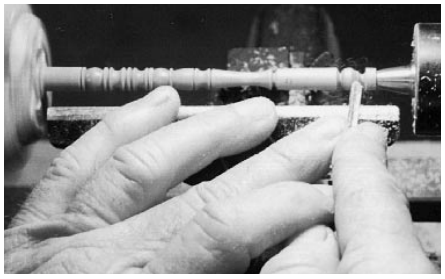
2. Detail and finish the shaft, all except for the 1/4 to 1/2 inch next to



the headstock. The design can be as elaborate or as simple as you wish, ranging from just a plain straight shaft to one with coves, beads, loose rings, or spiral grooves, or any combination thereof. Among the books I recommend for design ideas are the following: *Old-Time Tools and Toys of Needlework,* by Gertrude Whiting (Dover Press, 1971); *Pillow Lace and Bobbins,* by Jeffrey Hopewell, (Shire Publications, 1994); and *Domestic Utensils of Wood,* by Owen Evan-Thomas (Stobart Davies Hertford, 1973, 1992)

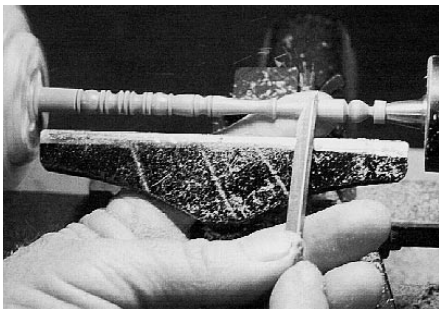
3. Use the skew, long point down, and V-cut the marks on the long neck approximately to final diame-

ter. Then with the $1/16$-inch scraper shape the short neck, leaving it about $3/32$ inch in diameter. Use the $1/8$-inch gouge to round the head and to

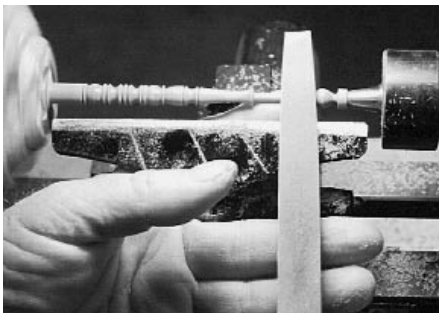


blend into the short neck. This shapes the head.

4. Use the skew to bring the long neck down to the final diameter, beginning your cuts in the center and working to the shaft and then to the head. The cuts start in the center of the skew and move to the heel as

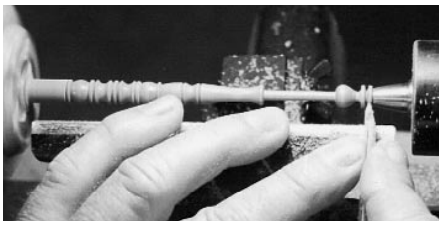


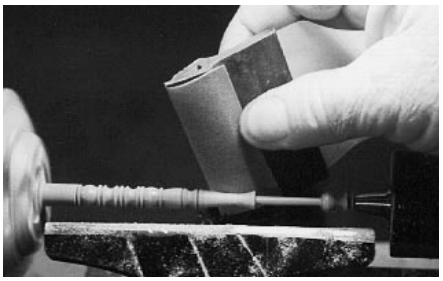
you get close to the stopping point. The neck does not have to be smooth at this time. After you get close to the final diameter with the skew, use the



$3/4$-inch flat file to make the neck smooth and to produce nice sharp corners. The long neck and the head have to be perfectly smooth so the thread does not catch as it slips over during the actual lace making. Many of the threads lacers use are thinner than a human hair and quite easy to break.

5. Use the skew, long point down, and V-cut the top of the head to





about $1/64$ inch. This is a good time for a final sanding, working down to at least 400 emery paper.

6. Finish the last $1/4$ to $1/2$ inch next to the chuck and part the bobbin off with the skew, long point down.

7. Trim off the nubbin on top of

the head and drill a #60 hole crosswise at the bottom of the shaft for the spangle. Spangles are beads strung on a piece of copper wire to keep the bobbin from rolling on the pillow while the lace is being made. Usually the lace maker will prefer to do her own spangling.

8. When you are through shaping the bobbin, polish the bobbin to bring out the natural luster of the wood. Do not wax or oil it because these finishes can stain the thread and ruin the lace. Polishing the bobbin on a

muslin buffing wheel with a little compound (Brown & White PPP suggested) will produce a high polish and ensure that the bobbin does not have any flaws to catch the thread.

Harvey Helmke, of Canyon Lake, TX, will demonstrate the making of lace bobbins at the AAW symposium in Greensboro, NC, June 22–24.

DECORATIVE BLEACHING

Enliven your work with two-part bleach

BETTY SCARPINO

I TOOK MY FIRST TENTATIVE STEPS AT bleaching wood three years ago when the silver maple wood I had harvested turned gray. This color not being at all what I had in mind for small bowls and not wanting to discard what was otherwise useful material, I decided to try bleaching part of a turned bowl. The resulting contrast between the gray and white tones brought the piece alive with visual interest.

Expanding upon my initial success, I decided to try bleaching parts of other species of wood. The raised band of turned grooves or beads that I bleach on walnut plates is striking and provides a nice highlight on the darker wood. Adding a bit of carving through the grooves or beads, revealing the unbleached wood beneath, makes the band look similar to inlay.

I don't care for the final color that Osage orange ages to, turning from a beautiful golden yellow to a yellowish brown with exposure to light. I discovered that bleaching an entire Osage vessel highlights the difference in the density of growth rings, creating a dramatic effect. That effect is further dramatized when turned beads are added, as in the vessel in the photo far right.

The process of bleaching is relatively straightforward. Several different brands of two-part bleach for lightening wood are available in many hardware and woodworking stores. (There are two other types of bleach that can be used on wood. Chlorine bleach will bleach dye in wood, and oxalic acid will remove rust and water stains. Neither is appropriate for bleaching the wood itself.) Two-part bleach consists of sodium hydroxide and hydrogen peroxide, which are either mixed together or applied separately, depending upon the directions supplied with the type you purchase.

Take seriously the warnings that accompany these directions. Wear gloves and goggles and provide plenty of ventilation. Although the fumes cannot be smelled, they will burn your skin and eyes. Imagine what would happen if the bleach itself splashed into your eyes!

To achieve good results when bleaching only part of a piece, turn a raised band of grooves or beads for the section that is to be bleached. Make sure that there is a small groove at the beginning and end of each band, which will help keep the bleach from flowing to the wood that is not to be bleached. Apply the bleach with a cotton swab, dabbing it on. After all of the band is wet, allow the piece to dry. Repeat the process if you like. I generally bleach walnut and maple bands twice.

To bleach a whole piece, simply saturate the wood with bleach. Set it aside to dry and repeat as desired.

As you might suspect, there are a number of "tips" that will help you achieve success and avoid pitfalls:

- Bleaching an entire piece more than three times could cause some turnings to check or crack, particularly in the end grain. Osage orange requires at least ten bleachings to achieve significant results, and fortunately it holds up well.
- Bleach will seep through the end-grain sides of thin bowls and discolor patches on the inside. Make thicker-walled vessels, or bleach the whole piece, or blacken the inside.
- Bleaching does not "hide" technical defects. Sanding scratches and torn end grain will still show.
- Placing the wet piece in the sun speeds up the bleaching and drying process.
- Have a vinegar solution available at all times to neutralize any spills, especially if bleach has splashed onto your skin.
- Any type of metal such as bits of steel wool left on your bowl will cause a stain because of the interaction of bleach and metal. Use a glass container to mix the two-part bleach before application.

Bleach accents the beads on the author's walnut plate, "Four Connections," left. Bleaching all of the Osage orange vessel, above, highlights the graphic grain pattern.

• If you accidentally drop a spot of bleach in an area that is not going to be bleached, wipe it dry immediately.
• The directions call for neutralizing with a solution of vinegar and water after each application of bleach. I don't find that necessary. Also, I don't neutralize the surface when I'm finished with the process. Be aware, however, that the white "dust" from the bleaching process is still slightly active when moistened. Don't get it into your eyes or nose!

After you have bleached the piece or part of it and the wood is thoroughly dry, brush or sand off the white powder residue of bleach. Apply finish as you generally do. For my walnut plates, I use an oil finish, such as Deftoil. Lighter pieces get finished with lacquer. The finish will darken the bleached area somewhat, just as it does wood in general.

If you want to keep a whiter appearance, experiment with simply waxing the surface or with adding a very small amount of universal white color to lacquer before applying. Or you can leave the piece unfinished, although unfinished bleached pieces will pick up oils from handling.

Bleaching is simply another technique or process under the larger category of "working with wood." A broad range of effects are possible. You will apply this process to your work differently than I do and achieve results that complement your own style of turning. Start your experimenting with small pieces. I often try new techniques on the production tops that I make. That way, if I don't like the results, I have not invested lots of time figuring out what works and what does not.

Betty Scarpino, of Indianapolis, IN, will demonstrate her bleaching, texturing, and carving techniques at the AAW symposium, "Turning Ten," in Greensboro June 22–24.

CELEBRATING JARRAH

And overcoming the circle

JOHN WOOLLER

EUCALYPTUS MARGINATA, OR JARRAH, as it is more widely known, grows in a small coastal region south of Perth in the state of Western Australia. I say "grows," but that is too dismissive a term for such a magnificent enterprise. It must first germinate from a seed produced from the last of a long line of countless generations of successful ancestors and this seed must be released from a pod containing thousands of its siblings. Release requires a very narrow range of natural conditions involving little-understood combinations of temperature, light, chemicals, and time. As with many species, fire plays its part in the final stage of the drama. It is not so much the direct heat that triggers the process but rather some mystical and complex arrangement of chemicals in the smoke produced by the fire.

