

# Cherry and Fir Bookcase

Subtle details  
add elegance  
to a simple  
frame-and-panel  
design

BY PETER ZUERNER

Several years ago, my sister Cicely was looking for a bookcase that would be attractive, functional and reasonably easy to move. The piece I designed and built for her is now one of the stock pieces in my furniture shop. I call it, appropriately, Cicely's Bookshelf.

I wanted the bookcase to have a spare and elegant look, so I kept the frame parts to a minimum and elevated the piece off the floor by extending the corner posts to create four short legs. All four edges of the top, along with the front edge of each shelf, were given a generously sized cove to create the illusion of thinner stock. As a result, even when the piece is filled with books, it appears light and graceful.

## Choose the wood with care

For me, the first and most important step in any furniture project is the process of selecting the wood. Consistent color and grain are important, and I'm always on the lookout for something interesting. I especially like to incorporate special grain or a natural defect. Not only does an odd grain or a small defect make each piece a bit more unique, it also provides a strong visual connection to the tree from which it evolved. For instance, the piece shown here has a small, sound knot near the front





## CUT THE JOINERY FOR THE POSTS AND RAILS

The rails have stepped tenons that fit snugly in both the panel groove and the mortise, adding strength to the joints.



**Cut grooves to accept the fir panels.** To cut stopped grooves in the posts, first clamp an extralong auxiliary fence to the rip fence of the tablesaw, then clamp a stop block to the auxiliary fence. Use a dado head to cut the grooves.

