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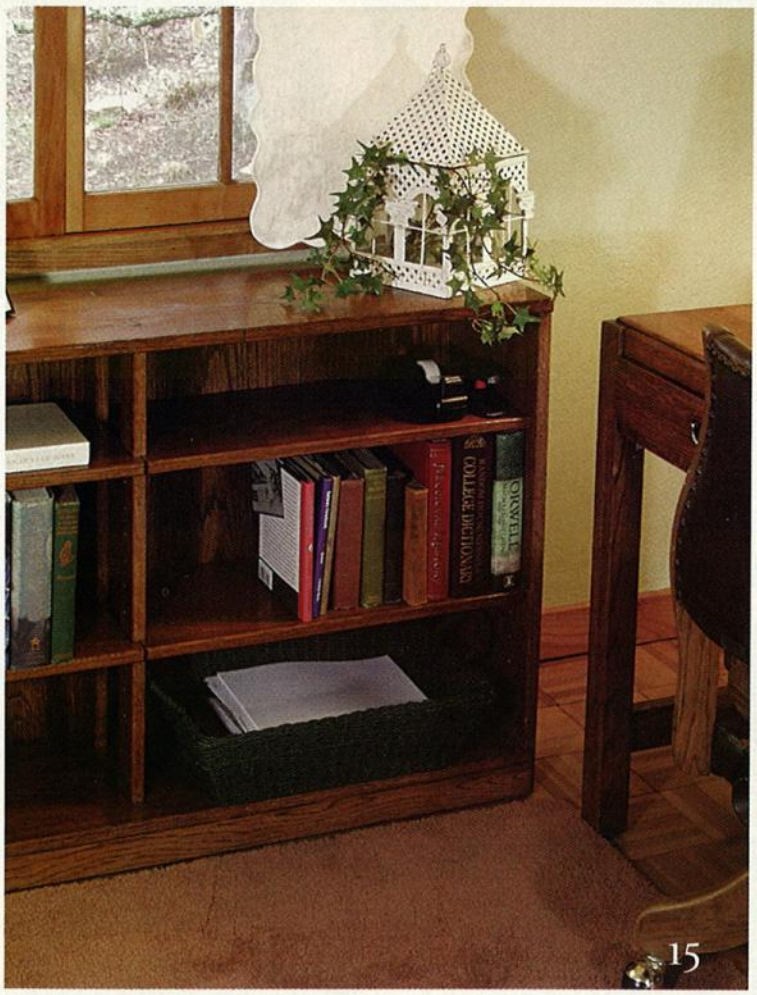

CLOCKWISE FROM LEFT: DOUG STOWE, GEORGE HURON, BRIAN KELLETT

Projects

ON THE COVER
Swing into summer with a lathe-turned vintage baseball bat. Cover photo by Jim Osborn.

Bessey Woodworking Classics

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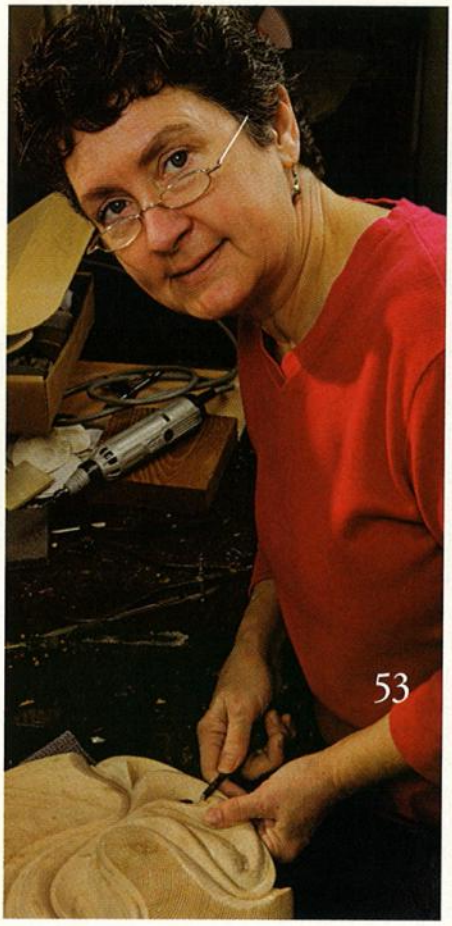
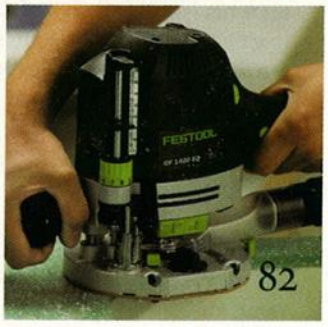




LEFT PHOTO: SHAWN SPENCE/REDUX PLUS

CUTTING IN

Christmas in July

Ho, ho, ho!

You're reading the July issue, but it's still late April as I write this. And, as it happens, the weather outside is frightful: The weekend forecast calls for unseasonably cold temperatures and a chance of light snow. But that only partially explains the holiday spirit of your friendly neighborhood woodworking editor.

No, it's because we're coming up on that time of year when woodworking manufacturers like to introduce most of their new tools and products. And I have to admit that when it comes to the chance to get my hands on new tools, I get more excited than a little boy on Christmas morning opening up a Red Ryder BB gun.

I've already seen some of the great new stuff from Jet and Powermatic, and a number of the other manufacturers are already planning formal roll-outs for magazine editors in the woodworking field. I, for one, can barely sit still.

It's also the time for some of the biggest woodworking shows of the year, like the National Hardware Show and the AWFS Fair (both of which will be held in Las Vegas, where the weather is anything but frightful), along with lots of regional shows. We're talking kid-in-a-candy-store kind of stuff here. We're talking the only thing missing is "Winter Wonderland" playing on my shop radio.

The best part is that as these new goodies come out, you'll be seeing them right here in our pages, and I can't wait to bring them to you. As I've often said to other woodworkers, I think I have the best job in the world.

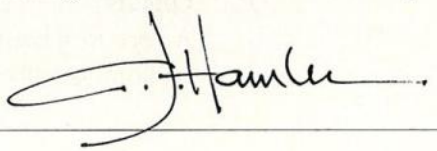
But there's another reason why the sound of jingle bells is in the air around here, and it's one you may not know about. So consider this an early peek under the wrapping paper at a holiday treat coming your way.

Woodcraft Magazine is bimonthly, but we're planing a seventh issue to wrap up the year with a special holiday edition. Look for it to appear right between our regular November 2005 and January 2006 issues. What's so special about it? Well, for one thing it'll be project-heavy; we're still finalizing the lineup, but the issue will have at least twice the number of projects you'll find in one of our regular issues. We'll also highlight a lot more tools and supplies for the shop, with a special section of appropriate gifts for that woodworker in your life (even if that woodworker is you).

A couple of our regular departments that feature reader input will also take on a holiday theme, so here's where you have an opportunity to take part. If you're working on special holiday projects for your home or for gift-giving – or if you've made them in years past – send in your photos for the holiday edition of our Show Off gallery. If you have a shop tip or jig geared to the holidays – a shop-made Christmas tree stand, an electric-cord manager, or a lighting stand would all be good examples – submit your ideas to Tips & Tricks. This special issue will be made even more so if you're a part of it. Keep in mind that to have enough lead time to get the issue in good shape, we'll need to get your submissions in before the end of August, so you'd better get to work.

But hey, if you're like me you're probably already working on it. In fact, you might be just as much in the holiday spirit as I am.

For all I know, you might even be whistling "Winter Wonderland" in the shop.



WOODCRAFT® magazine

July 2005 Volume 1, Issue 4

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Woodcraft Magazine (ISSN: 553.2461), published seven times a year, has applied to mail at Periodicals Postage Rates, which is pending at Parkersburg, W.Va., and additional mailing offices. Published and printed in the United States by Dovetail Media Inc., P.O. Box 7020, Parkersburg, WV 26102-7020. Tel: (304) 485-2647.

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Postmaster: Send address changes to Woodcraft Magazine, 1101 Rosemar Road, P.O. Box 7020, Parkersburg, WV 26102-7020.

Printed in the USA

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BENCHMARKS

Intriguing turned boxes, making pens in Honduras, and Texas furniture makers. **By Sarah Brady**

Canadian Turner Redefines the Box

NORMALLY, A CLOSED BOX leads one to wonder what's inside. But that's not the question springing to the lips of those who see Steven Kennard's work for the first time.

"How did you do it?" is more likely.

Kennard said his small, decorative boxes, mostly turned from African blackwood, draw mixed emotions from their beholders.

"Sometimes people just look and they smile," he said. "One woman came to see them – I was shocked, but she actually wept. But sometimes people will just say, 'Oh, what's that for?' You go from one end of the spectrum to another."

First a furniture maker and antique restorer, Kennard took to the lathe to turn parts for his commissions. His imaginative, intricate boxes crowded out other endeavors, and now he focuses on designing and turning them. Originally from England, Kennard lived

"Teardrop" boxes African blackwood. At left, **"Hat in the Box"** African blackwood, snakewood, stainless steel. 5" x 3" dia.

"Celebration #1" African blackwood, kingwood, boxwood, thuya burl, ivory. 3¼" x 3" dia.

"Fruition" African blackwood. 6" x 3" dia.

"Le Soleil" Cocobolo. 3½" x 5" dia.

STEVEN KENNARD/INNOVATIVE IMAGING STUDIOS

and worked in rural France for several years before moving to the picturesque village of Canning in Nova Scotia with his Canadian wife, Ellie. He works in a converted barn; the second floor houses his and Ellie's photography and print shop, and the first is home to his 45' x 20' woodshop.

Kennard, recently picked up by the renowned Del Mano Gallery in Los Angeles, is becoming a name in turned art. In 2004, his work was represented at SOFA, the Sculptural Objects and Functional Art exhibition in Chicago, which attracts art collectors from around the world.

He recently learned his work will be part of the 2005 show as well. To prepare, he's creating a number of new pieces in his signature style.

"The show attracts a large number of wood art collectors, so you can have your work seen by the people who are ultimately going to buy it," he said. "It's important to make the best of that opportunity."

Kennard's designs suggest fluidity, motion, and many natural and organic processes. Working in isolation in France for several years, he said his style came from "somewhere within." He formulates a design in his head before he starts working.

"Sadly, my ideas usually come in the middle of the night when I'm trying to sleep," he said. "When you start, your mind just goes and goes. It's self-feeding."

His primary wood of choice is one of the best species for fine turning – and also one of the most expensive. He purchases pieces rejected for making instrument parts – for clarinets, oboes, bagpipes. African blackwood is becoming difficult to procure, he said.

"I like to use blackwood because it lends itself to boxmaking. It's a stable wood; when you make a box lid it stays fitting. It's dense, and I'm able to do what I want in terms of surface decoration," he said.

Kennard uses a flexible-shaft carver and small, fine burrs supplied by his dentist to texture the surfaces of some of his pieces.

"Surface decoration is something that I think is really important," he said. "I try and create differences to accentuate one texture over another."

Methodical processes like texturing are just as important as the creativity that gives birth to an original box design.

"You have to have patience. You have to be very meticulous about your working methods," he said. "You're working small; one shaving too many off that lid and it no longer fits – it rattles around. Sometimes you're so impatient because you want to see a result. If you go too fast, or work when you're tired, that's when things go wrong."

Kennard said his goals for the future are the same as they ever were: to try and create unique pieces and advance the box form. His work is on display at the Center for Furniture Craftsmanship in Rockport, Maine, through June 16 as part of the American Association of Woodworkers exhibit entitled "A Nation of Enchanted Form: Woodturning Artists from Across North America."

For more information on Kennard's woodwork and photography, visit *stevenkennard.com* and *iistudio.com*.

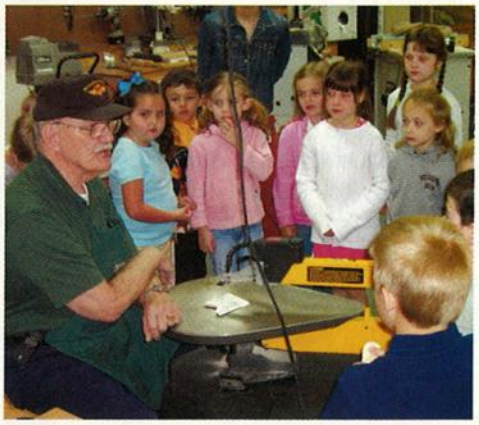
Woodcraft Makes for Unique Field Trip

A GROUP OF TULSA, OKLA. KINDERGARTEN STUDENTS found much to marvel at during a March visit to their local Woodcraft.

Teacher Sarah Stanford had her class study up on basic woodworking tools before the trip.

In the Woodcraft classroom, master scroll sawyer Ernie Einsporn (pictured here) instructed them on shop safety and scrolled a small gift for each student. The group toured the store, amazed at all the intricate tools and differently colored woods.

On the way back to the bus, store owner Allen Chaney asked the group who wanted to woodwork when they got older, and everyone raised their hands.



Pen Kits Donated to Honduran Turners

Among the lush rain forests of Honduras, clusters of local people are becoming versed in the use of traditional woodworking hand tools.

Building chairs, tables, pens and even boats, these artisans are learning to turn their nation's wood resources into a livelihood – and taking an interest in the sustainability of their forests as well.

The 50-odd Honduran woodworkers are part of an organization called GreenWood (MaderaVerde in Spanish, the country's official language). GreenWood is a true grassroots effort to promote forest management through teaching native people appropriate woodworking skills and helping them sell their finished work.

Berea Hardwoods, Woodcraft of Portsmouth, N.H., and Woodcraft Magazine are donating 500 pen kits to GreenWood, to be made into pens with some of the hundreds of lesser-known species of wood found in the local forests.

"We have a large stock of wooden pen blanks in a whole range of wood species," said Scott Landis, GreenWood's founder and director. "We always try to get value out of wood we remove from the forest to support forest management."

The handmade pens, to be turned on foot-powered treadle lathes (as shown in the photo), will be purchased by an organization of foresters in Honduras, which in turn will present them as gifts at a conference. It's just the sort of "creative niche marketing" GreenWood strives for.

For example, GreenWood artisans have produced parts for an American guitar maker and rustic fencing that was installed at Disneyland's "A Bug's Land."

What is it that makes the use of hand tools and traditional woodworking methods "appropriate" for these groups of craftsmen?

"We had observed a lot of other development projects in the tropics," Landis said. "Typically what happens is a large aid agency lays out equipment and spends a lot of money trying to set up a furniture production facility. A lot of them fail for a number of reasons: lack of access to dry wood, no milling facilities, no familiarity with woodworking machinery, lack of access to parts, erratic electricity."

In the early 1990s, Curtis Buchanan of Jonesborough, Tenn., called Landis and said, "I make Windsor chairs, and I don't have any of those problems in my shop."

That comment was the seed of an idea that grew into GreenWood, starting with workshops in Honduras led by Buchanan and another well-known

traditional chairmaker, Brian Boggs of Berea, Ky.

"We started with chairmaking because it uses green wood and employs hand tools," Landis said. Finished furniture products, most of which are sold in Honduras, include side chairs, armchairs, rocking chairs, settees and tables. They are based on the post-and-rung Appalachian style, using local bark for seats and backs.

The organization has been growing steadily over the last decade, now employing five permanent staff members in Honduras. Some of the workshops are operated by GreenWood, and some are operated by the artisans themselves, many of whom have become instructors.

"Some of our artisans' parents are people who work in the fields with machetes and grow corn and rice and beans. They're subsistence farmers," Landis said. "These artisans have an opportunity for another life. They have their own shops, and some of them have employees.

"Our artisans are a cottage industry dispersed in a number of villages," Landis said. "From our perspective, one of the best ways to conserve forests is to empower the local people. If they derive their livelihood from it, they will have an interest in maintaining it."

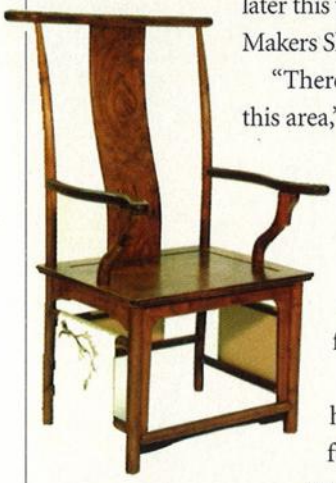
HOW YOU CAN HELP

Do you want to help GreenWood's efforts by making a tool donation? Here is a list of items needed. They can be new or used, but must be in decent working order. Please write to Scott Landis at 80 Academy Street, South Berwick, ME 03908 if you are interested in contributing.

- Drawknives of any size
- Spokeshaves (& replacement blades)
- Inshaves, scorps, etc. for chair seats
- Bit braces and "eggbeater" drills
- Auger bits in standard sizes: 1/4", 3/8", 1/2"
- Dead-blow hammers/mallets
- Turning tools (gouges and chisels): standard sizes, with enough steel on them to be worth sharpening
- Hand planes (mainly block and jack) and replacement blades
- Hand-crank grinding wheels
- Sharpening stones (these are generally new or in excellent condition)
- Good files and rasps (ditto)

SCOTT LANDIS, COURTESY GREENWOOD

Texas Furniture Makers Show in its Sixth Year



TUCKED INTO THE TEXAS HILL COUNTRY, the Kerr Arts and Cultural Center will be the temporary home of some of the state's finest furniture later this year. The sixth annual Texas Furniture Makers Show will take place Oct. 28 - Dec. 5.

"There are a lot of artists and craftspeople in this area," said Jim Derby, KACC president. "The exhibitors are hands-on people, very creative. And everything is handmade. These people have studios, not factories."

The popularity of the show increases from year to year, attracting excellent entries from all over the state. Only 70 pieces of furniture will be accepted for this year's show.

"The purpose of the show is to showcase the work of Texas furniture makers and have them teach others," Derby said. "Ultimately we hope to improve the quality of Texas furniture making, and introduce the furniture makers to new people who might give them a commission."

Exhibitors are eligible for a number of awards, including Best of Show, Most Whimsical, and Best Classic Reproduction. Last year, $3,500 in cash prizes was awarded. Shown here are last year's Best of Show, "Ladies' Writing Desk & Chair" by Rex White; Honorable Mention, "Brazilian Cherry Bench" by Fred Thompson; and Best Use of Materials, "Yoke Back Chair" by Joe David Farmer.

The three judges are well-known professionals in the furniture and design worlds.

This year, for the first time, entrants may choose the Novice class of entries, if they have never been juried for a show before.

Woodcraft stores of Texas co-sponsor the exhibition, along with the KACC.

The deadline to apply is Sept. 1. Applicants must be Texas residents. For more information, email *kacc@kacckerrville.com.*

Win a Basic Set of Pfeil "Swiss Made" Bench Chisels

Tell us what you think about this issue of Woodcraft Magazine and you'll get a chance to win a four-piece set of Pfeil chisels (in ¼", ½", ¾" and 1" sizes). Three respondents will win one set each. Our short online survey should take about 10 minutes to complete, and you'll automatically be entered in the drawing. The survey can be found at *woodcraftmagazine.com/survey*.

Woodcraft Magazine wants to receive information on news and events of interest to woodworkers. Send your news items and high-resolution photos, along with your contact info, to:

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ASK THE EXPERTS

Get It Straight on Curly Wood

Q: We all love curly wood grain. One of the most interesting features of this grain is the light-to-dark shift of color when the direction of lighting changes. I usually associate this effect with grain that is distorted, like the grain around knots. I recently discovered that the lighter shades of Lyptus will do this when finished, even though the grain is straight and undistorted. What causes this effect, and is there an official name for it?

Udo Schmidt responds:

Curly figured grain is a rare abnormal growth pattern of a tree. This growth occurs in a wavy or corrugated rather than a straight pattern. It can happen with any species, but maple, ash, birch and walnut are more prone to this irregular growth. The curly grained wood is not visible on the outside of a living tree – there are no bulges, flutes, or other bark irregularities.

The changes from dark to light wood result from differential light reflections. The darker bands have higher light absorption from the wood fiber ends, and the lighter bands are the reflections from the cell walls. Because cell walls are curved, either concave or convex, the light reflection shifts from different view angles. Even though the surface of curly wood is flat and smooth, the different light reflections of the wood cells give it a three-dimensional appearance.

Now, to answer the part of your question specific to Lyptus: Lyptus is a trademarked hybrid species of *Eucalyptus grandis* and *Eucalyptus urophylla* developed by Aracruz Wood Products in Bahia, Brazil and distributed in North America by Weyerhaeuser. These trees reach heights of 140' and a diameter of 2'-3' in 15 to 18 years. Lyptus lumber has the density of hickory and the surface appearance of mahogany.

Curly grain can occur in Lyptus in two ways. First, it can occur like maple with a corrugated growth pattern, in which the waves or curls run perpendicular to the grain. Second, it can occur parallel to the grain. Tropical woods do not have annual growth rings like native woods, but some species produce a clear growth ring due to seasonal changes in climate, such as rainy or drought seasons. This causes the growing tree to produce a band of fast-growing early wood and then a slower, denser band of late wood. Any log cut into lumber produces a small number of quartersawn boards, meaning the growth rings on the endgrain surface range from 60-90 degrees. Because Lyptus is a very fast-growing wood, these bands are unusually wide, and the lighter early wood reflects the light differently from each angle. Wavy or curly appearance in this instance runs parallel to the grain.

Udo Schmidt spent 12 years in the lumber export industry kiln drying wood before starting his own cabinet shop. He is the author of "Building Kitchen Cabinets."

The Straight Story On Tapered Boards

Q: I'm getting a slight taper on every board I run through my 6" jointer. I've been flipping the board end-for-end to correct the taper on subsequent passes, but would prefer a permanent fix.

A.J. Hamler responds:

Unintentional tapering of a workpiece is one of two problems that occur when the height of the outfeed table of a jointer needs adjustment. Here's what's happening in your case: As you run the edge of the board across the cutterhead, there comes a point when the majority of the board is resting on the outfeed table. At this point, the trailing edge of the board begins to lift from the infeed side, actually raising the board above the cutting arc of the knives in the cutterhead. (You may have noticed that as you joint the edge of a board, the cutterhead makes more noise on the front portion of the board than the rear portion.) The end result is that by the time you've passed the whole board over the cutterhead, it may not be cutting the rear portion of the board at all.

The other cutting error is snipe at the end of the board, which occurs when the outfeed table is too low. When the end of the board is no longer supported by the infeed table and the outfeed side is lower than the cutting arc of the knives in the cutterhead, your board suddenly drops into the cutterhead, creating a gouge called snipe.

Fortunately, one fix cures both problems – simply adjust the outfeed table so it is level with the top of the cutting arc of the cutterhead knives. Unplug the jointer, rotate the cutterhead by hand (use a piece of scrap wood – the knives are very sharp), and stop it with one of the knives at the top of its cutting arc. Lay a reliable straightedge on the outfeed table and adjust the outfeed table height until the straightedge just kisses the edge of the knife. Lock down the table and you should be good to go.

A.J. Hamler is Editor-in-Chief of Woodcraft Magazine.

Straight Up on Matching Stains

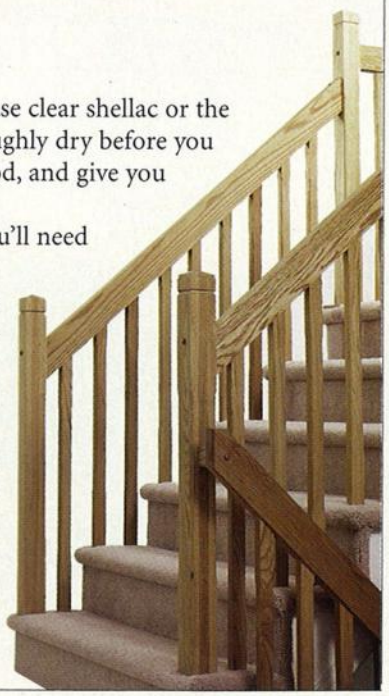
Q: We stripped the paint from the balusters of our staircase with the intention of staining them to match the light mahogany color of the handrail. To our dismay, the thin balusters are pine and the thicker ones are redwood. We can't find a way to get an approximate match between the various woods.

Mac Simmons responds:

One way of doing this is to seal the woods before staining. For a sealer, you can use clear shellac or the same coating that you will eventually use over the stain. (Be sure the sealer is thoroughly dry before you apply the stain.) A sealer will prevent the stain from completely penetrating the wood, and give you more control of the final color.

Then buy a stain that's as close as possible to the color you're trying to match. You'll need to do some testing by reducing the color strength with the proper solvent to get the closest match you can. You can ask the salesperson or look at the label on the can to find out what solvent the manufacturer suggests you use for cleanup. Use that same solvent to dilute the color.

It's best to do your testing on scrap material of the same species – in your case pine and redwood – but if that's not possible then test in an out-of-the-way spot on one of the balusters. Once you've achieved the mix that matches best, resand the balusters you used for testing (don't forget to reseal them if necessary), and then do all your staining at once.



Mac Simmons is a 45-year veteran of the furniture finishing, refinishing and restoration trades, and writes for several woodworking magazines. His book "Fearless Finishing" is scheduled for publication by F&W Publishing.

PROJECT NUMBER 12

{ PROJECT *no.* 12 }

HAND-CRAFTED DETAILS

STATE YOUR CASE

BY DOUG STOWE

Which is better, furniture made with hand tools or power tools? That may be an ongoing debate in woodworking circles, but this bookcase, inspired by – and designed to complement – the clean lines of an old Craftsman-style writing desk, finds a perfect balance in the use of both.

Dovetails and mortise-and-tenon joints are techniques that have a well-deserved association with quality work. If you visit museums and look at furniture made over 500 years ago, you won't be surprised to see dovetails and mortise-and-tenon joints holding things together. Now we have faster, more accurate ways to cut these joints with router jigs, but when making just one set of joints, a combination of hand and power tool techniques can compete head-to-head with the jigs, give greater pride in the finished work and put some of the pleasure of handwork back in the making of things. You will need to invest some time in practice with the saw, but pride in your work will grow along with your level of skill.

When we created a new office space in our home, my wife Jean wanted a bookcase made to match a much-loved Craftsman-period desk that she bought used long before we met. We decided that the bookcase should be the same height as the desk so the top surface of the desk and bookcase would work well together visually. I chose through dovetails and mortise-and-tenon joints as the primary means of construction, not to match any particular features of the desk, but to build in the best available construction techniques. The desk has lasted more than 80 years with excellent care and some minimal repair. The use of dovetails and mortise-and-tenon joints will assure that Jean's bookcase will last as long as it is cared for and found useful. The simple beauty of hand-cut joints will assure that it *will* be cared for.

Getting started

Set your marking gauge to very slightly wider than the thickness of the stock being joined as in **Fig. 1** to allow for just a bit to be sanded flush after assembly. (An additional 1/32" is usually sufficient.) Use the marking gauge to mark the ends to be joined on both sides **(Fig. 2)**.

I like to double up the end boards to cut both sets of dovetails at the same time. This not only ensures that the left and right sides are perfectly matched, but also allows you to see more clearly that the cuts are being made square to the stock. First, clamp the boards

DOUG STOWE

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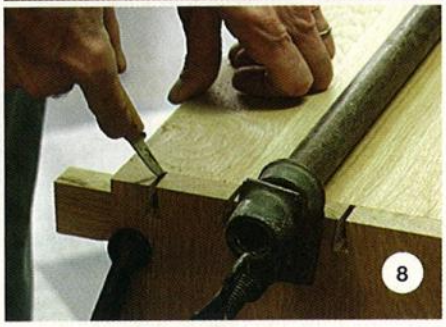
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together with the edges aligned and face sides out. Mount them as a pair in a vise, being careful that the ends are level. Measure for the placement of the spaces between the dovetails, and use a square and pencil to mark for the cuts **(Fig. 3)**. I try to keep the size of the space between the dovetails small to minimize the amount of chiseling. Also, small pins are a classic look for hand-cut dovetails, and will never be mistaken for the routed variety, which have to be at least wide enough for the router bit to pass through in making the cut. Using a carpenter's square, set up a bevel gauge blade angle from the ½" mark to the 4" mark on the other leg of the square. This will give a 1:8 ratio, an ideal angle for use with hardwoods **(Fig. 4)**. Mark on both sides of the stock down to the line made by your marking gauge earlier **(Fig. 5)**. The pencil mark on the back side gives some assurance that the cut through the full thickness of both sides hasn't wandered and doesn't require additional attention from the chisel prior to marking the pins.

Cutting the dovetails

Use a dozuki saw or backsaw to cut down to the marking gauge line as in **Fig. 6**, checking both sides to see that the saw has gone to the full depth.

To remove the waste between cut lines, I use a rather quick and aggressive technique. Keeping slightly outside the marking gauge line, chisel down, then at an angle from a slight distance away to remove a chip. The second chisel cut will go deeper, and the third will go at least to the center of the board. Then turn the board over and do the same from the opposite side. On the second or third strike you will feel as the cut loosens the chunk of wood between the cut lines. I use scrap wood under the board to prevent unnecessary chisel cuts into the top of my workbench. At this point, place the chisel in the marking gauge line for final cleanup **(Fig. 7)**. Angle the cut very slightly in towards the center of the stock. The important point in the success of this technique is to keep the preliminary cutting shy of the marking gauge line. If you cut right on the line the chisel can pull into the cut, distorting the marking gauge line and giving a poor fit to the pins. Leaving material at the marking gauge line for final cleanup allows the chiseled marking gauge line to be precise.

Marking the pins

I use a simple technique to hold the dovetailed parts in position for marking the pins. Clamp pieces of wood along the lines scribed on the inside of the bookcase ends. Rest the bookcase top in position on the pieces of wood and use a bar clamp to hold the parts tightly in place. Then, use a marking knife to scribe along the dovetails, transferring their positions onto the ends of the bookcase top as in **Fig. 8**. Use of the marking knife rather than a pencil is crucial to having a precise line for making a precise cut. Next, use a square and pencil to mark the end grain for an additional guide, and use the gauge to mark the depth of cut lines on both ends, and on the face and back sides.

Cutting the pins

Use the dozuki saw or backsaw to cut along the scribed lines as you did before. After the lines forming the pins are cut, the power-tool aspect of the work comes into play. I use a plunge router to speed up the process by precisely hogging out the large amount of material between the pins. The time saved in chiseling makes this small accommodation to power tools worthwhile. With the router turned off, adjust the fence so that the cutter lines up exactly with the marking gauge line as shown in **Fig. 9**. I use a ⅜" spiral cutter. Mark start and stop lines to guide your routing, and gradually lower the router into the cut as you move it back and forth between the lines to clear most of the waste. Use a chisel to break out the chunks **(Fig. 10)**, and then chisel into the corners to finish the pins **(Fig. 11)**.

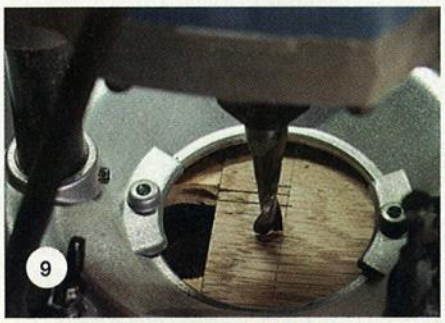
Then check the fit. Rather than force them together at this point, I just inspect them closely to anticipate problems in assembly as in **Fig. 12**, and then go to work on the mortises and tenons to attach the bottom shelf.

Cutting the mortise-and-tenon joints

I used the plunge router again for roughing out both the mortises and tenons for Jean's bookcase. Start by marking the tenons on the bottom shelf board and on the bookcase ends. Careful layout at this point is very important. Adjust the fence on the router so that a tongue will remain when the tenons are cut. Adjusting the position of the fence on the router is the hard part and requires first measuring the amount of space between the pins on the top of the bookcase to determine exactly how long the tenons will need to be cut, as this is important in making the bookcase square.

I used a marking gauge to mark the tenon length on each end and both sides of the bottom board, and then adjusted the fence so that the cutter would pass ¼" shy of the marking gauge line, forming a tongue on the non-tenoned portion of the board. Use the router to remove the stock between the tenons first **(Fig. 13)**. Change to a ½"-diameter spiral cutter and rout the mortises from the face sides of the end boards **(Fig. 14)**. You won't rout all the way through; stop the plunge cut with just less than ¼" of wood remaining on the underside of the cut. This is to allow for chiseling the mortises square while plenty of backing material is present to keep the mortises from tearing out on the back side of the cut. Use a 1"-wide chisel to begin squaring the mortises **(Fig. 15)**. I align the blade along the cut line and use it as a guide for cutting into the corners. Next use a ½" chisel on the ends of the mortises to finish the cut.