Germination in the warm, moist soil of its natural habitat is an equally knife-edge experience, and subsequent growth into a mature specimen is also an extremely chancy business. To survive the ever-present threat of pests, diseases, storm, and fire is the good fortune of only a few of the initial millions of seeds produced. And in its lifetime not only must the tree be concerned with its own survival but in doing so it becomes the shelter, home, habitat, and life-giver to countless other living things, both plants and animals alike. There is no living thing on this planet to match the presence, importance, and grandeur of a 500-year-old tree of any species. But for how long? While there are still millions of them around, the value of one individual is belittled. Native forests the world over are being turned into plantations which have to be "managed" and in which nothing is allowed to grow more than 70 to 100 years.

As for jarrah, its life and privations are no different from most tree species, and its exploitation has been no different either. Having long straight grain, jarrah has traditionally been used for floors, furniture, paneling, and building construction. It has lasting stability and durability.

But it is not these characteristics of jarrah that interest me most, but rather its "blemishes." Damage to the outside of the tree results in an automatic healing process in which a burl forms over the area and subsequently grows along with the tree. In this burl there is no defined grain or rather no overall grain direction. It is tempting to describe it as amorphous but that would imply no structure at all. A close examination of the details of the burl reveals an extremely intricate pattern in which the directions of growth are apparently random and chaotic. It is as if, in a hurry to heal itself, the tree has rushed from all directions and produced an intertwined network of countless webs of delicate intricacy. To celebrate this wood is simply to reveal it.

Colors in a particular piece of burl range from light pink, through the reds, oranges, and magentas, to black. The sap wood is usually a light straw color varying to gray. All of these colors depend on the chemical composition of the soil in which the tree grew, the climate, the age of the tree, and the state of dryness following death. Colors become darker with age and can be modified by treatment.

As the burl dries, it opens up. Voids appear in the structure sometimes to the extent that there is more space than wood. Whilst some burls remain tight and close-knit, others become porous and lace-like. The logging and timber industry regard this material as a waste, nuisance,

"In my Intricate Image," left, 35" high; "Music of the Spheres," right, 24" high. Both jarrah burl, both in private collections, U.S.

and economic loss. It is the workers in wood on the fringe of this mainstream industry who save it from waste and give it value.

Sometimes the openness of the lacework develops into something larger and takes on the dimensions of cracks and fissures. As with patches of rot which may occur in older pieces of wood, these I regard as characteristics not defects. It is in the nature of wood to be like this and unless these features make a piece structurally unsound, they are incorporated into the work in their own right and on their own terms. The only blemishes to be found in my work are those I put there myself; the wood is flawless by definition. This is not a belligerent disregard or denial of what would usually be regarded as defects or a romantic refusal to admit to such, but rather a realistic acceptance of the wood for what it is, an organic material having very human characteristics. To put aside or eliminate all wood that is not "perfect" and free from cracks, rot, splits, and variations in structure is a kind of arboreal eugenics, a philosophy to which I cannot subscribe.

Technically jarrah is a hardwood. But to me it is very soft. This is not a refutation of the usual botanical classification and an anarchic establishment of a personal scale of hardness, but rather an affirmation of my relationship to it. Whilst it can be strained at times by one or the other of us not coming up to expectations, our relationship is one of respect and empathy with a touch of awe. It is, above all, material to be touched, and nothing gives me more pleasure than the final stages of a piece of work in which, when necessary, I indulge in the sheer hedonism of fine sanding by hand of an organic form. In trying to create something that hopefully will have a life of its own, rather than overpowering it with technicalities, I tend to caress it into being.

Making an object from such a wood adds nothing to the wood itself and unless care is taken the material competes with the form for attention. If it were not for the fact that the form can be appreciated from a distance whilst the material invites closer attention, this would be a problem. But, as in most cases of work using natural materials, these two levels of scrutiny are separate and distinct, both physically and aesthetically. The aesthetic of the imposed form is quite different in kind from that of the material itself. The former involves and connects the viewer with the artist and the artist's culture whilst the latter invokes a relationship between the viewer and nature.

In the pieces illustrated here I have not only tried to celebrate the characteristics of the jarrah burl but also to invite the viewer to engage in a visual dialogue with me through the intellectual content expressed in the sculptural form. In establishing an aesthetic of form, woodturning suffers from a fundamental problem at the outset. On an ordinary lathe the action of the tool is to make a circular cut. As a result of this basic action, every form made on the lathe is an arrangement of an infinite number of such circles. The surface of a turned form is an envelope of juxtaposed circles. The simple perfection of the circle, whilst essential to the crafting of utilitarian and pseudo-utilitarian objects, is a problem in sculptural work. The two fields of

"Great Dunsinane," left, jarrah burl, bronze, granite base, 35" high, private collection, Scotland. "The Wheel of Fire," right, jarrah burl, bronze, timber base, 43" high, private collection, U.S.

endeavor rely on different aesthetics. Paradoxically, woodturnings of a sculptural nature are more or less successful depending on the manner in which the turning is counterbalanced by other features. Overcoming the self-imposed constraint of the circle is essential. The random and disordered characteristics of the material may play their part in distracting from or providing a balance to the orderliness of the turned form, but these are not determined or imposed by the artist except in the trivial sense of wood selection. No matter how interesting the wood, it plays only a passive role in the aesthetics of the finished piece.

A popular method of dealing with the clinical regularity of the circle is to employ the technique of carving after the turning is complete. In most cases this carving is decorative. More substantial carving can make a fundamental contribution to the form and if done with appropriate shapes and scales can provide a balancing contrast to the turning.

The characteristics of the wood, the technique of carving, whether decorative or substantial, and even the introduction of other materials play a valid and useful role in combating the severe aesthetics of the circle; but they are not turning per se. The only way to achieve non-circular forms without these means is to turn the work on several axes. These axes can have any arrangement with respect to one another and serve only as a means of generating the desired final form. Whilst cutting on each axis produces surfaces generated by circles, the intersecting of these surfaces "breaks up" the circular form and can lead to a piece with more visual appeal.

In my own work I try to concentrate on the final form which I want to produce by the techniques of non-decorative carving and turning, and sometimes by turning alone. In doing so I try to imagine the wood is utterly featureless and hence would play no part in the aesthetics. The form should be visually sufficient in itself on the large scale, or from a distance, no matter what the material from which it is made. Close to, perhaps within touching distance, the characteristics of the material become apparent and then reveal additional interest. Thus an object made by the turning of wood has the potential appeal of being appreciable on more than one scale and from more than one aesthetic. This potential is realized only if the artist successfully overcomes the tyranny of the circle.

Viewers bring their own culture to bear on objects and hence make their own interpretation of the work, which is, of course, different from mine. But that's another story.

John Wooller turns and sculpts in Foster, Victoria, Australia.

IMPROVING YOUR IMAGE

For better photos, try The Box

STEVE MELTZER

HIGH QUALITY PHOTOGRAPHS ARE especially important to any woodturner who markets his or her work. Whether selling through galleries or at fairs, before any piece leaves the woodshop, it needs to be photographed—for a personal record if nothing else.

Yet I dare say that most of you who have attempted to photograph your work have been unhappy with the results. Despite the fact that woodturners are people familiar with precision working techniques in the shaping and finishing of wood, when it comes to photography, precision and control seem to fly out the window and otherwise smart people go dumb.

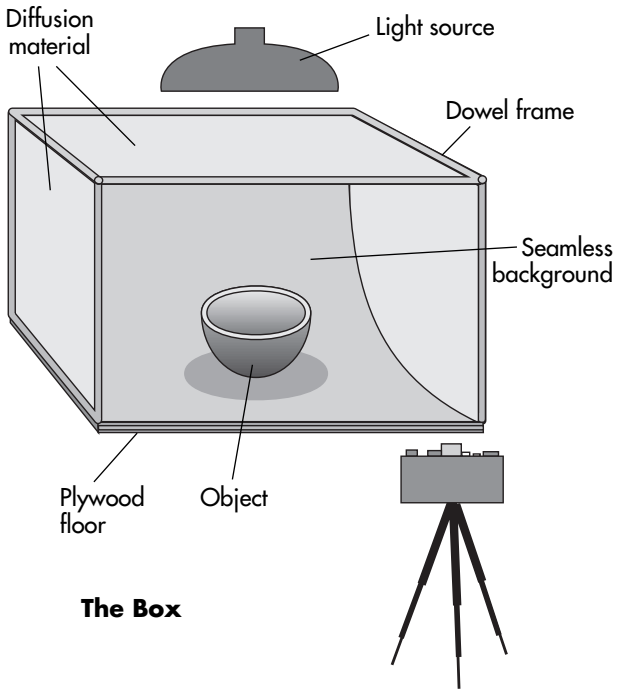
Too often a bowl that has been labored over for hours is plopped on a lawn chair and shot willy-nilly with an inexpensive Point-and-Shoot automatic camera and whatever film happens to be loaded. This kind of slap-dash photography helps keep beautifully made objects out of galleries and shows. To produce high-quality photography requires taking control. This does not mean a degree in rocket science or long hours of study. Even a little care can turn your photos around.

Let me introduce you to The Box, an inexpensive, simple-to-construct device that will give photographs of your turned wood pieces a professional look. It addresses the major problem facing every photographer—the control of the quality of light.

The Box is a miniature photo studio. As you can see in the illustration, it is a simple structure into which you place the work to be photographed. In my illustration I show a light hanging over The Box. This can be any light source: electronic strobe, photoflood, or, if you take the box outside, the sun. Because the sides and top of the box are translucent, whatever light source you use, The Box softens it and spreads it out.

Softening or diffusing the light is the key to improving photos. Turned wood pieces tend to be reflective and, of course, they're opaque. That means that a light source will produce a hot spot or glare on the object's surface and distracting shadows around them Diffusing the light reduces glare and softens shadows.

