

Build a Classic Ming



Part 2

Complexity and serenity coexist in this exceptional Chinese piece

Table



proximated the cut with two bits—a full-radius bullnose bit and a thumbnail beading

If you carefully followed the steps I described in part one of “Build a Classic Ming Table” (*FWW* #306), your table is mostly built. In part two I’ll describe the processes ahead: fitting the legs to the top, building the shelf with its coped tenons, and bringing the apron around the ends of the table with full-blind mitered dovetails. All these operations are made trickier, of course, by that subtle (and beautiful) splay of the legs. But persevere—an amazing, historic table awaits!

Building the shelf

Like the tabletop, the shelf has a frame around a floating panel. The frame gets a shallow beaded half-round profile on its outside edge. Not finding router bits the exact shape of the original table’s profile, I ap-

proximated the cut with two bits—a full-radius bullnose bit and a thumbnail beading bit—and then did some blending by hand. There was a hard spot in the profile where the two routed rounds met, and I faired it with a shoulder plane followed by hand sanding.

Frame parts get coped tenons

This innocent-looking shelf sports some audacious joinery: The tenons linking the frame members to the legs get their shoulders coped to a curve so they clasp the round legs. Making these coped tenons might be the most demanding operation in the whole table.

The long frame members get tenoned first, and I do this in two stages. First, I lay out the tenon on one end, cut and fit it. Then I measure the actual distance between the legs and use that to determine where to lay out the tenon on the other

BY JOHN CAMERON

Making the shelf frame



Molding and grooving. With the shelf's frame stock milled to size, Cameron cuts the molding profile on the router table with a half-radius bullnose bit, then a thumbnail beading bit. Next, at the tablesaw, he'll cut a 1/8-in. groove to accept the panel's tongue.



Coping with the tenons. The frame members get tenons with coped shoulders that wrap around the leg. A circle template helps lay out the coping.



Tenons get scored. Using a marking gauge with a double cutting wheel, Cameron marks the tenons using the inside edge of the workpiece as his reference surface. A regular gauge will also do the job.



Complex tenon starts with a simple cut. To anchor the cutting with a solid reference surface, Cameron cuts the inside cheek at the tablesaw, using a high fence and a square following block. Then it's on to handwork.

end. I use a circle template and pencil to lay out the curving shoulders.

Cutting the tenons is mostly handwork, but I start by cutting one cheek at the table-saw, using a tall auxiliary fence and a following block. It is nice to have a reliable, machined reference surface to start the fitting with.

Rough out the waste between the tenon and the coped shoulder as best you can—a coping saw works remarkably well for this (who knew?)—and as you remove the waste, remember to leave material for that pesky 1.5° leg splay. Pare the tenon to start the fit, then begin paring the shoulders to mate with the outside of the leg. At this point an odd but extremely useful tool is introduced: the in-cannel gouge, with its bevel on the inside. The legs are 1 3/8 in. dia., so you want a gouge with a radius somewhat smaller than that.

With each of the long frame members, fit one joint completely before laying out the other. The distance between them must be exact. Measure the span between the legs and apply that measurement starting from the fully fitted joint.



Long members first. The front and back frame members are coped to embrace the leg with both shoulders. Cameron makes the curving cuts with a coping saw.



Curved cleanup. The in-cannel gouge is key as Cameron pares the coped shoulders and then fits them to the leg.



Ensuring one flat shoulder. The tenons on the short frame members are cut next. They have a coped outer shoulder to wrap the leg, but their inside shoulder is not coped, and Cameron cuts it at the tablesaw. A spacer clamped to the sled skews the workpiece, making the cut 1.5° off square.

Cutting the joints on the short frame members is the same as fitting the long frame members, with one notable exception—it is easier! While the tenons on the long members have two coped shoulders, like a pair of horns, the short members have just one coped shoulder; the other is square.