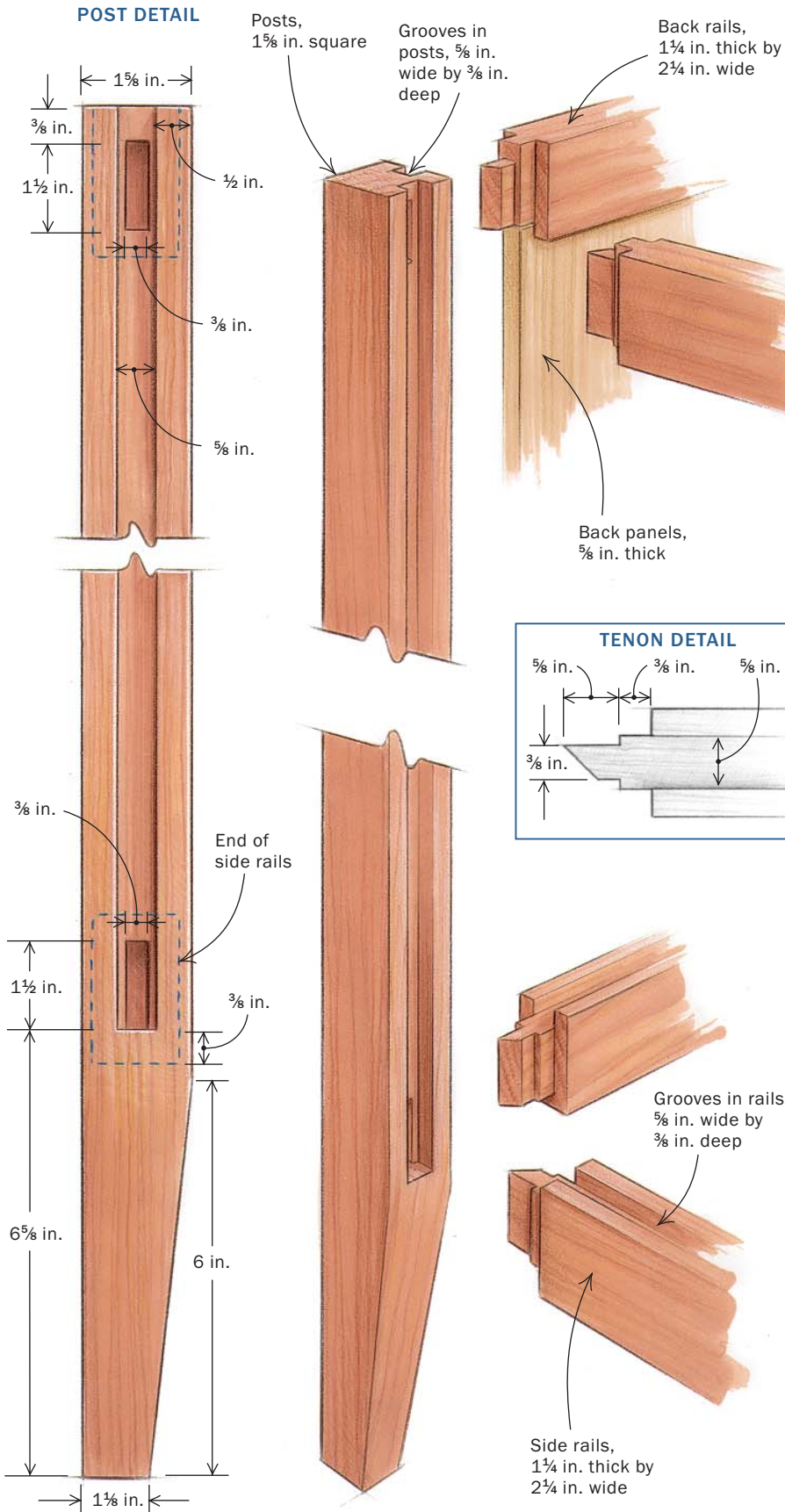


**Square the corners.** The dado head leaves a rounded portion at the stopped end of the grooves. A chisel makes them square in short order.



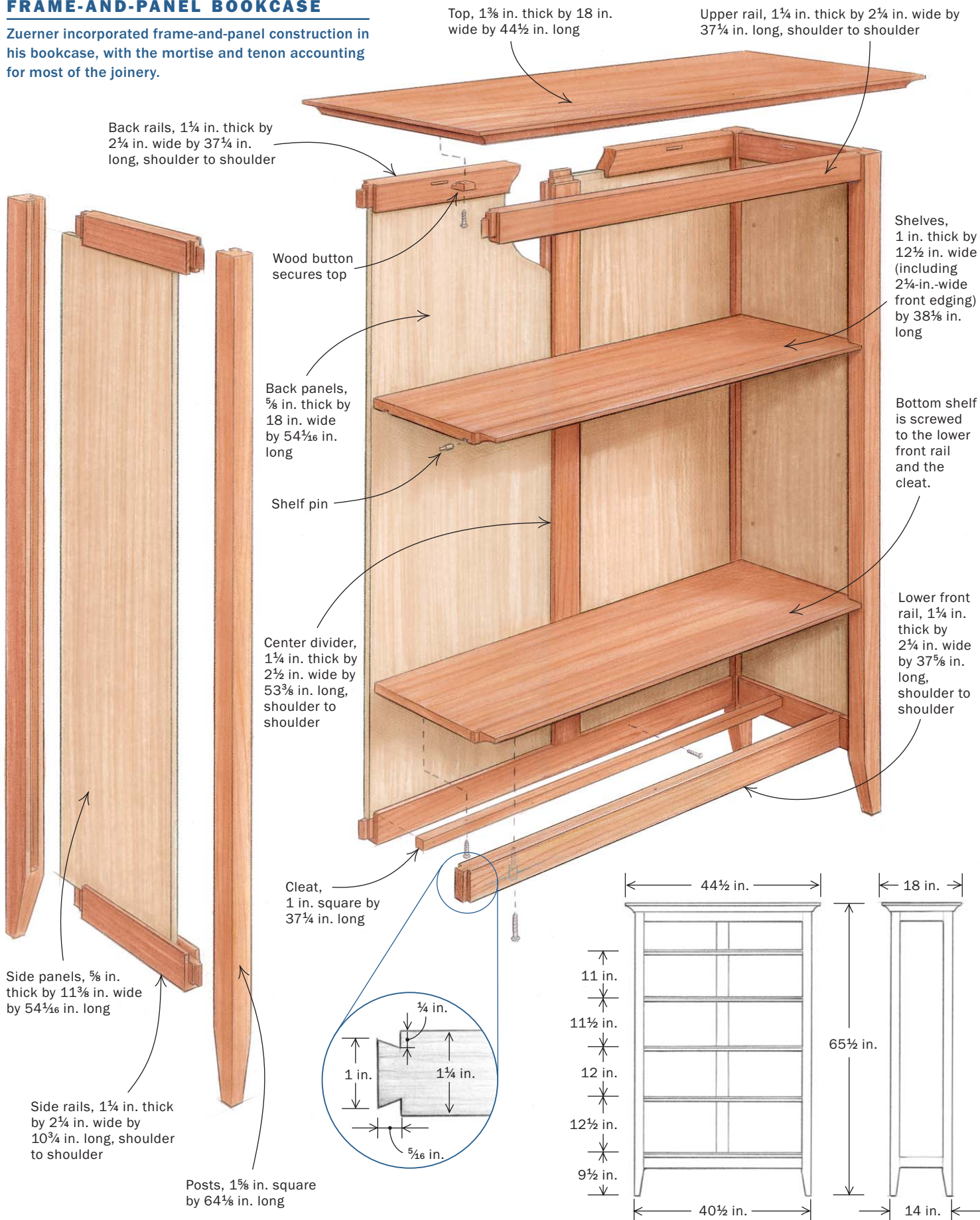
**Two-step tenon.** Use a dado head to cut the tenons. First clamp a stop block to the fence to establish the tenon length. Then cut the portion of the tenon that fits into the groove. To create the step, reset the blade height and reposition the stop block as shown.