Turn the end boards over to rout the insides for the bottom shelf to fit **(Fig. 16)**. Raise the depth of the plunge so that the bit cuts only ¼" deep, or the depth of the tongue left on the bottom shelf board. Change to a 1" or 1¼" straight router bit to finish forming the tenons on the bottom shelf board. Lower the cutter in increments and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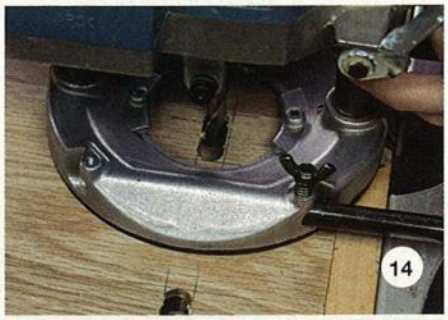
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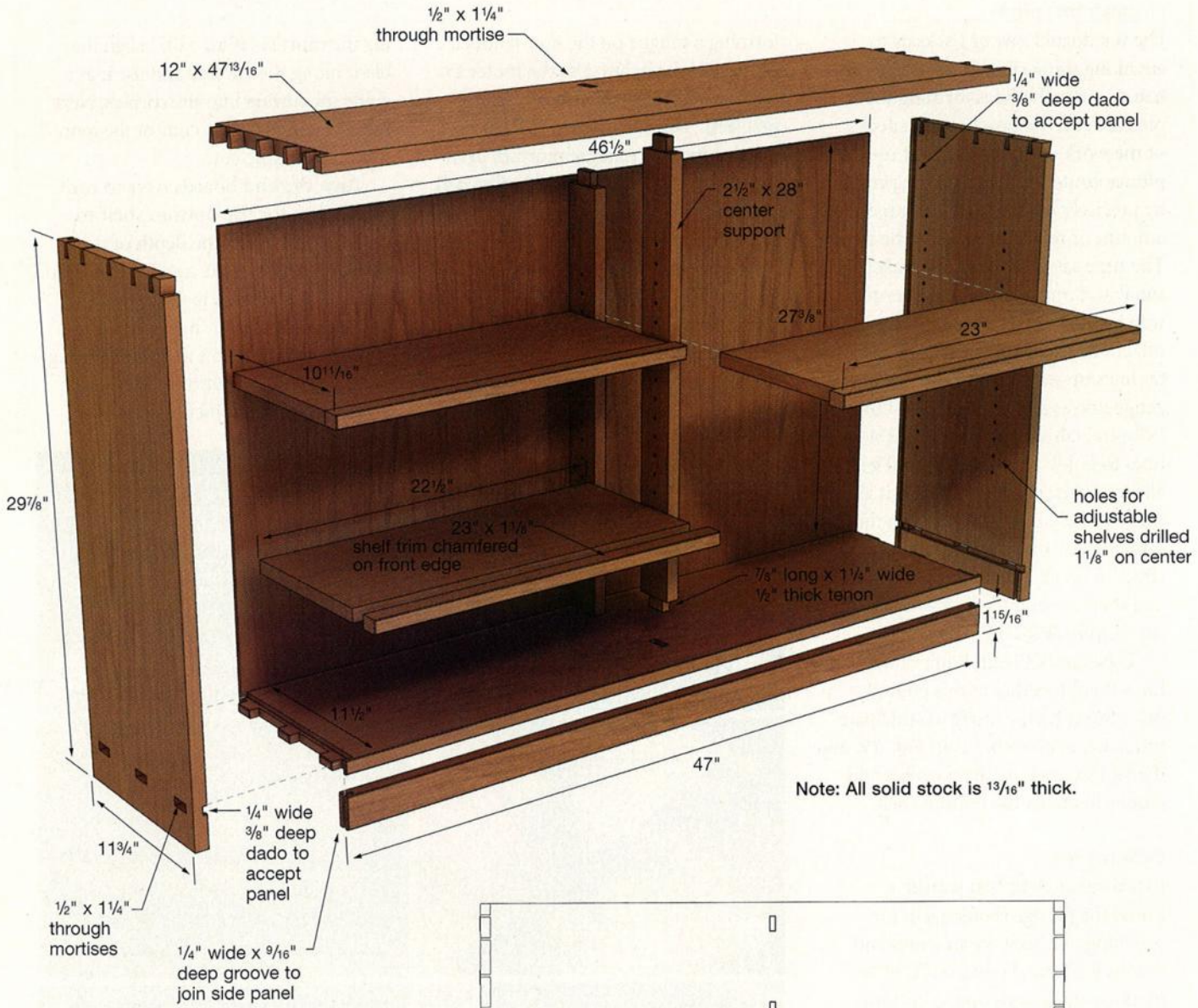
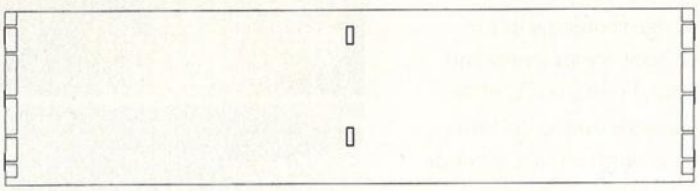


Note: All solid stock is ¹³/₁₆" thick.



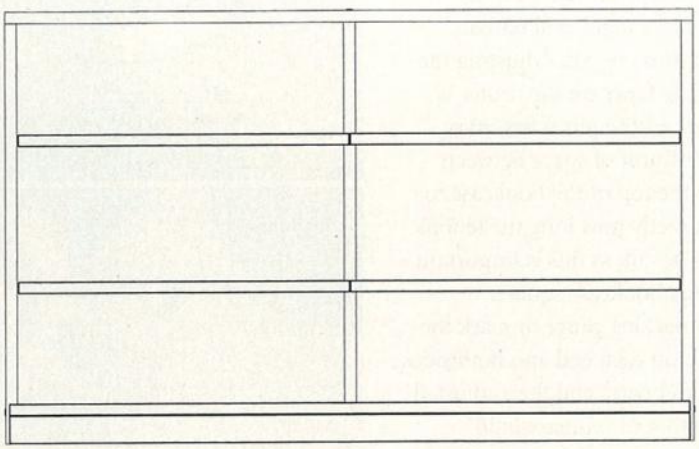


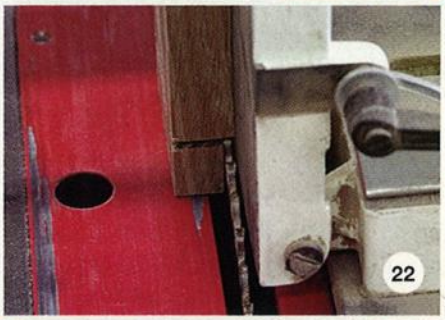
ILLUSTRATION: SHANE WIERSMA

check with a dial caliper to adjust the fit to the size of the mortises **(Fig. 17)**. Next use the dozuki to saw the lines forming the tenons as before. Chiseling into the corners of the tenons will be required and using a chisel to cut square into the corner left in routing will come later.

Fitting the center shelf supports

Now that the space between the top and bottom is clearly defined on the bookcase ends, measure the distance between the cutaway space of the dovetails, and the top edge of the mortises. This distance, plus the 1¾" length of the tenons, will be the length to cut the center supports. If your bookcase will be used only for light items, the hardwood shelves could span the full interior length of the bookcase, and the center support could be eliminated. However, I expect this bookcase to carry a heavy load of books, and dividing the span to two 23" sections will not interfere with its usefulness.

Measure and mark the center of the top and bottom boards, then mark lines from front to back ¼" on each side of center. Then, measuring from the front of the bookcase, mark the tenon locations for routing. After marking the locations for the mortises, put the plunge router in place and trace around the router base to mark for placement of a guide board. Clamp a guide board from front to back on the bookcase top, and using the ½" spiral cutter in the plunge router, move back and forth between the lines to cut the mortises in the top **(Fig. 18)**. Next chisel the mortise's corners square to fit the tenons **(Fig. 19)**. Repeat this operation to cut the mortises in the bottom shelf.



Routing for the back to fit

Use a ¼" straight bit in the plunge router to rout the two sides and top for the ¼" oak-veneer plywood to fit **(Fig. 20)**. By routing on three sides and using screws to secure the bottom, the plywood can be removed if repair is ever required, and being securely housed in a dado will prevent what happens to many bookcases where books pushed against the back of the case may push nails out and loosen the back panel.

Cutting the tenons

Next, cut the tenons on the ends of the center shelf supports. Use a sled on the table saw to cut around the perimeter of the tenons. Use a stop block to control the position of the cut **(Fig. 21)**. Then finish forming the tenons using a tenoning jig on the table saw as in **Fig. 22**. Keep the same side against the jig for both cuts forming the thickness of the tenon, by widening the distance between the jig and the blade to cut the opposite side. This will ensure the best possible fit of all four tenons. In cutting the tenon to final dimension, you can avoid having large chunks thrown back by cutting only partway through, leaving the piece still attached so it can be removed by hand **(Fig. 23)**.

Fitting the base trim

I put a base trim in the front of the bookcase for two reasons. First, the trim teams up with the back panel,

mortise-and-tenon joints and dovetails to keep the bookcase from racking under weight, holding the sides and top and bottom shelf perfectly square at all times. Second, it helps bear the load of the center supports. Rout the ends of the bookcase with a ¼" straight bit **(Fig. 24)**. Then use the table saw to cut a matching slot in the ends of the base trim, using the tenoning jig to hold the board vertical through the cut as before. A snug fit with glue will help to hold the sides and top and bottom square **(Fig. 25)**.

Drilling for the shelf supports

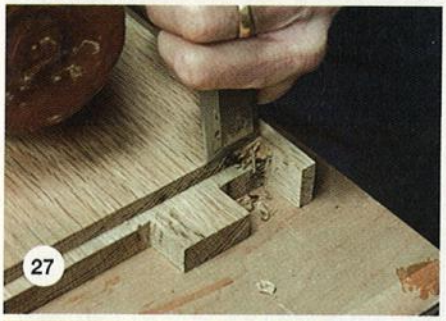
To make certain that all the holes for shelf supports are perfectly aligned, carefully mark the locations on the sides and center supports. Using the drill press prevents drilling too deep, while a reference line on the drill-press fence gives a point of alignment. Drill the bookcase sides as in **Fig. 26**, then the holes in the center supports.

Routing and last details

To prepare for assembly, use a chisel to remove the last bit remaining in forming the tenon on the bottom shelf **(Fig. 27)**, then cut the bottom shelf as shown in the drawing to only partially overlap the bookcase ends and align with the base molding **(Fig. 28)**. Cut the shelves to length and add the edge trim pieces to the front edge so they half overlap the center supports as shown in the drawing on page 18. Glue and clamp the edge trim till dry, then use a 45-degree bit to chamfer the edges on the upper and bottom shelves and on the outsides of the bookcase ends.

Sand all the parts prior to assembly. I begin with 150-grit paper in a random orbit sander and work through intermediate grits, finishing with 320-grit.

Inevitably you'll have some fine fitting to do with the dovetails and mortise-and-tenon joints, so do a trial assembly of each joint to make certain they'll go together without requiring force. Slightly chamfer the ends of each tenon prior to assembly. This will help them to slide into a perfect fit and simplify the assembly process.



First fit the center supports in place between the top and bottom, then apply glue to the pins and tenons and tap the ends in place as in **Fig. 29**. Next, apply glue in the dado at the ends of the base trim and slide it into place. If your dovetails and tenons fit well, clamping won't be required. Measure from corner to corner across the front and back to be certain the bookcase is square. If the measurements aren't exact, the bookcase can be racked slightly one way or the other to adjust it for square. Do this now, however, because it won't be possible once the glue has dried.

Add the base trim, putting a small amount of glue in the mortise before assembly, and a small bead of glue along the edge where the base meets the bottom shelf. Clamp in place **(Fig. 30)**. Note that some preliminary routing was done before assembly and that the tenons were shaped slightly on the corners **(Fig. 31)**. These operations would be more difficult to accomplish on the assembled piece. After the glue has dried, the dovetails can be sanded down flush with the top and

sides. Final sand up to 240-grit sandpaper to prepare for staining.

Staining and finishing

My wife's request that the bookcase match the color of the desk was a challenge to meet. Normally, I prefer to use woods in their natural colors and thereby avoid the complications involved in finding an exact combination of stains and finishes to achieve a perfect color tone.

Finishing is as much an art in woodworking as cutting dovetails. Stains have different effects on different woods, and what you end up with most often has very little resemblance to chip charts or samples at the store. It's best to approach finishing systematically, by preparing a wood sample and applying various stains and finishes before taking chances you might later regret. I keep a small collection of wood stains left over from previous projects that provide a palette of colors to work from. The best match was Minwax red mahogany stain finished with two coats of amber shellac, the fourth sample from the left in **Fig. 32**. That red mahogany stain on oak would be part of the mix surprised me, as it wasn't my first guess. Sometimes finishing is an art, sometimes a science, and sometimes just dumb luck, but it is always an adventure. Without the test piece to reassure me, staining first in red mahogany would seem a very risky thing.

Leave the back panel off until finishing is complete to get better access to all the surfaces. Sand, finish and attach the back panel after all other steps are done.

Jean's bookcase is the perfect complement to her Craftsman-period desk, and the small amount of extra time spent on the dovetails and mortise-and-tenon joints will pay off in many years of service and beauty.

CUT LIST

Top	13/16"	x	12"	x	47 13/16"
Bottom	13/16"	x	11 1/2"	x	48
Sides (2)	13/16"	x	11 3/4"	x	29 7/8"
Center supports (2)	13/16"	x	2 1/2"	x	28"
Base trim	13/16"	x	1 15/16"	x	47"
Shelves (4)	11/16"	x	9 9/16"	x	22 1/2"
Shelf edge trim (4)	11/16"	x	1 1/8"	x	23"
Back panel	1/4"	x	27 3/8"	x	46 1/2"

Note: All components are white oak, except the back, which is red oak plywood.

Doug Stowe

A 30-year maker of furniture and wooden boxes, Doug Stowe teaches at the Clear Spring School, Arrowmont, Marc Adams School and the Eureka Springs School of the Arts. His most recent book is "The Complete Illustrated Guide to Box Making."

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Amateur woodworkers are invited to enter their wall cabinet projects by submitting photos online at **www.woodcentral.com** before the contest deadline of **July 1, 2005**. Wall Cabinets would include free-hanging cabinets such as medicine cabinets and knick-knack units. An amateur is defined as one who makes less than 25% of his/her income from woodworking. Entries are limited to wall cabinets completed from July 1, 2004, to July 1, 2005, and not previously entered in a woodworking competition.

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PROJECT NUMBER 13

{ PROJECT *no.* 13 }

HIT THIS PROJECT OUT OF THE PARK

BY KEN WEAVER

When we say, "Take me out to the ball game," we're not talking about action on a modern field. This project to make a vintage baseball bat will take you back to the turn of the century – and we mean the last one, not this one.

bat: (noun) a usu. wooden implement used for hitting the ball in various games.
– *Merriam-Webster's Collegiate Dictionary*

In the early years of baseball, around 1845, bats were homemade, rough-cut with an axe and finished on a shaving horse using a drawknife. With no official regulations on their construction, bats were made in all sizes and shapes. Some were as short as 24", while others were as long as 48" (allowing an unbelievable 8' swinging arc!).

Early bat makers experimented with curved bats, bats with a narrow slit cut down the center, and even flat bats. If you didn't have the means to turn a bat back then, players weren't picky – a cut handle from a rake or a pitchfork would do just fine. In short, a player could use just about anything he wanted.

Early regulations entered the scene in 1859, but even they weren't that strict: Barrels were limited to 2 ½" in diameter, but players could still use any length they desired. Ten years later the bat length was limited to 42", and in 1895 the maximum barrel diameter was increased to 2 ¾". Bats weighed in the 24-48 oz. range (today's bats weigh about 33 oz.), and cost around 25-40 cents for an unfinished bat and up to 85 cents finished.

While regulations were beginning to govern bat size, they didn't limit creativity. Some bats were adorned with decorative shapes on the bat knob, such as a mushroom, a carved baseball or an acorn. One of the most unique bats that appeared in the early 1900s was the double-knob, also known as the double-ring handle, that had a standard knob at the end and second knob 6" above that. This bat was favored by such greats as Ty Cobb (Detroit Tigers, Philadelphia Athletics), Nap Lajoie (Cleveland Bronchos and Indians; Philadelphia Phillies and Athletics), and Honus Wagner (Louisville Colonels and Pittsburgh Pirates). This is the bat we'll make for this project.

JIM OSBORN


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In the years of the transition from the horse and buggy to the automobile, tongues from wagon wheels were a perfect source of bat blanks and it was not uncommon to see ads soliciting the public to make bats. The first bat patent was issued in 1864, while the first manufactured bat came 20 years later in 1884. The first baseball bat factory and trademarked bat were established in 1887.

Getting on deck

Bats have been made from many types of wood, including ash, oak, maple and hickory. As the years went by, the players found that a bat made of ash would hit the ball best. Ash makes a medium-weight bat which allows a batter to swing at the advancing ball quickly. This became important as the speed of the pitch increased.

As you plan your bat, first determine whether you want to make one for actual use, or for display purposes; this will help you decide what species of wood to turn. We'll be turning ash in this project, but if you plan to display your finished bat, you can use just about any wood at all that would make for a handsome showpiece.

Start with a turning blank in your chosen wood **(Fig. 1)**. Ready-made blanks are available from a number of sources in both square and rounded stock, or you could have one cut to order at your local lumber supplier.

Find and mark the center of each end of the blank **(Fig. 2)**. Then set your lathe's spur center on your marks and tap it firmly into place with a mallet **(Fig. 3)**. (You could also cut a pair of ⅛"-deep grooves following the centerlines you marked, for easier mounting with your spur center already in place on the lathe.) With the blank now mounted on the lathe, check that it's secure between centers **(Fig. 4)**.

(Note: For easier turning, you might want to remove the four corners of the square blank and create a roughly octagonal shape before mounting on the lathe. You can use a band saw or hand saw before mounting.)

Roughing into first

At this point, you can move the tool rest into place and begin roughing the blank into a cylinder using a gouge. I usually run my lathe between 600-1,000 rpm for this step **(Fig. 5)**. For the double-knob bat we're making here, the cylinder will be a maximum of 2⅜" at the barrel end, so rough your entire blank to about ⅛" above that diameter. Using a caliper, check frequently to be sure you don't remove too much waste **(Fig. 6)**. While it's generally best to keep the thickest portion of your


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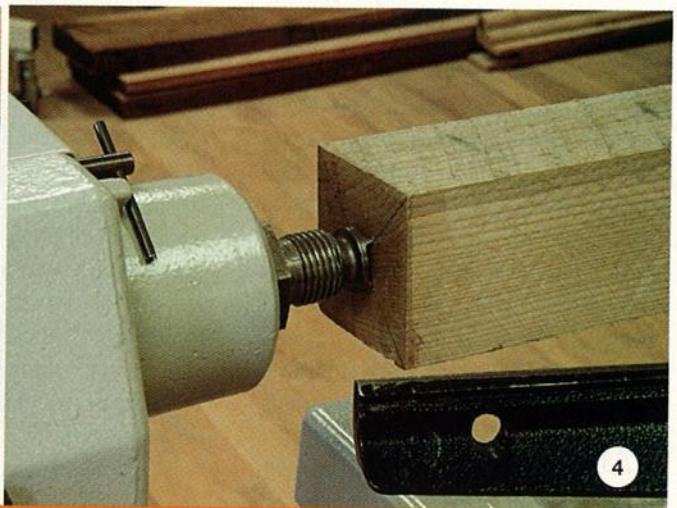
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PROJECT PHOTOS: A.J. HAMLER

turning – the barrel end of the bat, in this case – near the headstock, if you should inadvertently take off too much from the headstock end, you can simply plan to make that end of the blank your handle instead.

Keep working the blank until it has been turned to a uniform diameter.

Shaping into second

The next step is to decide on what style or profile bat you want to produce. Here's where you can be creative or follow a certain era's specifications as mentioned at the beginning of the article.

You can enlarge and cut out either of the profiles pictured on page 27 to make a turning template, or come up with a similar profile of your own. If making your own, draw a sketch with dimensions at key transition points or even better, make a profile cutout to follow.

As already stated, the double-knob bat we're making here measures 2⅜" in diameter at its widest point; overall length is 35". Starting from the barrel end, our bat tapers very slightly – only ⅛" – over the first 8". From that point it tapers a bit more steeply to a diameter of 2" at the 12" mark, 1⅜" at 18", down to 1 1/16" at the 25" point. From there to the front of the first knob the shaft remains a uniform 1 1/16". The handle portion between the two knobs flares very slightly from 1 1/16" just behind the first knob, to 1⅛" just in front of the second. The front knob is 1 11/16" in diameter at its widest point, while the end knob is 1¾".

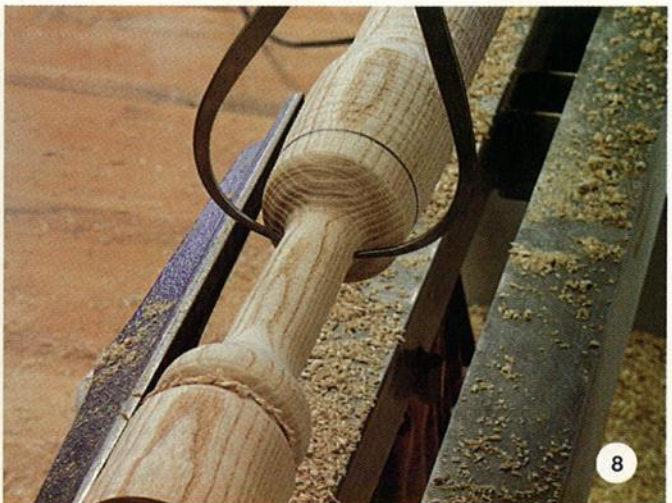
Remember to start and end your profile about 1" from the blank ends (if you have a very long blank, it's all right to leave more than 1"). Using a caliper and pencil, transfer your key transition points that will define the shape of your bat to the blank, as in **Fig. 7**. Now you're ready to start making your own piece of baseball history come to life.

Turning into third

Using a caliper frequently to check your progress, cut on these lines to the diameter, plus about ⅛". As the double-knob handle is the most intricate part of this bat, we've elected to start on the handle end **(Fig. 8)**.

Begin to shape your profile between the handle and the rest of the barrel using the roughing gouge **(Fig. 9)**. I usually run my lathe between 1,000-1,800 rpm for this step.

Once you've completely roughed the shape of the bat profile, increase the lathe speed and use a skew along with the calipers to finish turning the bat. I usually run my lathe up to 2,600 rpm for this step.

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Finishing into home

When you're satisfied with shaping, proceed through increasing grits of sandpaper to arrive at a nice, smooth surface **(Fig. 10)**. The last step before removing your bat is to burnish the surface. Do this by gently but firmly rubbing several handfuls of shavings across the spinning surface as in **(Fig. 11)**. You'll actually be able to see a shine developing on the wood.

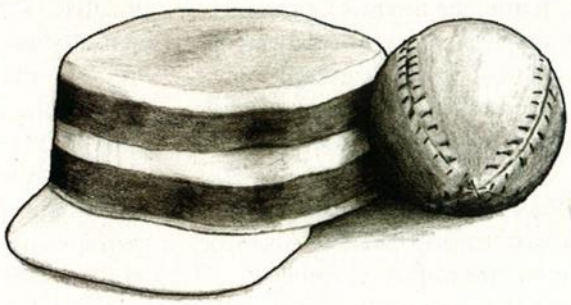
Using your parting tool, turn the waste at each end of the spindle to ¼" or so as in **Fig. 12**, then remove the bat from the lathe. Cut off the waste tips at the ends, and hand-sand and smooth the cutoff nubs from the ends.

I like to stain my bats and seal them with a coat of paste wax. But with historical reproductions, you can arrive at a final finished look and still be true to the originals. In the case of your new bat, you can top it off with a plain linseed oil, tung oil or Danish oil finish. You can stain it if you like, or even paint it. Of course, you can always just leave it natural.

MATERIALS

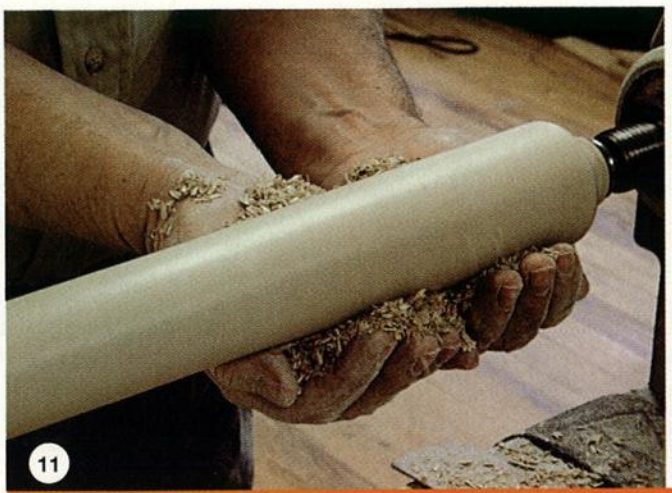
Ash 3" x 3" x 40" bat blank, #125850, $26.99

Source:
Woodcraft Supply
(800) 225-1153
woodcraft.com



Ken Weaver

Ken Weaver's company, K&P Weaver, is one of the country's foremost providers of authentic historical baseball uniforms and gear. Weaver does special projects for the National Baseball Hall of Fame, and supplied the uniform of the ghost of Babe Ruth for the HBO documentary, "The Curse of the Bambino."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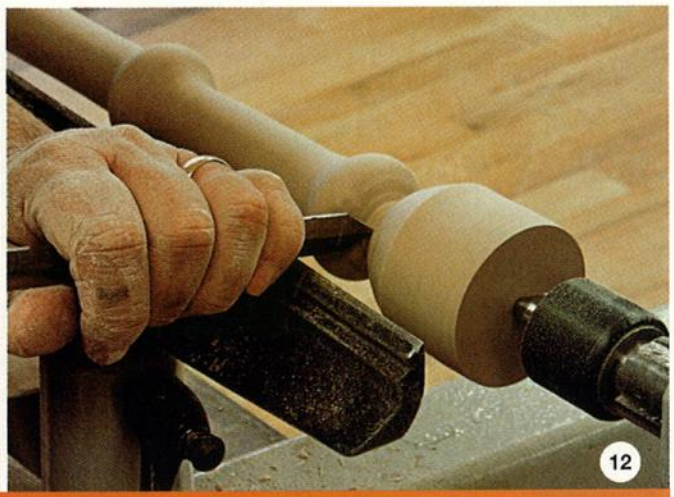
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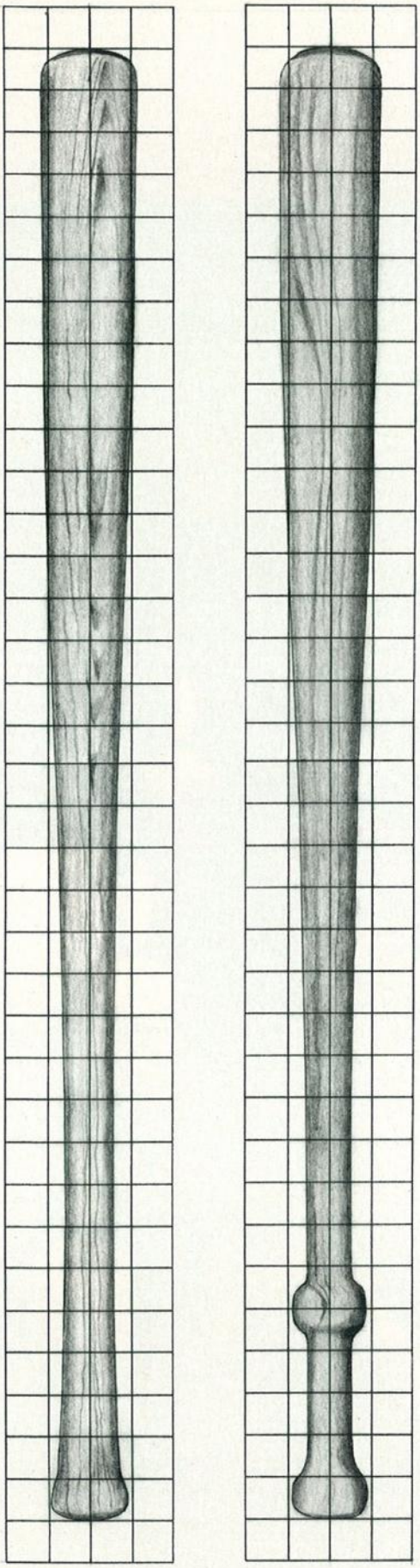

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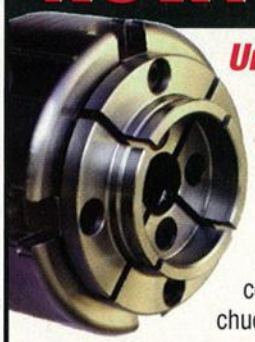

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PROJECT NUMBER 14

SHED SOME LIGHT ON HAND-BUILT SIMPLICITY

BY GEORGE HURON

The strength of dovetails, the beauty of miters and the elegance of oiled cherry all work together to make this candle box a labor of love that will be cherished for years to come.

As the instructor at a school specializing in traditional woodworking, one of my jobs is to design attractive classroom projects that emphasize fundamental hand tool skills. I often design Shaker-inspired projects because I admire the principles of simplicity, practicality and fine craftsmanship exemplified in Shaker furniture. My appreciation for Shaker furniture began when I read "Making Authentic Shaker Furniture: With Measured Drawings of Museum Classics" by John G. Shae. I remember how impressed I was with the elegant, strong, functional and beautifully proportioned cabinetry, chairs and tables in this book. Over the last 10 years, I've built many Shaker-inspired pieces. Each was simple enough that I could understand the steps needed for their construction and yet complex enough to challenge my growing skills. My students find building this candle box a valuable and enjoyable learning experience because they use most of the hand tools in the toolbox, complete the project in one day and find the end result pleasing.

Because candles were once made with tallow and were edible, they were stored in boxes to protect them from rodents. Although candle boxes were not exclusively a Shaker idea, many examples exist displaying their exacting craftsmanship. These boxes were made in great variety but often incorporated dovetails. Variations featured hinged lids and bottoms attached with nails.

This candle box is not a reproduction of a Shaker piece as much as it is inspired by such designs. Dovetails strengthen the box and grooves cut into the sides create a framework for the bottom panel to support the contents of the box, and for the top panel to slide in and out. Miters at the corners prevent the grooves from showing through to the outside surfaces.

The process of cutting the joinery for this candle box uses hand tools, but many of the steps described here can be accomplished using power tools. For example, I use a plow plane to cut grooves, but they can also be cut using a router or a table saw. I leave it up to you to choose the tools you are most comfortable using.

JIM OSBORN

Getting started

I used cherry for my candle box because it is attractive and one of the more pleasurable woods to work. Resaw a 3' length of 5/4 board into two boards, then plane them to ⅜" thick. Select one of the boards for the sides of the box and mark the surface that will face outward with a triangle. This will allow you to maintain the orientation of the sides of the box after they have been crosscut so that the grain will wrap around the outside. I used the other ⅜" board to make the top and bottom, but a contrasting wood like figured maple would also make a good choice. Edge joint, then rip to width the board that will become the sides, front and back. Edge joint and rip to width the board that will become the top and bottom.

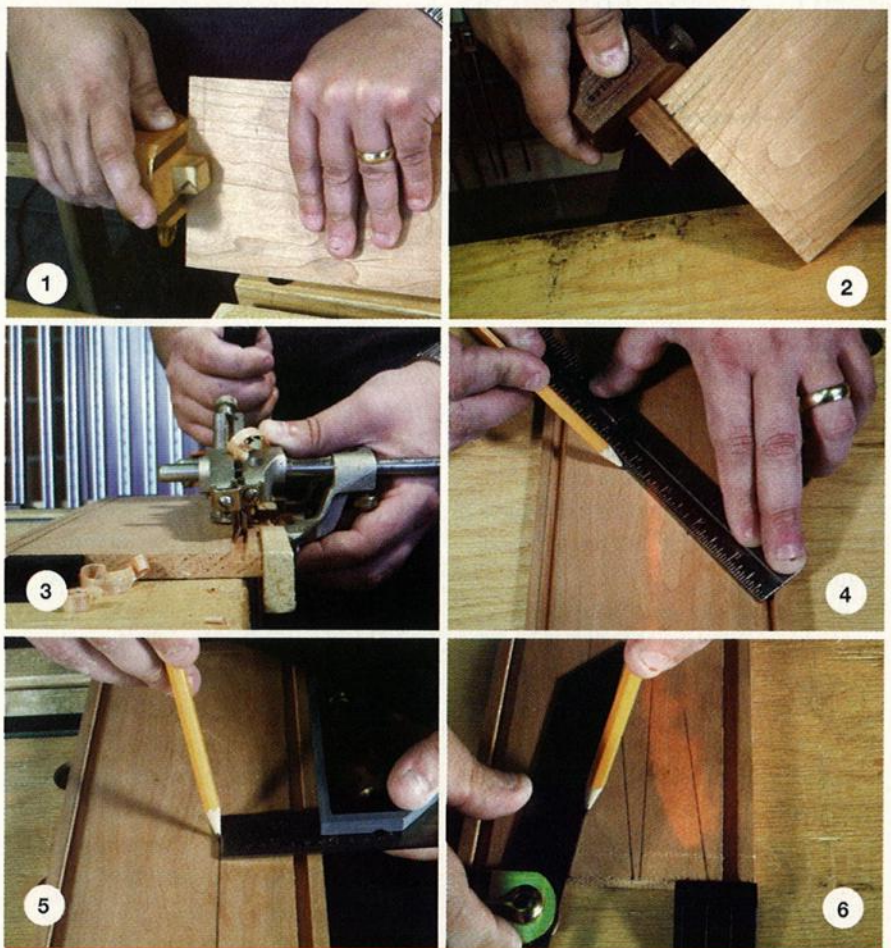
Layout and grooving

Crosscut the pieces that will become the top and bottom of the box and put them aside for now. Crosscut the sides, front and back of the box to length from one board so the grain will wrap around the finished box as described earlier. Lay them flat on your bench with the outside surfaces facing up. Use a pencil to number the corners of the box one through four; these marks will help prevent confusion when cutting the joinery a bit later. Set a marking gauge to the exact thickness of the sides and cut gauge lines completely around the ends of the sides, front and back **(Fig. 1)**.