The Box is made of a material called Queenlite produced by a company called King Dome; it's sold throughout the country at Home Depot™ stores as a diffuser for fluorescent ceiling light fixtures. The material is translucent white plastic with a crackled surface. Queenlite comes in 2x4-foot sheets, costs about $5 a sheet, and can be cut with a scissor and joined with a glue gun.



The Box

There are no size markings on my illustration because you can make The Box any size you want. My big Box has an entire 2x4-foot piece as its roof and it works for all but the very largest pieces. The sides of this Box are about 2x3 feet and the "floor" is a piece of $1/2$-inch plywood, 2x4 feet. I built a rectangular frame of grooved $3/4$-inch wood dowels 2x3x4 feet to support the Queenlite sheets, and I screwed the frame into the floor piece. I slipped the Queenlite into the grooves and used my glue gun to bind the whole thing together.

I've built a smaller version of the Box that is only 12x18x24 inches, and I use it for smaller objects like boxes and turned wood pens.

There is no back to The Box because I don't need one. I use long rolls of seamless paper as the background. This paper comes in several widths and many colors and is sold by most larger camera shops. Seamless is used to create a horizonless background for the work and gives the photo a professional look. The loose end of the seamless is attached to the top back edge of The Box with duct tape and unrolled within The Box. At the point where it meets the floor of The Box, I give the seamless a gentle curve and unroll it across the floor.

Once you have built a Box you'll find that its very easy to use. Place the work in the center of The Box halfway between the front edge and the curve in the seamless. Hang the light source about a foot over the roof and center it over the piece.

If you want to shoot outdoors, try working around noon, when the sun is high in

the sky, and orient The Box so that the sun doesn't shine directly into it. Whether shooting indoors or out, a tripod will help to keep your shots sharp by steadying your camera.

If you are shooting slides and working with tungsten lights, remember to use color film designed for tungsten light like Ektachrome™ 64T or 160T.

For optimal results I'd suggest a SLR (single-lens reflex) camera with a lens focal length of 90 to 105mm.

The SLR lets you see exactly what will appear on the photo, and the slightly longer lens will add a nice flattened perspective to the image.

If you don't own an SLR but have a Point-and-Shoot camera with a zoom lens that zooms to about 90 mm, it might work. The problem with these cameras is that they do not focus close enough for most small pieces.

When photographing craftwork, you want to have the deepest field of sharpness possible to ensure that the object is in focus front to rear. To do this the lens aperture must be set to f/16 or f/22, and because depth of sharpness is always larger behind the point focused on than in front, try to focus at a point a little behind the front edge of the piece.

Considering how cheap and easy The Box is to make, every woodturner should have at least one for photography. When it's not in use as a miniature studio it has another use. My neighbor's little girl thinks that it makes the very best playhouse for her doll's afternoon tea. Whenever Gabby's around, The Box becomes The House.

Steve Meltzer is a professional photographer who specializes in craft. He is author of Photographing Your Craftwork *and writes a regular column for* Crafts Report. *He will be a featured demonstrator at the AAW symposium in Greensboro, NC.*

MAKING CANES

A project you can lean on

ODIE BULL

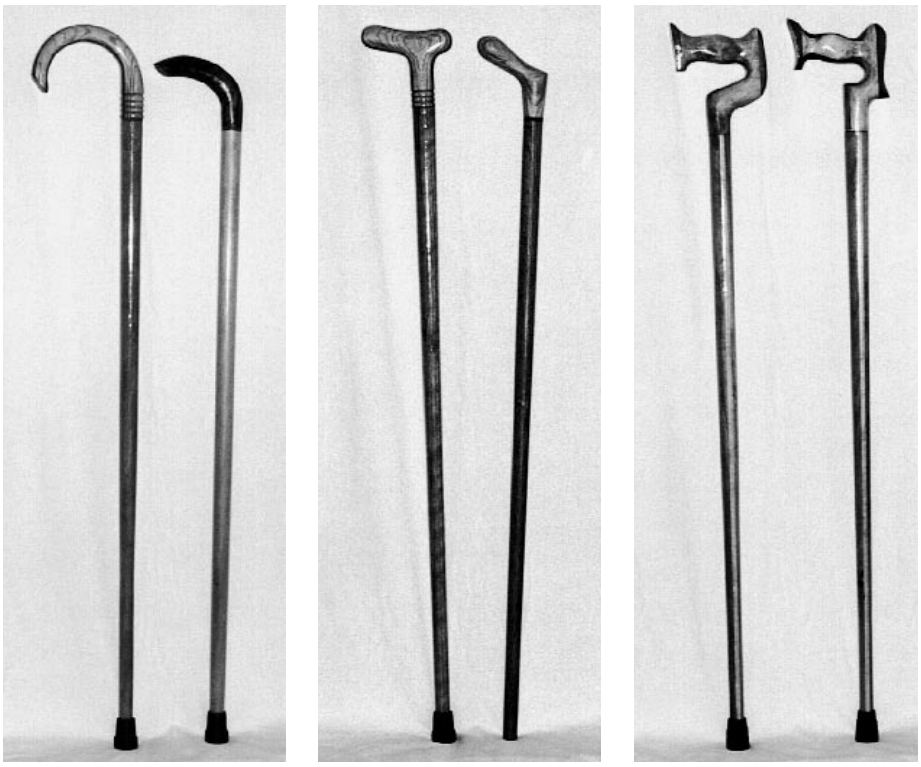
I MAKE CANES, WHICH ARE NOT the same thing as walking sticks or staffs. A cane is 30 to 35 inches long with some type of handle (carved, crooked, or T-shaped), usually 1 to $1\frac{1}{2}$ inches at the largest diameter and $\frac{3}{4}$ inch at the tip. A cane is used primarily for support while walking. Walking sticks and staffs can be longer or shorter, may or may not taper, usually have an in-line handle, and can be used for dress or authority as much as for assistance in walking or hiking.

For ease in making, you can divide a cane into three parts: the tip, the body, and the handle. The bottom 6 or 7 inches of a cane is turned to $\frac{1}{2}$ or $\frac{3}{4}$ inches, according to use. The diminished diameter at the tip makes it easy to adjust the length of the cane—just cut it back and replace the rubber cap.

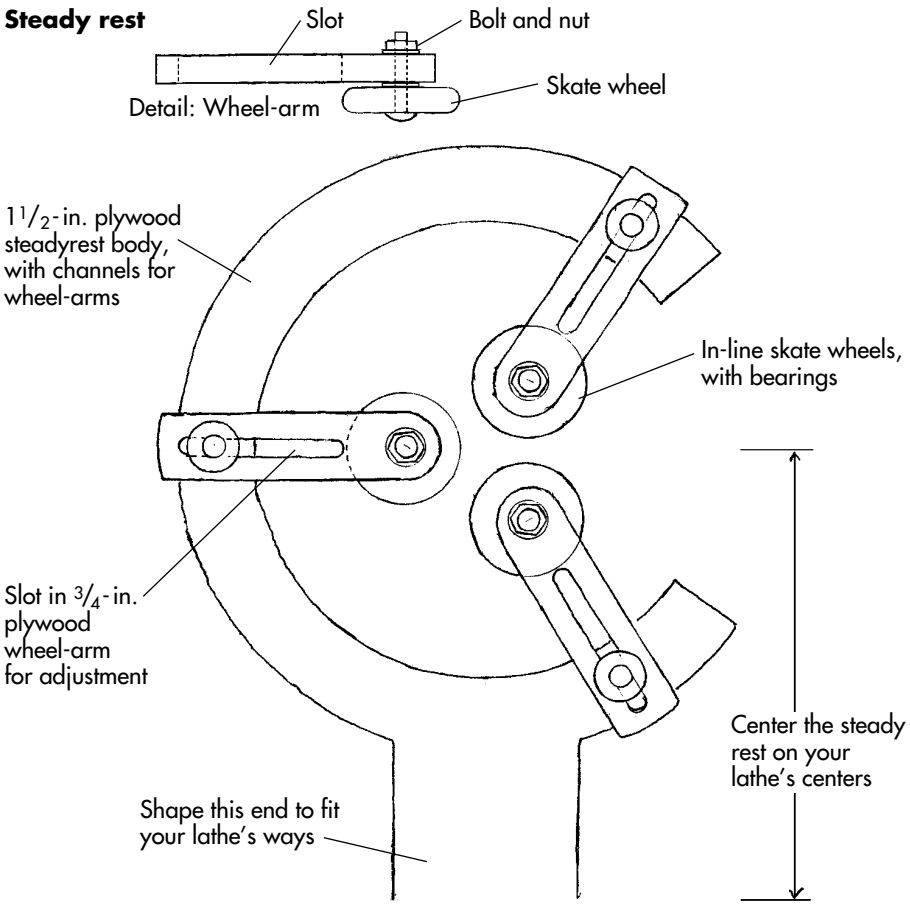
The next 24 inches of the cane's length should have a smooth taper, from $1\frac{1}{4}$ to $\frac{3}{4}$ inch in diameter if the cane is to be used for everyday support, from 1 to $\frac{1}{2}$ inch for dress use. Use a straight-grained piece of hardwood at least 34 inches long so that at the top of this section you can turn a tenon at least twice as long as the largest diameter of the cane. The tenon's own diameter should be half that of the cane's largest diameter. This tenon will fit the socket in the handle. As an alternative to a piece of straight-grained hardwood, you can laminate your cane blank from woods of contrasting color.