### POST DETAIL



## FRAME-AND-PANEL BOOKCASE

Zuerner incorporated frame-and-panel construction in his bookcase, with the mortise and tenon accounting for most of the joinery.





of the lower shelf, about midway across the span.

In this piece, I liked the idea of blending darker cherry with the strong grain of quartersawn Douglas fir. So I used cherry for the frame parts, the top and the front edging on the shelves. The quartersawn fir is incorporated into the panels.

Sometimes, when wood is moved from one location to another, the new conditions of temperature and humidity can cause it to warp a bit, often within a few hours of the relocation. So once I have all of the oversize stock together in my shop, I like to give it a few weeks to acclimate to its new temporary home. Then, after rough-milling the stock, I allow it to sit for another day before cutting it to final size. Any last-minute twisting or cupping gets removed at this stage.

### Construction is straightforward

I began by gluing up blanks for the 5/8-in.-thick side and back panels. To do that, I resawn 8/4 fir, book-matching the panels to add a balanced look.

All of the shelves were made from commercially available 5/4 by 12-in.-wide stair stock. However, the front of each shelf received an edging of 2 1/4-in.-wide cherry, so the bookcase ends up with an all-cherry look when viewed from the front. The cherry edging has another plus. Because fir sometimes can be splintery, the cherry almost eliminated any splitting out when the coves were cut.

Most of the frame was put together with mortise-and-tenon joints. The one exception is a sliding dovetail joint that I used to connect each end of the lower front rail to the lower side rail.

To accept the panels, I cut 5/8-in.-wide grooves into the posts, the center divider, the side rails and the upper and lower back rails. The grooves in the posts were stopped about 7 in. short of the bottom. Then, at each stopped end, I used a bench chisel to square up the rounded portion.

After all of the joints had been cut and fitted, I cut the panels to final length and width. All of the panel surfaces were sanded through 220 grit. After that, I applied four coats of tung oil to each panel.

Oil finishes sometimes “bleed” from the wood pores while drying. When that happens, the finish often ends up with tiny

## ASSEMBLY BEGINS AT THE BACK

With all of the parts cut and fitted to his satisfaction, Zuerner is ready to begin assembly. First, though, he applies finish to all of the panels. Then he makes the back and adds the remaining parts.