Sometimes, the surface grain of a board isn't perfectly parallel to its edge, and plowing grain that angles across a board like this can result in tearout. Severing these fibers with gauge lines ensures a cleaner cut. Set the distance between the pins of a mortise gauge to the width of the ¼" cutter that will be used to plow the grooves that house the top and bottom of the box. Set the fence of the mortise gauge so that the grooves will be spaced ¼" from the edge of the boards, and cut two sets of gauge lines into the inside surfaces of the sides, front and back **(Fig. 2)**.

I used a Record 050C combination plane configured for plowing to remove the waste between the gauge lines to a depth of 3/16". (Again, if you prefer, a router can be used to cut this groove.)

The cutter is clamped between two skates and an adjustable fence is positioned to guide the cut. If you use a combination plane, make sure to adjust the skates and fence so they're parallel with each other, and lubricate them with wax in preparation for plowing. Begin plowing into the far end of the board and gradually bring the starting point of each cut further back **(Fig. 3)**. When the depth stop contacts the board along its full length, shavings will cease to exit the plane, indicating that the groove is completed.



Cutting the dovetails

Cut the tails into the sides of the box first. Use a combination square to divide the distance between the grooves in one side of the box into three equal spaces. Start by placing the zero mark of the square on the inside edge of one groove and pivot the ruler diagonally until the 6" mark intersects the inside edge of the other groove. Place pencil tick marks at the 2" and 4" marks **(Fig. 4)**. Use your combination square and a pencil as a marking gauge to extend these pencil lines to both ends of the board **(Fig. 5)**. These marks will serve as centerlines for marking your dovetails in the next step. You need only mark one side because you will clamp the sides together and saw both at once.

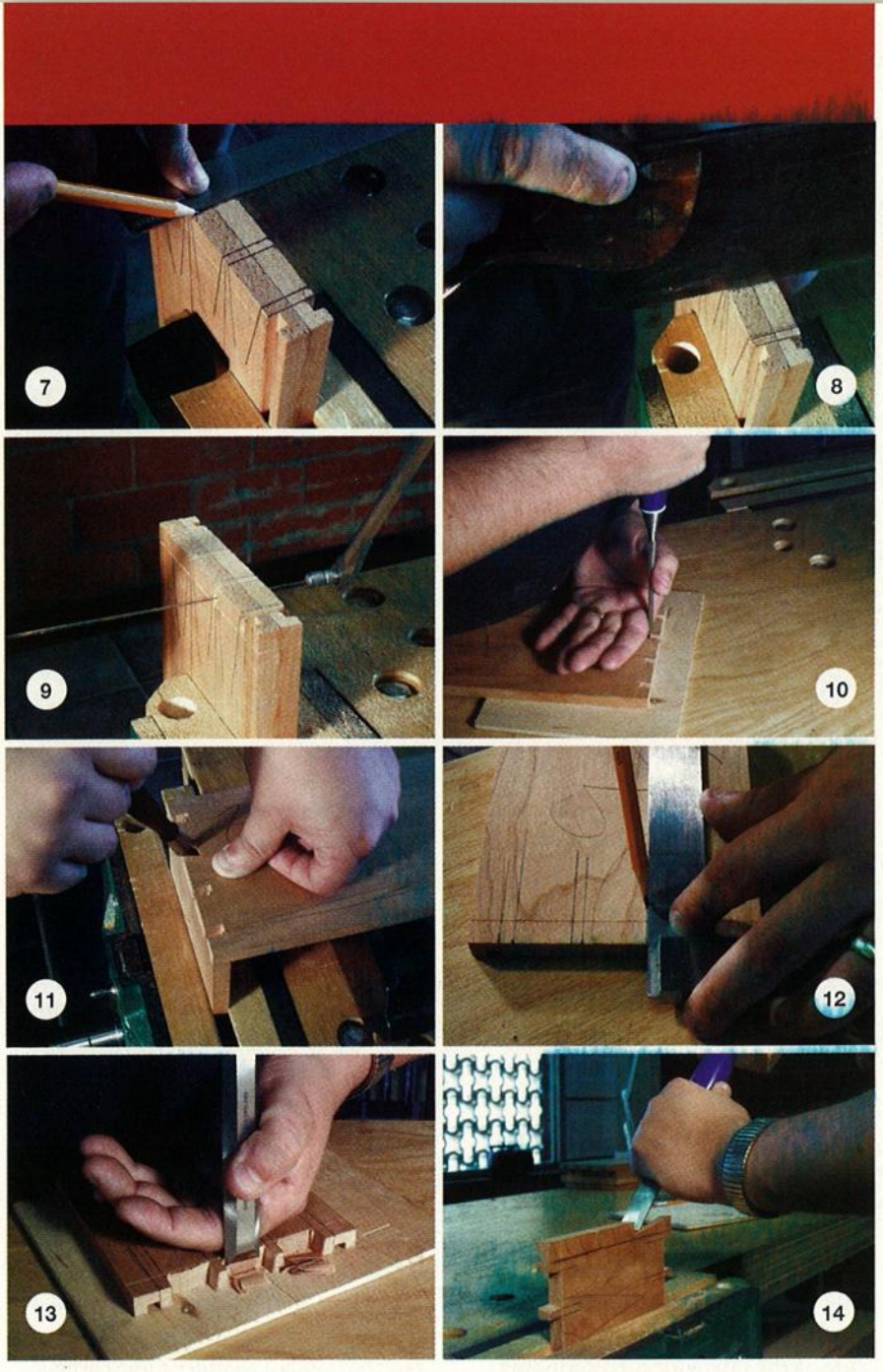
With a bevel gauge set to a slope of 1:7, use the centerlines to pencil in the tails **(Fig. 6)**. Be sure to allow space between the tails for a ¼" chisel to pass through. Don't let the fun drain out of your woodworking by overanalyzing the layout with measurements and

calculations. Just relax and trust your eyes. The space between the outer tails and the grooves should also be ¼". This makes the outer tails slightly smaller than the center tail but eliminates the need for a ⅛" chisel to pare out the waste. I find the variation in the size of the tails attractive.

Clamp the sides back-to-back in a vise with the grooves facing you and all sides flush. With the layout marks facing you, use a square to extend the marks across the endgrain of the sides **(Fig. 7)**.

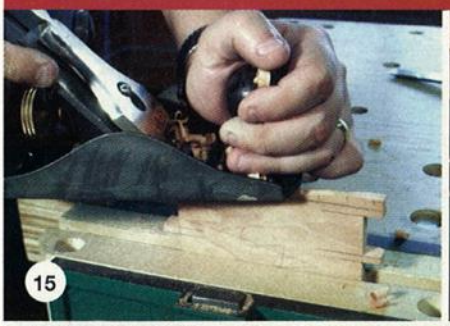
To cut dovetails, I use a backsaw with 15 teeth per inch, sharpened for ripping and with almost no set. First cut a kerf on the waste side of the layout lines drawn on the endgrain. Don't concern yourself with the pencil lines on the side of the board at this time. Use your free thumb to accurately place the saw teeth by holding it against the blade throughout the stroke, and pull the saw back to cut the kerf. Place the saw back in the kerf and turn your attention to the pencil line on the side of the board, leaning the saw to one side to match the angle of this pencil line **(Fig. 8)**. Saw the pencil line on the side of the board in half, making sure to cut on the waste side of the line. Stop one stroke short of the gauge line. Don't saw into the groove, but instead on the waste side of the groove so that the full width of the groove remains.

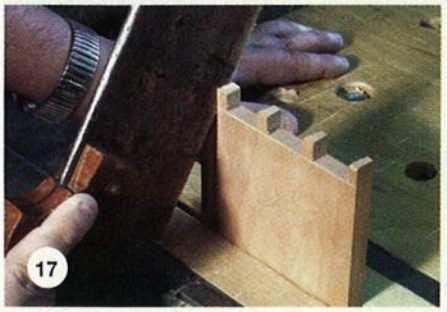
Use two cuts with a coping saw to remove most of the waste. Begin by placing the saw into the kerf on the right and saw to the lower left corner of the waste **(Fig. 9)**. You will hear a change in pitch in the sound of the sawing, as you are about to complete the cut. Slow your strokes in order to avoid cutting into the tails when the waste gives way. Begin the second cut by placing the coping saw onto the upper left of the remaining waste and sawing to the lower right corner. Stay 1/16" wide of the gauge line. Rotate both sides in the vise and repeat the process of sawing the tails on the opposite edges.



The remaining waste in between the tails is removed using a ¼" razor-sharp chisel with a flat back. Place one side of the box on your bench with the grooves facing downward. Hold the chisel as you would an ice pick and pin the board against your bench using the back of your other hand, and remove the waste in thin (about 1/32") shavings while cutting at right angles to the bench surface **(Fig. 10)**. Alter the amount of weight you place on the chisel in order to control how fast it cuts through the wood. If the chisel offers a lot of resistance, either you're paring a chip that is too thick or your chisel is dull.

Make the final paring cut by first placing the chisel into the gauge line and paring as before. Lift the board and see if the gauge line on the other side is split in half. Beginners often cut wide of the gauge line on the opposite side. To correct this problem, begin the next paring cut in the gauge line, paring from the outside to the inside and creating a shaving that starts thin and ends slightly thicker. Repeat this





as necessary until the gauge line on the bottom of the board is split in half. Resist the urge to flip the board over and pare from the inside to the outside. The risk of breaking out wood at the end of this cut and damaging the outside surface of the box is very high.

Cutting the pins

Place a hand plane on its side with its sole facing you on the bench top and clamp the front of the box into the vise with its witness marks facing you and with the endgrain level to the side of the plane. Then slide the plane about 3" back from the vise. Place the side of the box with corresponding witness marks so that it rests on both the front of the box and the side of the hand plane, aligning the edges of the side and front of the box. Holding the side in place using firm pressure applied downward with your left, use a marking knife to trace around the tails onto the endgrain of the front **(Fig. 11)**. Then place the side of the box and the hand plane aside. Using a square and pencil, start at the knife lines and draw a line on the outside surface of the front to guide your sawing **(Fig. 12)**.

Do not saw near the two knife lines nearest the grooves at this time. Use a backsaw to split the remaining knife lines and pencil lines in half, making sure to cut on the waste side of the lines. Remove the majority of the waste with a coping saw as before. Take extra care to angle the coping saw as needed to prevent sawing into the pins. Pare to the gauge line with a ¾" chisel using the methods described earlier. Cut and pare the remaining waste in the front and back pieces similarly **(Fig. 13)**.

Miters

Mark the top front corners of the sides with the word "no" written in pencil to remind you not to miter these corners. The top edge of the front of the box must be removed to make way for the lid to slide in and out. Cut two equally spaced stopped cuts using your backsaw, then split off the majority of this waste in three chunks using a chisel and mallet **(Fig. 14)**. The remainder of the waste can be removed with a hand plane, stopping just as the groove is removed **(Fig. 15)**.

Place one side of the box into the vise with the grooves running horizontally and facing toward you. Cut on the waste side of a line connecting the outside corner of the box with the corner made by the intersection of the gauge line and the inside surface of the box. Make this miter cut with a backsaw, leaving some waste to be trimmed later with a chisel **(Fig. 16)**. Miter all the corners of both sides similarly except for top front corners that are labeled with the word "no."

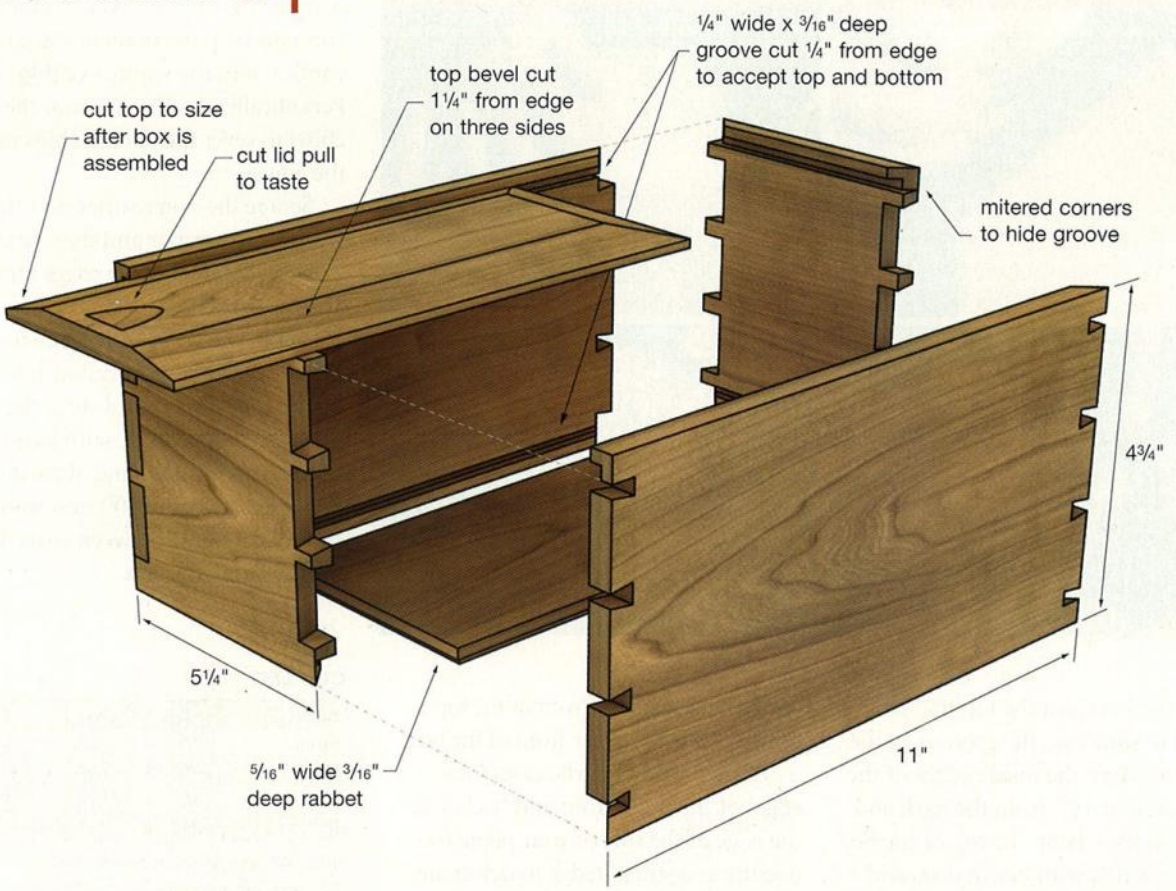
Clamp the front piece into the vise with the grooves running vertically and facing outward. Tilt your backsaw upward at about 45 degrees and use the inside of the groove to start your backsaw. Carefully saw a kerf into the front using a few backstrokes **(Fig. 17)**, but stop at the gauge line without sawing through to the outside surface. Reclamp the front piece into the vise with the grooves running horizontally and facing outward. Miter the corner with a backsaw but leave some waste to be trimmed later with a chisel.

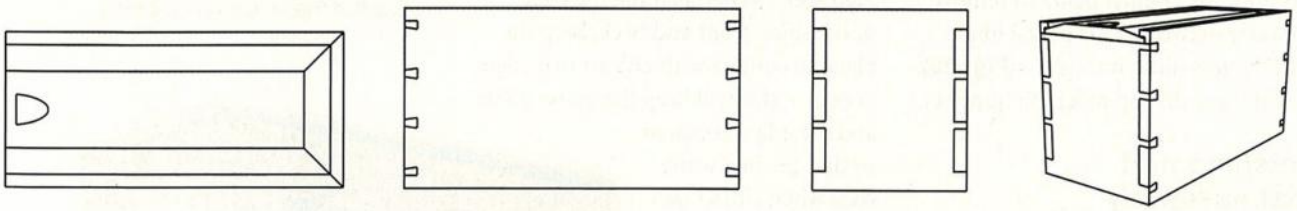
Use a wooden block mitered to a precise 45 degrees to guide a wide chisel and trim all of the miters. Line up the sharp edge of the guide block carefully with the gauge mark of the miter you're trimming and clamp both boards to the bench. Take care that the back of the chisel remains flat against the guide block throughout the cut. If you're confident of your chisel skills, simply pin the guide block onto the piece to be trimmed with your left hand and trim the miter using several ⅛" wide paring strokes **(Fig. 18)**.

Making the top and bottom

The top and bottom of the box are panels that fit into the frame made by the sides, front and back. The top is beveled to fit into the grooves and the bottom is rabbeted.

Dry-fit the box together and trim the joinery as necessary to obtain a good fit. Hold the bottom against the assembled box as if it was the top and you were about to slide it into place. With one edge against the bottom of one of the grooves, mark the necessary width to allow the bottom to slide into

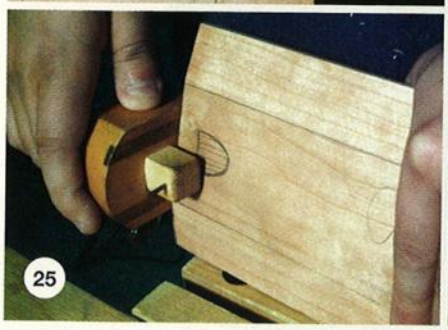




the box **(Fig. 19)**, then saw or plane the bottom ⅛" narrower to allow for expansion.

Use a marking gauge to lay out a rabbet 3/16" deep by 5/16" wide on two sides and one end of the bottom. I use a rabbet plane and a backsaw and chisel to remove the waste **(Figs. 20-22)**. Slide the bottom into the box as if it were the top and mark it for length. Cut the bottom 1/16" shorter than your mark indicates and cut a rabbet into this edge.

Hold the top against the dry-assembled box and mark the width for a correct fit, then rip or plane the top to width. Use a pencil and a square to



lay out the bevels in the top that will allow it to slide into the grooves in the box sides. Mark the inside edges of the three bevels at 1¼" from the back and the two sides. Clamp the top of the box onto the bench with bench dogs and vise, and use a bench plane to remove the waste between your pencil lines until the top slides into place **(Fig. 23)**.

Don't cut the top to length quite yet.

Finishing and final assembly

Disassemble the box and scrape the inside surfaces with a card scraper and sand to 220-grit, carefully avoiding the dovetails. Apply two coats of tung oil and allow it to dry. Mask the dovetails with masking tape, put on a respirator and spray the inside surface with two coats of satin lacquer from an aerosol can and allow to dry. Polish lightly with 0000 steel wool and clean thoroughly between coats.

Apply glue to the dovetails and miters and clamp the box, making sure to pull the miters together as well as the dovetails. After the glue dries, remove the clamps and slide the top in as far as it will go. Use a pencil to mark the length of the top **(Fig. 24)**. Crosscut the top just a hair longer. Then, with the top in place on the box, plane the front of the top until it is flush with the front of the box.

Plane the outer surfaces and the edges of the sides, front and back. Use the edge of the sole of your plane frequently as a straightedge to detect any high spots. When planing the edges of the sides, front and back, keep the plane in contact with at least two edges at once – this will keep the plane stable and the edges coplanar so that the box won't rock when sitting on a flat surface.

Lay out the shape of the thumb pull with a pencil and a marking gauge **(Fig. 25)** and use a gouge and bench chisel to carve it out. Clamp the top of the box onto the top of your bench between bench dogs. Make several light cuts and keep the bevel of the gouge in contact with the workpiece **(Fig. 26)**. Periodically use the corner of the bench chisel to sever the curved chips made by the gouge.

Scrape the outer surfaces of the box with a card scraper and then sand to 220 grit. Sand all sharp edges until they are touch-friendly.

Apply two coats of tung oil to the outside of the box and allow it to dry. Put on a respirator and spray the outside with two coats of satin lacquer from an aerosol can and allow it to dry. Polish lightly with 0000 steel wool and clean thoroughly between coats. Finish the top similarly.

CUT LIST

Sides (2)	3/8"	x	4¾"	x	11"
Front	3/8"	x	4¼"	x	5¼
Back	3/8"	x	4¾"	x	5¼"
Top*	3/8"	x	5¼"	x	11"
Bottom*	3/8"	x	5¼"	x	11"

Note: All components are of cherry.
*Dimensions listed for Top and Bottom are before final cutting and assembly

George Huron

As the owner and instructor of a woodworking school specializing in traditional hand tool methods, George Huron spends most of his time teaching, designing new classes and performing live demonstrations. He is also currently producing, filming and editing woodworking videos.

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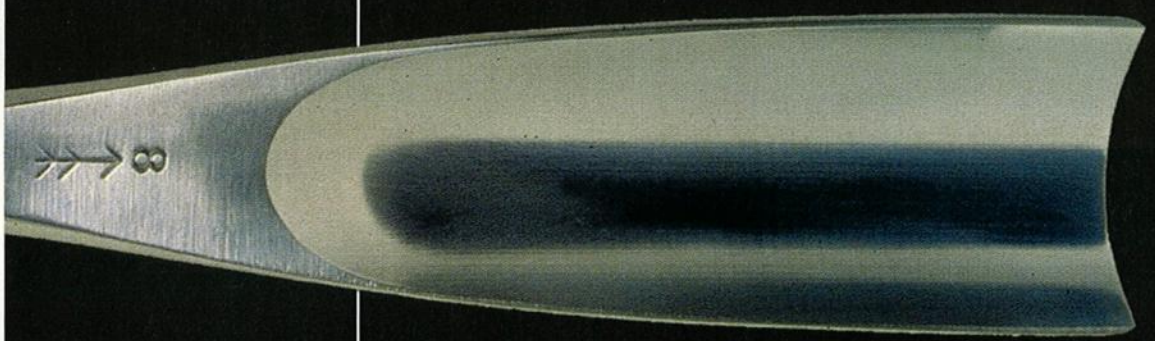

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{ PROJECT *no.* 15 }

IT'S SIMPLY BETTER IN THE COUNTRY

BY KERRY PIERCE

Those big beautiful beds from the 18th and 19th centuries easily dominated the big bedrooms they occupied. For today's homes with smaller bedrooms, this country bed retains all the appeal of its ancestors, but in a size more fitting.

Bedrooms in 18th- and 19th-century homes were often quite large, with ceilings sometimes reaching 10'. They were appropriate settings for the also-quite-large four-post beds of the period. But contemporary bedrooms are smaller with typical ceiling heights of 8' or less. Contemporary homes are, therefore, less comfortable settings for grand period beds or even country four-posters.

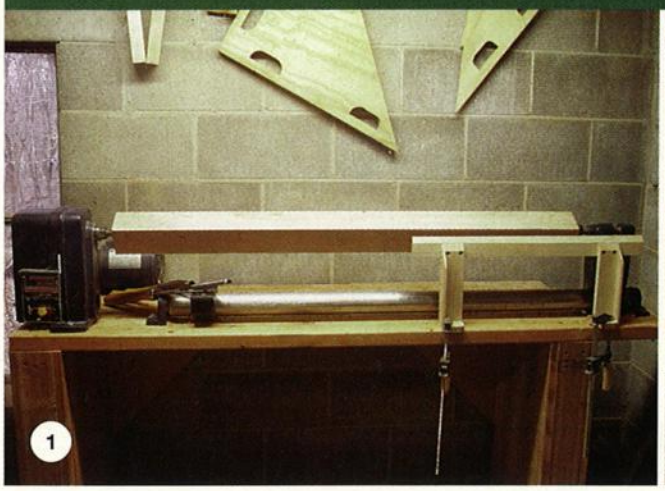
Our bedroom is even smaller than most. It measures 11' x 12' with 7'3" ceilings, so when my wife expressed a desire for a four-post bed, I realized I'd have to design one with relatively modest dimensions.

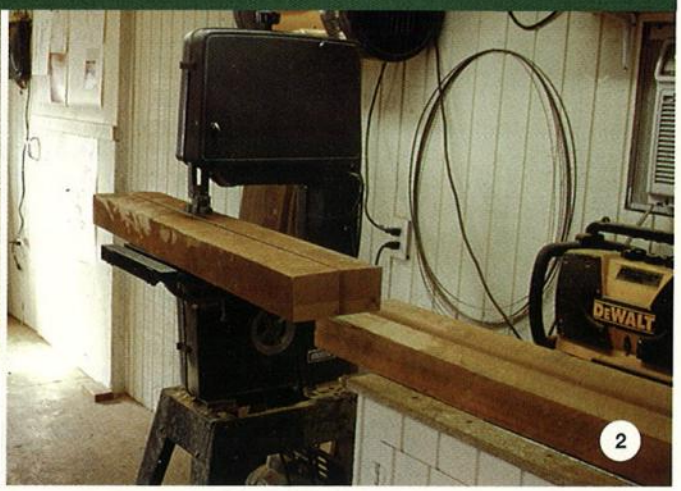
We looked through some furniture books. I did a little sketching, and we settled on a fully turned post with a country feel rather than a period flavor, one embellished by a simple arrangement of beads, coves and vases.

The problem with turned posts is that most modestly priced lathes have only a modest distance between centers, usually 36". Our small four-poster would require longer posts than that.

This was a problem I had already solved because many of the chairs that make up most of my business have back posts between 40" and 46". Years ago, when I went shopping for my first – and only – lathe, I bought one that accommodated an extra mounting foot for the lathe's tubular bed. I then built a lathe stand that put the tailstock of my lathe almost 48" from the headstock. To do this, I had to pull the bed tube from its mortise in the headstock assembly and mount the headstock end of the bed on the extra mounting foot.

BRIAN KELLETT





If you look at **Fig. 1**, you'll see what I mean.

If you're interested in building this four-post bed, put some thought into how you might lengthen the bed on your lathe. Even if it isn't a tubular-bed lathe like mine, it's likely that there are techniques you can employ.

Plus, the posts on this particular piece of furniture are designed so that turners with access to only short-bed lathes can still produce these posts by turning them in two segments and joining them with a ¾" turned tenon in the top of one segment which will fit into a ¾" mortise drilled into the bottom of the other. (See the drawing on page 41 for details.) This two-part construction works well with these posts, because all the joinery is cut into the bottom portion of the post below the location of the mortise-and-tenon joint. As a result, the mortise-and-tenon joint isn't load-bearing.

Getting started

Material for turning must be good through-and-through, because there is no back side on which you can hide a knot or a pitch pocket. You'll almost certainly pay a premium for the 3" stock you'll need for the posts. Premium in this situation means this: If you can buy 1"-thick cherry at your local vendor for $7 a board foot, you'll probably pay $7.50 or even $8 a board foot for 3".

The bandsaw is the tool of choice for ripping thick stock **(Fig. 2)**. You can rip it on a table saw by cutting it halfway through, flipping the stock over, then sawing the remainder with a second pass. But a table saw ejects an awful lot of dust into the air when used on thick stock. Plus, unless you've got a pretty hefty motor, it may bog down. The little 1½-hp motor on my table saw does a lot of huffing and puffing when I use it to saw really thick stock.

The next step I'm going to recommend may seem a little silly, but it's really not. Take the time to straighten your turning billets on your jointer, and then run them through your thickness planer so that the material is truly a square in cross section **(Fig. 3)**. Why waste time to create smooth surfaces which you're then going to shred on the lathe?

The answer is balance. These turning blanks are big and heavy. It may not seem like it when they're sitting on your workbench, but when a turning blank 48" long and 3" square is spinning in your lathe at 750 rpm, you want to be absolutely sure the blank is straight and uniformly thick. If it isn't, your lathe may decide to take a walk across your shop while you chase it reaching for the

PROJECT PHOTOS: KERRY PIERCE

off switch. I'm exaggerating here, of course, but only a little.

Turning tools and technique

I envy craftsmen who can turn a complicated spindle with nothing but a skew and leave behind surfaces that need only the lightest sanding.

David Wright, a Windsor chairmaker from Berea, Ky., is such a turner, and I have on my desk a baluster leg he turned one day when I visited his shop maybe 10 years ago. I watched him turn the leg using nothing but a roughing gouge, the tip of which he had reground so that it could also be used as a skew. He never touched that leg with anything else, and the leg's surface is almost smooth enough to finish.

My turning kit is very simple. For these posts, I used only three tools: a 1⅛" roughing gouge, a ⅜" fingernail gouge and a 1⅛" skew **(Fig. 4)**.

When I sharpen my lathe tools, I'm very careful to grind them so there's only one bevel, not a series of little bevels. This means that my final passes over the wheel must dress the entire width of the bevel. The reason for this single bevel will become clear in a moment.

Some turners – primarily bowl turners – scrape out their shapes, and although it's possible to scrape out spindle shapes, it's slow work that often leaves behind a coarse surface with lots of endgrain tearout requiring a lot of sanding.

Other turners cut. I'm one of those other turners.

The most effective cutting is done with the bevel laid down on the work. If you haven't tried this, experiment with the technique. With the tool firmly situated on your rest, move it toward the spinning work with the handle well down so that the cutting edge of the tool can't come anywhere near the work. Then when the heel of the bevel has engaged the work, slowly raise the handle until the tool begins to cut without digging in. (This cutting technique is the reason for the single bevel grind; with many tiny bevels on the ends of your tools, it's difficult to rest any one of them on the spinning work.) That's the key point. If you turn with the bevel of your tool laying on the work, it is impossible for the work to grab the tool and with it whack the tool rest and dig a big gouge out of your work. **Fig. 5** illustrates this posture.

There is an exception to this, of course. If you bring the tool into the work so that a part of the tool that is not supported by the rest comes in contact with the work, the work will grab the tool, whack the rest, and dig a big gouge out of your work. For example, if I allow the tip of either of my gouge's sidewalls to come into contact with the work (holding the gouge so that the flute is facing the ceiling as I'm doing in **Fig. 5**), the work will slam that sidewall to the rest and dig a chunk of material from the work. I can use the gouge's sidewalls to cut, but only when I've rotated the gouge so that the sidewall I intend to use is supported by the tool rest.

Post prep

When I'm turning long, thin blanks – like chair posts – I always convert the square blanks into octagons with a bandsaw jig I designed for this purpose. I do this because long, thin spindles tend to whip in the lathe, complicating the process of rough-turning those chair posts. These bed posts, however, are so beefy that no whipping will occur. I therefore dispensed with the octagon maker.

Because these turning blanks are quite large, set your lathe on its slowest speed. Carefully mount the blank in your lathe, making sure that the spurs on the drive center are engaged with the endgrain of the blank. Turn the blank by hand to ensure that both centers are well engaged. Then, before you've brought the tool rest into place, turn on the lathe while standing off to one side out of the danger zone. In most cases, such caution is unnecessary, but if you happen to mount a blank with a hidden defect – something like wind shakes, for instance – the blank could come apart. I've never had it happen, but I respect the potential for danger and approach


7


8

large turning blanks very carefully.

Then, if everything looks good, shut the lathe off and bring the tool rest into position.

Establish the tool rest height so that its top edge is 1/16" below the lathe's axis of rotation. Move it close enough to the work so that it is between 1/16" and 1/8" from the work. Again, turn the work several times by hand to verify clearances.

With the bevel of your roughing gouge riding on the work, turn the lathe on and gradually convert the square blank into a cylinder, taking the time to stop the lathe and reposition the rest when the distance between the rest and the work grows to more than 3/8". **Fig. 6** shows the blank when I decided it was time to move the rest in closer.

Post time

I began the turning process by converting all four of my post blanks into cylinders before I did any decorative turning. Since my stock was dressed to 3" squares, these cylinders measured a bit more than 2 7/8" in diameter. I then began the fun stuff.

Because my tool rests are shop-made from wood, I find it useful to mark off sections of my spindle right on the rest. I can then transfer measurements directly from the rest to the work with no awkward and time-consuming stopping and starting. And when I go from one blank to another, I make sure to reposition the rest so the marks are correctly aligned for each new one **(Fig. 7)**.

Basically, these turnings are a series of alternating coves and beads, and that's the way I created the shapes.

I cut the coves in several passes, each of which began near the center of the adjacent bead with the 3/8" fingernail gouge standing on its side – bevel against the work – with the flute facing the cove I was about to cut. With the bevel on the roughed-in cylinder, I moved the gouge into the cove, rotating the tool 90 degrees as I went so that when I reached the center of the cove, the gouge's flute was pointing directly up. I then moved to the bead on the other side of the cove and repeated the procedure, this time working back into the cove from the other side. In four or five passes, I created the cove and half the beads on either side.

The vase at the top of the post was a bit more complicated. There, with my roughing gouge, I first reduced the cylinder diameter to the thickest part of the vase, its pudgy little base **(Fig. 8)**. I then returned to my 3/8" fingernail gouge and created the abrupt little cove below the vase and the more gradual cove at the vase's middle section.

I formed the top of the vase, as well as the top and bottom of the ball, using the heel of my skew to peel off layers of wood. This technique can be a little tricky, and if you haven't done it before, you may want to shift to scraping in this instance, or at the very least practice first on some scrap.

