Essex County Cupboard

Photos, this page and opposite: Peter Follansbee

I recently got the chance to build a reproduction of a cupboard I've been studying for over 25 years. The original was made during the 1680s in Essex County, Massachusetts, and is part of a large group of joiner's work that stands head and shoulders above most other New England works of the same period.

The cupboard consists of two cases. The upper case is a trapezoidal cabinet with a door and an overhanging rectangular cornice supported by large turned pillars. The lower case has four full-width drawers, the middle two recessed behind two pillars. The decorative scheme includes about every technique used in English joinery of that period—applied moldings and turnings, carved patterns, faux-architectural enhancements, painted accents.

The cupboard was likely built for storage, with the drawers holding linens, tablecloths, clothing, etc., and the upper case and top surface storing and displaying plate—pewter, silver, earthenware. Another function of this cupboard was to establish status; a costly piece, it would have been displayed in the hall, the most public room in a 17th-century New England house.

I work in a small shop without electricity, so I made the cupboard without power tools. I split the stock for it green from a log.

If there's a 17th-century decorative technique not featured in this nifty piece, we can't think of it

BY PETER FOLLANSBEE

Riving and planing the stock

Working with a log with a diameter of about 24 in., I start splitting 6-ft.- to 8-ft.-long sections, first splitting them in half, then quarters, eighths, and sixteenths. I do this work with a sledgehammer and steel and wooden wedges. It goes even better with help. The sixteenth sections are still beastly heavy, but they're manageable enough to move to the shop, where the more-specific splitting begins.

After crosscutting a section I begin laying out my next splits. Ideally, the best way to approach splitting the stock is in halves and halves again. Equal mass on each side of the split helps keep things running evenly. But some sections are too thick for two pieces and too thin for four. A section, or bolt, from a perfect log can be split in thirds—on a good day. I needed drawer parts and thin panels in the range of 6 in. to 8 in. wide by 24 in. long and was able to split bolts into thirds for them with a pretty good success rate. I removed the sapwood and bark—the sapwood is useless, and removing it helps you see the progress of your splits.

The face of every board is on the radial plane of the log. Oak (and most other ring-porous woods) splits very predictably along its medullary rays and perpendicular to them, along the growth rings (the radial and tangential planes, respectively).

To split a section into thirds, I tend to work from both ends, aiming for things to connect in the middle. I lay out the divisions on both ends. I stand the bolt upright on a chopping block and use a froe and wooden club. I lightly tap the froe to begin scoring the fibers on the end. As soon as a split begins, I remove the froe and repeat on the next line. Once that split has begun, I flip the piece end for end and repeat. These steps begin to separate the fibers along the radial plane. Now I pick one of the splits, reinsert the froe, and begin to strike it with a bit more emphasis. I watch the progress down the edges of the bolt. When the split begins to wander, I stop, remove the froe, and come from the other end. The game is connect the dots.

Once you have the third board split off, the remaining section is split in half, an easy job with good wood. This is froe-and-club work, made easier when you can trap the bolt in a brake of some sort—often just the crotch of a tree or, in my case, some horizontal rails attached to a large tripod. The brake allows you to exert pressure that helps direct the split. When it runs out, move the thicker side down and push against the thin top side as you lever the froe. When it goes well, I can think of no woodworking that's more fun.

Some of the splits might be uneven in thickness. Hatchet work (a large single-bevel side hatchet is ideal, but a double-bevel will work) removes excess stock quickly before going to the planes. Planing radially riven, green oak is as easy as planing clear white pine. I flatten a face, square an edge to it, then determine the thickness and width for the second face and second edge.

I plane the stock twice. First, rough out the board slightly oversize. Green wood planes easily, but its finish is not as smooth as drier wood. Sticker the boards in the shop for a few weeks, then lightly plane them again to finished dimension and surface condition.

Tried-and-true joinery

The case joinery is all mortise-and-tenon; the format is frame-and-panel. The trapezoidal upper case has stiles shaped to help create

Inspect the bolts (log sections). *Select the parts each bolt will yield. Then split off the waste—sapwood and bark—with steel and wooden wedges and a sledgehammer.*

the truncated octagonal footprint. Both rear and front stiles have five-sided cross-sections so the ends of the rails can be cut at 90°.