Fitting the shelf panel

With the table assembled and the shelf frame fitted, measure the frame opening to calcu-

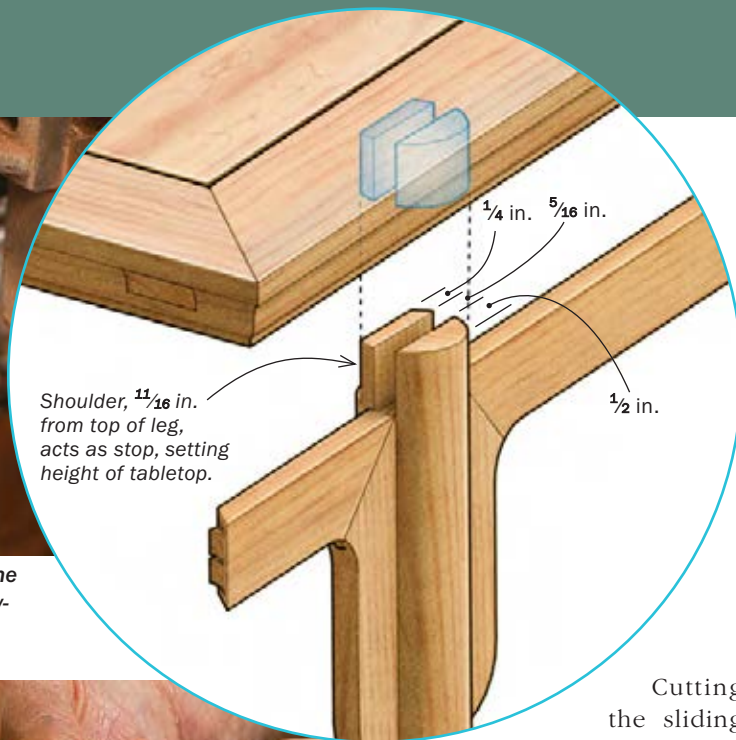
late the panel size. Calculate the length of the cross brace as well. After cutting the panel to size, bevel the underside around the perimeter to fit into the groove. A bevel of around 8° or 9° seems to work. I cut the bevels on the tablesaw and clean them up with a hand plane. Be sure to creep up on the final fit, as it is easy to go too far and have a sloppy panel.



Mortise the top for the leg



Milling a double mortise. The oddly shaped twin mortises in the top frame to receive the leg tenons begin with a pair of ordinary, machine-cut, side-by-side mortises.



Half-moon mortise. Cameron uses an in-cannel gouge to shape the rounded wall of the outer mortise. He'll use a smaller gouge to round the ends of the inner mortise.

Cutting the sliding dovetail and the mortise-and-tenon joints for the cross brace under the shelf is much the same as making and fitting the braces under the top. One difference is that the mortises in the shelf frame must be angled 1.5° to take the leg splay into account. Any inaccuracies in the side-to-side location of the cross-brace mortises can be compensated for by paring the edges of the tenons.

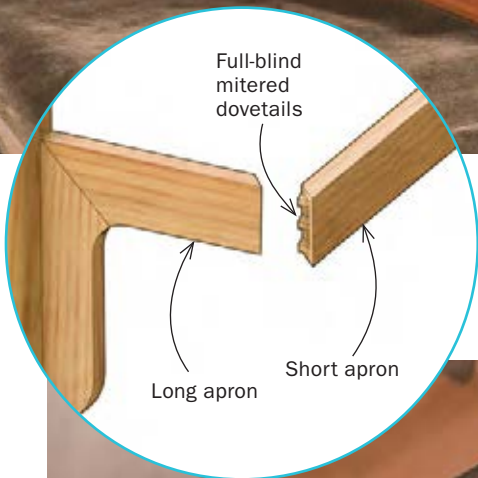
Where the legs meet the top

Having all but completed the base, I can now lay out and cut the mortises in the bottom of the top frame to receive the legs. These are double mortises, one fairly standard-looking but with rounded ends, the other a half-moon shape. Each long frame member gets mortised for two legs. To ensure that both legs fit tightly, I cut the mortises undersize, fit one

Finely fitted. Cameron takes his time paring the mortise walls to obtain a piston fit. To be sure the joint remains snug, before fitting he completes the rounding of the leg, sands, and applies the oil and wax finish.



Mitered apron dovetails



Measuring time. Only when the rest of the table is fully assembled is it time to take a measurement for the length of the short apron. To account for the leg splay, the crosscuts are made at 91.5° .

End aprons get pins. After laying out the miter and cutting the rabbet, Cameron lays out the pins on the short aprons. When he carries the pencil lines down the inside face, he'll draw them parallel to the sides of the workpiece, not square to the end, which is 1.5° off square.