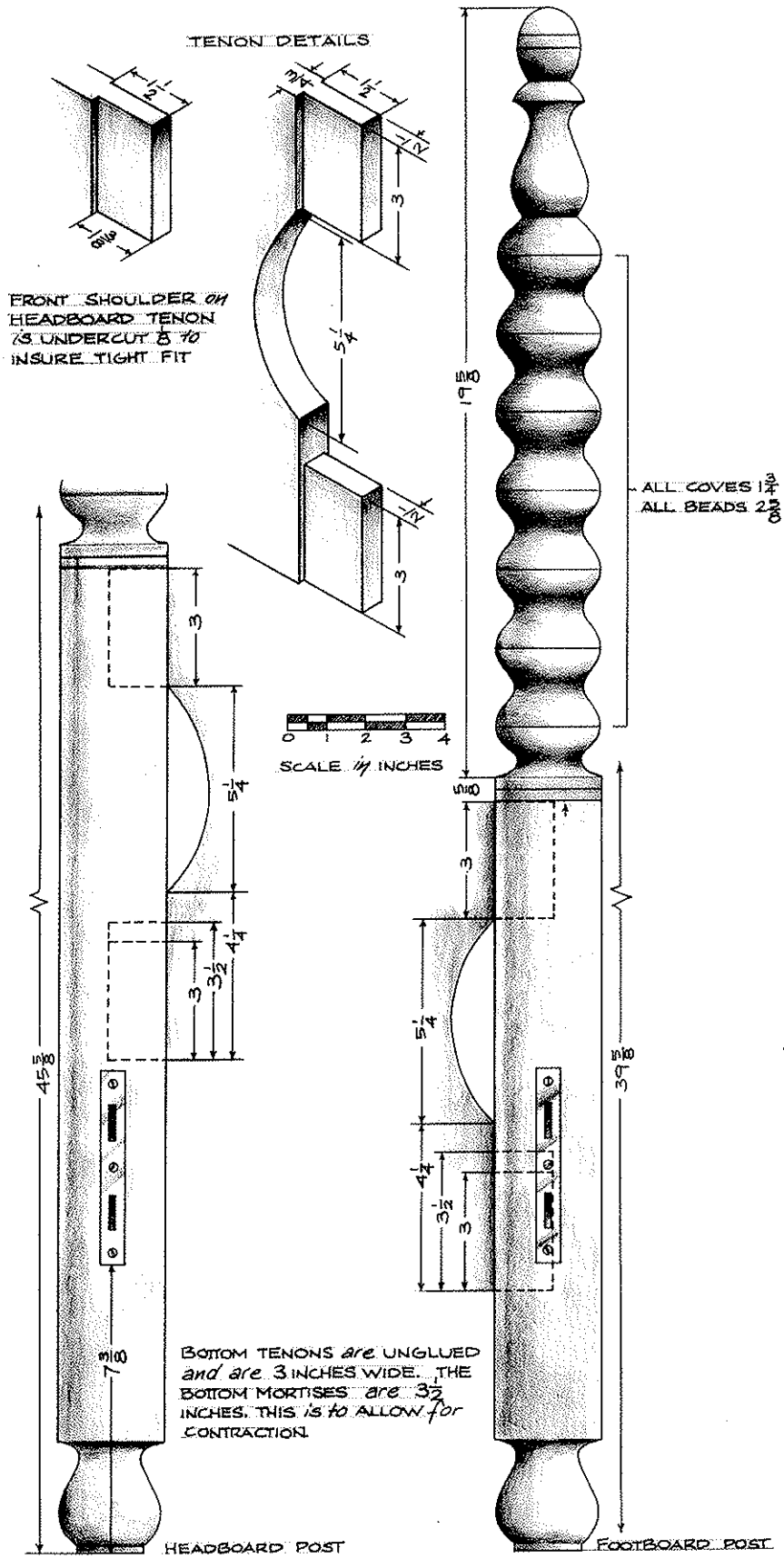
The trick to peeling off layers with a skew is making absolutely sure that the only part of the tool to touch the spinning work is the very bottom. If any other part of the skew touches the work – however briefly – it will be wrenched in your hand, slamming it onto the rest and probably damaging your work (if not your nerves).

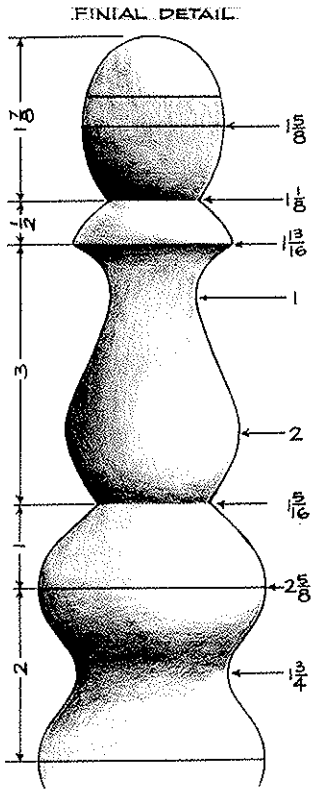
Begin this movement with the skew standing almost on its edge on your tool rest, holding it maybe 15 degrees out of vertical, tilting away from the center of the V-cut you're about to make. Then bring the bottom tip of the skew into your work very carefully and, a layer at a time, cut the V-shape by rotating the skew to vertical while the bottom edge is engaged with the work and moved carefully into the V **(Fig. 9)**.

The foot of each post is a cove above a big, fat bead which sits atop a little fillet. The fillet I formed with a paring chisel laid flat on my rest, bevel-side-down. If you bring that chisel very carefully into the work, it will scrape out a smooth, flat surface **(Fig. 10)**.

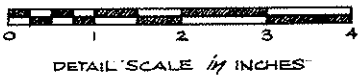
This is the only bit of the turning on these posts that I did using a scraping rather than a cutting action.

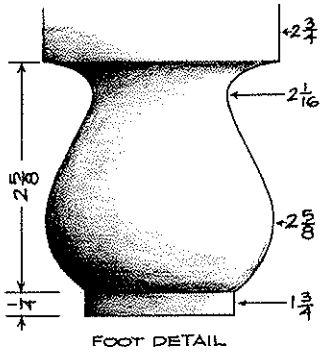
I'm not an elegant turner. If I were, the shapes I turn would be silky





HEADBOARD and FOOTBOARD POSTS are IDENTICAL, EXCEPT THAT the BOTTOM of the HEADBOARD POST is 6 INCHES LONGER





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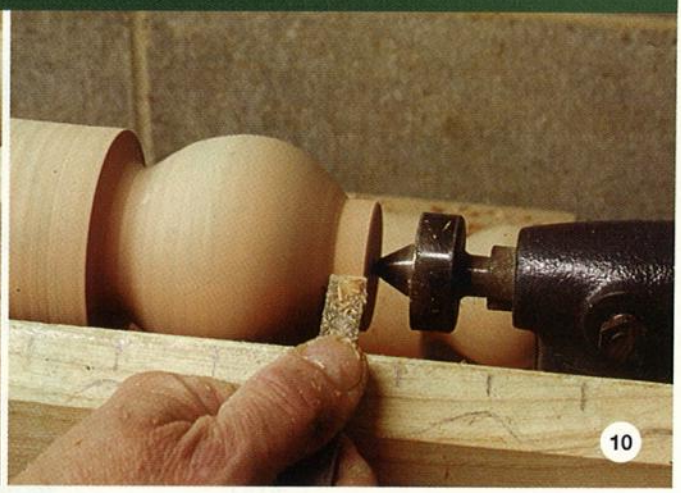


smooth when I lay down my gouge. I always need to do some sanding, but because I cut rather than scrape, there is no endgrain tearout to contend with at the sanding stage **(Fig. 11)**.

Lathe sanding goes quite quickly, particularly if you use high-quality abrasives. If you haven't yet tried them, experiment with rolls of 2" cloth-backed abrasive. Get a variety of grits, beginning with 80 or 100, then progress through 150 and 220. (If you haven't yet used abrasives like this, you're in for a treat. They make the lathe sanding process remarkably quick and efficient.)

The posts are marked with scorings at a number of locations. There are single scorings in the middles of each of the big beads on the upper half of each post, as well as on the big bead on the foot, plus a double scoring on the base of the posts just below the stack of big beads. A second double scoring adorns the ball at the top of the finial. These scorings are easy to make. Once you've completed most of the sanding, stand your skew on its bottom edge and carefully feed the skew's knife edge into the work. It doesn't take long to make a nice scoring (you can see it in **Fig. 12**). I then do my finish sanding with a length of 220-grit abrasive.

Mortising the posts

In large part, the success of this bed depends on the accuracy of your layout work, and this particular project poses layout problems because the posts are round, and try squares and straightedges are hard to apply accurately to round surfaces.

To lay out the mortises on these posts, you need to draw two lines – the centerlines of the post's mortises – along the lower half of each. They should be parallel with each post's axis of rotation and exactly 90 degrees apart.

Depending on whether you're using a lathe with or without an indexing head, there are two ways to accomplish this.

An indexing head is a disk centered on the lathe's axis of rotation. The manufacturer has drilled holes near the circumference of the disk that allow you to divide objects mounted on the lathe into accurate segments. My lathe has 36 holes near the circumference of its indexing head, spaced exactly 10 degrees apart. This means that if I want to make two lines 90 degrees apart on the outside diameter of a turned object, I simply count off nine holes on the indexing head.

On my lathe, this is done by retracting and then releasing a spring-loaded pin into the indexing head's

holes as I slowly rotate the workpiece by hand. I retract the pin, rotate the work, and when the spring-loaded pin finds the next hole and drops into that hole, I know that my lathe has rotated 10 degrees **(Fig. 12)**.

To mark the lines on the locations the indexing head identifies, first lock the post's rotation with the pin.

The next step requires a simple jig that will slide along the bed of your lathe while holding a pencil to mark a line on the outside diameter of your post as in **Fig. 13**. Your jig may look a little different because your lathe bed may dictate a different foot on your marking jig. Mine simply slides across the lathe's mounting table.

Slide the marking jig along the length of the post so the pencil is in contact with the work to create the first line. Then, using the indexing head's spring-loaded pin, count nine stops, lock the head, and make a second line with your jig.

In case your lathe doesn't have an indexing head, here's another way to draw the lines.

This may seem a little goofy at first, but if you think about, it will begin to make sense. It's a technique I've used many times.

Rip a wide, flat carpenter's pencil into two, exposing the full length of the pencil's lead. Then lay two posts side by side on your work bench so that they are touching along their full lengths. Take one of the carpenter's pencil rips in your hand, holding it so the exposed lead is on the bottom side of the rip. Lay the rip across two posts so that the rip is perpendicular to their length. Then draw the rip along the length of the posts, and it will leave behind a line on each post that is parallel with the post's axis of rotation.

Next, mark a matching set of mortises along each line. By "matching," I mean mark the footboard mortises on both or the headboard mortises on both. Then cut the mortises (the procedure for cutting these mortises will be explained in Part 2).

The second part of this process requires that you fashion a tenon long enough to join the two posts via the matching mortises. Since the mortises will be ½" thick, you need a section of wood ½" x 1" x 3" (the total depth of the two mortises). Slide this tenon into one mortise. Bring the other post into position and slide it onto the tenon. What you've done is align these posts in the same rotational configuration they will have in the finished bed.

To mark the second set of lines, repeat your earlier step, sliding the pencil along the lengths of the two posts. The lines that result will be parallel to the axis of rotation of each post, and each line will be exactly 90 degrees from the lines you made earlier.

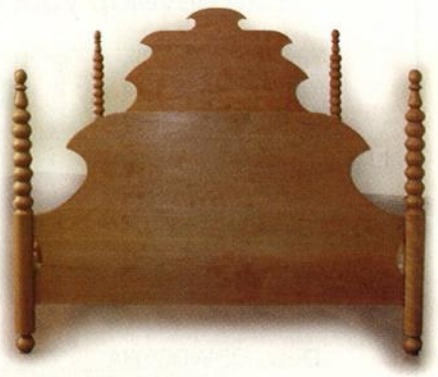
In Part 2, I'll explain how the remaining parts of this bed are created, followed by assembly and finishing.

MATERIALS, PART 1

All parts are cherry. These are net measurements; extra length should be added to allow for centering in the lathe.

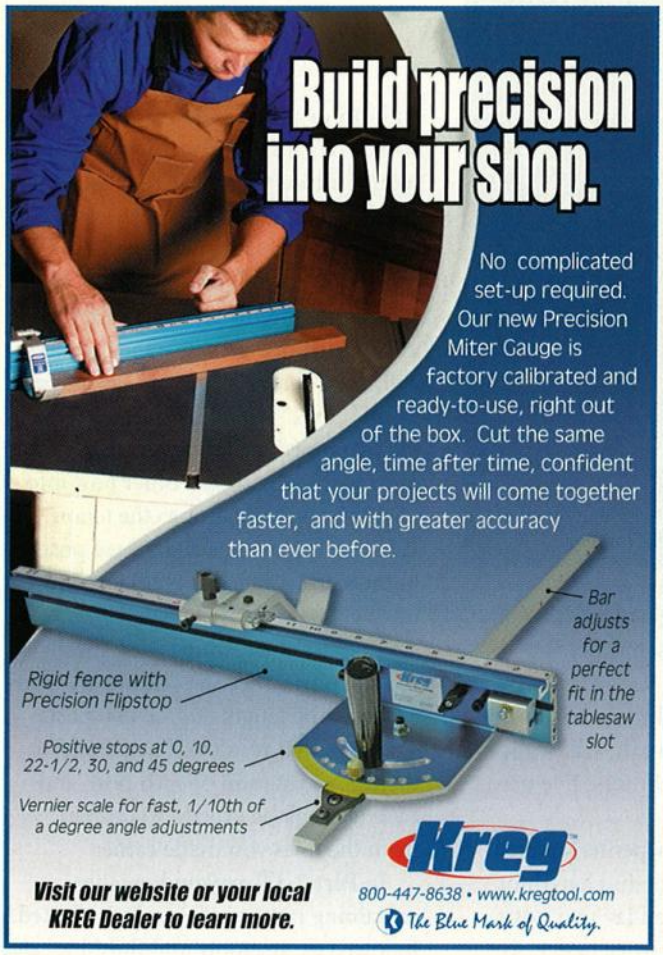
Headpost (2) 3" x 3" x 45⅝"

Footpost (2) 3" x 3" x 39⅝"



Kerry Pierce

Pierce has been a professional furniture maker for more than 20 years. He is the author of 10 woodworking books – including the recently published "Authentic Shaker Furniture" – as well as dozens of magazine articles. His work has appeared in many regional shows, including, most recently, Ohio Furniture by Contemporary Masters at the Ohio Decorative Arts Center.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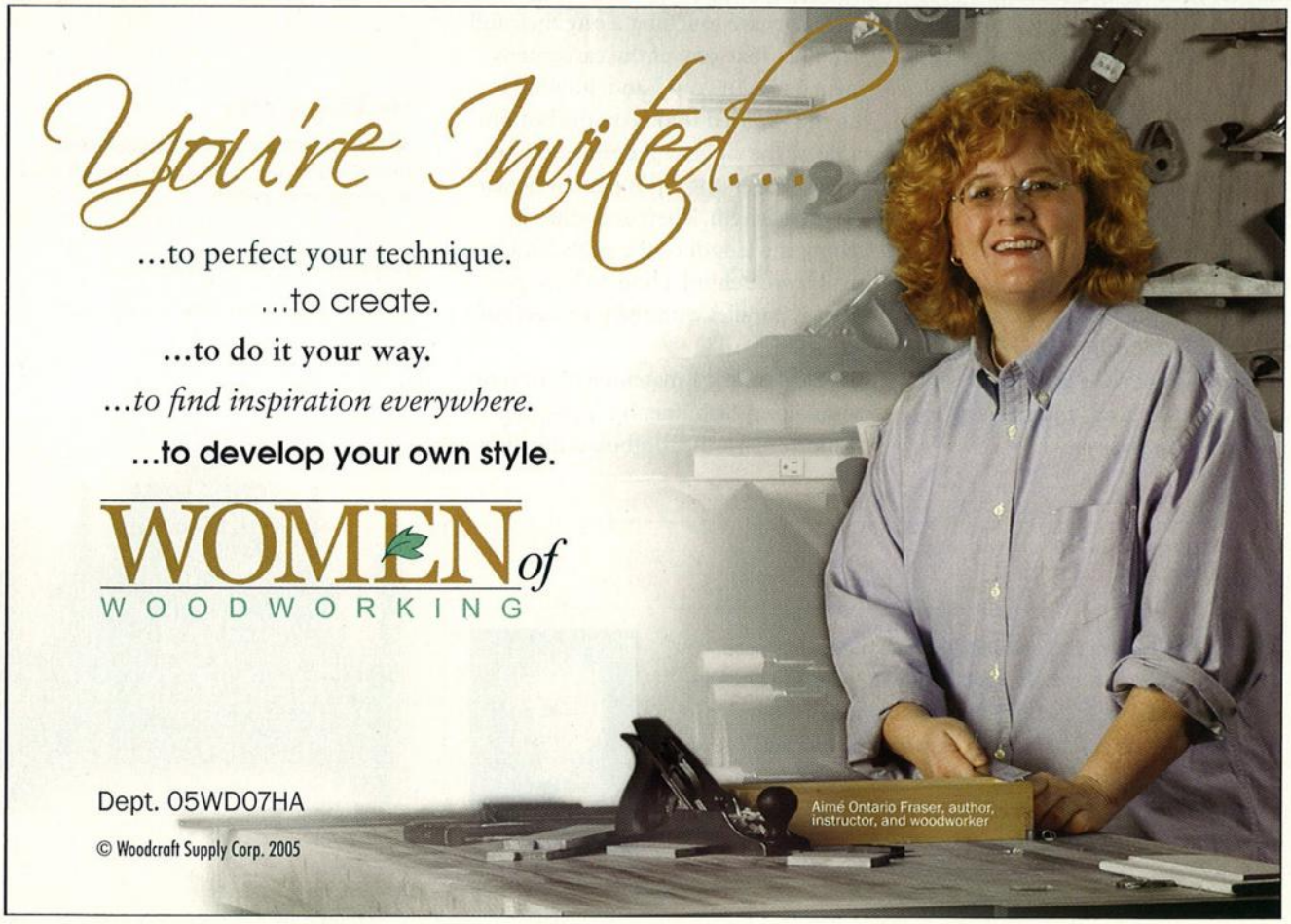
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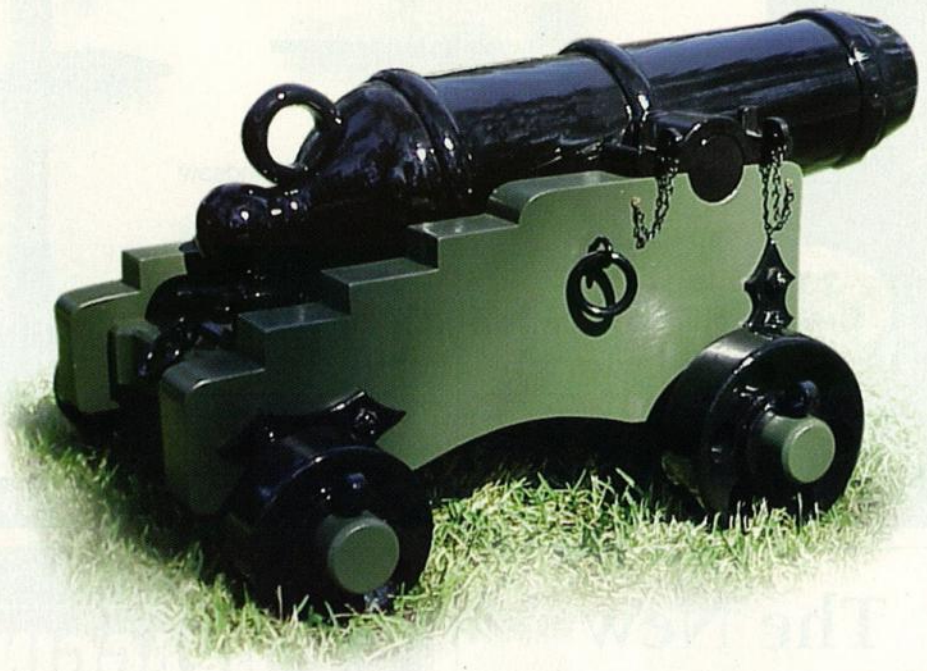

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16th-Century British Carronade

Michael Elledge, Cypress, Texas

This carronade is patterned on a British English cannon from the 1700s, and is mounted on a ship's carriage from the same era. Made of 2x12 pine lumber, the barrel is 39" long and 10½" in diameter at the breech. It is called a 12-pounder carronade, or "smasher," as it inflicted terrible damage to enemy ships when fired at the waterline. Elledge makes a variety of cannons, including full-scale working models.

Queen Anne Table

Lawrence Killingsworth, Spokane, Wash.

Killingsworth made this Queen Anne table from Kerry Pierce's project in the first issue of *Woodcraft Magazine*. Although the original was made of cherry, Killingsworth's version is crafted in mahogany.

Intarsia Eagle

Bill Von Restorff, League City, Texas

Von Restorff started making intarsia projects in January 2004, and has completed well over 100 since then. This eagle measures 24" x 28", and is made from cedar, white aspen, oak, cherry and walnut. The pattern Restorff used for his creation is from the Judy Gale Roberts collection.

Spalted Maple Bowl

Steve Baum, Menlo Park, Calif.

Although this beautiful bowl in spalted maple measures a full 8" across and 3" deep, its walls are only 1/16" thick. Baum, a member of the West Bay Area Woodturners in Northern California, attempted the bowl as an experiment to see how thin he could make it after an accidental catch. He's been making thin bowls ever since.

Fisherman's Chest

Ken Bayer, Pittsburgh

Modeled after an old toolbox, this chest is made of walnut with a carved butternut panel in the lid, and was designed as a Christmas gift for Bayer's son, an avid fly fisherman. The sides were made from a single piece of walnut for a continuous grain around the dovetailed corners. For a final finish, the 30" chest received four coats of amber shellac.

"The Tsunami Hope Chest"

Dave Shaw and Carmel Kenyon, Malanda, Queensland, Australia

The Woodworker's Website Association commissioned Shaw and Kenyon of Australian Wood Art to build this piece, which will be auctioned and the proceeds donated to victims of the Indian Ocean tsunami. One wing of the intarsia dove in colorful native timbers serves as a handle for the door, which opens on wooden hinges to reveal five drawers. The top was carved from a single piece of rare jarrah burl, and the cabinet is figured black bean. Dimensions are 23"x14"x16". For more information, visit *australianwoodart.com/tsunami.htm*

Room Divider Screen

Steven Butler, Worcester, Mass.

The panels of this room divider consist of two layers of silkscreen material sandwiched together, which creates a Moiré effect when light shines on the screen. The panels are also fully articulated, allowing them to be rotated. Standing 72" high and 64" wide when fully extended, Butler made the frame in cherry, with exterior accents of brass and bronze.

1794 Desk and Bookcase

Brian Coe, Winston-Salem, N.C.

Based on an original piece made by Johann Krause of Salem, N.C., Coe's reproduction is crafted of cherry and cherry crotch veneers. Although the original had five secret compartments, Coe upped the ante for his version with no fewer than 25 secret compartments and drawers. This piece is the result of approximately 850 hours of work.

Bombé Vitrine

Jeff Greef, Santa Cruz, Calif.

"I wanted to produce a cabinet that looked like it was about to get up and walk away," Greef says of his bombé vitrine, made of claro walnut and kiln-slumped glass. Greef estimates that he put about 1,350 hours into the piece, which features multiple angled joints. Each piece of glass is a separate pane.

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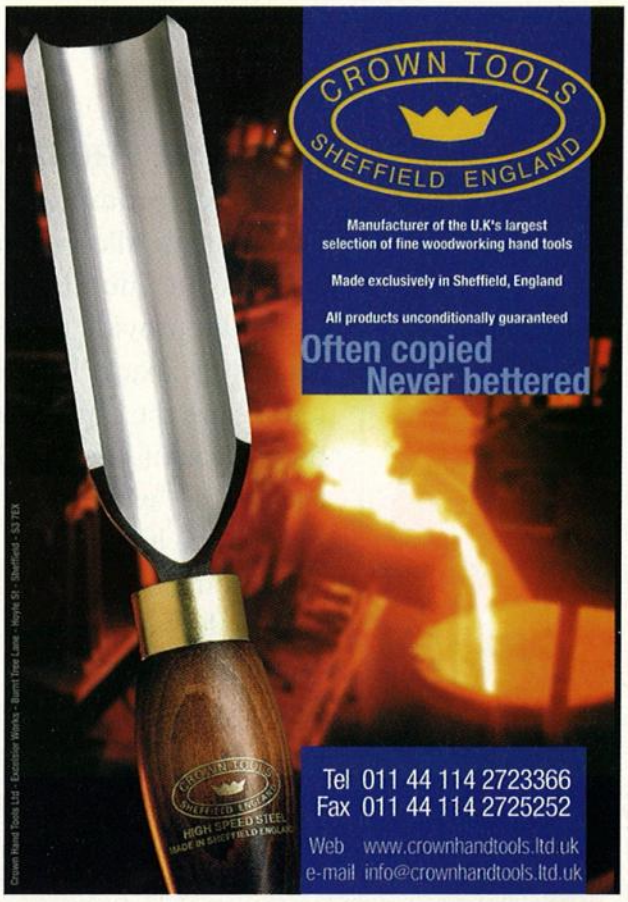

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TIPS&TRICKS

Dowel Tenoning Jig

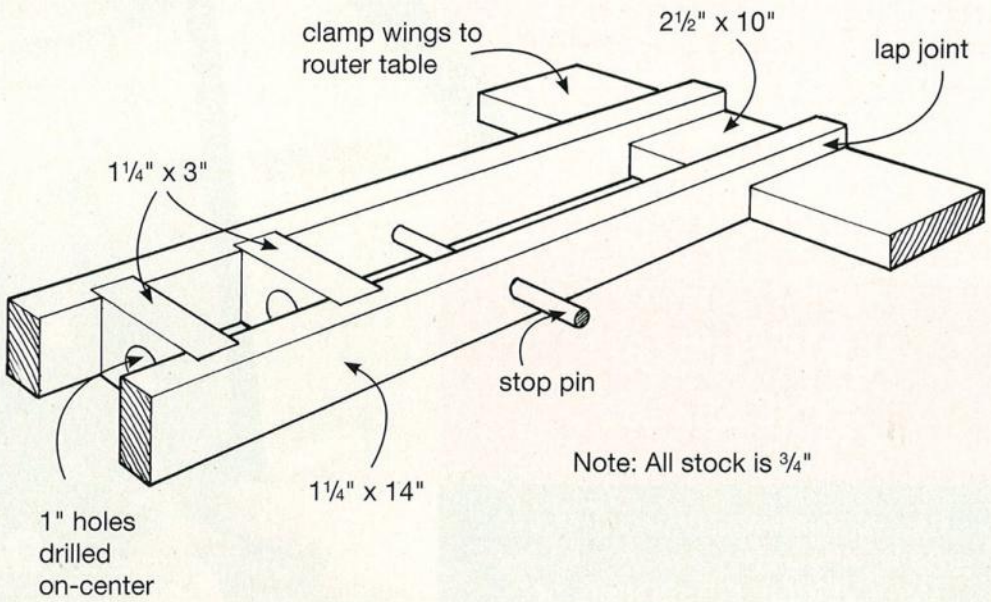
A RECENT PROJECT THAT REQUIRED multiple tenons in 1" oak dowels prompted me to build a jig to machine them on my router table. The jig allows you to feed the dowels through a pair of 1" holes and cut the tenon in much the same way as you'd sharpen a pencil. The two holes provide for a straight alignment while providing support against kickback. The ¼" dowel pin provides a positive stop so that all tenons are the same length. (I didn't glue the ¼" dowel in place, so it can be replaced if I adjusted it too close to the router bit and it became damaged.) The "wings" in the back can easily be clamped to the router table to hold the jig securely.

For a finer cut, twist the dowel as you slowly feed it into the bit. Some wax in the holes will reduce friction.

When machining the 1¼" x 3" parts, work with longer stock and drill them simultaneously by clamping or taping them together. The parts can then be crosscut to length at the same time if a short scrap of 1" dowel is placed through the holes to keep them aligned. It's also important to mark the top corners of both pieces so that the parts are assembled in the same orientation as they were cut. That way, even if the holes are slightly off-center, you'll still maintain alignment.

You can adjust the size of the holes and all parts to match your needs.

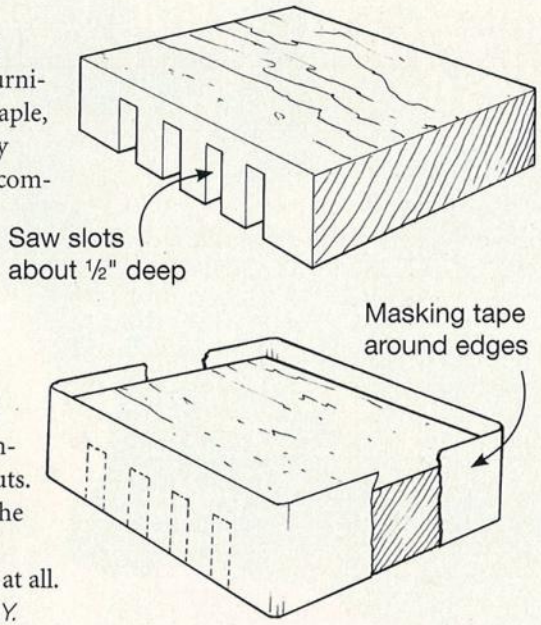
— Keith Wheeler, Frankfort, Ind.



ILLUSTRATIONS: MARIA MELESCHNIG

Designed for Dust

DOUG STOWE'S ADVICE IN THE MAY 2005 issue on making your own wood filler using wood dust and glue was an excellent solution for furniture makers using material with relatively consistent color such as maple, cherry and oak. Being a box maker, my dust collection bags are rarely filled with one species of dust, and even on my occasional furniture commission I use a lot of walnut with quite a bit of color variation. Here's a method for getting a great color match for small parts.



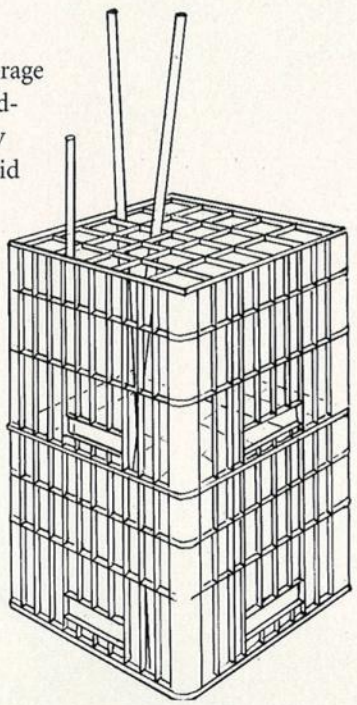
Cut a small block from scrap that matches the wood where the defect is. On the table saw make a series of parallel cuts about ¼" apart and at least ½" deep. Use masking tape to cover where those cuts exit the block and find the finest, most worn-out belt you have for your belt sander. Hold the block against the belt for a few seconds and turn the sander off with it still held in place. Lift the block off gently; static electricity will have held a nice amount of dust in the saw cuts. I label and save the blocks so I always have a source for fresh dust of the woods I use most often.

The small amount of tape in the mix won't affect your color match at all.

— William McDowell, Syracuse, N.Y.

Stackable Storage

I USE A COUPLE OF MILK-CRATE-STYLE storage containers to keep a large assortment of moldings and dowels organized. The crates usually measure about 12" on all sides, and have a grid on the bottom. Start by screwing two of them together, one on top of the other. Then turn them upside-down and attach them to a piece of plywood sized to fit the opening (which is now on the bottom). The resulting storage unit is light and inexpensive, and the two grids keep thin stock organized.



There are several variations you could use: Keep the crates in the intended open-end-up position, and use the open part for storage of short pieces and still use the grid for long, thin stock. You can add wheels for portability. You can even use it to store long-handled tools for the shop and garden.

— Kevin Hemmingsen, Wabasha, Minn.

Perfect height on the shaper

I'VE FOUND A WAY TO SAVE SETUP TIME and improve accuracy when switching between stile and rail cutters on my Delta 3-hp shaper for specific projects. I simply have each set of cutters on its own spindle. After initial setup with shims, all I need to do is replace one spindle with the other, and the cutting heights match perfectly. *— Paul Daigle, Cohasset, Minn.*

We would like to congratulate Keith Wheeler for sending in our favorite tip of the issue, his method for duplicating tenons using a router jig. For submitting the best tip, he'll receive a $100 Woodcraft gift certificate.

Woodcraft Magazine pays $100 for every submission used in Tips & Tricks. The submitter of the best tip of the issue also receives a $100 Woodcraft gift certificate. If needed, your tip should include a photo or drawing to help explain your idea. Your artwork doesn't have to be perfect; we'll have our illustrators redo all drawings. Send your tips, tricks and jig ideas, along with your contact info, to:

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HATCHING A GENRE

BY D WOOD

A happy marriage of lathe work and sculpture has made Betty Scarpino one of the country's most notable turners and studio artists. Exploring such concepts as motherhood, femininity and the boundaries of art, her Altered Plates and Egg Series could have inspired the term "lathe artist."

In 2002 the Renwick Gallery of the Smithsonian Museum in Washington, D.C. opened "Wood Turning in North America Since 1930." The exhibition included the work of such august classical turners as James Prestini, Bob Stocksdale, Art Carpenter and Rude Osolnik.