I tested the fit of the joinery several times until I arrived at a sequence that allowed one person to assemble this odd shape. Connect a rear stile and its side rails and panel, then drop the front stile onto the other end of those rails. Do this for both side sections. Then set the rear panel and the two long rear rails on their backs on the bench. Slide one end of the rear rails and panel into a rear stile. Then bring the other side assembly onto the other end of the rear rail-and-panel assembly. There's enough wiggle room to slip the shorter front rails into their mortises in the front stiles.

Upper case floor and door

The floor of the upper case is made of thin oak boards, riven and planed ahead of time so they're nice and dry at assembly. Their grain runs front to back, and they are scribed to fit into the trapezoidal case frame, sitting in rabbets in the front and side rails and on top of a lower rear rail. The joint between the floor boards is a V-shaped variant on a tongue-and-groove. I install the boards at each end first, then move inward toward the middle.

From log to milled stock

Most of Follansbee's stock is riven oak. Selecting the right log is not half the battle, but it is an absolute must. Straight-grained and knot-free are key features. Large diameter is important too.

In thirds. *Short, perfect stock can sometimes be split into thirds rather than the more typical halves. That's always a gamble, but when it pays off it saves stock and labor. To make two side-by-side splits, mark out on both ends the tapered even thickness of the desired parts.*

Using a froe and club. *Follansbee starts each split on both ends of the bolt. Light blows from the club coax the splits open. A careful game of connect the dots follows the fibers down the length of the bolt.*

Opening the split. *Sometimes a wedge, either steel or wooden, helps make the connection between the top and bottom splits.*

The perfect log. *When you find perfect logs, which are rare, they are the greatest thing. This radial plane is flat along its length and width.*

Excess thickness. *Most splits are tapered in thickness. You can rive off some of the excess with the froe. Jam the stock into the bars of a riving brake and work the froe forward as you push down on the handle to open the split. Use a piece of scrap to keep the split open behind the froe, making it easier to advance.*

Prep for planing. *Keep your leg tucked behind you for stability and safety. Make scoring cuts at an angle, working from the bottom toward the top, but not all the way. Then lightly swing the hatchet from the top down to break off the scored fibers. Repeat until you reach the desired thickness. Flip the stock end-for-end to finish the full length.*

The frame-and-panel door tucks into a rabbet in the hinge stile and butts against stops set into the lock stile. Its hinges are a wooden pintle arrangement. I bored ½-in.-deep, ⅜-in.-dia. holes into the top and bottom of the hinge stile and corresponding holes in the top and bottom rails. The hole in the bottom rail is about ½ in. deep; the one in the top rail runs right through the rail. A short pin fits in the bottom of the stile; the fit should be neither tight nor loose. Tilt the door into place, then drop a longer pin through the top rail to catch the door. The door doesn't sit parallel to the cupboard's front frame, but slightly angled to it. Once all the moldings are applied to the door, you only notice its angled face when you go looking for it.

Moldings

There are various moldings applied to the cupboard. Many of them are ⅜ in. thick and about ⅝ in. wide. To make those, I plane a board ⅜ in. thick and about 6 in. wide by 20 in. to 30 in. long. I lay it on a planing board with a stop, and plane a molding along one edge. I use a molding plane that Matt Bickford custom-made for me, or a scratch stock. Once the first molding is done, I rip that strip off the edge of the board, re-joint the board, and run a new molding. Repeat until the board is too narrow to hold. Then make another. The moldings need their sawn edge jointed too. A few swipes across a plane inverted in a vise finishes them off.

The molding located just under the lower case's top boards has a zigzag, sawtooth decoration cut in it. I laid out the pattern with

A scrub plane follows the froe and hatchet. *It starts to bring the riven, hewn blank toward something flat and smooth. Jam the workpiece against the iron-toothed bench hook or planing stop.*

Edge jointing. *Here the board is pinched against the edge of the bench in a wooden screw/crochet. Its front end sits on a holdfast, its back end on a peg in a sliding deadman.*

Photos, except where noted: Anissa Kapsales

Trapezoidal upper case

While the shape isn't typical, the joinery is. The upper case has mortise-and-tenon joints and frame-and-panel parts between the rails and stiles. A tongue-and-groove variation keeps the back and floor boards together, and a pintle hinge keeps the door swinging.