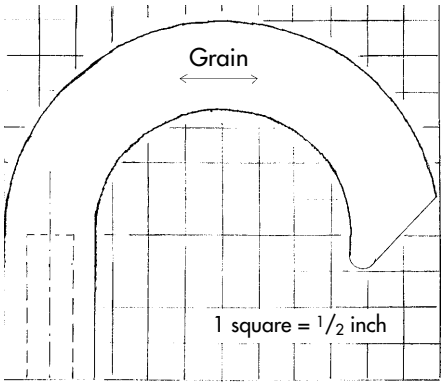
The head of the cane is made of metal, bone, wood, or stone, carved or turned to the desired shape. The head is typically 4 to 6 inches long. This is the area where you can make the cane unique.

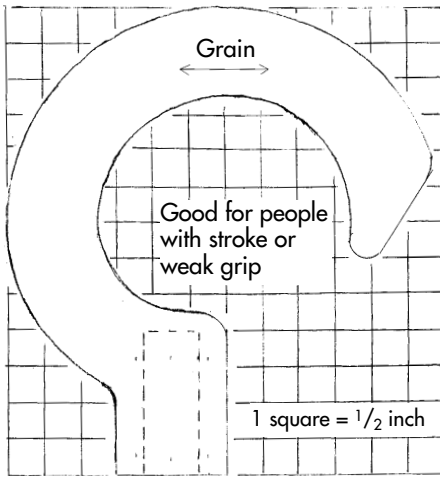
If you do not have a steady rest to support your cane blank while turn-

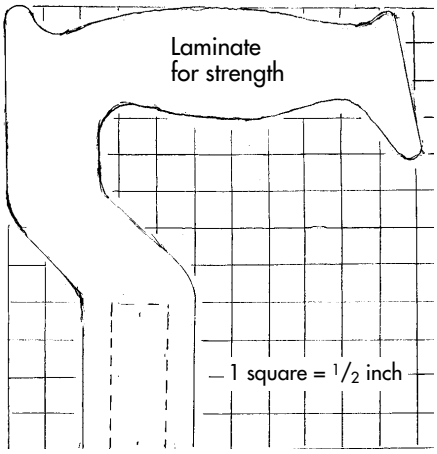


Author's canes in various woods, including maple, oak, boxwood, and walnut.









ing, I suggest you make one (drawing, above). Turn a round section about 2 inches long at the centerpoint of the stock, adjust the steady rest to this point, making sure that the stock stays in a straight line. Turn the 6 to 7 inches near the tailstock to the desired diameter, making sure it is straight for this length. Then determine the diameter of the center area required for your cane. With a parting tool turn the area next to the steady rest to this diameter. Turn down the cane to the desired taper between the steady rest and the tip area. I use a skew to do this, but any tool can be used for this turning. Move the steady rest to the right so that the wheels rest on the tapered area as close as possible to the center, making sure you can turn the remainder of the cane safely. Use the parting tool to turn down to the desired diameters at various points, and complete the cane by turning the tenon to size to fit the socket in the handle.

To sand the cane I make a sanding block 3/4 x 3 x 11 inches for the coarsest sandpaper I am going to use. The long support block helps to keep the taper straight. Sand to the smoothness you desire. Turn off the lathe and remove the steady rest. Sand by hand with the grain, using the last grit you plan to use. You can apply your finish at this time, too, if you wish. I prefer to finish later with the handle on.

Make the head from stock 4 to 6 inches long, 5 to 6 inches wide, and about 1 1/2 inches thick. If of solid wood, the grain will run in one direction. Several designs appear at right; for more, I recommend *Carving Canes and Walking Sticks* by Tom Wolfe (Schiffer, 1994). After picking a design, mark and drill a hole to the proper depth for the socket. Cut out the profile on the bandsaw or by hand. Using a router, rasp, and/or sandpaper, shape to the desired shape and feel. The grain of the handle should run 90 degrees to the cane. The tenon when glued into the head with five-minute epoxy will give support for the crossgrain, thus helping to prevent breaking.

When fitting the handle, you will find that it is almost impossible to get an exact fit. Therefore, I accent the joint with a leather or colored plastic washer. After the head is glued on, you will need to clean up and sand the joint to give a pleasing appearance. Apply a light coat of wax. Don't forget to sign and date your cane!

Odie Bull turns in Austin, TX. *He thanks Jack Overton and Gary Roberts for help and encouragement in preparing this article.*

LARGE STEADY REST

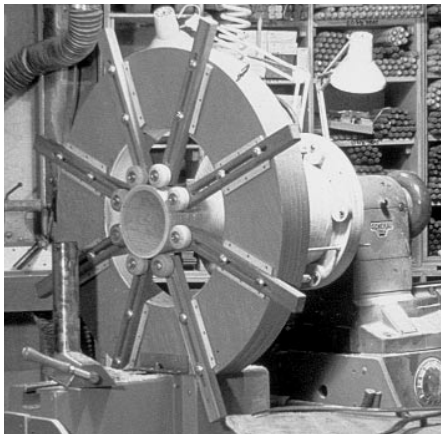
Solid-log West African drums on the lathe

ROBERT SONDAY

THE DJEMBE IS A TRADITIONAL DRUM of Guinea, West Africa. Popularity of the djembe, a sign of "world music," is growing fast. World music itself is expanding on the U.S. music scene. Notice the percussion section of even many top-rated mainstream contemporary music groups—the djembe likely has come onstage with them within the last three years.

Lathe-turning seems to be an historic step for djembes. For many generations djembe were made by carving a solid log; more recently chainsawing or stave construction has been incorporated. Being one of the few people to develop lathe-turned solid-log djembes and other turned wood drums, I've now committed a significant part of my career to that physically large endeavor. Invention is almost my favorite reason for living, so developing jigs and fixtures for the djembe was a delight for me. My jigs and fixtures, and those of other djembe turners, become part of the djembe story.

As I started my adventure in the world of drums three years ago, it became clear that hollowing out the large pieces would require a large steady rest. Even after the outside of a djembe drum is turned, it will still weigh in at a hundred pounds or more. Large bass drums—djun-djuns—will tip the scales at two hundred pounds or more.



Made of laminated plywood, this massive steady rest can accommodate turnings up to 18" in diameter.

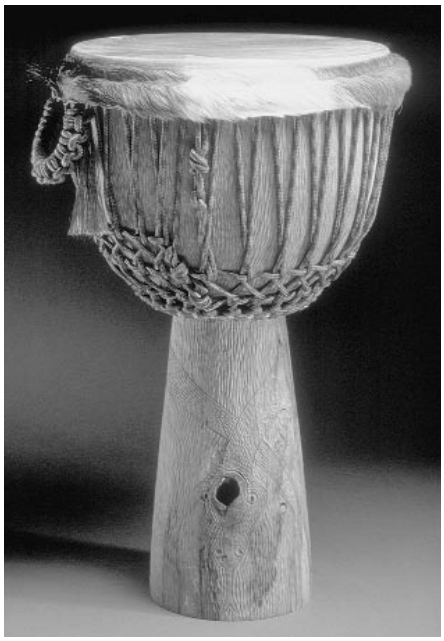
The steady rest I made is built of six rings of $^3/_4$-inch CDX plywood cut out with a router and then glued and screwed together. Mark where the roller-bar bolts go on each piece, so you don't place screws at these points. The steady-rest body is 38 inches in diameter with a 20-inch hole inside. With recesses routed so the wheel bolts can go back into the body, you can hold pieces up to 18 inches in diameter.

My lathe has a 34-inch swing. I cut a 2-inch deep flat off the bottom of the plywood rings, so the final assembly sits flat on the lathe bed, with a 2x2-inch steel angle iron fixed to it on either side for mounting to the bed with $^1/_2$-inch bolts into threaded steel plates.

The bars that hold the wheels are $1^1/_4$ x 2 x 19 inches with a routed slot. Mine are made of sapele, but any strong wood will do. Half-inch-diameter carriage bolts hold the bars to the steady-rest body. The locking knobs are made from $^1/_2$-inch rod couplers drilled at one end so a $^1/_4$ x 3-inch long bolt can pass through, gripping the bars to the body. The wheels run on $^5/_{16}$-inch carriage bolts.

After completing the wheel bars, bolt them in place and screw a wood guide on either side of each for them to slide between.

A highlight of my encounter with djembes, beyond their technical and musical excellence, is the guidance I have had from Mohamed Dacosta in their development and construction. Mr. Dacosta is an international performer and, significantly, a native of Guinea. He is a master drummer, choreographer, and performance designer, who was raised from age seven for this career, by the griot Bana Kanute. Griots are revered historian/storytellers, the receptacles of important oral histories otherwise destroyed by continual foreign invasion and dominance.



Djembe such as this one, turned by the author from beech, will be at the AAW symposium in Greensboro, NC.

Mr. Dacosta and one of his small local groups will be performing for AAW conference-goers at Greensboro, June 22–24. We'll experience lathe-turning brought to life musically at Greensboro, through traditional Guinean music forms that feature round wood drums.

To me the drums are a fascinating extension of the turning community into other worlds. The djembe's popularity is growing fast—and turning is part of that growth.

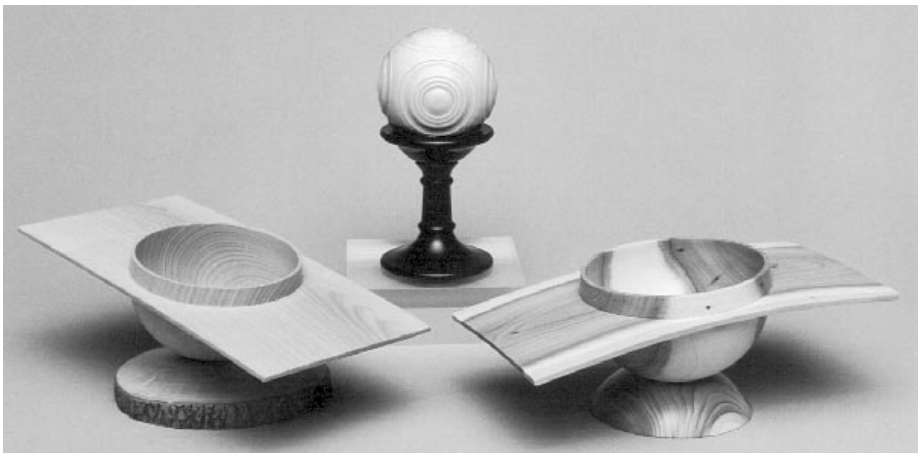
Robert Sonday turns bowls and makes Shaker-interpreted seating, as well as djembe, in Free Union, VA.