One might expect that a man on par with these grandfathers of the American lathe would give the keynote address. However, in an inspired move, the Renwick chose to highlight four female turners who had transformed the genre both in terms of its demographics and its forms. One of these women was Betty Scarpino.

It was a special moment for Scarpino. She was honored to be chosen as a representative of contemporary turning.

"It helped me step back from my anxieties about whether my work was good enough," she says.

Later, when she was invited to join Virginia Dotson, Michelle Holzapfel and Merryll Saylan in a panel presentation about women in woodworking, she saw it as the icing on the cake. Not only her art but her stature within the community was being acknowledged. In the elegant Grand Salon with its gilded frieze and art treasures, Betty Scarpino had arrived. Yet she soon packed her laurels into her suitcase and headed home.

Home, for Scarpino, means

LEFT, SHAWN SPENCE/REDUX PLUS

Indianapolis. It also means her skylit garage studio, her two sons aged 20 and 17, and the artistic community of central Indiana.

Lately, Scarpino's recognition in her adopted state has allowed her to expand her creativity beyond the realms of woodturning, and it is timely to review her 30-year journey. In order to do this, I spoke with her at Anderson Ranch in Colorado.

Scarpino was teaching at Anderson Ranch, a one-week course on using the lathe in conjunction with methods of cutting, carving, coloring and texturing to create sculptural forms. Scarpino presided over a class of seven turners as they moved back and forth between lathes and drill presses, bandsaws and hand tools as they emulated their instructor's own methods.

Scarpino is best known for her Altered Plates series of sculptural turnings. She begins by turning a uniform plate or disc, and then cuts it. The plates are carved; the discs undergo more cutting. The portions separated from the mother form, whether elaborately carved or simply modified, are then reunited.

Scarpino believes that the activity of removing sections of discs and putting them back together is a metaphor for human lives. We often mess up the components of our existence and are forced to reassemble them in unexpected ways. The results, frequently, are much richer than the original. I overheard observers of Scarpino's slide show exclaim in surprise that her beautiful sculpture was woodturning.

The freedom of limitations

Scarpino clarifies that there are two similar series – Altered Plates and Altered Discs. Both arose in large part due to limitations of the lathe, although Scarpino doesn't regard the word "limitation" as negative. She feels limitations provoke creativity.

"OVERLAY" IS CRAFTED *of maple and mounted on stained poplar. It measures 15" in diameter.*

One such limitation, her lathe's 12" capacity, prompted Scarpino to seek ways to give the plates more presence. She devised stands to complement each piece. Each with its own pedestal, the Altered Plates are "altared," referring not only to how the objects are displayed but to the importance of the personal transformation they represent.

Scarpino is a wordsmith and enjoys the meditative hours of carving and seemingly endless sanding that allow her to formulate profound, sincere titles and incorporate layers of meaning into her work. This is partly why she is invited to Anderson Ranch, where woodworking is regarded as artistic expression.

Scarpino's career in woodworking began at the other end of the art/craft continuum. She grew up in Montana in an environment unversed in either art or craft. Despite not knowing what a bandsaw or lathe was, she enrolled at the University of Missouri at the age of 25 in an effort to learn to work with her hands. She took classes in woodworking, metals and drafting, and graduated in 1981 with a degree in industrial arts. During her last semester she employed the lathe to make a bowl and a table pedestal; she took two semesters of wood sculpture as well. But she didn't realize there was a community of woodturners out there, pushing the craft far beyond these classroom experiences.

While she felt at home in the art department, it would be some years before she revisited that satisfaction. For a time, she simply wanted to make small items and furniture in her own studio. When her husband completed his PhD and the couple decided to have children, she purchased a lathe and a bandsaw with the goal of combining woodworking and motherhood.

The family of three (Scarpino was pregnant with her first son) moved to San Marcus, Texas and Scarpino spent several years working on the lathe. She made items such as cutting boards, candle holders, baby rattles and bowls in an effort to master technique. She was

"When I am interacting with a piece of wood and it is interacting with me, that is when I feel I am an artist. The process is more meaningful than the label."

still oblivious to the turning community until Bob Rubel, the first journal and newsletter editor for the American Association of Woodturners, knocked on her door. He wanted turning lessons. Scarpino was thereby introduced to the AAW.

An academic posting sent the family to Oklahoma where Scarpino entered her first competition in 1986. She says she expected to win first prize at the Forest Heritage Association show, thinking her unorthodox, knock-their-socks-off vessel would have no rivals, but she placed second after Alan Lacer (who later became president of the AAW). Lacer was just as surprised as Scarpino – he expected to walk away with the prize, but faced a serious threat from an unknown. A female unknown at that!

Making connections

The next year the family moved to Indianapolis, where a second son was born. Scarpino worked part-time as an editorial assistant for a history journal and continued woodturning in her basement. She went to an AAW conference and met Pete Hutchinson, who wanted to resign as the organization's volunteer editor. Scarpino readily assumed Hutchinson's duties and from 1990 to 1993 was editor-in-chief of the American Woodturner.

"I began to think about what it meant to have a record of the woodturning movement," she says.

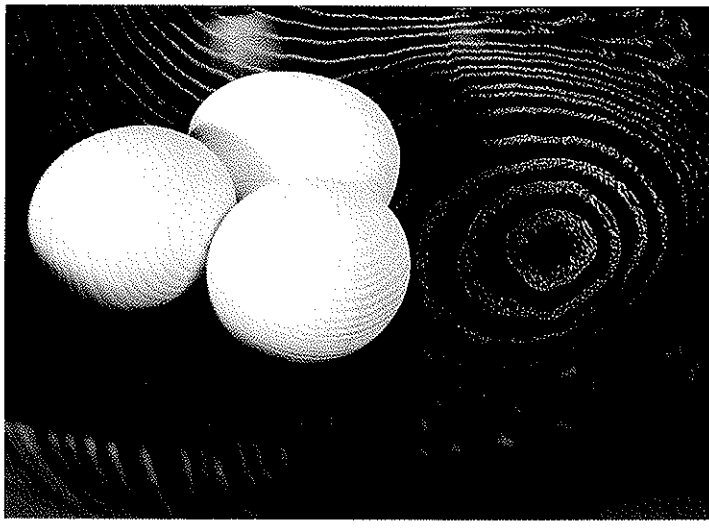
The result was that she made connections, did research and wrote about the development of woodturning so that current happenings would eventually become part of the movement's history. In addition she became aware of potentialities within the field and actually thought about her own work instead of just making it. As editor, she attended conferences and, setting aside personal bias, attended everyone's presentations to report on them. In this way she was exposed to and absorbed a range of concepts that she stored away for the future. After her tenure as editor, she devoted herself full-time to turning.

Scarpino's artistic journey into the mid-1990s had a logical progression – she had accumulated knowledge and ideas and honed the ability to express herself; she had made the effort to meet people and attended classes given by esteemed experts; and she had marketed her work to local galleries and given demonstrations. She had transformed from a turner making functional goods into a wood sculptor using the lathe as just one of many tools.

When the spotlight shone on her, Scarpino was lauded as an overnight success. More realistically, it was years of practice, learning and networking that brought recognition to her unique work.

She began to create the Altered Plates at this time. The 10th anniversary AAW show entitled "Growth Through Sharing" (1996) was Scarpino's first national exposure; the accompanying catalog contained her entry, "Stepping Out of Line." The title refers to the lines created by the lathe as well as the tradition of unadulterated wood.

There was meaning, too, in



BLACK AND WHITE, *a recurring color choice in Scarpino's work, play a dramatic role in her piece entitled "Vessel."*

MOST OF SCARPINO'S WORK – *like "Forms of Desire," shown here – requires a variety of combined colors and finishes.*

Scarpino's choice of paint color: black and white. There are no black-and-white or hard-and-fast rules about art. More often than not, those who take exception to the rules get noticed more than those who follow them all.

A detail of "Stepping Out of Line" appeared on the cover of the exhibition catalog, selected by its editor, Rick Mastelli. Subsequently, the piece was purchased by Robyn Horn, a prominent collector and turner. Scarpino's stepping out of line was recognized.

Horn invited her to submit entries for "Moving Beyond Tradition: A Turned Wood Invitational" in Little Rock, Ark., in 1997. Scarpino credits some of her turning mentors in the exhibition catalog: Merryll Saylan, whose work "allowed me to consider using color with wood"; and Mike Hosaluk, John Jordan and Steve Loar, who "encouraged early forays into woodworking beyond making bowls." One of her submissions, "In Lieu of Housework," permitted her to express herself as an artist and obliquely as a woman.

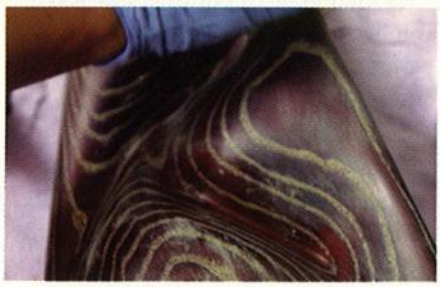
"We didn't talk about ourselves because it wasn't done," she says. "It's different now. Women are entities in and of themselves, and my gender is part of what informs me. I make a concerted effort to express who I am – a mother, a woman going through menopause."

Her Egg Series more openly addresses feminine motifs.

"Blue Egg Bowl" (1998) was the first of these pieces. The eggs and their containers speak of birds and nests; birth,

After staining and clearcoating, Scarpino begins to rub in a coat of liming wax.

The liming wax, tinted with yellow pigments, is rubbed deep into the grain.

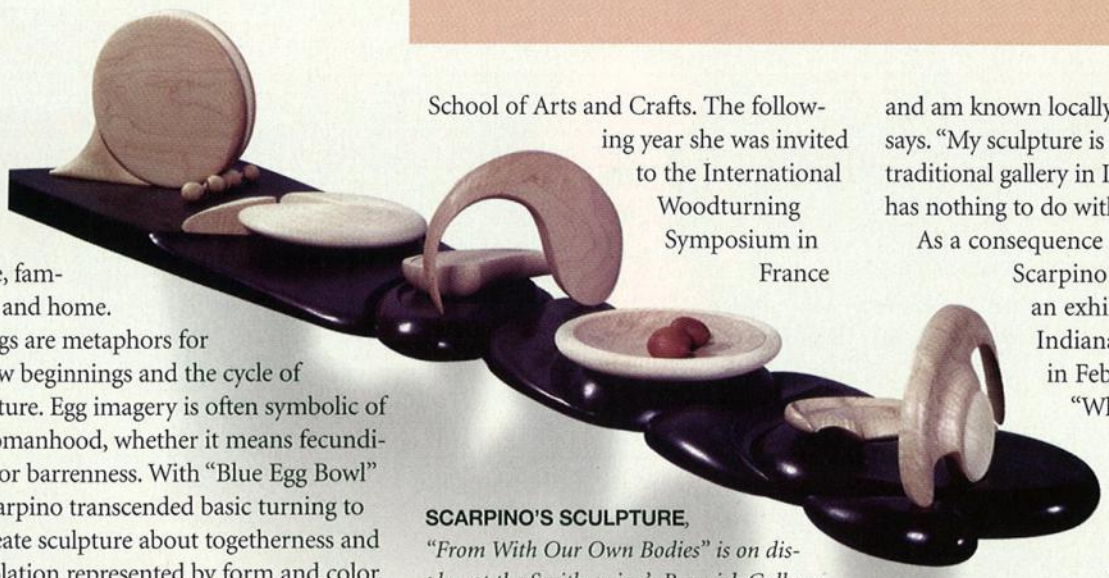


The wax is removed with fine steel wool.

The top form receives a coat of shoe polish on top of yellow stain.

A thorough rubbing with fine steel wool leaves coloration only in the grain.

SHAWN SPENCE/REDUX PLUS



SCARPINO'S SCULPTURE, *"From With Our Own Bodies" is on display at the Smithsonian's Renwick Gallery.*

life, family and home. Eggs are metaphors for new beginnings and the cycle of nature. Egg imagery is often symbolic of womanhood, whether it means fecundity or barrenness. With "Blue Egg Bowl" Scarpino transcended basic turning to create sculpture about togetherness and isolation represented by form and color. It also initiated Scarpino's entry into fine-art circles when it garnered a first-place award in a regional juried exhibition at the Indianapolis Museum of Art Columbus Gallery.

Answering questions

By the late 1990s, Scarpino had confronted many of her troubling questions about creating art, such as, can a woodturner be an artist? Is turning fully satisfying? Can a lathe be used to make sculpture? Why use a lathe at all if the intent is sculpture?

"I felt like an outsider in the turning community," she says. "I was not doing what others were doing and not willing to do what they were doing. Although it was easier to stay within that community, I was a big fish in a little pond. Finally I decided that I had flopped around in the pond long enough and it would be more challenging to be in a larger community."

And while she has made the decision to expand her boundaries into the realm of art, she often revisits the familiar territory of turning.

For instance, in 1999 Scarpino was selected by Philadelphia's Wood Turning Center to be an International Turning Exchange fellow. The ITE will have a retrospective this year and the internationally dispersed participants from the past 10 years will reconvene. Also, in 1999 she received an Excellence in Craftsmanship Award from Arrowmont School of Arts and Crafts. The following year she was invited to the International Woodturning Symposium in France as one of six American representatives; she was invited again in 2003.

Scarpino will also be the guest later this year of "Turn-Fest '05," an Australian conference and roster of workshops. And in 2006 she will be the first artist-in-residence at the Center for Turning and Furniture at the University of Indiana, in Indiana, Pa. The turning community doesn't seem too anxious to be rid of Betty Scarpino: With adoption of designations such as "lathe artists," the sculpturally inclined contingent is proliferating. Turning is evolving.

In 1999 Scarpino was one of 50 artists statewide to receive a $7,500 Creative Renewal Grant from the Indianapolis Arts Council (IAC). In 2002 she was commissioned by the IAC to make six works that would be given as awards to individuals who had contributed to the arts in Indiana.

"I introduced woodturning as art to Indianapolis and it has been embraced by the arts community as an art form. I have been invited to give slide lectures and am known locally as an artist," she says. "My sculpture is represented by a traditional gallery in Indianapolis and it has nothing to do with turning!"

As a consequence of the latter, Scarpino took part in an exhibition at the Indiana State Museum in February entitled "Whispers to Shouts: Indiana Women Who Create." The piece she displayed was "From Within Our Own Bodies," which is in the collection of the Renwick Gallery. In August she will have a solo show at the Indianapolis Art Center to coincide with the opening of its Sculpture Garden. And another solo show is scheduled in March 2006 at the Ruschman Art Gallery in Indianapolis.

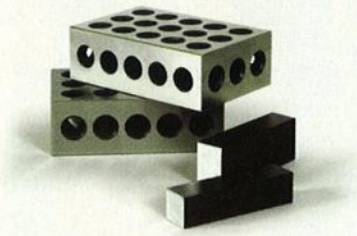
Scarpino is gratified to be accepted in the world of fine art. Much as her presentation at the Renwick signified her stature as a turner, her acclamation in art venues is a personal victory. For most of her life Scarpino felt that the label "artist" was only accorded to graduates of accredited arts programs. She struggled with the notion of designating herself as one, but now that she can justifiably use the label, she places importance elsewhere.

"What I find most satisfying is the ultimate connection with something greater than myself," she says. "When I am interacting with a piece of wood and it is interacting with me, that is when I feel I am an artist. The process is more meaningful than the label."

D Wood

D Wood has an MFA in furniture design from the Rhode Island School of Design. She is a freelance writer for a variety of international craft and art publications. When not writing, she teaches design at Tucson Design College and explores the Arizona desert.

{ meet *Gordon Mitchell* }



VISION FOR A CHALLENGE

BY EARL STRESAK

Gordon Mitchell learned woodworking back in public school many decades ago. Now retired after many successful years as a computer programmer, he's finally finding time to indulge his passion for woodworking in his fully equipped shop. The fact that he's totally blind barely slows him down.

Visitors can find it a bit unnerving to stand at the threshold of Gordon Mitchell's shop and hear the screech of a table saw coming from inside the pitch-black basement. Is someone actually working in there on a power saw in the dark?

That would be correct.

To blind woodworker Mitchell, shop lights are strictly optional equipment.

People's reaction to his working in the dark can make Mitchell chuckle a little.

"Sometimes I forget to turn the lights on and people walking down the steps to the shop get a little nervous hearing me bang around in the dark," he said.

When he built and wired the home shop himself at his Brantford, Ontario, home, fancy track lightning was probably Number 125 on his list of Top 100 things to get.

Paramount in his mind was the welfare of family members whose allergies would be aggravated by excess sawdust.

"I sealed the walls and ceiling really well and put in an air cleaning system," he said.

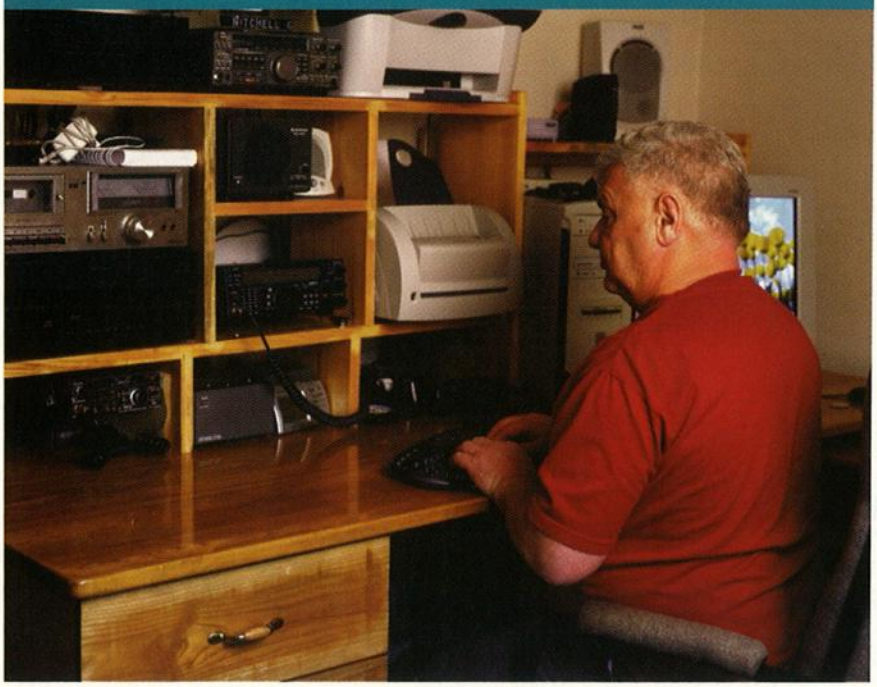
Next on his list came tools, including power tools, which he feels less guilty indulging himself with since his four children have grown and Mitchell himself has retired from full-time computer work.

"Thank goodness that my wife understands about my lust for tools," Mitchell laughs. She also takes time to drive Mitchell to area woodworking shows where he also lusts after new knowledge to take back to his shop.

His wife Linda works at a hospital in Brantford, a city of about 88,000 people 90 miles north of Toronto, where the couple makes their home. It's also where Gordon spends long hours working in his 12' x 29' shop, well equipped with a 10" table saw, a band saw, router table, a 12" planer, scroll saw, chop saw, drill press, biscuit jointer and 6" belt sander, among other tools.

He has built a variety of projects, small and large – pushcarts and window boxes for his home garden (four at a time), a 7' ash desk they use each day, a sewing thread holder for his wife. He's currently building a whirligig for the couple's garden.

COREY MIHAILUK/REDUX PLUS



THIS ASH DESK *is the heart of Mitchell's computer center.*

"If my work pleases my wife, what more could I wish for?" Mitchell wrote in an article posted on the internet at WoodCentral.com.

Mitchell has also successfully tackled construction projects. He and his 13-year-old daughter built both his home and shop. With the help of a sighted person for direction, he has installed wiring, climbed a roof to hammer down shingling and even hauled up and installed trusses.

Mitchell often uses phrases such as "I see," or "I was looking that up." But to understand the sightless woodworker's attitude toward life is to understand that inside his mind's eye, he sees things very clearly indeed. He cites his "bull-headedness" as a reason for his being able to tackle challenges that could seem overwhelming to others, but Mitchell has had some practice in overcoming challenges.

A nightmare event

How Mitchell lost his sight is a dramatic story that is testimony to life's uncertainties and his own strength and perseverance in overcoming adversity. He was born and raised in Toronto and until the age of 21 had a relatively normal life. That changed dramatically one night in Toronto in June of 1965.

"I was out in the evening with a buddy," Mitchell said. "We were sitting on my car fender in front of his home, a block and a half from my house."

As the two made small talk and enjoyed the outdoors during a time of day when life in a big city slows down, not far away another 21-year-old man, drunk and despondent after an emotional breakup with his wife, had just left his house with a loaded shotgun.

"He ran through his backyard and hopped a fence. That was about the time we saw him," said Mitchell, recalling his first glimpse of the enraged man as he ran past. The man stopped about 5' away from the pair, raised the shotgun, and pulled the trigger. "That was the last thing I ever saw."

The assailant fled, and Mitchell's friend – who wasn't hit – rushed him into his house and called police as his mother tried to tend to the injury. The police arrived to find the gunman crouched behind Mitchell's car, and took him into custody.

Mitchell underwent surgery that lasted several hours. "They removed 26 pellets from my right eyeball alone, 16 from the left eyeball," he said. He was unconscious for one week and in intensive care for two weeks. When he awoke in the hospital, his mother told him what had happened.

"The first thing I said was, 'Mum, call work and tell them I won't be in for a few days.' That was my main concern for next month and half while I was in the hospital. How am I going to work? How am I going to make a living? It was so much a big part of my reality."

Forty-some years later, Mitchell still carries a few of those pellets in his head and face which show up on X-rays.

Life after blindness

As could be expected, losing his sight changed Mitchell's life in ways he wasn't prepared for.

"It was a growth period for me because I had no knowledge of blindness or what blind people could do," he said. He had some stereotypical notions of sightless people that would be dispelled. "All I knew was that they sold papers out of a booth on the corner and you helped them across the street. I found the world was not really equipped to deal with blindness. You had to be strong. People would insult your intelligence and say you couldn't do things."

After training in a school for the sightless, Mitchell studied computer programming at the University of Manitoba, then went to work for the Canadian government as a programmer. He worked there for seven years. After government service, Mitchell spent much of his life as a computer programmer and analyst, working contract jobs, but he also traveled down some interesting side roads that included running a successful small business – a dog kennel.

It wasn't anything he thought he'd ever do, but when he learned the kennel came with a business license and six acres of land, he decided to give it a try.

"When I opened, I wondered if people would have use for a blind guy taking care of their dogs," he said. His

COREY MIHAILUK/REDUX PLUS

"My wife's tole painting has come in handy covering up my mistakes."

worry proved unfounded when the business blossomed. "After a year of service, I had to build an addition to double the capacity. I could write a book about the people who brought their dogs back and told their friends to bring their dogs. I had 40 dogs, everything from pocket poodles to Newfies, plus cats and birds."

Using the computer as his eyes

Mitchell's background in computers and software developed for sightless people have been a good match for him. Computer screens exist that can utilize Braille, plus Mitchell employs a software program that translates text files into audio.

"You have a hardware synthesizer, or you can have a sound card," he said. "Everything else is the same as on any other computer."

A drawback for Mitchell is that the program doesn't read photos or graphics. A message comes back giving him a code number. "They [photos] are not there as far as the computer is concerned," he said.

That is a problem in a computer environment saturated with pictures and graphics. When the program reads a description of a woodworking project and comes to a picture, Mitchell can have a problem understanding project instructions. When this happens, he e-mails the author of the article, explains that he's blind, and asks for clarification. Answers aren't always forthcoming.

"I get about 25 to 50 percent returns," he said, which greatly hinders his desire for more woodworking knowledge.

Unanswered questions are only part of Mitchell's frustration in bridging this communications gap. To understand his predicament, try explaining how to build a wood project using only verbal communication – no pictures or blueprints; or using your hands to illustrate shapes, sizes and procedures to explain something to another person.

"I always wanted to make a whirligig," Mitchell said, remembering them from his sighted days. He found a man who makes them and asked for an explanation of how to build them.

"I asked if he could explain how his whirligig works. People have told me – a prop goes around, there is a wire joint through the guy's arm, etc. I can visualize that, but not enough to go down to the workshop and build one."

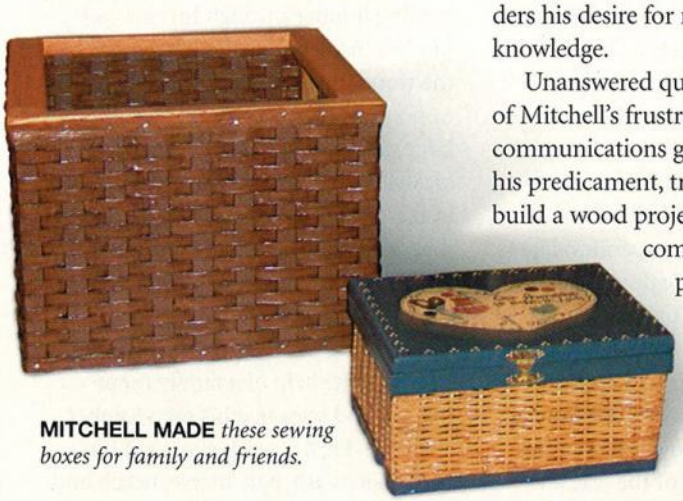
Mitchell hoped for a step-by-step, verbal explanation of how to build the whirligigs.

Like many folks, the whirligig maker could build one – but couldn't effectively explain how he did it.

"He had one heck of a problem explaining it to me," Mitchell said. "He could not describe, in words, anything about it, because he'd never had to do it. I'm not knocking him. It was just that he had never had to explain something to a blind person. You just have to say, 'OK, this guy is blind. How would I describe what I'm doing here?' I just need step-by-step instructions."

Mitchell sometimes asks his wife to explain what is in a photo, but as in any

THE MAILBOX ON MITCHELL'S HOME *combines his woodwork with Linda's painting.*



MITCHELL MADE *these sewing boxes for family and friends.*

LINDA MITCHELL

household, time is at a premium. Linda works full-time and has her own interests and hobbies – she is a tole painter and gardener, and is not always available. During the day, Mitchell will resort to e-mailing people, then hope for a response.

"I do a lot of router work, finger joints, and so on," Mitchell said. "One day, someone on the Internet wrote about a finger-joint modification. I wrote the chap because he had done the explanation in pictures, but so far I haven't heard back."

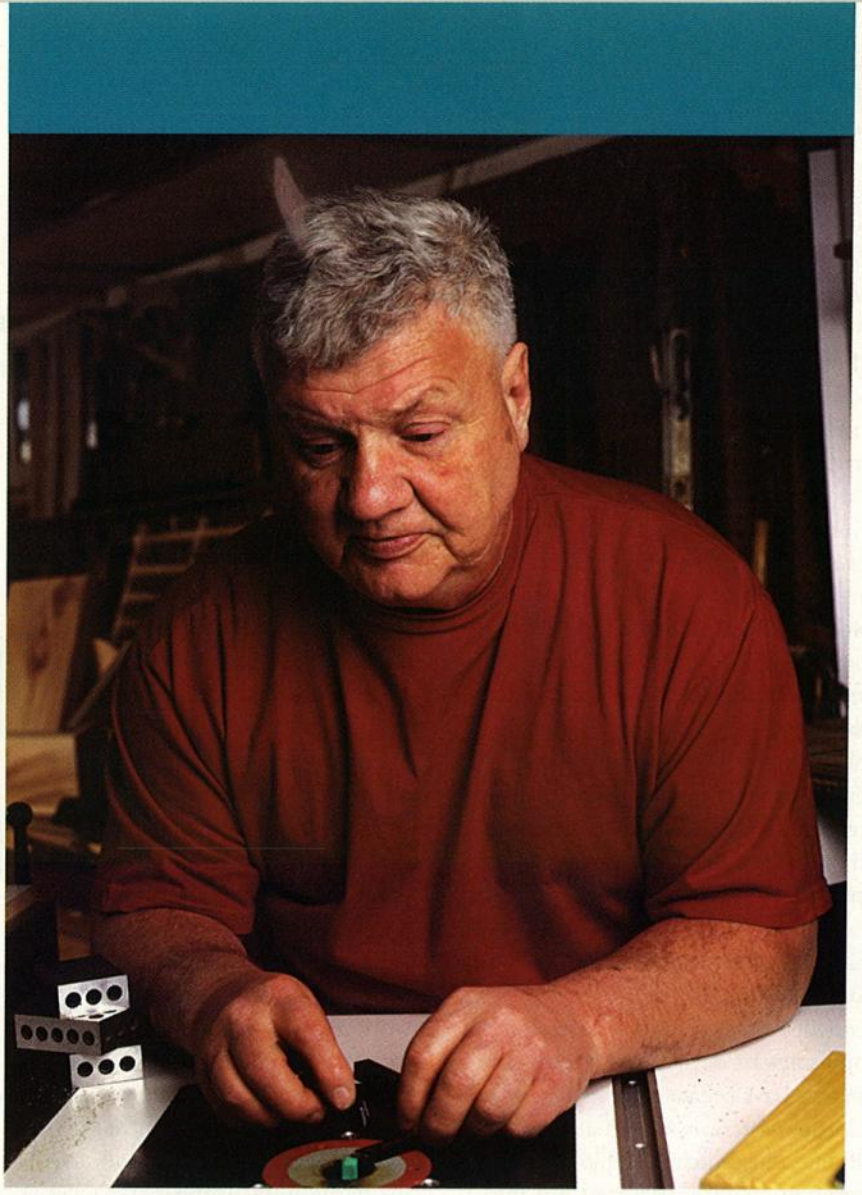
Things that most woodworkers take for granted, like looking at a picture for clarification while planning out a project, can quickly put the brakes on a project. He has tried using patterns for his work, but said he prefers to develop a clear step-by-step mental picture of a project in his head. It's extremely useful for Mitchell to run his hands over a completed piece he would like to build. It helps set a mental blueprint in his mind. Once his mind has grasped the whole construction concept, he can forge ahead on just about anything.

Techniques in his shop

Like his computer and its audio system, Mitchell's hands and fingers provide another part of his vision system for woodworking. He can do most any procedure others can do in a shop, although more slowly, which means carefully setting things up and double-checking all facets of a job. Mitchell said he may cut or shape a piece of a project several times before being satisfied with it. What someone else might do in minutes, might take him hours or even days, but he doggedly persists in doing whatever needs to be done to get the project done.

"My wife's tole painting has come in handy covering up my mistakes," he laughed.

Dropping things on the shop floor can also mean an aggravating loss of time, forcing him to get down on hands and knees to feel around for a part, fastener, nail, screw or tool.



MEASURING BLOCKS IN VARIOUS SIZES *ensure correct setup for Mitchell's power tools.*

One of his most valuable tools is a shop apron with plenty of pockets to hold things for easy access. He jokes that another valuable tool is a good belt to hold his pants up as he often stuffs things into his pockets, too.

Like any other woodworker, shop safety is always on Mitchell's mind, so he takes precautions to accommodate his sightless lifestyle. He does use hand tools, but his primary power tools are of the table variety, in permanent fixed positions so his movements around them can be consistent and measured. He doesn't start any power tool unless his hands are well out of the way and his body clear of danger, although he confesses to occasionally nicking fingers while trying to guide a drill bit.

He does not use a push stick for guiding lumber through his saw, as it hinders his "feel" for the movement of the wood. Instead he uses a metal guide or boot. He stands to the side of his large table saw as a precaution against kickback, and he listens for any change in the sound of the motor or blade pitch that warns him of possible trouble. The only power tool he will not use by himself is the scroll saw.

He works in all types of wood and has, with the help of a family member, cut and seasoned his own lumber stockpile. He has worked a good bit with cherry, ash, oak, maple, beech and hickory, but prefers working with softwoods like pine and cedar. Mitchell can distinguish hardwood from softwood by

COREY MIHAILIUK/REDUX PLUS

its weight, but cannot "feel" the grain to tell the different types of wood.

Measuring blocks – his shop lifeline

Mitchell uses a 12" and 36" folding ruler with Braille markings. Those are the only tools in the shop that could be considered "tools for the blind." He has used audio and "talking" tape measures, but found them annoying. One day Linda gave him a present that has become his trusted standby – metal measuring blocks.

Mitchell finds that the set of Veritas set-up blocks given to him by his wife has become his "constant companion." The anodized aluminum set contains five 2" long blocks 1/16" through 3/4" thick and are accurate to within 0.0002". He also uses a companion set of steel blocks, dubbed "1-2-3 blocks," so named for their 1"x 2" x 3" size. Combined, his blocks will stack from 1/16" to 4 11/16" in 1/16" increments.

His only regret about the handy metal blocks is that a 1/32" or thinner block is not available. He has used the blocks to set his biscuit jointer, Kreg jig, table saw and router fences, plus the depth of saw blades and router bits.

Mitchell said he has even used them to put up curtain rods.

Greatest regret

Mitchell was first exposed to woodworking in Toronto while still in public school, and learned then that he enjoyed it. Although he continued working in wood throughout his life, he believes his retirement has finally afforded him time to really grow and push his techniques and skills up a notch. Being able to glean more information from the Internet and the woodworking shows Linda takes him to has been a real boon. It has made him conscious of the myriad techniques, materials and options open to him as a woodworker.