Start at the side. *Small, angled blocks hold the five-sided stiles while you insert the side rails. Slide the beveled panel into the grooved edges of the rails and stile and then add the front stile.*

Coax the trapezoid into shape. *With the rear frame on its back and the side frames connected to it, add the front rails to the front stiles. Follansbee pushes against a strip of wood fixed to the bench to bring the joints together.*

a miter square and an awl, then chopped it with a 1-in. chisel. Two vertical cuts define the triangle, then paring cuts with hand pressure remove the chips and create the sawtooth motif. Some period versions of this have the proud teeth painted black.

Applied turnings

There's a lot of turned work on the cupboard. I use a pole lathe; the action is provided by a foot-treadle below and a 12-ft.-long sapling in the ceiling above. A cord tied to the sapling wraps around the workpiece and runs down to the treadle. Each kick of the treadle spins the turning toward the tool, then the pole springs it backward. Then comes another kick. I often reserve a short section on the turning as the place the cord wraps around.

On the pole lathe there's no drive center; the work spins on two iron points. If you were to glue up your blank the way most modern turners do, fixing it between the lathe's points could split it along the glueline. To get around this, I glue up a pair of maple blanks with a 3/16-in.-thick center strip between them. The lathe's points engage the sacrificial center strip. It's a job for hide glue because you need to be able to take the pieces apart once they've been turned. When the turning is done, I steam it over a pot of boiling water to soften the hide glue. Once it's loose, you can slide a putty knife in there to separate the turnings from the center strip. It's like magic.

Moldings abound

From different profiles and widths to zigzag patterns, there is no shortage of decorative moldings. Hand planes, scratch stock, and chisels create the molding features in the cupboard.

DIY moldings. *On a planing board with a stop, plane the applied moldings from a wide panel. A dedicated molding plane makes the first part of this particular molding, an ogee with two fillets. Next, a scratch stock cuts a large bead beside the ogee to bring the molding's width to 1⅛ in.*

Ripped off. *After you rip the molding from the board, rejoint the edge of the board and plane the next molding. Joint the sawn edge of the moldings before you miter and fit them.*

Glue free. *No glue means there's no hurry in the assembly. Once the joints are knocked into place, drive the tapered pins into the drawbored holes in each joint.*

Get your V-groove on. *Floorboards and drawer bottoms are made from ½-in.-thick oak panels. Their edges have a V-shaped joint, a variation on the tongue and groove. Use a scratch stock to scrape in the groove part of the joint (above left). Match the groove (above right). Plane the bevels to form the tongue section. Use a scrap with the groove to test the fit.*

Fit the upper-case floorboards. *The boards sit in rabbets in the side and front rails and on top of the rear rail. Scribe and cut the end boards to fit the angled sides. The middle boards are square ended; spring the last two in place.*

Lower case assembly

By the time I'm ready to assemble the lower case, it's been through several test fits. I begin by setting the bottom drawer frame: two thick stiles/blocks connected by a rail and with a thin narrow shelf on top of them. Then I fit the turned pillars' bottom tenons into holes I've bored in that shelf. A similar unit that creates the top drawer frame then drops down onto the pillars' upper tenons. The rear section (an assembled frame-and-panel) is laid down on its back. I insert the side frames and panels into the rear stiles, then wrestle the front section onto the tenons of the side rails. It would go even easier with a helper, but I've stubbornly done it myself again and again.

Zigzag dentils. *For the molding at the top of the lower case, lay out the pattern and chop all the angled cuts. With the chisel bevel-up, pare away the lower triangles.*

Paint adds contrast

Period paints were made with pigments mixed in linseed oil, with lead added mostly as a drier. I use linseed oil, citrus thinner, and some artist's drying medium. Into that I mix dry lampblack pigment. I usually mix it together in small batches with a brush; today's pigments are mixed so fine that they dissolve easily. Thin coats are best; I did two coats on the turnings and moldings.

The applied decoration on the angled upper side panels is a faux-architectural tour-de-force: three turned arches across the top with pendants and molded pillars. Small maple keystones and imposts break up the arches. Turned ovals and circles accent each transition. Each panel has nearly 50 pieces fixed to it to create the design. They're glued on with hot hide glue, and some have small iron sprigs (headless brads) fastening them as well. I think the sprigs just hold the pieces in place while the glue sets. Rather than have a blacksmith make the sprigs, I clipped the

Door swings on a pintle hinge. *A fixed pin fits into a hole in the bottom of the door stile. To install the door, tip the door in on its bottom pin (top), then tilt it in place and drop the other pin through the top rail into the hole in the top of the stile (above).*

Turnings all around

In addition to the four large pillars, there are turned drawer pulls and several oval and round decorations and lots of pairs of applied half-turnings. Examination of period applied turnings shows them to be less than half-cylinders. How they got to be that way is a debate that Follansbee has retired from.