SMALL TREASURES

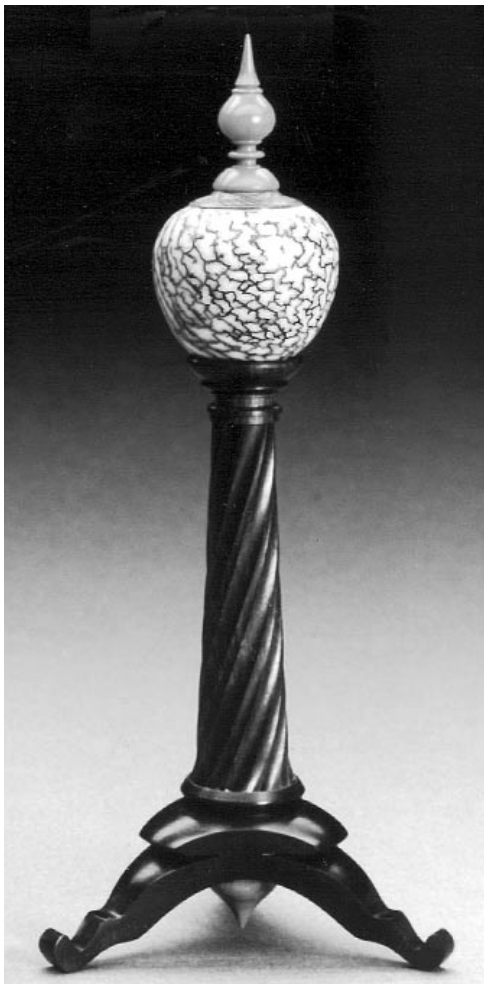
Annual del Mano show bigger than ever

RICK MASTELLI

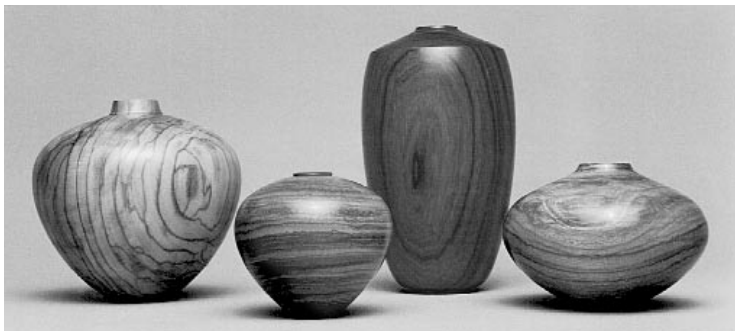
LAST SPRING'S SMALL TREASURES show at the del Mano Gallery in Los Angeles featured fifty turners, almost 250 pieces. It may have been the largest invitational woodturning show ever, and powerful beyond measure, if you consider the variety, quality, ingenuity, style, and imagination that were packed into pieces 6 inches or smaller. Add to that the tactile appeal—the satisfaction that comes from being able to hold a piece that has drawn you in and to have it touch you—and you have an irresistible connection. Especially when the price is only a few hundred dollars. One third of the pieces in this



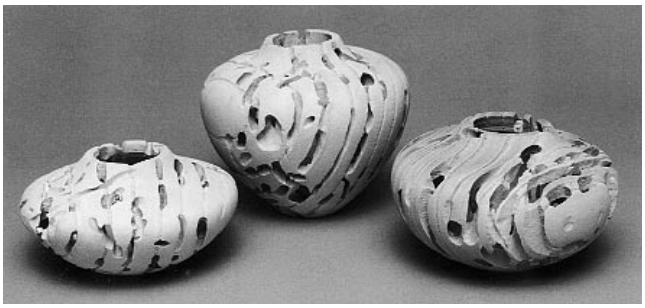
Alan Batty's work is steeped in the traditions of the English turning trade. In the foreground, winged boxes of boxwood and yew, 6" long; in the center, secret box of alternative ivory with blackwood stand, $3\frac{7}{8}$" high.



The strong graphic character of Ron Fleming's work can be traced to his experience as an illustrator (above, "Tulip," of buckeye burl, $4\frac{1}{4}$" dia.). At right, John Sauer's "Mini Vase," of zac nut, blackwood, and pink ivorywood, $4\frac{3}{4}$" high, was produced on an 1868 Holtzappfel ornamental lathe.



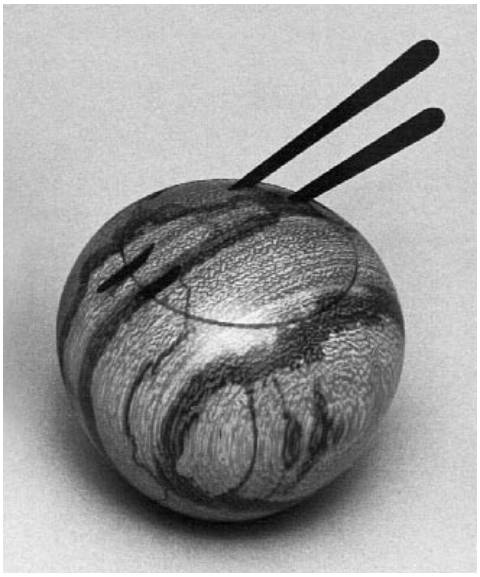
J. Paul Fennell's thin-walled classic shapes take on new power and delicacy at 1¾" to 3¾" high. Left to right: olivewood, lignum vitae, desert ironwood, and Brazilian tulipwood.



Dale Nish's vessels of bleached wormy ash are inspired by "the Oriental ability to accept and enjoy natural materials and surfaces [which] produce a serenity and satisfaction not found frequently in Western cultures."

show sold on opening day. Nearly half were gone by the show's closing.

Gallery manager Kevin Wallace did not expect the turnout he got when he invited so many to participate, but evidently turners, both familiar names and new, enjoy this annual show as much as the collectors and general public. Paging through the catalog (available for $35 while supplies last by calling 310/476-8505) is like scanning a smorgasbord of contemporary turning. There's a little of everything, from classic forms and natural celebrations to miniature sculptures, ornamental jewels, and whimsical wonders. Pictured here is a small taste.



Left, Craig Lossing's marblewood box with ebony handle/accent. Above, Robyn Horn's "Masur Birch Millstone," miniature sculpture that incorporates movement with form.

Exotic woods and exquisite workmanship: Left, Paul Fletcher's rose-engine-decorated "Half-Staved Box," of Mopane, blackwood, boxwood, and beefwood. Above, Michael Mode's "Small Urn Forms in a Moghul Style," in various woods.

FOOT BOWLS

Can you stand it?

PETER M. SMITH

THESE DELIGHTFUL SMALL, LITERALLY footed bowls are easy to make and are immediately enjoyed by all who see them—kids especially love them. We know there is nothing new under the sun, and the earthenware original from 4000 BC Egypt can be seen in the Metropolitan Museum of Art in New York. To emulate the idea in turned wood was the challenge, and the results have been rewarding, with lots of room for variations.

The approach extends woodturning by the creative use of the bandsaw and belt sander. Normally I shy away from freehand decorations and enhancements to my bowls—these don't usually work. I find that some people are natural artists and can draw a simple flowing line that just looks good, but there are many more of us who draw a flowing line and it just looks—awful. (I have always been impressed by Picasso's expressiveness with a few lines—his famous sketches of peace doves, for example.) If I'm striving for that integral smooth curve of a bowl, why risk botching it with a manual addition? Carving feet on bowls seemed to be asking for trouble. This design, however, uses more straight lines than you might guess. This is a relief. It is also straightforward and allows the bowls to become production items, that is, reproducible many times with relatively consistent results.

Techniques

Small bowls seem more cute than large ones, and I have been using approximately 4x4-inch cylinders of green wood, with the grain parallel to the lathe bed. I super-glue the cylinder to a waste piece of hardwood on my faithful screw chuck, and then turn a rough goblet shape as per Figure 1. Dimensions are not critical. So far, this is easy, and even hollowing the end grain is not much trouble because the bowl is wide and shallow. Ellsworth-style bent tools with cobalt-steel bits are effective, as is the ring Termite tool. After drying for three months or so, I remount and true up, and finish the surface, ending with 400-grit paper with Danish oil. I then part the goblet off the lathe with a sharp parting tool, cutting down to the waste wood at a 10- to 15-degree angle.

Now to the bandsaw. I mark the saw lines as in Figure 2 on the bottom rim, and then carefully cut through the rim to outline the feet by firmly holding the piece and guiding it into the blade. It is critical to use the toes-to-be to balance the body during the cutting, as band-saws and round objects are not good mates. It is actually easy enough since the foot rim is thin. The only tricky part is cutting out the waste between the legs; you have to use multiple overlapping cuts while avoiding slicing into a leg, (lots of sanding to cover up), a finger (more serious), or buckling the blade (another $15 gone).