"You open a newspaper or magazine every day and something new catches your attention. I have missed a lot of that," he said. "I'm looking back at myself and saying, 'You're old-fashioned in your work habits.' Through all those years, I didn't progress as a woodworker; I didn't learn.

"Sometimes I feel so in need of knowledge. I would love to take courses. But, what I've learned over the years is that there are very few courses that are designed for disabled people, and not many teachers that would accept a blind person in a workshop where there are power tools." Mitchell would love a chance to just sit and listen inside a classroom.

Ambassador for the blind

"I like to think of myself as an ambassador for the blind." he said. "I like to think that I can help somebody coming up behind me."

Mitchell hopes that maybe someone, somewhere, might have a neighbor who is blind and they can help that person get into woodworking and strive for knowledge and self-sufficiency.

"Blindness is a disability you can live with, and survive with; you simply have to do things differently," he said. When thinking about others with disabilities, Mitchell has often thought that in some way he might be able to help. To that end, he hopes that any disabled people reading this profile will understand that the things he has done, they can also do.

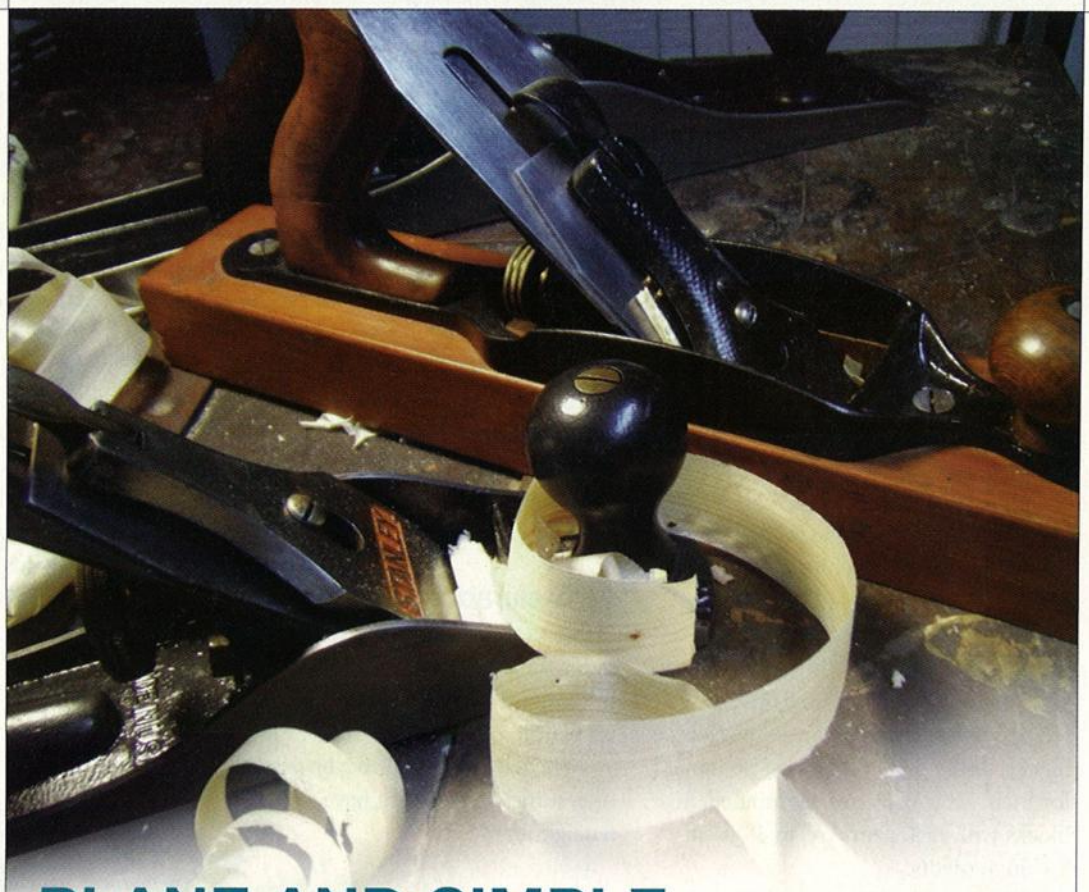
There's a good chance that while working down in his basement woodshop – in the dark – Gordon Mitchell has already shed a lot of light on what people can accomplish when they set their minds to it.

THIS PLANTER *is one of several pieces Mitchell has made for his home.*

LINDA MITCHELL

Earl Stresak

Earl Stresak is a Branson, Mo., freelance journalist who specializes in articles on outstanding woodworkers. By day, Stresak is a newspaper reporter who covers local issues and stories.



PLANE AND SIMPLE

There's just nothing better than finding a bargain tool at a flea market or antique mall – unless it's restoring that old piece of iron to perfect working condition. Using the classic Stanley No. 4 bench plane as an example, here are some easy steps to plane restoration that can be applied to almost any hand plane you find. **By Kerry Pierce**

WITH THE EXCEPTION OF ONE STANLEY BLOCK PLANE, every woodworking plane I own came from a flea market (or from eBay, the "digital flea market"). Most were rescued from a table or box piled high with moldering woodworking tools. Unfortunately, this is the fate for which many woodworking planes are destined. Not because they aren't useful tools – on the contrary, planes are eminently useful, and when properly tuned offer some of the most sublimely satisfying workshop experiences. Instead, these tools are relegated to the discard bin because they can be difficult to use, even for otherwise accomplished craftsmen.

A hand saw, by contrast, can be made to work right out of the box, by even a beginning woodworker; the same is true of most typical shop tools. Experience always leads to better results, but most tools perform their designated tasks even in inexperienced and unskilled hands.

Woodworking planes, however, are more challenging for the uninitiated to operate. In order to make shavings, the plane iron must be sharp, correctly bedded, and set at the right depth. Further, the plane itself must be moved across the workpiece in the correct manner. If any of these conditions are not met, a plane simply doesn't work properly.

The banishment of woodworking planes to the discard bin is, oddly enough, good news for any woodworker short on funds. As a result of the frustration experienced by many former owners, barely used planes of decent quality are often available at modest prices at flea markets, garage sales and antique malls.

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THE STANLEY NO. 4 IN THE FOREGROUND, *acquired on a recent shopping trip, had a fair amount of visible rust, flaking paint and a badly ground iron. The Bailey transitional plane in the background was in better shape, needing just a bit of fine-tuning. The restoration procedure in this article can apply to both types of planes.*

ranging from $250 to $325. By contrast, the used Stanley No. 4 pictured in this article cost me just $25 (and they often sell for less on eBay). I don't claim that my used Stanley is comparable to the Lie-Nielsen No. 4. – a Lie-Nielsen plane is, after all, a meticulously crafted modern version of a top-of-the-line Stanley, not a consumer-grade plane like the one I restored. Nevertheless, my refurbished No. 4 can do almost everything that the much more expensive Lie-Nielsen No. 4 can do.

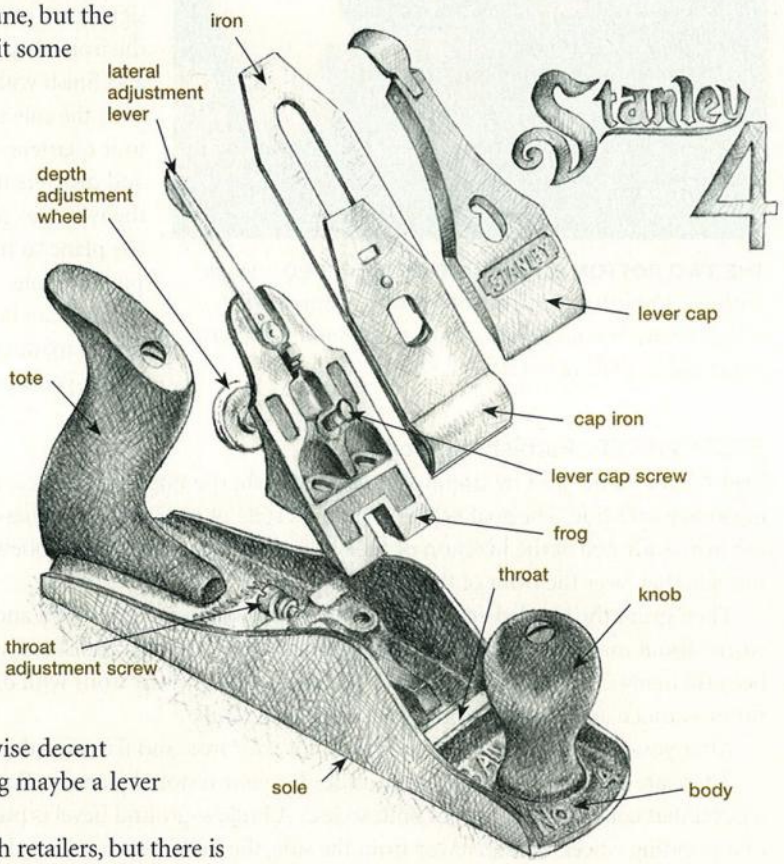
While many used planes are well worth the labor it takes to restore them, others aren't. Sometimes they're inferior tools to start with, but more often it's because they were so badly abused by their previous owners that it would be almost impossible to return them to working order.

Avoid tools that were manufactured cheaply. The poorest planes are those with stamped metal frogs (the wedge-shaped piece against which the iron is bedded) and lever caps (this piece sits atop the blade/cap iron assembly and holds it tightly against the frog through the use of a cam-shaped lever). Even brand new, these tools wouldn't have provided the smooth, chatter-free service you can get from a more substantially fabricated tool, one with a cast iron frog and a steel lever cap. You should also avoid tools that have an unfinished appearance, raw casting edges or coarsely sanded knobs and handles (also called "totes"). If the tool looks cheaply made, it probably is.

Then the decisions get tougher. Should you, for example, buy a plane with a slightly twisted sole? Maybe, particularly if it's a type you've been unable to afford in better condition. It takes time to flatten the sole of a cast iron plane, but the truth is that almost every used plane will exhibit some degree of twist.

Then there's rust. Some examples will have ground surfaces barely sprinkled with rust that can be removed quickly with no negative consequences for the tool's performance. But I've also seen tools so badly rusted that adjustment screws are frozen in place.

Still, I'm attracted to tools with a fair amount of rust because it keeps the price low. Besides, I know I can remove the rust if I'm willing to invest a little sweat. And in our household, there's always a greater supply of sweat than money.



STEP ONE: Parts inventory

Whatever shape your tired old plane is in, let's bring it back to working condition.

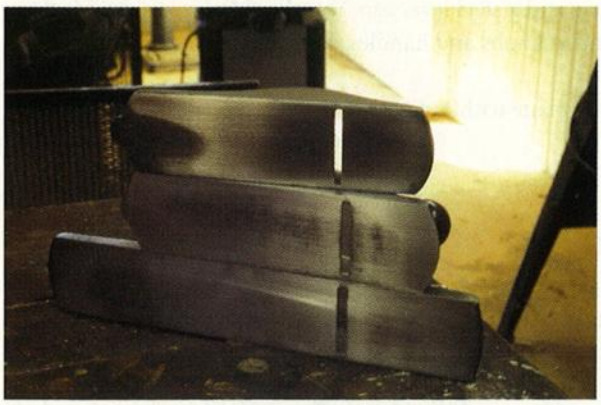
The first thing to do is disassemble the plane and verify that all the necessary parts are present and unbroken. I try to buy planes with all parts intact, but if a plane is in otherwise decent condition, I'll sometimes get one that's missing maybe a lever cap or an iron.

Many replacement parts are available through retailers, but there is another, less expensive source of parts. Whenever I can do it cheaply, I just buy

PHOTOS & ILLUSTRATION: KERRY PIERCE

junk planes to save for parts. Maybe the sole is cracked, but the cap iron, lever cap and the iron itself might be fine. In fact, by shopping carefully you can buy an entire junk plane for less than the price of a new replacement iron.

RUB THE SOLE OF THE PLANE BODY *back and forth along sandpaper you've attached to your lapping table to achieve a truly flat sole.*



THE TWO BOTTOM SOLES HAVE BEEN LAPPED *enough with the 100-grit paper. The sole on top, however, still has a low corner, so it needs a few more passes on the 100-grit paper before shifting to 150.*

STEP TWO: Flat and true

The actual restoration begins by flattening and straightening the sole. A good straightedge will tell you if the sole is flat along its length, and a pair of winding sticks (nothing more than a pair of thin, straight pieces of wood) will tell you if the sole has any significant twist.

To determine twist, turn the plane upside down and lay a winding stick on one end of the sole perpendicular to the plane's length, and the other winding stick on the opposite side in the same manner. Then sight along the plane from front to back. If the sole is good, the tops of the winding sticks will be parallel with each other. If the sole is twisted, the sticks won't be parallel.

Flattening and straightening the sole is most easily done on a lapping table of some sort. Any flat surface large enough to lap the sole of your plane will do, such as a sheet of plate glass or the surface of your table saw. (I use an old marble windowsill to which I've affixed strips of sandpaper with spray adhesive.)

Lap the plane's sole on this flat abrasive surface, changing the sandpaper when it gets dull. When lapping a plane with a significant amount of twist, start with 100-grit paper, wearing the iron away until the sole is flat. Then switch to 150-grit, and finish with 220-grit to polish the sole.

If the sole is badly twisted, visualize the sole divided into four quarters – one and two on the front half of the plane, and quarters three and four on the back half. If, for example, the twist has caused quarters one and four to be high, I hold the plane so that only those quarters are reduced when lapping the sole.

This can be a little tricky, but if you don't visualize the sole in this manner, you run the risk of repeating the twist with which you started.

STEP THREE: Furbish the iron

Begin work on the iron by lapping the back on a sharpening stone. I use a diamond stone for this process, although an oilstone works fine. The goal here is to attain a state of near-perfect flatness – this is important because the cutting edge of the iron is formed at the junction of the back of the iron and the microbevel on the front. (The back of the iron is actually the side that faces the front of the plane.)

Then grind the beveled end so that it's both straight across its width and perpendicular to the sides of the iron. Don't worry about maintaining the bevel at this point; that's an issue you'll deal with in the next step. This may take some time because many used planes have simply terrible bevels on their irons with dips and hills across their widths that are sometimes as much as five or six degrees out of perpendicular.

After you've squared up the business end of your iron and flattened the back, you're ready to grind the bevel.

There are two kinds of bevels to consider for your restored plane: hollow-ground and flat-ground. (Some craftsmen use a bevel that combines features of both styles.) A hollow-ground bevel is produced by grinding the bevel on the round edge of a grinding wheel. When viewed from the side, the hollow-ground bevel retains the radius imparted by the round grinding wheel. A flat-ground bevel is created by grinding on the flat side of a grinding wheel.

THE UNFURBISHED IRON ON THE LEFT *is the iron from the No. 4, and shows what you'll find on the irons of most flea-market planes. First, the cutting edge is not straight and perpendicular to the sides of the iron. Second, the bevel is crowned, probably as a result of a honing at the hands of an inexperienced craftsman. It compares poorly to the pair of freshly furbished irons next to it.*

TO FURBISH AN IRON, *begin by lapping the back side on a honing stone, keeping it perfectly flat as you work it back and forth.*

CHECK THE CUTTING EDGE WITH A SQUARE, *and regrind it square if needed. Don't worry about the bevel at this point, as you'll redo it soon anyway.*

Both styles of bevels have their adherents, and either can be brought to a satisfactory level of sharpness when honed. I prefer a hollow-ground bevel, probably because that's the type of bevel I first saw as a boy working in my dad's shop. Plus, there's no doubt that a hollow-ground bevel is easier to hone since there is a necessarily smaller surface to flatten.

To create a hollow-ground bevel, adjust the grinder's tool rest so that when the iron is positioned flat on the rest, it's positioned at the correct angle in relation to the grinding wheel. Slide the iron back and forth across the rest in slow, rhythmic strokes, keeping the front face of the iron flat on the rest and the beveled edge of the iron in light contact with the wheel to create a consistent bevel across the full width of the iron.

As you work, remember that the friction of the grinding wheel against the iron produces tremendous heat, so cool the iron by frequently dipping the beveled edge in water to minimize the risk of "burning" it.

If the iron is poorly ground – and it seems to me that almost all used planes have poorly ground irons – it may take a while to grind an entirely new bevel on the squared-up end, but don't hurry. If you're too aggressive at the grinding wheel, you could burn the iron and cause it to lose its temper (and perhaps you to lose yours). You'll know you burned the iron when it changes color, flashing a sudden rainbow against the wheel of your grinder and leaving behind a sooty edge. A burnt iron can be retempered, but it's much easier to avoid burning the iron in the first place.

Most of my bench planes are beveled in the 25-degree range, which I've found to be a good compromise between performance and durability. I also use a bevel in the 33-degree range for my scrub plane, achieved by putting a 5-degree second bevel on the back of the iron. This second bevel has the effect of changing the 45-degree attack angle to a steeper 50 degrees. I've also experimented a bit with this bevel in smoothing planes, and I'm beginning to think it's a useful option for planes used on figured material.

Once you've created a primary bevel on your grinding wheel, you're ready to hone a microbevel – a very narrow (less than 1/32" in width) secondary bevel. Here, too, I've switched from the oilstones I used for many years, to a diamond stone.

To create the microbevel, grasp the iron in both hands to maximize your control. Hold the iron so only the tip of the bevel makes contact when you rub it against the stone. You can do this with straight strokes by pulling the iron from one end of the stone back toward your body. You can also rub the iron in a circular motion across the surface of the stone. Either method produces satisfactory results.

After a half-dozen strokes, test the back side of the iron at the tip by rubbing your thumb up toward the cutting edge. Don't draw your thumb along the edge itself because, by this

POSITION THE GRINDER'S TOOL REST *to create the correct bevel angle when the front face of the iron is on the rest. Slowly move the iron back and forth across the rest, keeping the edge in contact with the wheel. Continue grinding until the bevel is no more than 1/32" from the iron's cutting edge.*

HOLDING THE IRON SECURELY *in both hands, create your microbevel.*

time, the iron could be quite sharp, and you could slice open your thumb with only the slightest pressure.

You should feel a small burr on the back side of the cutting edge. If there is no burr, take another half-dozen strokes on your stone and recheck. If there is still no burr, either you're holding the iron at too shallow an angle when you rub it across your stone or you need to do more work on your primary bevel at the grinding wheel.

The burr itself would act as a cutting edge, but you can attain a much better edge by working the burr back and forth on your honing stone until it falls away, leaving behind a razor-sharp edge.

STEP FOUR: Fix the Japanning

I like to own, and work with, attractive tools – I like the way they look in my shop, and the way they look in my hand. So when I recondition a plane, I don't stop after returning it to functionality; I also pretty it up a little.

When you buy a classic Stanley on eBay, the description will usually contain a phrase that reads something like this: "80 percent of Japanning remains." This means that 80 percent of the black paint originally applied to the plane's unmilled metal surfaces is still there. In other words, 20 percent of the paint is gone; sometimes, where the paint is gone, the metal surfaces show rust.

I don't like to own rusty tools or tools with flaky paint, so before I reassemble a plane, I use steel wool and sandpaper to remove all loose paint and rust. I then wash the plane with warm, soapy water and blot it dry.

Next, I carefully mask all the milled surfaces and place tape over the tapped holes in the plane body to prevent the paint from fouling the threads. Then I spray-paint the body of the plane black. I've recently been using a product called Rust-Oleum Hammered that produces a thick, textured surface that I find indistinguishable from the original Japanning. I'm sure, however, that an experienced tool collector wouldn't be fooled by my paint job.

Finally, after cleaning with a soft-brass wire brush and oiling all the adjustment screws, I complete the transformation by sanding and polishing all the milled surfaces.

STEP FIVE: Reassemble

Begin reassembly by attaching the tote and knob of the No. 4. The knob will probably snug up tightly against the iron plane body. The tote, however, might not due to cross-grain shrinkage occurring in the 50-100 years these planes have been around. You can compensate for this shrinkage by grinding a little length from the threaded rod that attaches the tote to the plane's body. Go slowly at the grinder, checking the fit as you go.

Set the cap iron so that its leading edge is about 1/16" back from the leading edge of the iron. (The cap iron – also called a "chip breaker" – is attached to the unbeveled back side of the iron.) If you don't get a good, tight fit between the cap iron and the back of the iron, touch up the cap iron's tip on your honing stone. Otherwise, chips might get jammed in the gap.

The frog – the cast iron wedge against which the iron is bedded – is held in place by a pair of steel machine screws turned into the plane body. In the case of the cast iron No. 4, the threads for these screws are tapped into holes drilled directly into bosses cast as part of the plane body. These machine screws pass through elongated holes in the frogs, making it possible to slide the frog forward and backward to create various throat widths. The No. 4 has a throat-adjustment screw facing the back of the plane, located below the frog. To use this adjustment screw, loosen the two

machine screws holding the frog and turn the adjustment screw until you've positioned the frog where you want it, then retighten the two machine screws.

The iron must be securely bedded against the milled surface of the frog. If it doesn't appear to be laying flat against those milled surfaces, use a metal file to flatten any bumps on the frog.

Throat width can have a significant effect on the performance of the plane. To make fine, finishing cuts, position the frog so that the throat is open only the thickness of three or four sheets of paper. To make heavier cuts with, for example, a cambered scrub-plane iron, you may want to open the throat to near its maximum capacity.

Then place the cap iron on the frog iron-side-down so that the movable nub in the middle of the frog (this nub controls depth-of-cut via the depth adjustment wheel) pokes through the top slot in the cap iron, and the lever-cap screw (the machine screw that protrudes from the face of the frog) passes through the elongated hole in the center of the cap iron.

Place the lever cap in position atop the cap iron so that the lever cap screw passes through the kidney-shaped hole in the lever cap. Allow the lever cap to settle so that its screw ends up in the narrow, upper portion of the kidney-shaped hole. Press the lever atop the lever cap upward, engaging the cam under the lever cap. This locks the blade/cap iron assembly into place. If the assembly is loose, turn the lever cap screw down until the lever cap is snugged against the cap iron. If the lever atop the lever cap can't be pushed into the upright position, loosen the screw and retighten it with the lever in the upright position.

Invert the plane and sight along the sole. The honed edge of the iron should be just barely visible. If not, turn the depth adjustment wheel until it is. Then, working the lateral adjustment lever from side to side, align the edge of the iron with the surface of the sole until parallel.

Your reconditioned plane is now ready to make some shavings.

Was this all worthwhile? The answer, I think, is a resounding yes, and your success can be measured not only in terms of the dollars you saved by not buying new, but also by the education you received as you went through the process of reconditioning your flea-market find.

Remember that even if you buy that Lie-Nielsen plane that comes ready-to-go right out of the box, even it will someday fall out-of-tune and you'll then need the skills you acquired by refurbishing your classic Stanley.

Also – and this is maybe the most important part of the whole process – there's that little rush you feel when you step back and admire a plane you've restored to its original utility and beauty. You just can't put a price on that.

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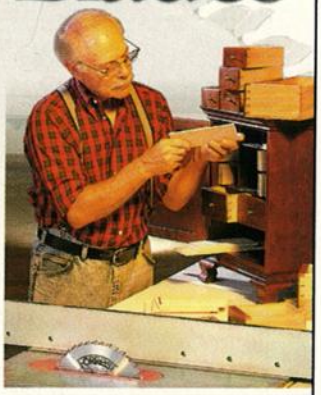

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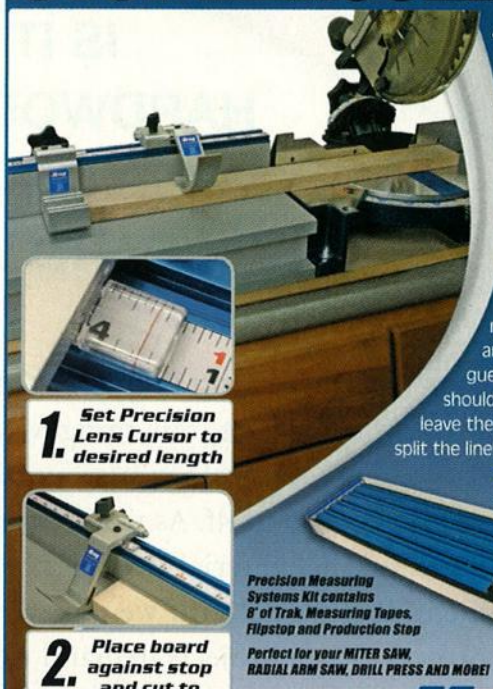

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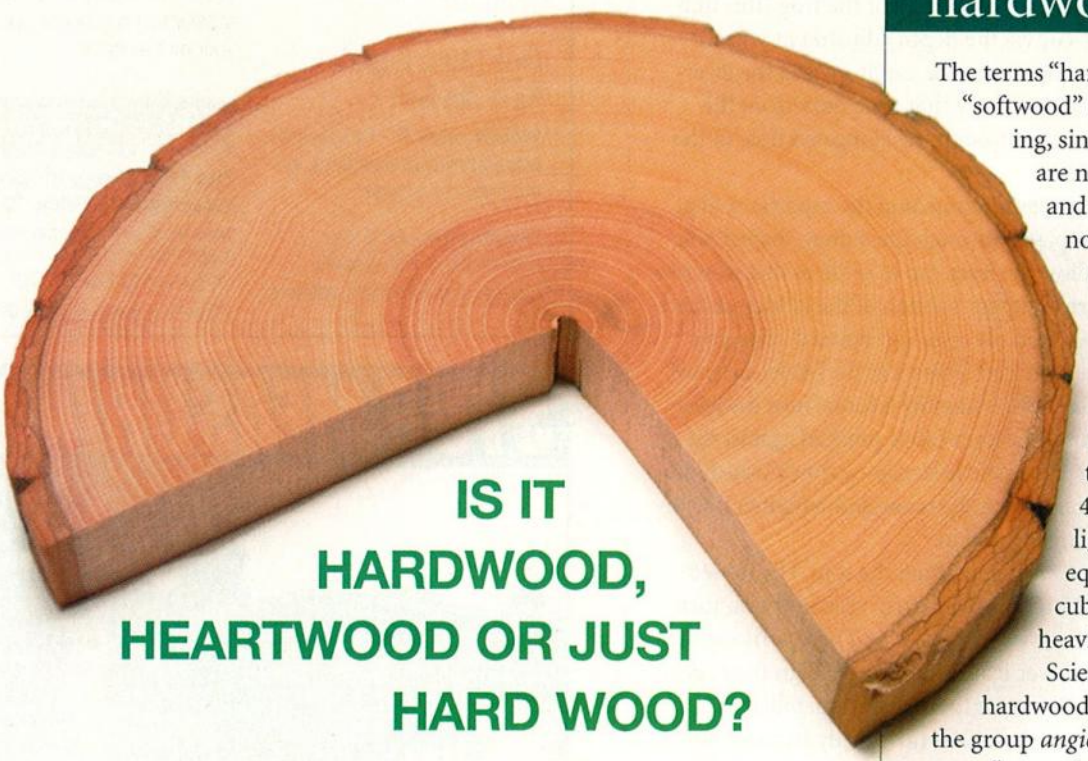
WOODSENSE

When it comes to wood, getting a grip on the terminology starts with a thorough understanding of wood's properties.

By Udo Schmidt



IS IT HARDWOOD, HEARTWOOD OR JUST HARD WOOD?

Whether woodworking is a favorite pastime or a challenging business, one thing we can all do without is the confusing terminology surrounding the core material we use: the wood itself. As woodworkers, it is important to understand the materials we work with even if most of the time it doesn't matter if we use evergreen or hardwood for a project. Some projects demand certain characteristics from wood, and in those cases it's essential to know which woods have which characteristics.

hardwood

The terms "hardwood" and "softwood" can be misleading, since hardwoods are not always hard and softwoods are not always soft. In fact, the world's lightest and heaviest woods are both considered hardwoods even though it takes 45 cu. ft. of the lightest wood to equal just a single cubic foot of the heaviest wood. Scientifically, hardwoods belong to the group *angiosperms* which means "covered seeds," while softwoods belong to the *gymnosperms*, which means "naked seeds." In other words, the real difference between hardwood and softwood is the way the tree reproduces, not the actual hardness of the wood. Other terms used are evergreen for softwoods and deciduous for hardwoods. Although conifer is a classification in *gymnosperms*, and most are needle-leaf evergreens, some of them aren't –

PHOTOS: UDO SCHMIDT

OAK IS WIDELY USED, *especially for cabinetry. Available oak boards are mostly heartwood; visible sapwood is generally cut out or stained to match the heartwood.*

in spite of the name – green forever. The bald cypress is a good example; this tree sheds its needles like other deciduous trees, hence its name "bald." (The bald cypress is a true odd duck; see sidebar "Master of Confusion" on page 73.) But the live oak – a tree with very hard wood – is considered an evergreen because it replaces its leaves gradually. Another interesting species is ginkgo biloba, the same tree the herb comes from. Classified as a gymnosperm or softwood, this Asian native tree is deciduous and has broad leaves that change to a yellow color in the fall.

Microscopically, softwoods have a simpler cell structure than hardwoods; 90 percent of softwood cells are of a single cell type. These cells are *longitudinal tracheas* and function for support and water transport. The other 10 percent of softwood cells consist of *ray parenchyma*, which serve as food storage.

Hardwood fibers, meanwhile, are three to eight times smaller than softwood cells. The cells, which conduct water in hardwoods, are called vessels. These cells are seen as pores in cross sections and are highly distinguished in certain species like oak. Wood primarily consists of thick-walled support cells called fibers. Like softwoods, hardwoods have parenchyma cells. They are also food storage cells and live in the sapwood portion of the tree.

heartwood

In a living tree, the heartwood is for support and doesn't conduct water or store food. In contrast, sapwood contains both living and dead cells, and transports water and nutrients from the roots to the leaves. The thickness of the sapwood varies greatly among species, from only ½" in black locust up to 6" in hickory and maple. After several years of growth, the cells become inactive and increase extractive content like resins, gums and tannins and become heartwood. Heartwood is usually darker in color than sapwood because of this higher level of extractives, which also make the heartwoods of some species highly resistant to decay. Meanwhile, all sapwood has very little resistance to decay.

In woodworking, the color difference between sapwood and heartwood can be used to create contrast. For example, it often gives hickory character. However, if a uniform color is desired, as with cherry, the sapwood portion of the tree needs to be cut out, or stained or dyed to match the rest of the wood.

Special consideration is necessary if boards containing both heartwood and sapwood are used in cabinetmaking. The sapwood part will absorb and give off moisture faster than the heartwood, making these pieces more susceptible to warping.

HICKORY IS COMMONLY USED *with a mix of sapwood and heartwood boards.*

Heart pine is a wood traded with very little clarification of what it actually is. According to the Southern Pine Inspection Bureau, true heart-pine boards are cut from the slash pine (*Pinus elliottii*) and the longleaf pine (*Pinus palustris*). As the name implies, the face side of the boards should be all heartwood, showing only the reddish color without the lighter sapwood. New lumber is traded as *new heart pine. Antique heart pine* is reclaimed from old buildings or salvaged from river or lake bottoms. This wood is usually very dense and heavy due to its very slow

TRUE HEART PINE *should not have any sapwood, but the patina of this old wood makes it popular for flooring and millwork. Most people like the contrast between the reddish heartwood and the much lighter sapwood.*

growth – it's virgin timber – but is not necessarily all heartwood or cut from the abovementioned species.

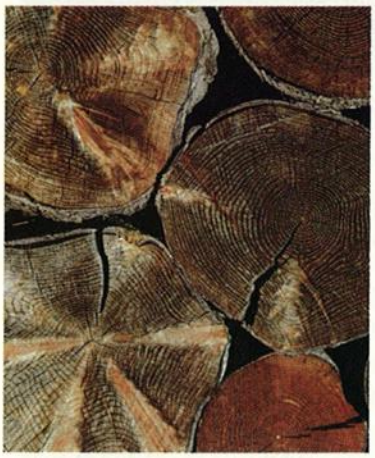
hard wood

The density – or hardness – of wood is measured by its mass per unit of volume. Specific gravity is the ratio of a material's density to that of water, and is an abstract number of independent units. The mass of water is 1000kg/m^3, which is one kilogram per cubic meter or 62.43 lbs. per cubic foot. Specific gravity is a good indicator of a species' properties for mechanical engineering, its drying properties, and its weight. When drying wood, the maximum water a species can hold is calculated based on specific gravity, and unusual properties of wood can be detected by measuring the specific gravity. For instance, reaction wood can have 40 percent higher density values than normal growth wood and juvenile wood has a lower density than mature wood.

It is interesting to note that wood substance has a higher specific gravity than water. The actual substance which wood is composed of, the cell walls, has a specific gravity of 1.5, independent of species. However, due to cell cavities, pores and other openings in the wood's structure, a species-specific gravity will drop below that point. That also means that the heaviest and densest cannot have a specific gravity above 1.5. South African ironwood, a member of the olive family, has been recorded with a specific gravity of 1.49 and according to the *Guinness Book of World Records*, is considered the world's heaviest wood. One board foot of this wood weighs more than 7½ lbs., compared to red oak, which has an average weight of 3½ lbs. per board foot at 12 percent moisture content. The world's lightest wood, *Aeschynomene hisidia*, ironically is classified as a hardwood and weighs only 2 lbs. per cu. ft., or just a little more than 2½ oz. per board foot. On a more domestic level, live oak is one of the heavier woods of the commercial species in North America with an average specific gravity of .81, while western red cedar is one of the lighter woods with a specific gravity of .31.