**Finish the panels.** Before assembly, the panels are finished with four coats of tung oil.



**Assemble the back.** The two back panels are slipped into the grooves in the frame parts and then clamped.

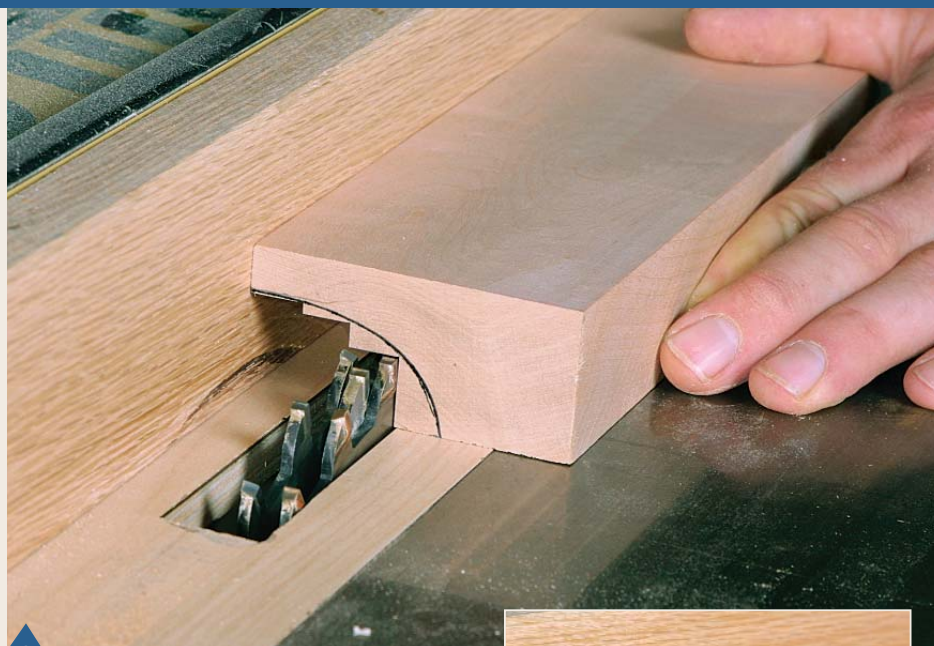
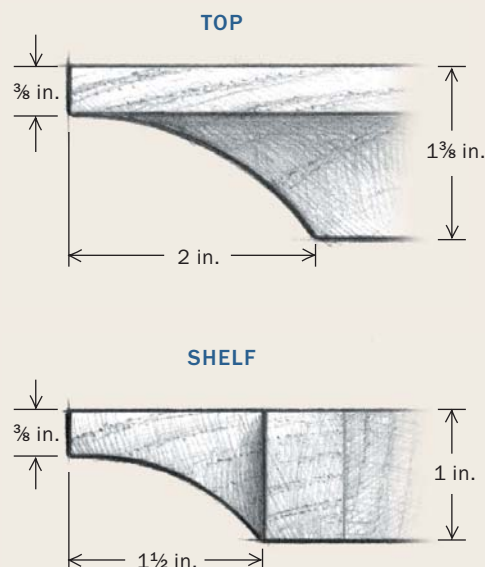


**Add the remaining frame-and-panel parts.** Once the back glue-up has dried, the remaining frame-and-panel parts are added in one big glue-up. First, the lower front rail is assembled to the two lower side rails, and then all four of the side rails are added to the back posts. Following in quick succession are the side panels, front posts and the upper rail (above). An assortment of clamps keeps the joints tight until the glue sets up (left).

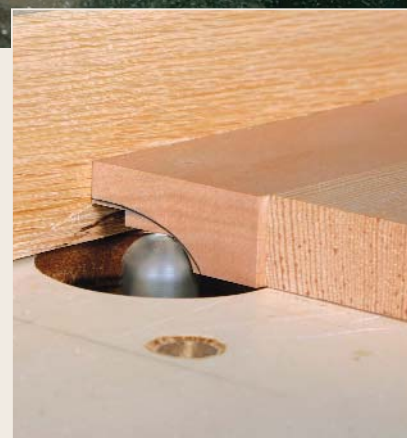


## CUT THE COVES IN TWO STEPS

Applying a generous cove to the exposed edges of the top and the shelves makes the parts look thinner, giving this large bookcase a lighter feel.