I use a wide belt sander to flatten the soles of the feet, and a thin belt

Fig. 1: Specifications

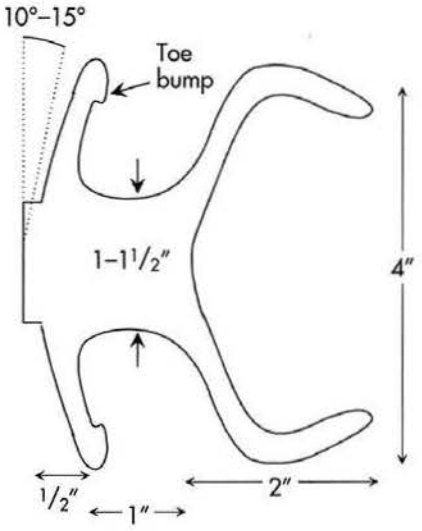
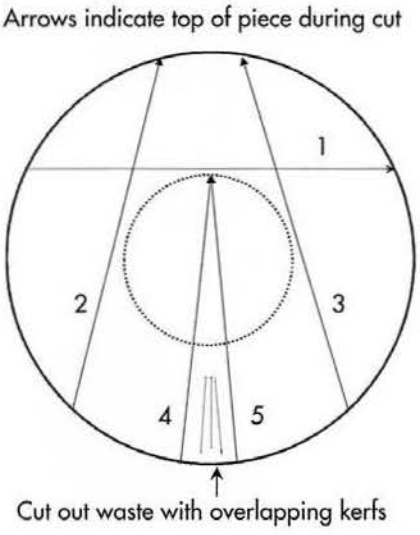


Fig. 2: Bandsaw cuts on lower rim



sander to shape the heels and toes. Finally, a Dremel tool completes the fine points: Dremel makes a thin 3/4-inch-diameter saw, which is ideal for cutting the toe slots, and also for outlining the, how shall I put it, (optional) rear cheeks. But other saws and rasps would be effective. Some oil-sanding by hand on the edges and the new surfaces completes the work.

Variations

I like to leave a ridge on the outside edge of the foot rim which gives the toes some emphasis. I'm pondering how I might make the feet at different angles to simulate a real walk. It would also be interesting to add arms, or at least bring out the suggestion of arms, perhaps clasping hands over the potbelly. And I'm contemplating not just a bowl but a whole sphere on legs and carving a face into this to make it a walking head. (I have a ceramic piece that is wonderful.) Perhaps paint would add a new dimension. Yet the further away I get from those few straight bandsaw cuts, the more nervous I get and on the whole I think I'll leave these variations to the more artistic, and work on a production approach.

Peter Smith manages computer applications and turns in Princeton, NJ.

Maple bowl (3 1/2" dia.), also shown on the facing page. This rear view exploits the grain for emphasis.

FINISHING OVERVIEW

Understanding the choices

ALAN W. HOLLAR

SINCE 1984, MY PRIMARY OCCUPATION has been the restoration of furniture, so you might say that I entered woodworking from the end instead of from the beginning. Of necessity, I have had to be familiar with a variety of surfaces, some less than ideal, and have a working, friendly relationship with an almost bewildering array of finishing materials and styles.

As my once job-oriented interest in woodturning has blossomed into a passion, I spend all my free time (and, increasingly, time not so free) at the lathe with more pleasurable and decorative ends in mind. As the time I spend turning has increased, so has the number of pieces requiring finishing. But unlike most of my fellows in craft, I have the luxury of access both to a wide choice of finishes and to the equipment and workspace for applying them. I have tried many different approaches, some more successful than others and will pass along some information and observations that have been useful to me as a woodturner rather than as a finisher of furniture or architectural woodwork.

Why finish?

With the availability of extremely fine abrasives and polishing compounds, some turners have achieved lovely surfaces without any applied finish at all. Perhaps it is personal prejudice, but I have reservations regarding this practice. Most of my work gets handled a bit before acquiring a home, and experience has shown me the corrosive power of skin oils, as well as the staining potential of dirty hands or lotions and hand creams. Since I also show up at some outdoor events, I know that a merely polished surface offers no impediment to water damage. I have seen extensive grain raising and graying under water that beaded on bowls that had no applied finish. Finishing wood is a good idea.

Choosing the right finish

As protection is a valid concern, I should point out that almost any finish will provide enough protection for the majority of turned objects. Most finishes were developed for furniture or architectural woodwork, which suffer considerably more abuse than almost any decorative object is likely to receive. (Turned items intended for use outdoors, toys for children, and tools for workshop or kitchen are notable exceptions.) I will point out some differences that will determine the choices for various applications.

As finishes also provide a general enrichment of appearance, a carefully chosen combination of finish and wood will display deeper and more vibrant color. Smoother surfaces and the option of tweaking shade and color tone are easily obtained. More elaborate effects, such as staining, opaque coloring, either single colors or multiple bands, layers, and splotches, or antiqued and crackled patinas are possible with combinations of stains, finishes, and other materials. The more familiar you become with what is available and with how to play with combinations, the more you will be able to achieve what you imagine.

Of course finishes that protect can be decorative, and decorative finishes can also protect. Unfortunately, it is not always possible to achieve the perfect balance of both look and endurance, but there are alternatives today that should allow anyone to get mighty close to an ideal finish.

Applying a finish should be a more deliberate process than just

slapping on a coat of whatever is handy. While there is no need for a degree in art or chemistry, your project deserves at least a well thought out approach to what will, together with the shape, provide the immediate impact of your effort.

Decide first what your objective is for each piece. Let the end use be the first guidepost to your goal. Surface film finishes are poor choices for salad bowls, and oil finishes require frequent maintenance for exterior or high-wear applications. Opaque colors or layered colors are best realized with film finishes. A surface devoid of texture also requires film applications, while the most natural feel and the lowest sheen are simple if you stick to oil or oil/varnish blends.

So, where do you begin?

Penetrating finishes

Penetrating finishes are oils such as boiled linseed oil, tung oil, and walnut oil. For our purposes, we can include Danish oils. These oils are curing finishes that can harden and form a finish. "Harden" is a relative term, however, as even tung oil doesn't approach the hardness of film finishes. Danish oils, and similar products like urethane oil, add solids such as alkyd or urethane resins, and are somewhat more durable than oil alone.

Oil finishes have several charming qualities, not the least of which is ease of application. Wipe on, wipe off, and the first coat is mostly history. All the oils I have tried have the annoying habit of bleeding back excess from the pores of the wood. These finishes should be wiped periodically for thirty minutes to an hour. Once dried, those little dots of oil become difficult to remove. You can also apply subsequent coats with steel wool or abrasive pads, to simultaneously re-oil and remove any raised grain. I have even used wet/dry sandpaper and walnut oil or Danish oil to sand and recoat at the same time. This doesn't work well with tung oil, as it gets tacky too quickly.

Another useful trick with oil is to darken and enrich the colors of some woods, cherry being the most familiar. I have turned some eucalyptus, which was disappointing under a padded lacquer finish, into a warm and satisfying experience just by oiling prior to top-coating. This is a mixed blessing, since oil changes the color of everything, and the change is not always beneficial. Soft maples frequently assume a gray cast when oiled, so a test sample is a good idea. Darker woods, such as walnut, may become darker than you wish, and many exotics fare even worse.

Some people feel that oil finishes don't look finished, since there is no gloss at all, and, unless you work hard to achieve it, no film built on the surface. Others find this look to be more natural and desirable. Both views are correct, since aesthetics are entirely subjective, and from a practical standpoint, what looks good to the eventual owner of the work is at least as relevant as what looks good to you. It is possible to achieve a gloss on oiled wood, most simply by waxing. If the oil finish has dried completely, buffing with Tripoli or Hut will raise a shine. Don't rush this step, as a gummy mess may result if the oil is not cured sufficiently. Use a soft wheel and light pressure. A surface film is possible with Danish oil or tung oil, but the number of coats required and the relative softness of the resulting finish suggest that an alternative method would be preferable. If your situation makes other finishing techniques undesirable, allow time to apply as many as a dozen coats, with adequate drying time between each, so that abrasives such as steel wool or wet/dry sandpaper with a lubricant can be used to smooth and flatten the surface. Polishing an uncured finish with fine abrasives can easily result in a heartbreaking mess and the waste of considerable effort.

Oil finishes have several charming qualities, not least of which is ease of application.

Film finishes

My day job has provided access and practice with many film finishes, and customer requests have led me to some unusual decorative explorations. Most turners will find few uses for some of my favorites. Spar and marine finishes, either varnish or urethane, are dark amber in color, slow to dry, and too flexible to rub out and polish well. Enamel paints also dry slowly, which makes dust a nuisance (or a texturing tool, I suppose, if there is enough of it). Latex paints can be thinned with water to make color washes, similar to stains, but easily obtained in a true rainbow of shades, and almost any finish will adhere to them. Once they are on wood, however, removal is tough, so try that chartreuse wash on scrap first. Table-top or bar-top varnishes also take some time to dry, but they brush on and rub out well.

Shellac—I have other "standby" furniture finishes that work well on turned objects. Shellac is the most venerable of the quick-drying films, and is also the least toxic when in liquid form. You can apply thin coats with a brush, or you can spray it on if you have the equipment. The coats melt into each other as you apply them, and you can sand between

coats with stearated sandpaper, steel wool, or abrasive pads. The last coat can be leveled and polished to a clear, smooth surface. Water should not be used as a lubricant for sanding or polishing. Shellac forms a film that is tough and durable, but can be easily damaged by water and quickly dissolved by alcohol.

Shellac also makes a fine barrier. A one-pound cut (one pound of dry shellac in a gallon of denatured alcohol) applied over pine knots will keep the color and resin from bleeding through the top layers of finish. If you apply layered colors, and want to ensure that they don't blend together or bleed through, separate them with thin coats of shellac. This can then be finished with a heavier cut of shellac, lacquer, varnish, or even water-borne finishes. The operative word here is "thin." You want a wash coat for a barrier; get the build in your final finish after the risky spots are sealed, or your colors are stable.