The specific gravity of wood varies with moisture content because wood is hygroscopic, meaning that it absorbs or loses water depending on the surrounding temperature and humidity conditions. With a change of moisture content below the fiber-saturation point, wood will also change dimensions by either swelling or shrinking. Because of the different dimensions at various levels of moisture content, the specific gravity is determined at a precise moisture content. For engineering and general woodwork, the specific gravity of a species is given at a moisture content of 12 percent.

Growth rings can indicate valuable information to the woodworker. The quality of wood is the relationship between earlywood and latewood. In softwoods, slow-growing trees have smaller-spaced growth rings and a higher proportion of denser latewood. This makes slow-growing softwood more stable and dense. It is also heavier due to a higher number of thick-walled latewood cells. Ring-porous hardwoods, such as the slow-growing oaks, have a greater amount of large-pore earlywood. This makes their wood less dense and softer, but like the softwood, more stable and easier to work. Fast-growing hardwood trees have a larger concentration of latewood, with its thick-walled cells, making the wood heavier, denser and, obviously, harder.



THE STORIES TOLD *by growth rings can be valuable to the woodworker and his craft.*

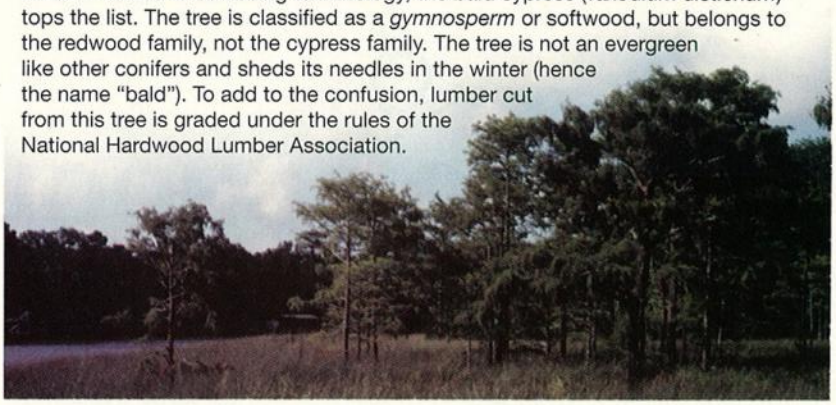
This is the reason virgin timber is so highly valued. In the virgin forest, trees struggled for light, nutrients and water, making them grow slowly. It was not uncommon for these trees to have 30-50 growth rings per inch.

Lumber cut from virgin logs is

extremely stable. The softwoods are hard and dense and the hardwoods are soft with finely grained wood of unsurpassed quality. Virgin timber today only exists in national parks and forests, and is not subject to logging. Fortunately, virgin lumber is becoming available again through salvage companies. These companies specialize in salvage operations to recover wood from old buildings or the sunken barges and rafts from river and lake beds.

Bald cypress – Master of confusion

When it comes to confusing terminology, the bald cypress (*Taxodium distichum*) tops the list. The tree is classified as a *gymnosperm* or softwood, but belongs to the redwood family, not the cypress family. The tree is not an evergreen like other conifers and sheds its needles in the winter (hence the name "bald"). To add to the confusion, lumber cut from this tree is graded under the rules of the National Hardwood Lumber Association.



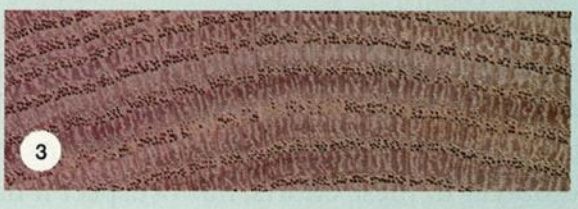
... and furthermore

SOFTWOOD

Softwoods consist mostly of one-cell structures, the tracheids. At the beginning of the growing season cells have to transport a lot of water and nutrients, so the cells formed have thin walls with large cavities. These cells are called *earlywood* or *springwood*. As the growing season continues, less water is needed and the cells form with thicker walls and smaller cavities. These cells are called *latewood*. Because of the higher density, latewood has a darker color than earlywood **(Fig. 1)**. The transition from earlywood to latewood can be gradual or abrupt, but the change from the end of one growing season to the beginning of the next is clearly visible. One growing season is made up of one band of earlywood and one band of latewood. Under normal conditions, a growing season is from spring to summer or early fall. It is possible for a tree to have multiple growth rings or skip a growth ring altogether. But usually, we can say that one growth ring represents one year of tree life.

HARDWOOD

Hardwoods are separated into "ring-porous" and "diffuse-porous". Ring-porous wood, such as oak, begins the growing season with a ring of large-cavity cells for water and nutrient conduction. Latewood cells are much smaller and distinguished from the earlywood cells, forming – like in the softwoods – a growth ring with a band of earlywood and a band of latewood. Most hardwoods are diffuse-porous, however. If the pores are evenly distributed and relatively the same size, as in yellow birch, distinguishing growth rings is difficult. Other species like cherry produce an extra ring of pores in the earlywood, or a line of terminal parenchyma cells, like in yellow poplar, clearly forming the transition from one growing season to the next. Tropical woods are interesting in that they grow in a climate without seasons. For them, a growing season isn't relevant to a single year, even though some subtropical species like Brazilian cherry **(Fig. 2)**, a diffuse-porous species, show distinguished growth rings brought on by the regularly occurring rainy seasons. Ring-porous hardwood like oak **(Fig. 3)**, a slow-growing tree, has a greater amount of large-pore earlywood.



BACK TO SCHOOL

Tradition of Excellence … it never goes out of style

By Mary Ann Moberg

A New Venture

HAVE YOU EVER NOTICED THAT THE NEWSLETTERS of most woodworking clubs and guilds have something in common? More than a few of them seem to have a universal theme: reporting stories of contribution that relate to woodworking education. Some of the articles are about individual or group donations in the form of supplies, time, instruction, coaching, toy projects, demonstrations and tools; while others offer examples of sophisticated competitions, shows and contests. I'm not certain what would compel so many woodworkers and woodworking organizations to devote invaluable resources to these efforts, but I suspect it has something to do with taking pride in their skill and wanting to pass down the elements of a culture from generation to generation.

All too often, these types of efforts go, if not unobserved, unrewarded. In classrooms and competitions across the country, recognition of excellence typically exists in the form of a prize for the exhibition of a woodworking project involving excellence in both vision and fortitude. But, as significant as that destination is, the navigation it took to achieve that prize is substantial. No less substantial, of course, is the labor contributed to the defeated, unrewarded entry.

Does one of your fellow woodworkers offer notable ideas? Perhaps one student encourages others or stays after class to help clean up. Maybe someone helped develop a "Santa's Toy Shop" promotion for your community, or monitors safety for everyone. These are the types of elements and culture we recognize as part of the woodworking tradition and want to ensure that acknowledgment follows achievement.

Promoting excellence

This philosophy has everything to do with an exciting new venture titled Tradition of Excellence. Craig Conrad, a woodworking teacher at the High School in Craig, Colo., planted an idea in his classroom several years ago. As a student in Conrad's woodworking class, exhibit outstanding character and you will be rewarded.

"I am thrilled that there are woodworking companies who want to take our recognition program to the next level," he said. "These kids need to know that all of their efforts, not just their level of expertise, are important."

BOB SPENCER, WOODCRAFT DIRECTOR OF EDUCATION, *explains the basics of a simple birdhouse project to a group of students.*

Bessey Tools, Diamond Machining Technology, Inc. (DMT), Rikon Power Tools, Teknatool International, Woodcraft Magazine and Woodcraft Supply Corp. have formed an alliance to recognize and promote woodworking groups and individuals for excellence in woodworking. The program – launched this May – is based solely on recommendations from woodworking enthusiasts. Nomination forms and complete program instructions can be found on the Woodworking Teacher's Network Web site, woodworkingteachers.com.

Bob Spencer, Woodcraft Supply Corp.'s education director is eager to get started.

"We want to acknowledge all woodworkers who make a commitment to their community, maintain an outstanding work ethic and take ownership of safety or shop maintenance tasks. I've been overwhelmed with stories of woodworkers who share their time to make children's toys during Christmas for their communities, and of those who help their classmates and stay after class to help instructors clean up or assist in maintaining tools. It's very rewarding to be in a position to recognize these types of positive character efforts."

More than making sawdust

The traditions associated with woodworking excellence aren't just about mastering the operation of a tool, reading project plans or developing a skill set; they're also about listening, as a volunteer, while 20 or more fifth-graders hammer nails into donated birdhouses, or participate in turning Freedom Pens to be delivered to American servicemen and women overseas.

"It is a pleasure to participate in a program where we can have such a positive influence," says Bob Siemann, national account manager of Bessey Tools-North America. "There is no doubt that achieving excellence is a great challenge and a part of our profession. However, cultivating our craft includes encouraging an enthusiastic, optimistic and ethical attitude and rewarding those whose performance exemplifies that."

"Woodworking instructors have one benefit that the majority of educators do not," said Steve Mangano, president of Rikon Power Tools. "Students in a woodworking course are willing participants. They can pursue their legitimate interests in these classes and we can use our capabilities to make a difference."

"Teknatool International is proud to sponsor this program recognizing woodworking enthusiasts," said Anthea McQuoid, marketing manager. "It's exciting to be a part of this great initiative. Celebrating and honoring those woodworkers who demonstrate exceptional character, while they passionately pursue their craft, is such a worthwhile cause. Encouragement and support at the grassroots level is vital, and this program will recognize the unsung heroes and bring them to the forefront for a well-deserved bow."

How it works

The Tradition of Excellence Program will recognize woodworking individuals who exemplify outstanding commitment, achievement, service, ownership and ethical behavior in woodworking categories of craftsmanship, safety, shop maintenance, work ethic, community service and education. Interested woodworkers should go to the Woodworking Teacher's Network Web site, navigate to the Tradition of Excellence page and submit a nomination form.

Each month, 20 winners will be chosen and will receive a Tradition

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Join now, and plant your Trees for America!

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THE 5TH GRADE CLASS AT GREENMONT ELEMENTARY SCHOOL *in Vienna, W.Va., proudly displays their completed birdhouses.*

of Excellence T-shirt, a letter of congratulations, and a certificate of recognition. The nominators of the monthly winners will each receive a Tradition of Excellence polo shirt and a press packet for the local media.

Each year in May, one student will be chosen as the winner of the year. The selected recipient and one parent (if the winner is under 18), as well as that recipient's woodworking nominator, will be provided round-trip airfare and accommodations to attend Woodcraft's annual sales conference. The recipient and the nominator will be honored during a formal ceremony, at which time they'll be presented with awards from all of the corporate sponsors.

"We want to help provide incentives that promote growth and opportunity for woodworking classrooms and community endeavors," says Dan Ekberg, DMT's vice president of sales. "We're all interested in revitalizing woodworking programs and cultures, and Tradition of Excellence is an example of progress toward reaching that goal."

When a piece of wood is held in the hands of a craftsman, a unique condition occurs: It is transformed with imagination, skill and design into a piece of art. It is our hope that we can assist in building the foundation for a commitment to this Tradition of Excellence.

Mary Ann Moberg

For the past year, Mary Ann Moberg has served as the Education Coordinator at Woodcraft Supply Corp. She is a novice woodworker and looks forward to taking full advantage of all of the expertise and encouragement that her coworkers offer.

PERGULA LIGNARIUS

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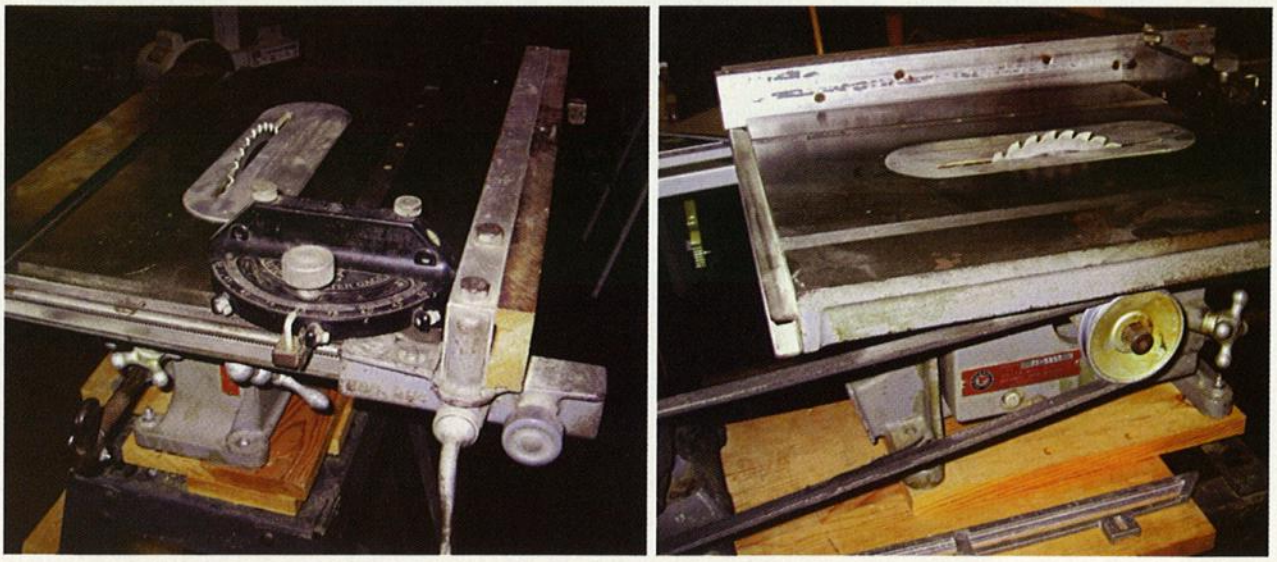
ANTIQUE TOOL MARKET

This month: three old machines in search of new homes.

By Dana Martin Batory



THE DELTA NO. 860 *is one of the most commonly encountered antique saws in home shops.*

THE QUESTIONS POSED IN THIS MONTH'S ISSUE, though dealing with three different machines, all have one thing in common: Each asks for information on where and how to sell the equipment concerned. As my advice is the same for each, I'll end the column with a generic answer.

Finding parts for Delta No. 860

Q: I have in my shop a Delta Milwaukee Homecraft table saw that has been in the family since it was purchased new. Recently we moved and my new shop is downsized considerably. I need to sell the old saw. It is still in good shape and works perfectly. I need to keep my larger table saw as it fits my needs better and I only have room for one table saw. If you could give me any further information on its worth and possibly how to sell it, I would appreciate it very much.

A: Your table saw appears to be a Delta No. 860 without the optional table extension. The 860 was described in great detail in "Some Home Shop Classics," *Woodcraft Magazine*, Vol. 1 No. 1 (Jan. 2005) and in the last issue's column. It's worth about $30-$50.

Q: I have an old Craftsman table saw, Model No. 102.0213. I would like to know when this was built, what it is worth, and where to sell it. This saw is in good working condition. I would appreciate any help you can give me.

A: Your Model 80 Table saw was originally built for Sears, Roebuck & Co.'s well known Craftsman line of woodworking machinery by the famous Walker-Turner Co. (Est. 1928) of Plainfield, N.J. Walker-Turner was only one of many original equipment manufacturers for Sears.

The 80 dates to the mid-1940s and is prominently featured in

THE CRAFTSMAN MODEL 80 *as it appeared in an early Craftsman catalog during the 1940s.*

Craftsman's 1949 Power Tools Catalog. However, it does not appear in the 1950 Catalog.

"Woodworkers, model makers, patternmakers, building maintenance men, home craftsmen!" states the catalog. "Here is the ideal saw for you men who want a sturdy, accurate tool. The Craftsman 8-inch tilting table bench saw meets the most rigid demands of amateur and professional craftsmen and industrial shops. It's big, rugged...a real brute of a tool. Heavy duty, too! It has the famous Craftsman quality in every detail. And it's priced so you can afford it. You'll agree it's an outstanding tilting table bench saw! Just the one you need for your work and your workshop."

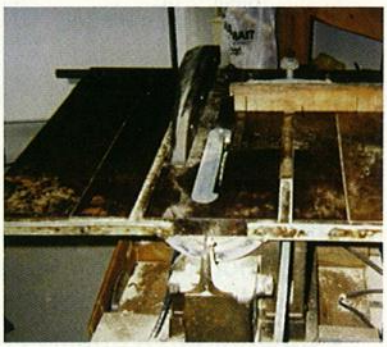
The saw had a 2½" depth-of-cut, and dadoes 1½" deep and 9/16" wide could be made. Boards up to 2" wide could be crosscut and mitered.

The 15¼" x 18 3/16" heavy cast iron table was ribbed for added strength and ground smooth and polished. A miter groove was machined on both sides of the blade and there was a removable dado insert.

The table tilted via a hand wheel up to 45 degrees on oversized double trunnions fastened to a cast iron base and was secured by a self-locking screw. If desired, the table could also be locked manually. A gauge showed the angle. The ½" arbor ran in two precision high-speed ball bearings.

The 88 was listed at $62.50 (about $500 in today's dollars) which included blade, machine pulley, cast iron rip fence, splitter, automatic guard with anti-kickback pawls, and miter gauge with stop rods for repetitive cuts. When equipped with the recommended ½-hp, 3,450 rpm motor, the price jumped to $93.50 ($700).

A special option your saw possessed was the table extension set available at $14.95 ($120). The two ground and polished cast iron front extensions (with miter grooves) and the two stamped-steel side extensions increased the working surface to 26" x 23¾". It gave an additional 5 9/16" ahead of the saw blade for wider crosscutting. The required rear support bar and all the necessary bolts and fittings were included.



THE CRAFTSMAN MODEL 80 *was really a Walker-Turner table saw sold under the Sears brand.*

Though clearly an expensive saw at one time, its present value is about $100.

Q: I bought a DeWalt radial arm saw in Chicago for general carpentry. My hobby was building and flying model airplanes. In those days, the wood of choice was balsa wood. I used the DeWalt to cut out ribs and dado the slots in the wing ribs for the spars. I also built furniture with it. The saw has an inlet in the guard over the blade to suck sawdust, but there was no explanation on how to use the outlet. The saw was sold as an all-purpose tool and it has some accessories such as a sanding disc and a jig saw attachment. The lower cabinet is not useless as in modern saws, but has a locking door which allows for storage of anything involved with the saw. The saw was before Norm Abram, so in my ignorance, I used it for everything Norm says is the domain of the table saw. It can even do router work to some extent. Everything still works, but the motor is probably about ½ hp, and feed into the blade must be slow. The only thing better is the turret head Delta Radial Arm.

It is still my main tool, but I would rather have a 12" Delta radial arm except for the price. This saw cost me around $300 in 1952 or '53 – I can't remember. Is it worth anything? Can I trade it for a Delta 12" Turret Radial Arm Saw? I'm not real sure I'd part with it.

A: Based on your description and the photo submitted you own a DeWalt Power Shop Model MBC 9" radial arm saw which was equipped with a ½-hp motor. The similar Model MBE came with a ¾-hp motor.

DeWalt's custom-built motors

with their flat-bottomed housings enabled the motor to move closer to the table, allowing for a cut deeper than that on standard direct-drive motors. At the time, the MBC and MBE were the only 9" saws capable of a 2½" depth-of-cut. This was especially handy when working with a 6" dado head since it gave more room and better visibility.

A measuring scale on the right side of the semi-steel arm gave an instant readout for in-rip and out-rip, while a calibrated scale on the electro-plated column automatically gave the angle of the arm, which could move a full 360 degrees. The heat-treated aluminum yoke carrying the motor swiveled a full 360 degrees with automatic locks at 90-degree intervals. The motor could be tilted to allow for compound angles and bevel cuts. The carriage moved on grease-packed, shielded ball bearings.

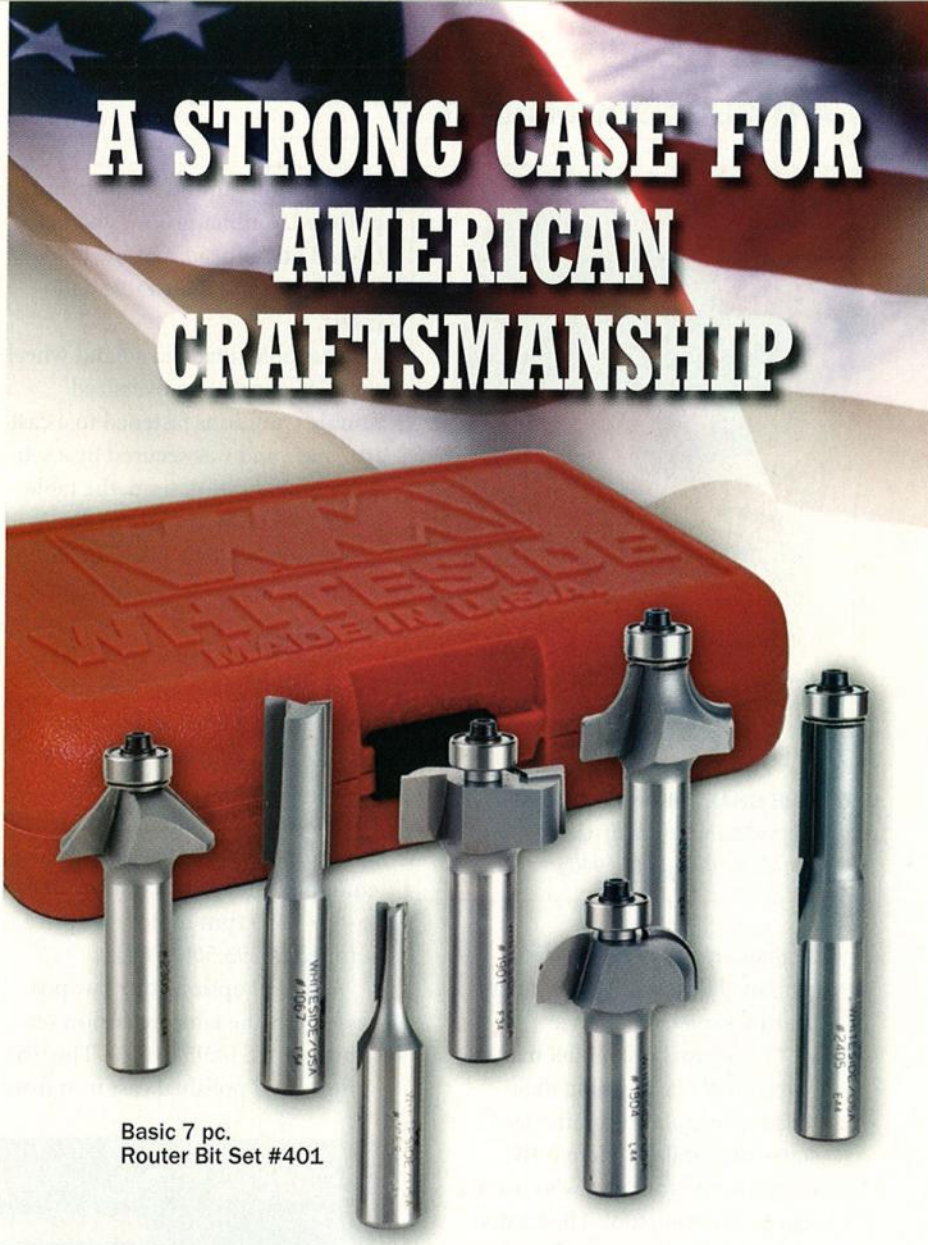
A 1953 brochure stated the saw could perform 18 different operations with a saw blade, 14 with a dado head, six with a molding head, six with a sanding disk, and six as a drill; plus it could act as a router and surface, grind, and cut metal.

Attachments consisted of a jigsaw, a lathe and a belt sander.

The jigsaw had a 16" throat and would cut material up to 2" thick. It fastened quickly and firmly to the saw table with thumb screws and was driven by a belted pulley, taking its power from the saw motor. The lathe had a ball bearing tail stock and took its power directly from the motor. Turnings up to 36" long could be done. The 3" sander, belt-driven from the motor, had a working surface 29½" long.

The steel cabinet was optional for all the MB models.

A March 15, 1953, price sheet



- Uses the highest quality American made micrograin carbide
- Made from solid alloy steel
- Precision ground for proper balance at high rpms
- High hook and relief angles make for better chip ejection
- Made with thick carbide for extra sharpenings
- Superior edge quality compared to other manufacturers
- Made with only high quality American made grinding wheels
- Even the storage cases are made in the U.S.A.!

Tested #1 by Fine Woodworking Magazine in a head to head router bit test of 17 different brands.

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lists the MBC at $229, the 8" disc at $8.70, the jigsaw at $43.50, the lathe at $43.50, and the belt sander at $23.30. The $300 you spent in 1952 is about the equivalent of $2,400 today. DeWalts always were pricey.

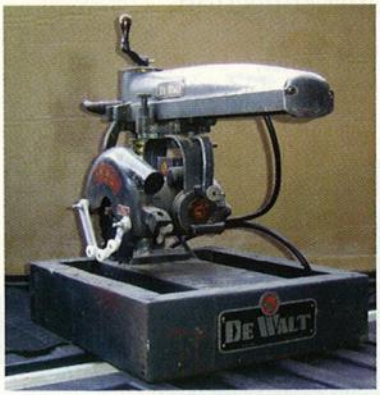

PHOTO: VINCE SANDY

DEWALT RADIAL ARM SAWS *were versatile machines that accepted a host of shop accessories, from belt sanders to lathes.*

The port on the saw was meant to be joined by a flexible coupling to the shop's dust system.

Since your saw and its attachments are worth roughly $150-$200 it is very unlikely you can work out a trade for a Delta 12" radial arm saw, which now lists at $1600-$1800.

Now, as to selling old machines, the following applies to all three of the questions above.

Unfortunately, there is no magic formula for selling vintage woodworking machinery. The obvious ways are still the best ways. If your machines were the more expensive, more sought-after production models, it would pay to run an advertisement in a woodworking magazine offering classified ads. However, in most cases the values of the machines discussed above would nearly equal the price of such an ad. I'd suggest running an ad in the local newspaper or simply pinning a notice on a community bulletin board. Set them out at your next yard sale.

The sites eBay and *oldwwmachines.com* are excellent places to buy and sell equipment.

A good reference for would-be buyers and sellers is the annual Schroeder's Antiques Price Guide edited by Sharon and Bob Huxford of Collector Books, a division of Schroeder's Publishing Co., Inc., Paducah, Ky. The book identifies and values over 50,000 antiques in some 500 categories. There is a section on woodworking machinery. Prices are given for both industrial and hobbyist equipment ranging from 1876 to the 1950s. The well-known guide is Collector Books' best seller.

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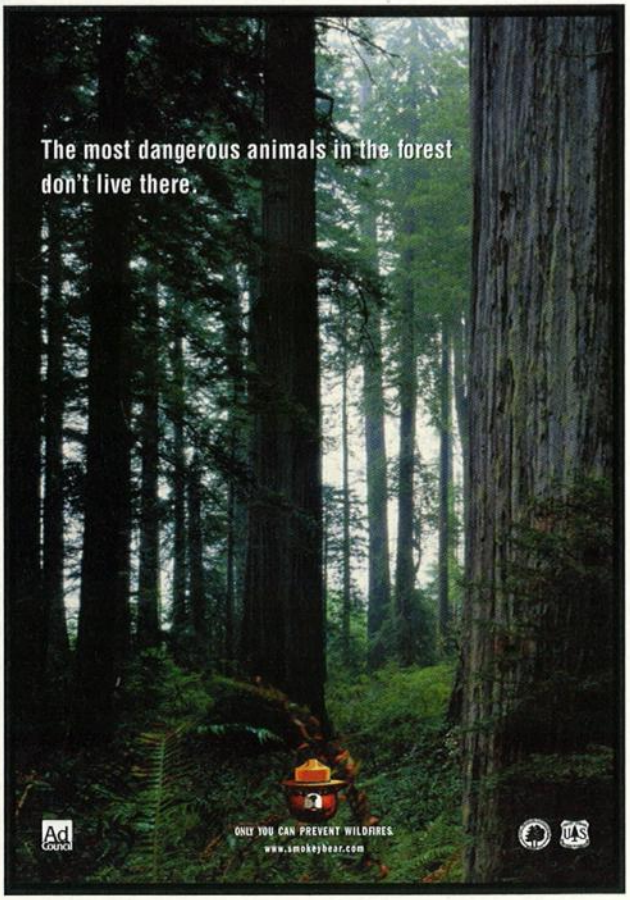


FESTOOL OF 1400 EQ

Easy handling and control, along with superior dust collection, make this router a true standout in a crowded field.

BY CAROL REED

THE FESTOOL OF 1400 EQ ROUTER arrived for review packed in the company's signature "Systainer," a hard-plastic container that interlocks with containers for other Festool equipment. This ingenious case is the ultimate in creativity for package engineers – the router plus a number of accessories store easily within, but it's a good idea to memorize how everything fits inside.

Quick tour

The 12-amp machine's features and accessories are quite intuitive, and the first obvious physical difference is that the handles are not symmetrical. One is a knob which turns to lock/unlock the plunge mechanism. The other is a lever-type handle with a trigger switch under your index finger, a locking button under your thumb and the variable speed dial within reach of your thumb. These hand-friendly handles seemingly negate the 10-lb. weight of this machine, even for smaller hands. The variable speed control – continuous, by the way, not stepped – goes from 10,000-22,500 rpm.

Unlike most other power tools, the electrical cord isn't permanently wired to the machine, and attaches instead to the end of the lever handle with a twist-lock plug. If you choose to store the router on a shelf rather than inside the Systainer, you will like this. What's more, if you ever need to replace a damaged cord, it can be accomplished without rewiring a new cord into the motor; just toss away the old one, and plug in the new one.

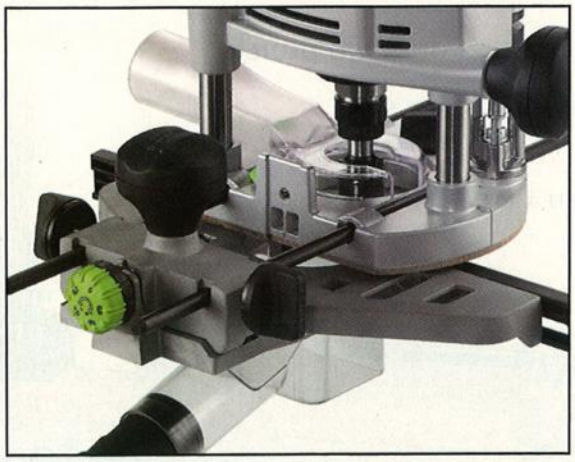
Routers that stand on their heads make attaching jig bases much easier, and this one was reasonably stable upside-down on the bench. Once on its head, I removed the very short 4mm screws and sub-base. Some things popped up here that can make attaching shop-made jigs a bit problematic. The screws required a small Torx driver for positive hold. The tempting straight slot was too small for a regular straight screwdriver and the fit was too loose for the small screwdriver. In any event, the screws are too short to attach anything but the thin sub-base. The screw holes are blind, so it is easy to have screws that prove to be too long. The 4mm x 19mm screws I had on-hand were too long by almost half. My first thought would be to replace the screws with Phillips flathead 12-14mm screws.

Removing the sub-base with the thought of attaching a shop-made router jig revealed a ring around the center hole standing proud of the surface, so the sub-base will have to be used as a spacer with an attached jig. The thin sub-base did serve well as a

screw-hole marking template using a ¼" transfer punch to mark hole locations on accessory jig bases.

Good-bye Mr. Chips

Dust collection is where this router really shines. Like most experienced woodworkers, I've given up on efficient dust



FOR MORE EFFICIENT CHIP HANDLING *when doing edge work, a lower dust collector shroud can be added to the underside of the router.*

collection from a router. Clever German engineering proved up to the task. There is a snap-in top collector with a pick-up tube with a hole just large enough to accommodate the collet nut. The diameter of the pick-up tube did require an adapter to fit my small Ridgid shop vacuum. Fortunately, I had one from my DeWalt biscuit joiner that fit perfectly.

For edge work there is a bottom-swiveling half-cup-shaped shroud that snaps into the base. This worked wonderfully with the top collector to very efficiently collect chips and dust. For captured cuts such as mortising or dadoing, the top collector worked well by itself. The edge guide has its own collector.

The European heritage of this machine revealed its metric self in two important areas. The router comes with two collets. The larger collet is a standard ½", but the smaller one was 8mm, rather than ¼". (A true ¼" collet is available ordered separately.) A ¼"-shank bit will not hold securely in an 8mm collet.

The second item was the included 30mm template guide called a copying ring. An adapter plate that will accommodate the industry-standard, two-piece threaded guide-bushing assemblies is available. The metric guides will not work with an American dovetail template, as an example. The guides snap into the base securely with no play, however – a nice feature.

The posts are not equally opposed from one another. I thought it would hamper the smoothness of the plunge action. Not so. This is one of the smoothest plunge actions I have ever experienced. Further, a single knob will lock the router on both posts simultaneously.

Depth adjustment can be done in two stages. The quick adjustment dial travels the router's full range of 2¾". Once close to the desired depth, the fine adjustment dial will give you another 5/16" of play for whenever an exact depth is critical.

Lock and load

The highly polished collets are long and captured within the nut. The minimum effective shank-holding length is nearly 1¼". The socket is much deeper, providing the ability to swallow extra shank length for extra long bits, a good feature for mortising operations.