Pole-lathe blank preparation. *Use hide glue to attach strips of maple to a sacrificial middle strip, which the points of the lathe will engage. Without it, the pressure of the points could split the piece on the glueline.*

A pole lathe is a simple affair. *A sapling mounted in the ceiling (in this case, out of view) has a cord tied to its end. The cord winds around the workpiece and connects to a foot treadle. Press on the treadle, the pole bends, and the workpiece turns toward you. That's when the cutting happens. Let up the pressure with your foot, and the pole springs back and reverses the workpiece. You don't have to remove the tool; it won't cut on the backstroke. Then repeat.*

Online Extra

To watch a video of Follansbee's pole lathe in action, go to **FineWoodworking.com/312.**

Turning tips. *Keep the tool rest close to the action. Sharp tools and light cuts are the keys to success.*

Breaking the blank apart. *After turning, steam the blank until the glue softens. Then slip a putty knife between the turnings and the middle strip. Cut off any waste. Here, the bottom section of the turning was reserved as a place to wrap the cord.*

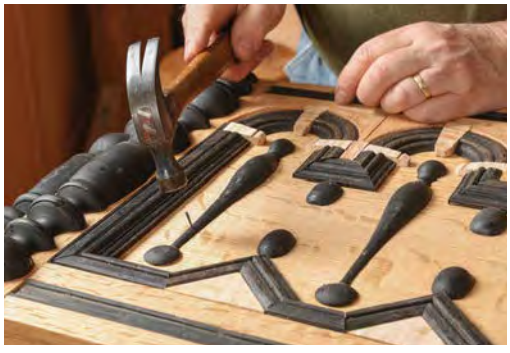
The lower case comes together

Think of the front as having three separate units: the top and bottom drawer frames, and the two recessed middle drawers behind the pillars.

Assemble the lower case. *The case back and sides are largely straightforward frame-and-panel units. The case front is another matter: It has a lower drawer frame consisting of thick square stiles connected by a small rail and topped with a thin shelf. On top of that, turned pillars are set into holes in the shelf. Next, the top drawer frame sits on the pillars' top tenons. This whole unit gets wriggled into place on the side rails' tenons.*

Keep things from sliding off as you work. *Applying the moldings and turnings to the side panels of the upper case is a balancing act. Propping the cupboard against the bench renders the panel pretty level.*

Hide glue secures the ornamentation. *The key is to keep the glue warm as you work.*



Glue, or glue and sprig. *Much of the flat work is just glued in place, but many of the turned elements are glued and sprigged—that is, held on with headless iron brads. Follansbee uses an 18-gauge modern brad (with its head snipped off) as the bit in an eggbeater drill. A tiny Tremont cut nail secures the turnings. The cut nail is also sans head.*

Ornamentation becomes the focal point

The contrasting moldings and turnings are purely decorative. They are all glued in place, and the turned pieces also get tacked in place.

Online Extra

To see how Follansbee mixes and applies paint to the decorative elements, go to **FineWoodworking.com/312.**

Link the top and bottom cases. *The upper case's rear stiles have a registration tenon on the bottom. It fits in a corresponding mortise chopped in the top of the lower case. Turned pillars will support the overhanging cornice. Each pillar has a round tenon on the bottom that fits a hole bored in the lower case's top.*

heads off the smallest cut nails I could get. They just about disappear against the black paint. Flanking the panel are large applied turnings on the faces of the stiles, glued and sprigged in place.

Connect the two cases

The upper case just sits on the lower case's top boards. A short rectangular tenon at the bottom of each rear stile drops into a corresponding mortise chopped in the top boards. After the main trapezoidal cupboard section is in place, the rectangular cornice connects to the rear stiles with a mortise and tenon. And the front pillars support the front overhang. The tenons of those pillars fit round holes bored near the front corners of the lower case's top. Gravity keeps it in place. It's heavy enough to stay put. □

Peter Follansbee, author of Joiner's Work *(Lost Art Press, 2019), does his woodworking in Kingston, Mass.*