Delicate dovetailing. As you saw the pin cheeks, cut gently, being careful not to saw through the lap.



Chisel away the waste. A square block clamped at the baseline makes accurate chopping easier, and a thin scrap of hardwood the same thickness as the dovetail's lap simplifies achieving a uniform surface there.

Mitered apron dovetails continued



Saw the side miters. With the waste between the pins removed, Cameron saws along the scribed miter lines on the edges of the apron. He'll then clean up the sawcut by paring with a chisel.



Zip off the tip. Successive passes with a chisel create the mitered surface at the tip. A 45° angle block helps guide the chisel.



Finally, fitting. After marking the tails on the long aprons from the completed pins, Cameron cuts the tails and fits the joint.

completely, then fit the second relative to the first.

I start by roughing them out on my mortiser. To cut the mortises at a compound angle (1.5° in both directions), I place a wedge beneath the workpiece and add a pair of angled jaw shims to the mortiser's vise.

For the handwork, I pull out my in-cannel gouge again. I

have one that's close to the radius of the leg, and it makes paring the half-moon mortise a joy. Pare, fit, repeat. When one leg fits right up to the shoulder, start to fit the other leg in that pair.

You'll note that as the legs slide up and down the spandrels, the distance between the leg tops changes, and you'll have to negotiate this as you do the fitting.

The end of the apron

The last pieces to be cut and fitted are the end aprons. They come last because their exact length can only be measured when the rest of the table is fully assembled. The end aprons are joined to the long aprons with miters that conceal full-blind dovetails—very small ones! The dovetail pins are on the end aprons.

Cut the milled stock to exact length, being sure to cross-cut each end at 91.5°. Lay out and knife the miter, lay out the 1/8-in. mitered surround, and then lay out the pins. The cheek lines on the pins, usually drawn square from the crosscut ends, should instead be drawn parallel to the sides of the part. This is important. Saw, chop, and clean up the

Assemble a masterpiece



Legs to apron. After fitting the long shelf frame member between two legs, Cameron slides the legs onto the spandrels.



The shelf itself. With its wide underbevel and its sliding dovetail slot, the shelf receives a single cross brace. Once the panel is in place and the cross brace is fitted, Cameron adds the short frame members.



Two more legs. The second pair of legs, with apron and long shelf frame in place, completes the shelf assembly.

Dovetails get a little leeway. There should be just enough flex in the assembled structure to let you widen the gap between the long aprons and sneak the short apron into place.

pins. The mitered surround can be cut and pared either before or after chopping the pins.

Mark the tails on the long apron from the pins. The lines between the pins and the miter surround are laid out at 91.5°. You may have to make a jig for this as the miter surround will not allow a standard bevel gauge to fit. Saw, chop, and clean up the tails, sawing and

paring the miter surround either before or after.

I recommend making a test corner before attempting this tricky bit of joinery on the table itself. I made this very table some years ago, but I still went through four tries before I was ready to cut the real dovetails this time.



Assemble a masterpiece continued



Back to the top. Once the cross braces are snug in their sliding dovetail sockets, Cameron fits their tenons into the long members of the top frame.



And at the end. The short members of the top frame slide on last, and the through-tenon joinery locks the cross-brace tenons tight.

Finishing up

Although information is scant, my research indicates that wood finishing in the Ming Dynasty usually consisted of vegetable oil and then wax. I used commercially available Watco oil, followed at least a day later by a homemade beeswax and turpentine mixture, using a recipe from Ernest Joyce's *Encyclopedia of Furniture Making*. With the finishing complete, all that's left is the glueless assembly. And from me, a note of congratulations! This is a very tricky piece of furniture to make and a great introduction to the world of classical Chinese furniture. □

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Tipped and tapped. With the top upside down on a clean, cushioned surface, Cameron tilts the base a bit to nudge one set of legs into their mortises, then lowers the other set. Because the legs splay and the mortises are slightly angled to match, the top won't lift off once the base has been tapped all the way home.



Digital plans for this table are free for Unlimited members, or can be purchased at [FineWoodworking.com/PlanStore](https://www.finewoodworking.com/PlanStore).