THE ROUTER'S CONTROL HANDLE *has the trigger switch, locking switch and variable speed control all within easy reach.*

There is a two-way spindle lock. Press the rocker device on the left to lock the spindle when tightening the bit. Pressing on the right side aids loosening the bit. The spindle itself has a racheting action that helps make bit changing a bit speedier.

The Festool OF 1400 EQ router comes packed in a Systainer with a dust extraction hood, chip catcher, forged 22mm collet wrench, ½" and 8mm collets, bushing ring adapter and detachable power cord. The machine retails for around $385.

Smooth operation, powerful, great dust collection, ergonomically friendly for small hands and large. One last nice detail is that the router's label features not just the model number, but also the 800 service number! Incredible thoughtfulness.

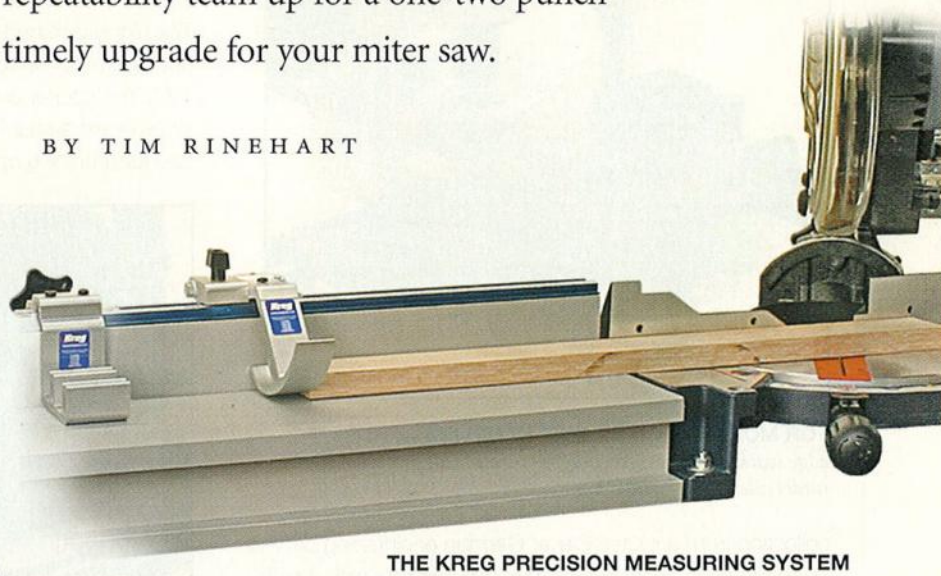
This machine is a keeper.

— Carol Reed lives in Pine, Ariz.

KREG PRECISION MEASURING SYSTEM

Accuracy and repeatability team up for a one-two punch in this timely upgrade for your miter saw.

BY TIM RINEHART



THE KREG PRECISION MEASURING SYSTEM
offers increased accuracy for your miter saw.

MOST PEOPLE THINK THAT STOPS ON THE MITER SAW ARE GOOD only for making repetitive cuts where you need several boards cut to exactly the same length. However, the Kreg Flipstop, part of the Kreg Precision Measuring System, has a cursor and a cursor changes everything. When your stop has a cursor, you're likely to use it for every cut – even when you are cutting only one board.

Think about the steps you go through to cut a board on a miter saw. Let's say you need to cut a board 30" long. First, you get out a tape measure, measure the board and mark it at the desired length. Then you move to the miter saw and line up the mark to the blade. That's when the indecision starts. Now you have to remember: Was your mark on the right side or the left side of 30"? Do you need to take the line, leave the line, or maybe split the line?

Adding a laser to a miter saw isn't the solution in this case. Laser guides are incredibly useful, but all a laser does is assist in lining up the saw to the mark. The real problem is placement and width of the mark.

Wouldn't it make sense if your miter saw worked like your table saw? When you use a table saw, you don't put marks on a board. If you need to rip a board 2" wide, you just set the fence so the cursor reads 2", push the board against the fence, make your cut and you get a board exactly 2" wide. Simple, accurate, and mistake-proof. That's the idea behind the new Kreg system.

Components are key

The system is comprised of a group of individual products which work together allowing you to create a custom system for your tools. Two tracks are available. The Top Trak is a rugged anodized-aluminum extrusion that can be used to create a precision measuring system for your miter saw, drill press, and more. It features a self-aligning L-shaped mounting foot for easy attachment to a shop-made ¾"-thick fence. The Heavy Duty Trak is an L-shaped extrusion that is extremely straight and perfect for heavy-use applications. Both have T-slots for attaching the different stops, and accommodate the head of a standard ¼" hex bolt for attaching custom jigs or stops. Both tracks also have a recess for the Kreg self-adhesive measuring tapes, which are available with a left-right or right-left reading.

THE KREG SYSTEM ACCOMMODATES *the basic Flipstop, left, or the dual-cursor Production Stop, right.*

THE KREG PERFECT MITER ATTACHMENT, *shown here mounted to the Flipstop, attaches to either stop.*

There are three styles of stops that make this one of the most versatile fence/stop systems available.

The Flipstop has many features going for it in addition to the cursor. The curved face of the stop allows it to self-elevate. In my shop I am always taking a board, making a trim cut to get a good end, flipping it around and then cutting it to length. To do this with my old stop system, I had to flip up the stop to make the trim cut and then flip it back down to cut the board to length. With the Kreg Flipstop, I can just push the board to the fence and the stop will self-elevate out of the way. I don't have to flip it up and down. That's a big time saver. You can tell the designer has spent a lot of time in a woodshop. All the little details are right too. The stop doesn't move once set, and you don't need a pipe wrench to get it tight enough to stay put; finger-tight will do it. There is an adjustment to eliminate the play in the stop, and the cursor is adjustable also. That makes setup easy and allows you to readjust your stops when you change your saw blade.

The Production Stop is an extra solid stop with dual cursors that allow it to be read from either side of the blade. It simply drops into the top of either of the Kreg Traks and locks in place making it easier to move and remove. Great for repetitive production work. This stop does not flip up and down, but you don't use the flip feature in most production work. In a production environment the primary concern is durability, and eliminating the flip makes the production stop more durable. However, hobbyists shouldn't let the name scare them – the Production Stop also has a place in the hobbyist shop. Because it doesn't flip, it can have a cursor on both sides, allowing it to be used on both sides of the saw.

The Perfect Miter Attachment accommodates either stop and references a 45-degree mitered board on two surfaces, increasing the accuracy and repeatability. This is good for picture framers, or anyone who wants repeatable, tight-fitting mitered joints.

Now to cut that 30" long board on a miter saw using the Kreg system, you'd simply set the stop so the cursor reads 30", push the board to the stop and cut it. Your board will be exactly 30" long. Much faster and much more accurate than trying to measure and mark each cut with a pencil.

Setup and use

Setting up the Kreg system is a breeze. You'll need to build a support fence/table the exact height of the fence on your miter saw. (Kreg supplies the plans for a simple support fence/table.) Attaching the track is easy and foolproof – the Top Trak has a mounting flange that attaches into the back side of your fence with screws. This is much easier than installing T-track on the top of a board. I was concerned that the 2' and 4' lengths of Top Trak wouldn't line up easily or that the stop would get hung up on the joints, but these concerns were unwarranted – the mounting flange really works and the joints are almost seamless.

Increased speed and increased accuracy are usually mutually exclusive goals. However, the Kreg Precision Measuring System is a well-thought-out system that really will speed up your work and make you more accurate at the same time.

All components of the system are priced individually. The Kreg Flipstop retails for $29.99, while the Production Stop is $19.99. The Top Trak goes for $21.99 and $34.99 respectively for the 2' and 4' models; the Heavy Duty Trak is $39.99 and $59.99. Self-adhesive 12' tapes are $7.50 for either right-left or left-right, and the Perfect Miter Attachment comes in at $19.99. Kreg also offers several components in a kit that contains four 2' lengths of Top Trak; Flipstop; Production Stop; 12' left-right and 12' right-left self adhesive measuring tapes; and mounting hardware and instructions. The kit is priced around $140.

— Tim Rinehart is contributing editor to Woodcraft Magazine

THE TOOLBOX

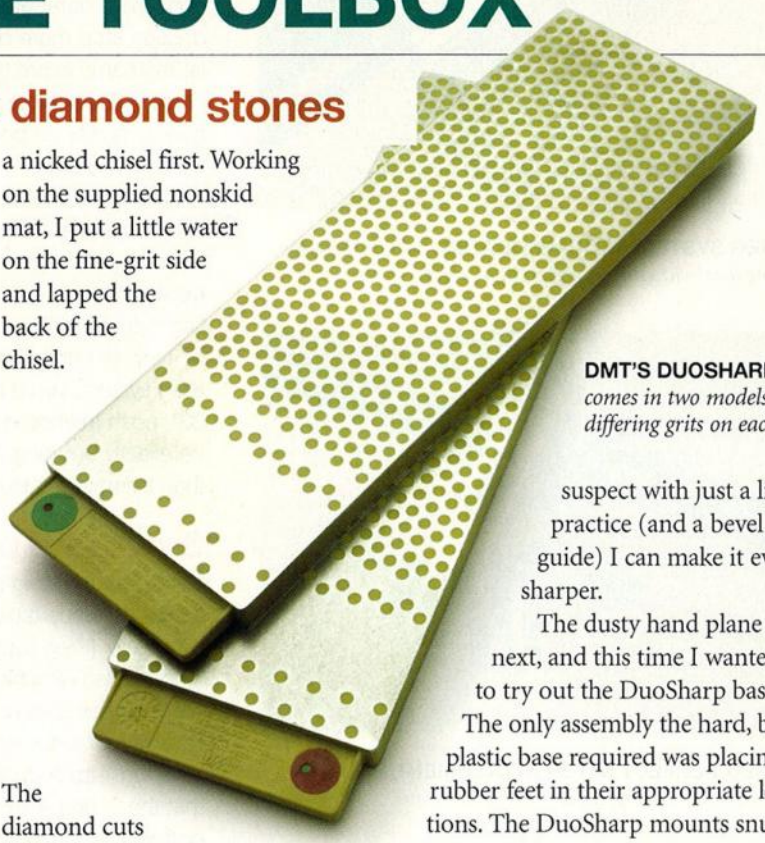
DMT DuoSharp Plus diamond stones

When most woodworkers think of manual sharpening, we think of relatively delicate ceramic stones that require careful maintenance, special lubricants and seemingly (to the uninitiated) magic spells to maintain that elusive razor-sharp edge on a tool. The result? Many of us don't use hand planes even when they're clearly the right choice for the job. And my chisels still seem to cut okay with those little nicks on the blade.

The DMT DuoSharp Plus diamond sharpener and the accessory DuoSharp base eliminate many of the complications of ceramic sharpening stones. Together, they give weekend woodworkers a legitimate shot at keeping chisels sharp and maybe even pulling that dusty plane from the back of the cabinet.

The DuoSharp Plus comes well-packaged with a one-page instruction sheet and a nonskid mat. The 8" x 2½" "stone" is made mostly of high-density plastic. The diamond abrasive is bonded in nickel to steel sheets which sandwich the plastic base. The WM8EF reviewed here has fine 600-grit on one side and extra fine 1200-grit on the other. A coarse/fine (325/600 grit) model, the WM8CF, is also available. The pattern of holes in the abrasive allows waste to clear more easily and helps speed up sharpening. The DuoSharp Plus has an area of continuous abrasive at one end to allow sharpening of smaller items.

I tested the DuoSharp plus with a nicked chisel first. Working on the supplied nonskid mat, I put a little water on the fine-grit side and lapped the back of the chisel.



DMT'S DUOSHARP *Plus comes in two models, with differing grits on each side.*

The diamond cuts quite aggressively so the chisel was reasonably flat in a matter of minutes. I then went to work on the bevel. The instruction sheet recommends a bevel guide and I can see why. I had a few false starts before I figured how to hold the chisel at the proper angle. Once I did, though, I quickly evened out the bevel and removed the nick from the edge. I then flipped the DuoSharp to the extra-fine side and finished the bevel. With a couple of quick strokes on the back, I was ready to test the edge.

After wiping the chisel dry, I marked a hinge mortise on a piece of fir. The chisel cut the mortise quickly and cleanly. It was very sharp, and I suspect with just a little practice (and a bevel guide) I can make it even sharper.

The dusty hand plane was next, and this time I wanted to try out the DuoSharp base. The only assembly the hard, black plastic base required was placing 12 rubber feet in their appropriate locations. The DuoSharp mounts snugly on top of four of those feet, and is retained by sturdy plastic clips at each end. The base rests on the other eight feet which keep it firmly anchored to the work surface.

The plane iron sharpening went even more smoothly than the chisel. The base made the sharpener feel more stable and gave my hands more room to work. The blade was sharp in a matter of minutes. After reassembling the plane, I took it to a piece of red oak. With a couple of quick adjustments, I was removing feathery, translucent shavings.

Cleanup was a breeze: Rinse the DuoSharp thoroughly and dry it with a towel. Storage is straightforward as well; you just toss it into a drawer.

THE DMT STONES *snap securely into the bench-top accessory DuoSharp base, which is particularly convenient when using a bevel guide.*

Unlike some stones, it stores dry. It's not delicate. It's not going to chip. You never need to dress it. When you need to sharpen, it's ready. Pull it out, put it on the base or the nonskid pad, add a little water and go.

Priced at about $90, the DMT DuoSharp is a great choice for the woodworker who is looking for a simple – and inexpensive – sharpening system for occasional use. The matching base is worth its $20 price tag, giving you added stability and room to work. Add a good bevel guide and you may never even covet that pricey power sharpener again.

– Dave Eames-Harlan lives in Moscow, Idaho.

Carter electronic tension gauge

Blade tension is one of the most critical aspects of maintaining cutting accuracy and consistent performance from your bandsaw. Proper tension not only means greater accuracy, but longer blade and machine-component life. Until now there was no way to quickly and accurately monitor and maintain optimum tension.

The Carter ETG1000 Electronic Tension Gauge – they call it the ETG for short – solves that. With this gauge, you can set the exact blade tension you want for any size blade, and accurately measure the tension without touching the blade itself. The large digital readout is easy to see and monitors blade tension at all times, even while the saw is running because the unit mounts on the saw frame and is not in direct contact with the blade.

The electronic tension gauge provides a way to judge the relative tension placed on the bandsaw blade, allowing consistent setup from job to job. It also provides you with the ability to return to the same tension for future jobs involving similar sawing conditions. Once you find the optimum tension for your saw with a certain blade you can quickly return to that tension anytime you use that blade, or one similar.

The ETG has a big brother in the ETG1000D Deluxe Electronic Tension Gauge. In addition to determining and setting blade tension, the ETG Deluxe incorporates a protective circuit that will cut the power to the saw motor when blade tension falls below a preset level, such as when a blade suddenly breaks. This model also prevents the saw from starting up if minimum tension has not been applied, for those of us who can't remember if we backed the tension off last time we used our bandsaws. For safety reasons, the saw will not automatically restart if tension is reapplied after the circuit has been tripped. Once tension has been reapplied, it is necessary to cycle the bandsaw power switch to the off position and then back on before the saw will run.

Both models of the Carter ETG fit the 14" Jet and Delta bandsaws (as well as similar models) regardless of blade length or riser block configuration and come with complete installation instructions for fast and easy mounting on your saw. The ETG1000 retails for $199.99, while the ETG1000D with automatic shutoff is $299.99.

– Tim Rinehart is contributing editor to Woodcraft Magazine.

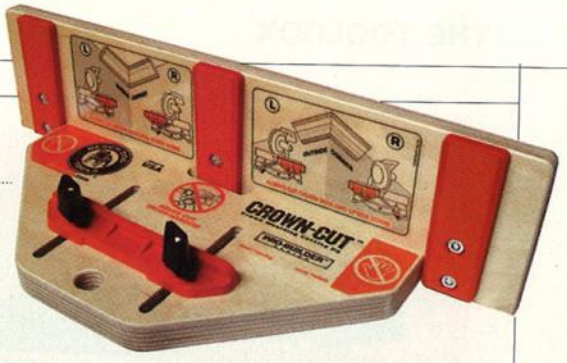
New & Notable

(prices are approximate)

Stay Sharp

Woodcraft Shop Knife

Wood-handled shop knife includes extra-long blade for an extra-long life, even after multiple sharpenings. $15 *woodcraft.com*



Cut Corners

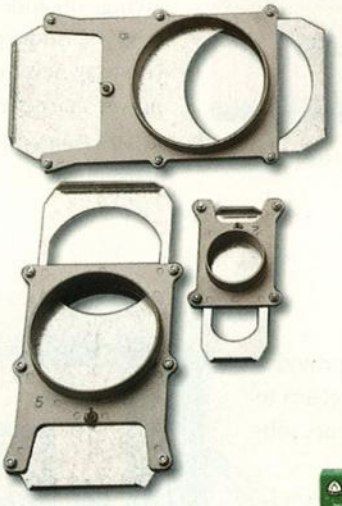
Bench Dog Crown/Cove Cutting Jig

The Crown-Cut jig lets you cut perfect inside and outside corners on crown and cove molding. It holds molding up to 6" wide at the correct cutting angle and sports foolproof instructional illustrations. $35 *benchdog.com*

Clear a Pathway

Lee Valley Self-Cleaning Blast Gates

A modified slider automatically clears chips from the gate track upon closing, improving the suction and efficiency of your dust collection system. $7-$13 *leevalley.com*



Combat Rust

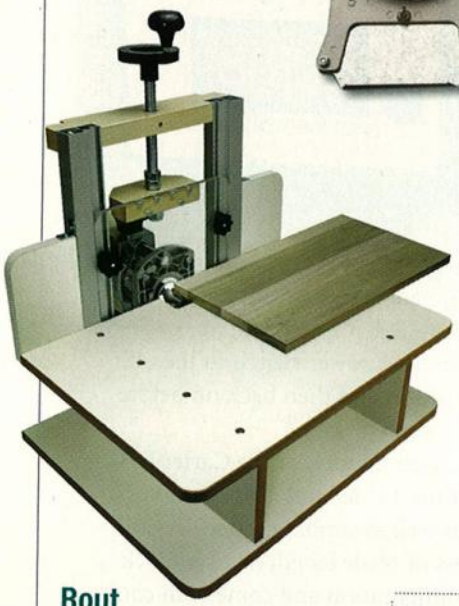
Lie-Nielsen Tool Care Kit

Everything you need to keep your tools and blades rust free: camellia oil, Ferro-Pak corrosion inhibitor, polishing cloths, abrasive hand block and paraffin wax. $39 *lie-nielsen.com*

Let Gravity Help

Bosch Gravity-Rise Table Saw Stand

The balance of the stand and the weight of the attached saw work in tandem for a smooth shift from vertical travel position, to horizontal for use. $150 *boschtools.com*



Rout Tall Profiles

MLCS Horizontal Router Table

Secure your router in a sideways position, and use your tallest bits with ease. $200 *mlcswoodworking.com*

Nail It Up

Makita 15-Gauge Finish Nailer

The new AF633 pneumatic nailer is a replica of the time-tested AF632; the difference is in the nails. This model accepts the popular DA (Senco) style. $204 *makita.com*

Set Your Jaw

Teknatool Long-Nose and 75mm Bowl Jaw Sets

Long-nose set has internal dovetail and threaded serrations, ideal for holding large and long tenons; the 75mm set accommodates a large range of work and includes a reverse dovetail grip. $80, $60 *teknatool.com*

Pack It In

Lee Valley Spokeshave Roll

Trifold, heavy polyester case holds six spokeshaves of lengths up to 12". Wall-mount clips are included; nylon buckles secure the roll for transport. $13 *leevalley.com*

Chuck It Right

Crown Two-Way Dovetail Cutter

Specialized turning tool cuts correct angles on interior or exterior dovetails to help your chuck's jaws grip your work. $30 *crownhandtools.ltd.uk*

"Waist" Some Time

Woodcraft Belt Watch

Play it safe with power tools by keeping your watch off your wrist. Hook the 2" stainless steel clip to a belt; just pull the sturdy protective case open to read the time. $50 *woodcraft.com*

Protect Your Tools

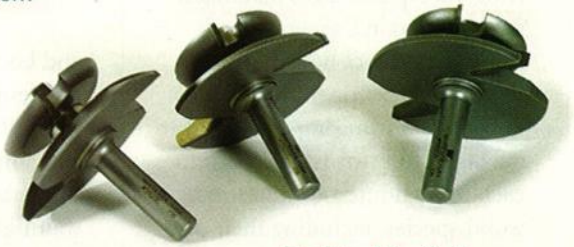
Stanley ShockMaster

Slip-resistant feet provide stability and shock absorption; weather-resistant high-impact resin body adds even more protection for valuable tools. $20 *stanleyworks.com*

Hone With Ease

Wolverine Flat Tool Sharpening & Honing Jig

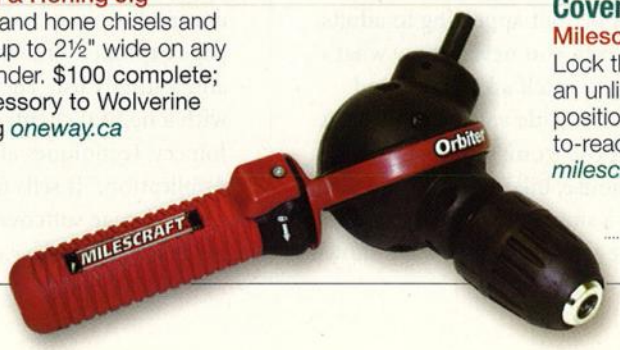
Easily grind and hone chisels and plane irons up to 2½" wide on any pedestal grinder. $100 complete; $85 as accessory to Wolverine Grinding Jig *oneway.ca*



Do Double Duty

Whiteside Raised-Panel Bits with Back Cutters

Cut the profile and back cut on raised-panel doors at the same time. Removable back cutter and bearing; available in straight, ogee and cove profiles. $130 each *whitesiderouterbits.com*



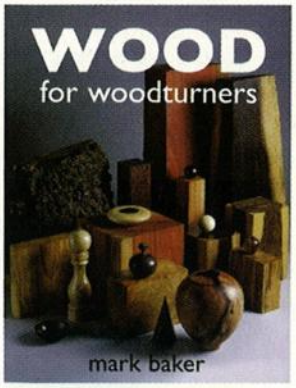
Cover All the Angles

Milescraft Drill Oribter

Lock the orbiting head in an unlimited number of positions to get at hard-to-reach places. $25 *milescraft.com*

WOODWORKERS' LIBRARY

Check out these excellent additions to any woodworker's library. **By Sarah Brady**



Wood for Woodturners

By Mark Baker

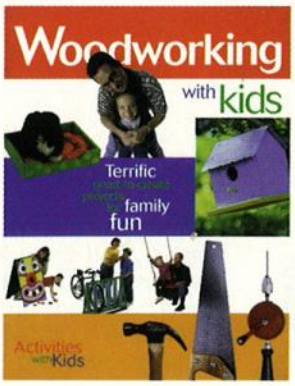
Here is a warm, colorful encyclopedia that covers the turning characteristics of 150 wood species. Baker is editor of Woodturning magazine and an accomplished turner and teacher living in England. In "Wood for Woodturners," a 194-page softcover, he explores areas that might not be found in a general woodworking reference book.

After a brief opening and glossary of woodworking terms, Baker devotes a full two-page spread to each of 50 domestic and exotic wood species, including their origins, how they are best seasoned for turning, and the working qualities of each. He also shows a fine example of a finished piece in each species.

An additional 100 wood species are covered in a briefer, half-page format. Selling for $19.95, this is a nice reference for tuners and other woodworkers who want to get to know their wood. *gmcbooks.com*

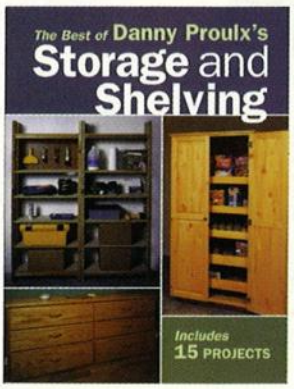
Woodworking with Kids

The chunky layout and primary colors of this project book is likely to catch your child's attention and get him or her excited about building something with wood. There are step-by-step photos and basic exploded illustrations of 20 projects, the best looking of which are the spice rack, easel, picnic table



and bookcase. Some procedures are designated adults-only, but most photos show the kids actually doing the work. There are also some factoids to read while you're waiting for Mom to finish up with the saber saw.

Yes, projects for kids have to be simple, so most of these just won't be that appealing to adults. However, you never know what's going to catch a kid's eye, and there is a wide variety of projects to choose from: scooter, wagon, birdhouse, bike rack, and dog bed, even a small table and bench. Many of the finished projects are shown painted. "Woodworking with Kids" is a 180-page softcover that sells for $18.95. *stremy.comis*



The Best of Danny Proulx's Storage and Shelving

This is a collection of 15 projects designed and explained by the late Danny Proulx. It includes large and mainly utilitarian projects for all areas of the home: Storage cabinets for shop, basement and kitchen; a child's bed with storage underneath; a bedside cabinet with a bookcase built on top of it; a corner entertainment center; a TV armoire.

Each project includes about a dozen photographed steps, a full-page exploded drawing, a cut list and a supply list. The book opens with a helpful chapter titled "Basic Joinery Techniques and Hardware Application." It sells for $24.99 and is a 136-page softcover. *popularwoodworking.com*

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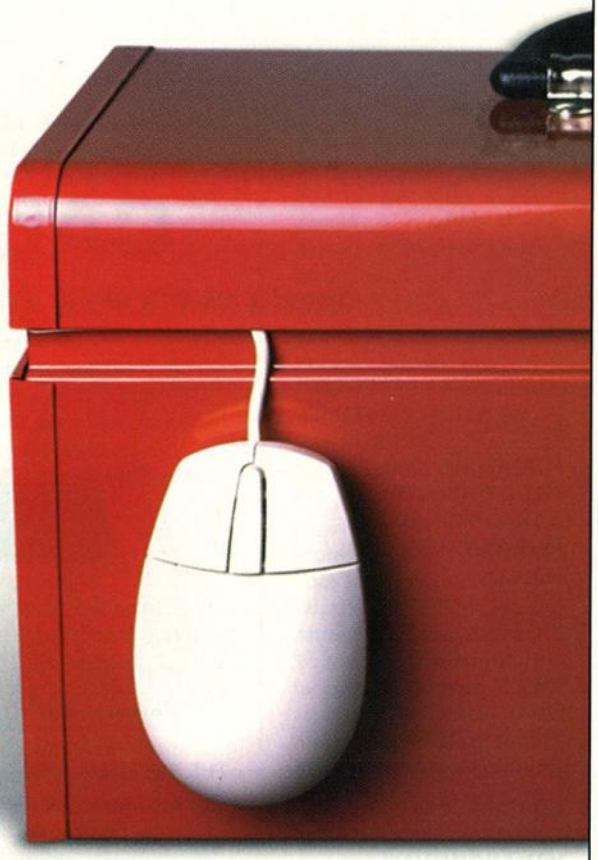

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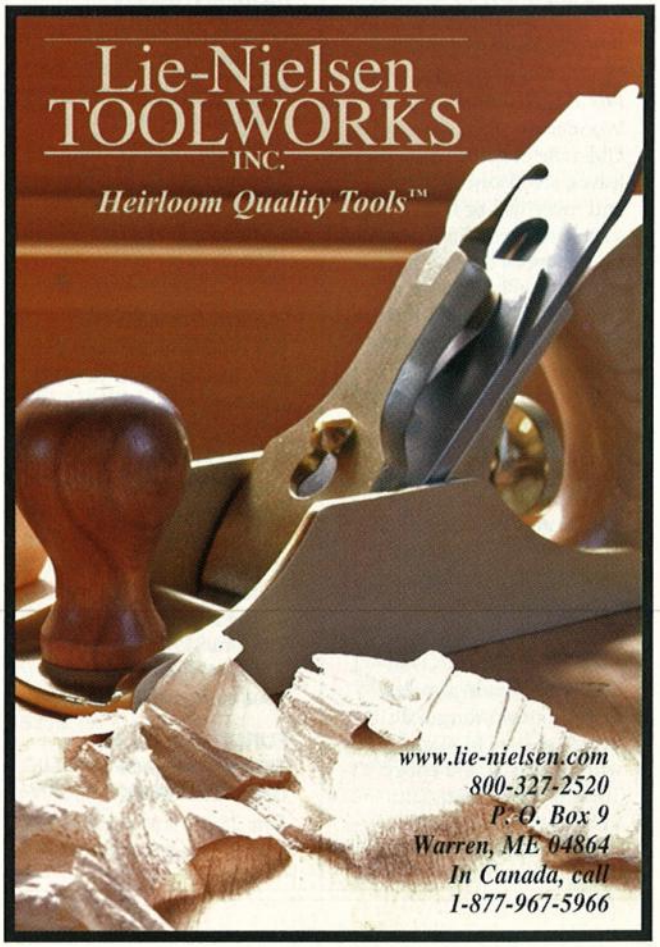

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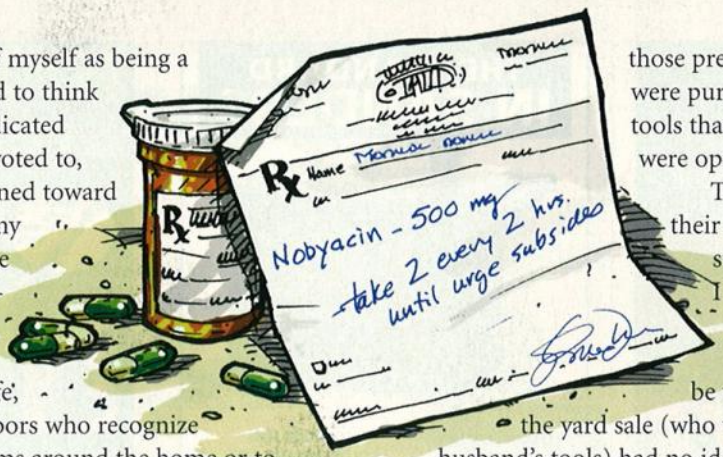
OFFCUTS

"Take two scorps and call me in the morning."

by Alex Burton



I hadn't thought of myself as being a tool addict; I preferred to think of myself as being dedicated to, accustomed to, devoted to, absorbed in, and inclined toward tools. The subject of my "fondness" was, for the most part, woodworking tools. But as a homeowner, I'm called upon by my wife, and sometimes neighbors who recognize my skills, to repair items around the home or to construct useful benches, shelves, tables, racks and holders of all kinds which can be made from wood.

Now sometimes a tool will become not worn out, but outmoded, and need to be replaced. The older tool – after it has been sharpened, adjusted and properly oiled against rust – is put away carefully in a box at the back of the shop, to be kept against a time when I might meet someone who shares this passion of mine for tools and might have something worth swapping.

It was a sentence I read in a woodworking magazine article about 19th-century iterant chair makers in England that caused me to wonder if I might have reached the heights in my field of interest.

The Bodgers, said the article, used a froe to rive their bolts.

Because of my past experience and extensive reading on woodworking tools I knew what every word meant. I thought I might expand my field of craftsmanship to include making the tools needed to make chairs and stools the way the Bodgers had.

This might be classed as an excessive interest.

At about the same time, my wife began asking about the number of catalogs coming to our house, and about all the heavy packages in plain brown wrapping paper.

That's when I realized I would have to get in touch with TA (Tools Anonymous).

The meeting was held in the back room at a yarn store. Only first names were used. Each one in attendance stood and confessed their addiction to the buying, owning or hoarding of, gloating over and sometimes actually using woodworking tools of all kinds. Some of those present craved power; others were purists who collected only those tools that had been handmade and were operated by hand.

To show that I belonged in their number I recounted the story of how at a yard sale I had spotted a handmade scorp with cast-brass ferrules. I asked what it might be worth. The woman running the yard sale (who was dumping all of her ex-husband's tools) had no idea of its value.

"Oh, that old piece of junk," she said in a dismissive way. "You can have it for about a buck."

"I couldn't believe my incredible luck," I confessed. "I just fainted on the spot."

I related how they had called an ambulance for me and how I had come to just as they were lifting me into it while maintaining a death grip on the scorp. The woman who cared so little for her husband's tool collection said, "Well, if he cares that much for that piece of junk he can have it for nothing!"

I passed out again.

As the meeting progressed everyone in attendance repeated the organization's mantra: "Should any member be stricken with the urge to buy a tool, other members shall hurry over and drink beer with him or her until the obsession goes away."

At the end of the meeting I was warmed by the presence of the first people I'd met who understood my condition. These were my people. Since I was the newest member, each of the older members came by to speak briefly with me, one by one.

Each of them, in turn, gave me a reassuring hug.

Each of them, in turn, pledged their support.

Each of them, in turn, whispered their confidence in my ear.

And without exception each whispered, "Did you bring your tool list with you? Maybe there's something we could swap later."

Alex Burton lives in Dallas.
He is still recovering from his addiction.

ILLUSTRATION: KEN BRADY

From industry leaders:

*". . . dovetails are a breeze, and you end up with a very good joint that would pass for handmade if it wasn't so **perfect**!"*
–Practical Woodworkng

"A router jig that actually saves time . . . takes much of the hair-pulling out of dovetailing with a router." **–Fine Woodworking**

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