Wiping varnish—Another film finish noted for ease of use is wiping varnish. This is sometimes sold in such a way that the purchaser thinks he is buying a penetrating oil finish, but it is actually only varnish which has been thinned to a consistency that makes it easy to apply with a rag. (If you wonder about a product you have bought, pour a few drops on the lid, or on a piece of glass. If it dries to a hard, rigid surface, you have varnish. If you can sink your fingernail into it, it's oil, or an oil blend.) Wiping varnishes provide more protection than oil finishes, and, as they are thinned, it is easier to end up with a thinner film than with varnish of a normal consistency. As you apply these finishes by rubbing, they can smear some stains, so a test scrap is again a good idea.

Padding lacquer—For small pieces, padding lacquer, applied while the work is still on the lathe, is hard to beat for speed and durability. Similar in some respects to the traditional French polish, modern padding lacquers are harder, more resistant to chemicals, and much more resistant to moisture blushing. (Blushing is the white ring or cloud left by moisture in the surface of a finish.) Padding lacquer is applied with a wad of cloth, preferably lint-free. A bit of practice will be necessary, as padding is not quite as simple as oil finishing.

For small pieces, padding lacquer is hard to beat for speed and durability.

To ensure full wetting, I get the best results by wetting the cloth with finish and quickly passing it over the piece while it is turning on the lathe. I then work the finish in to the folded cloth until it feels cool rather than wet. Then, with light, quick passes, I move back and forth over the work, not stopping at any spot, until a sheen appears and remains. A quick buff with 0000 steel wool will change the sheen to satin. This is also a good sealer to prevent colors from bleeding when decorating Christmas tree ornaments and such with colored markers or when sealing work that will be finished more elaborately at a later time. Although it is possible to build a considerable film with padding lacquer, the time required would stretch my patience, so I would probably choose another approach.

Water-borne finishes—I have had some successes and some notable disappointments with water-borne finishes and use them only when I must. They are high in solid content and rapidly build a thick film. But they are heavy while being low in viscosity and will sag and run easily on the curved surfaces of turned objects. Advantageously, they are non-flammable, and not notably toxic; so if your location makes these qualities desirable, they are worth learning to use. Some of these finishes purport to be brushable, but if you can apply them smoothly with a brush, you are better or luckier than I am. I recommend spraying. Apply light coats, to avoid runs and orange peel surface. I have had good luck with products from Hydrocote, and a very nice experience with a line called Clearly Superior, supplied by FSM. A Minwax product, called Polycrylic, is easy to find and works pretty well.

Be aware that water-borne finishes are sensitive to oil contamination and work well only when the temperature is between 70 and 80 degrees. These are all new as finishes go, so the jury is still out on the issues of long-term durability and resistance to moisture and chemicals. I also have found that dark woods seem to take on a bluish cast, especially if the film is thick. Some water-borne finishes seem to haze if you use abrasive pads or steel wool to knock the sheen down. This is a problem with exterior finishes as well, so the reason for the poor rub-out qualities may be the flexible nature of these coatings.

Nitrocellulose lacquer—I use a lot of nitrocellulose lacquer, both for furniture and for turned work. It provides exceptional clarity, is quick drying, can be sprayed in very thin coats, and comes in sheens from dead flat to high gloss. It works over a wide range of temperatures and may be applied over almost any type of stain. Modern lacquer is available in tones from water white (that

means colorless) through the traditional amber to opaque colors. It is easily leveled and polished, can be enhanced with resins and catalysts to increase resistance to chemicals and moisture, and can be built to a film that will eliminate all texture, leaving a glasslike surface. You can mimic oil finishes with thin coats of very flat lacquer, such as the Simulated Oil Finish made by Star Finishing Products. Special sealer coats are not needed, and a wide variety of stains, glazes, shading stains, and toners are readily available.

On the other hand, lacquer is mostly solvent, being sprayed at 15 to 20 percent solids content, and this solvent is made up of highly flammable and toxic chemicals. Proper ventilation with an explosion-proof exhaust fan and breathing protection consisting of, at the least, an organic-vapor respirator, will be vitally important. This is dangerous material, not at all safe to have around the house in large quantities. It is subject to a host of environmental regulations, being mostly unlawful in areas with poor air quality. Needless to say, insurance companies and fire marshals are less than happy around lacquer. Unfortunately, nothing I have tried so far has approached plain lacquer for usability and appearance. If it didn't work so well, I'd never use it, but I have yet to find anything safer that even comes close to working as well and looking as good.

Acrylic lacquer—There are also similar results possible with acrylic lacquers, such as those used for automotive applications. These tend to be more expensive, at least from my sources, and pose the same hazards. Though acrylics resist moisture and chemicals better than nitrocellulose, the difference is not enough to warrant the price. However, questions of availability may make the difference for you.

Conversion finishes—There are some finishes that combine great clarity with incredible strength and resistance to chemicals, and these are the conversion finishes: two part, catalyzed finishes, such as KemVar by Sherwin Williams. I have a bowl that has seen years of duty as a fruit dish that was finished with conversion varnish, and despite innumerable cleanings and a few rotted fruits, is still in lovely shape, although the manufacturer of the finish is unlikely to label the stuff for this use. These finishes must be sprayed, are quite flammable, and even more toxic as a liquid than lacquer. They also must be used quickly, usually within eight to twenty-four hours after mixing, so any left over when a job is done must be disposed of before it solidifies in your spray gun. These left-overs provide the material I use on bowls. I like these finishes, but they truly are much stronger than is necessary for most purposes and are also quite expensive.

I have yet to find anything safer that even comes close to working as well and looking as good as nitrocellulose lacquer.

Preparation

Since I got into this business in a backward fashion, it seems only proper to deal with the beginning of the finishing process at this late point. Whatever finish you decide upon, the foundation of that finish begins well before any oil or solvent comes out of the container. Finishes are thin. Even what appears to be grotesquely thick glop is measured in thousandths of an inch, and penetrating oils may have no measurable film at all. Tearout, sanding swirls, raised or torn fibers, scratches, or defects of any kind will probably be magnified when you apply a finish, so you must take care to carry out the preparation of your work.

Cut as cleanly as possible, but if you have 80-grit damage, start with 80 grit, and use it until any unwanted tooling or ragged wood is gone. Step up through the grits; don't leap three or four grits at a time. The time you save sanding you will lose attempting to get a decent finish. This is especially important if you're planning to stain or use oil finishes, since oils and stains—both dye and pigment—collect in torn fibers and scratches, turning what was once almost invisible into a dark, ugly magnet for the eye.

Keep your hands clean. A bit of honing oil can have undesirable consequences by interfering with some finishing materials, particularly water-borne top coats. The end of the work is in sight when you start sanding, but this is no time to skimp on effort or attention.

There are many finishes, each with its own applications and peculiarities, and each deserving more attention than I can give here. For an excellent and enjoyable education on the general subject of finishing, I recommend Bob Flexner's fine book, *Understanding Wood Finishing*, published by Rodale. The information is both useful and enlightening and, although focused on furniture, the information is extensive and accessible.

Alan Hollar is a furniture refinisher and woodturner in Newland, NC. This article first appeared in the journal of the North Carolina Woodturners Association.

Make Money from Woodturning by Ann and Bob Phillips. *Guild of Master Craftsman Publications, Ltd., 1994; distributed by Sterling (212/532-7160). 160 pp., paperback, $19.95.*

Several years ago I seriously considered doing woodturning full-time. I daydreamed of quitting my job and making a great living at it. I was filled with ideas from teachers who had done the same. However, I never could get anyone to detail what it takes to make a living wage doing this craft. Consequently, I kept turning as my hobby.

Now *Make Money from Woodturning* gives detailed guidance to those who have similar dreams. This is not a typical turning book. It was written because Ann and Bob Phillips "found no published guide to help" them set up a woodturning business when they started out. This book fills that gap. It addresses all the skeptics who told the authors, and others like them, that "there was no way a living could be made from woodturning."

Through excellent photos and detailed text, you'll learn what is involved in making a living at this craft we celebrate. Topics covered include establishment costs and considerations, timber, working practices, money matters, inspirations, design, marketing, and necessary evils. Ann and Bob are now full-time turners. They are also successful. Their enthusiasm is found on every page of the text. They even include a few projects that can help you earn a few dollars. But this is not a project book. It is a friendly, helpful guide to establishing a woodturning enterprise. It covers bookkeeping, administration, paperwork, and purchasing, topics that we might like to avoid but are truly unavoidable.

Three topics that caught my eye were boredom, routine, and isolation. It is very easy to idealize your way into a career. But when you arrive, routine and boredom are there waiting, even in woodturning. Working alone, as most turners do, you have to deal with isolation as well. It is all well and good to want to leave the rat race, but how far away do you want to be? Can you stand turning in isolation with little public contact? These topics are addressed head on.

I would recommend this book to every craftsperson who is now considering entering this craft full-time, part-time, or as a hobby. It is a tremendous guide and should be on every turner's "must read" list. Don't just glance through it—*read* it. You'll make money from turning if you do.

—Warren Wyrostek, Pinetta, FL

Adventures in Woodturning: Techniques and Projects by David Springett. *Guild of Master Craftsman Publications Ltd., 1994; distributed by Sterling (212/532-7160). 231 pp., paperback, $24.95.*

This is not another book for armchair turning. In fact, to read a chapter, not to mention the whole book from cover to cover, is difficult. Beware—it can turn you and your lathe in a new direction. It is a book of projects for browsing and doing. It is an opportunity to develop new skills and hone your turning abilities. It is a collection of problems and puzzles to solve with your lathe. You will learn new ways to use your lathe, new ways to turn and new ways to be creative.