**1 Remove most of the waste.** Make a series of increasingly deeper cuts with the dado head. A test block, with the cove profile marked on the end, helps establish the location of the cuts.



**2 Make a series of cuts using the router table and a large cove bit.** Use a curved scraper to smooth out any wavy edges left by the cove bit.

beads of hardened oil, and that can give the finish a slight roughness. So, once a coat had dried, I sanded it lightly with 1,000-grit sandpaper wetted with mineral oil. The wet-sanding removed any beads that formed. Then, I wiped the sanded surfaces with a clean, soft cloth and allowed the mineral oil to dry. Once it was dry, I added the next coat of tung oil.

### Assembly starts with the back section

I started the assembly process by putting together all of the parts that compose the back section—the two back posts, the upper and lower back rails, the center divider and the two back panels. Except for the panels, all of the mating surfaces were glued together. That way, the panels are free to expand and contract in width as their moisture content changes.

Once the back section was dry, I joined most of the remaining parts in one big glue-up. I began by adding the lower front rail to the two lower side rails. After that, the four side rails were assembled to the mortises in the two back posts. Then I simply slid the side panels into the grooves in the side rails. Once the upper front rail was mounted, I added the clamps and checked the frame for square.

While the clamped parts dried, I cut the top and the shelves to final width and length. Then I cut the coved profile. Although you can use a special shaper cutter, I cut the coves in two steps using a table-saw and a router table. For this technique, I used a dado head in the table-saw and

made several passes to remove most of the waste stock. Then, using a 3/4-in.-radius cove bit mounted in a router table, I made a series of additional passes. The cove bit easily conforms to the profile, so it's more efficient at removing waste stock than a straight-sided dado head is.

After the work with the cove bit had been completed, I was left with a wavy profile that needed to be smoothed out. A curved scraper came in handy here.

Once all of the coves had been cut and smoothed, I used a chisel to cut a small bevel, sometimes called a lamb's tongue, where the coves meet at the corners. Granted, it's a small detail, but it brings the corners to a crisp point. Also, to anyone looking at the bookcase, the bevel sends a subtle message that this isn't a production piece.

At this point in the construction, all five of the shelves were just about complete. I



**The lamb's tongue.** A small bevel at each corner of the top is cut with a chisel to help soften the hard right angle of the edges.



## FINISH WITH THE SHELVES AND THE TOP



**Attach the bottom shelf.** The bottom shelf is secured by driving screws up through the cleat and the lower front rail. To allow the shelf to expand and contract with changes in humidity, Zuerner uses a rat-tail file to slot the portion of the hole that accepts the shank of the screw.



**Add the top.** After cutting several shallow slots in the upper rails, Zuerner slips a notched wood button in each slot. Then the buttons are screwed to the underside of the top.



**Straightforward construction.** You won't need much more than a weekend or two to build this elegant bookcase.

simply had to notch the front and back corners to fit around the inside corners of the four posts.

I used a simple jig to drill the holes for the pins that support the shelf. And I had two options here. I could have drilled a series of holes, spaced evenly apart, to provide adjustability. Or, if the client didn't want to see all of those holes, I could have simply drilled them where the shelves were going to go.

To add strength to the bookcase, the bottom shelf was fixed in place. It rests on two parts: the lower front rail and a cleat that's screwed to the inside face of the lower back rail. Six screws hold the shelf in place. The screws were driven up through

counterbored holes in the lower front rail and the cleat.

Next, I sanded all exposed surfaces, except for the panels, with 220-grit paper. Then, again excepting the panels, I added four coats of tung oil, sanding between each coat with 1,000-grit paper while the oil was still wet.

To allow the top to expand and contract in width as the humidity changes, I attached it to the frame using eight small wood buttons. A final rubdown with a soft, dust-free cloth completed the project. □

*Peter Zuerner, owner of Zuerner Design, builds furniture in Middletown, R.I., just a silver-spoon's throw from the historic mansions of Newport.*