Adventures in Woodturning is the sequel to *Woodturning Wizardry* (reviewed in *American Woodturner*, June, 1994). The book is divided into three major sections: tools, materials and techniques; projects; and elliptical turning. The interesting thing about these projects is that you will not need to purchase a lot of new equipment. You will need to make some jigs and perhaps some special tools, but these projects will not rationalize a major tool or accessory purchase. Those projects that need a specialized chuck or jig or tool include very detailed instructions for fabrication.

The projects seem to fall into either the category of tricks (bottle trick, barrel, balancing egg, sovereign Sphere) or some different way to use the lathe (combination locking box, folding beaker, necklace and rattlesnake, chess set, opening egg and rosebud, lotus bowl, quinfoil bowl, facet-sided box and vase, and twist-turned box). The trick projects are challenges and seem to have been inspired by a magician friend of Springett's. The other projects will broaden your turning techniques.

The final section on elliptical turning includes details for constructing a special oval chuck and for making oval picture frames, an oval dish, and an oval box. The oval chuck will cost a lot less than the new one being offered by Robert Sorby, Ltd., especially if you do not count your time to figure it out and construct it. However, your efforts will reward you with a better understanding of elliptical turning and the ability to make some variations if you get hooked on this.

Each project has a brief explanation of its origins with the author. It may have been some magician's apparatus which was shown to the author or a diagram in an old book on turning or a problem that just needed solving. Each will, with study, expand your understanding of turning. By example, the book shows how problems can be solved. Consider the chess set project. Chess pieces, except for the knight, are relatively easy, straightforward turning projects. The knight has always been a problem, but not any more. Mr. Springett shows how to apply hoop turning to produce the knight (actually, many knights for many chess sets). I had read about hoop turning, but never saw beyond the demonstrated pro-

jects—wooden folk toys and animals. A curiosity to me, but of little interest. Now I see an application that I might get around to trying.

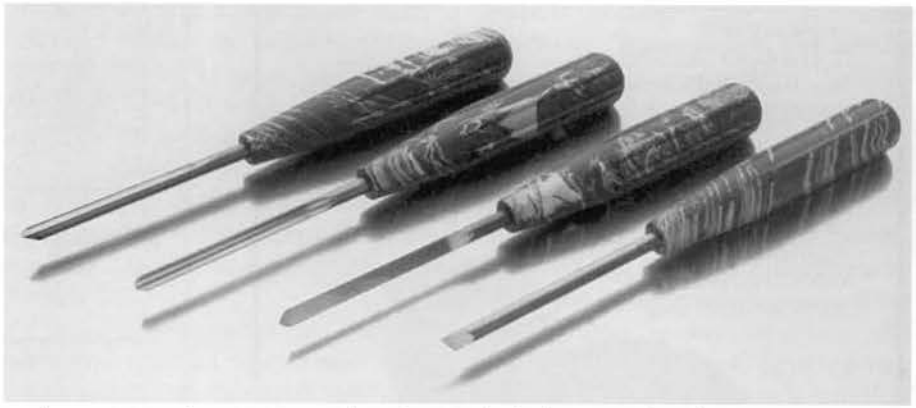
These are not easy projects. Even though the instructions are very detailed and precise, you will need to understand the project from step to step, and the turning will require precision. Much of the work entails fabricating parts that must fit together. If you were to grasp the techniques of these projects and apply them to projects you yourself design, you would produce some amazing turnings. If a local group were to work through this book, an ordinary bowl would be a rarity at a chapter show-and-tell. Master any one of these techniques, and you will be asked to demonstrate at your local chapter meeting.

The instructions are so detailed that you may have to spend time getting the big picture: figuring them out and understanding what you are doing and why. The projects would therefore benefit from a short overview, outlining the steps, a sort of roadmap. Sometimes I prefer to understand the problem and solution and then try to apply it my way. Usually I want to make some changes, and without the broad overview, customizing is more difficult.

This can be an excellent book to have in your library. If you are looking for new challenges now, start reading and turning. If you occasionally want a real challenge and problem to solve, keep it on your shelf and browse through it from time to time. It will come in very handy when you want to escape into your shop for a long weekend or more of turning.

—Robert Lenrow, Paramus, NJ

Warren Wyrostek teaches woodworking at the University of South Florida. Robert Lenrow is a lawyer and amateur turner. Jon Sauer is nationally recognized for his ornamental turning.



Lindsay mini-tools in A-11 steel with extruded aluminum handles.

Miniature Turning Tools, *Lindsay Woodworks, PO Box 1478, Rancho Cucamonga, CA 91730. Bowl gouge, spindle gouge, round skew, pointed sheer scraper, $49.95 each; set of four: $160.*

Most of my turnings are on the smaller scale, so when I was asked to test a new set of miniature tools, I was game. To test tools I place them on my tool bench with the rest of my tools and start using them. The more I reach for a tool the more I like the way it performs.

These new tools are made from A-11 steel, which is at least four times more wear-resistant than M-2 high-speed steel. Another advantage of these tools: the flutes are finely ground and polished. The sheer scraper is also polished on the top. All tools are heat-treated to a Rockwell hardness of 62.

All these tools are pre-sharpened using the Glaser Grind Master, which creates a hollow grind. The edges are then honed with a super-fine EZE-Lap. This process produces a super-fine cutting edge.

The handles on them are aluminum extrusion, shot-peened, and splash-anodized for a distinctive appearance with comfort and control. The shape of the handles conforms to your hand, and I like the cool feel of the aluminum. They are not round, which keeps them from rolling away on you.

Because they are polished on the flute, the mini-gouges produce a superior cut . When the tool is used properly, the flute's fine finish is transferred to the turning. The bowl gouge works well for small faceplate work, and leaves a beautiful finish on the final pass. This gouge also performs well on spindle turnings.

The scraper is extremely useful for producing this finish on burl woods. The round skew is one of my favorite tools. It is great for turning round beads. It rolls and slides smoothly on the tool rest and has the movement of a gouge. The skew also doubles as a hand drill. Finials were a breeze with this skew.

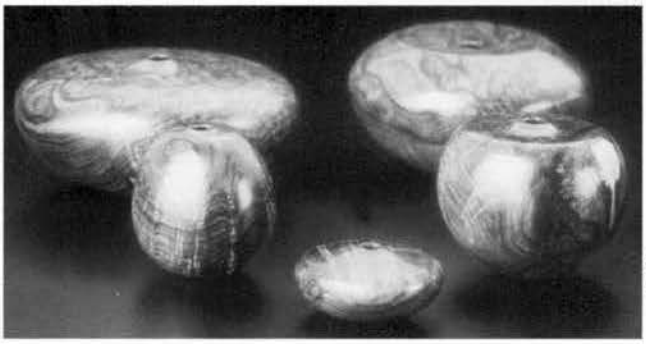
The tools are heavy which reduces vibrations. All these tools performed very well on all woods (soft to very hard), plastics, tagua nuts, etc. I even used them on brass with good results. The cutting edge lasts and lasts. If the edge needs a little touch up, a brush with the EZE-Lap (included with the purchase of the set of four tools) brings it right back to the fine cutting edge. This reduces the need for return trips to the grinder. All were a pleasure to use and use again. I reach for them all the time and they have found a home in my work shop. I will be looking for more tools from Lindsay Woodworks in the future.

— Jon Sauer, Daly City, CA

PHOTOS FROM THE MAILBAG

"A Many Spindled Thing" is a music box incorporating 107 turned pieces of Texas honey mesquite.
—S. Gary Roberts, Austin TX

"Stepping Lightly," from my Old Earth Series, is of Osage orange, 5" dia.
—Christian Burchard, Ashland, OR

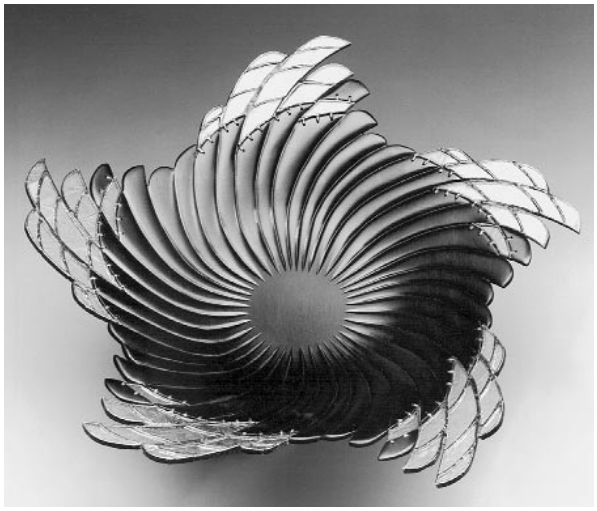


Small vessels, the largest $1\frac{1}{8}$" tall, of cocobolo rosewood burl.
—David Ellsworth, Quakertown, PA

"Tea Minus One" is a collaborative effort of maple, ash and paint, $10\frac{3}{4}$" high.
—Mark Sfirri, New Hope, PA, and Mike Hosaluk, Saskatoon, SK

Growth through Sharing

The AAW's first international invitational exhibition, "Growth through Sharing," began by contacting fifteen turners who have challenged, inspired, and directed others through the content of their work and have demonstrated a willingness to share and teach what they bring to the field. Each was asked to name two woodturners whose work he or she felt represents the best and most promising in our field. Together the forty-five pieces in the show (including the pieces from second-tier participants pictured here) represent some of the foundational and burgeoning work of the AAW's first decade. The show opens June 21, in conjunction with the Tenth Annual AAW Symposium, and runs through July 30 at the Guilford College Art Gallery in Greensboro, North Carolina.



Clockwise from upper right: Rolly Munro's "Hapuku (Groper) Dream," pohutukawa and copper, 12 1/4 dia; Hilliard Booth's "Untitled," black cherry, 12 3/4 dia; Melinda Fawver's "Firebird I," ebony and stained glass, 9 3/4 w; and William Moore's "Newcastle," bronze, copper, and maple, 12 dia.