Constructing a Pembroke Table as a Lesson in Making Curved, Movable Wooden Joints

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This table was inspired by a series of technique lessons taught by Jim Russell. Thank you Jim for your patience and expertise! The construction involved stringing and banding and, totally new and intriguing to me, creating wooden knuckle joints and drop leaf table rule joints.
Classically, a Pembroke table was a small, drop-leaf table designed for occasional use, probably deriving its name from Henry Herbert, 9th Earl of Pembroke (1693–1751), an amateur architect. The table has one or two drawers and flaps on either side that can be raised by brackets on hinges to increase its size. Through the years there have been many, many variations ranging from highly embellished Federal pieces to very simple Shaker designs.

My table is 28” high, 24” deep, and the top is 16 ½” wide plus two 8” wide leaves. The main wood is African mahogany (which I would definitely not use again – crazy grain prone to tear-out and wide variations in color from board to board). The stringing is walnut and banding walnut and maple. Poplar is the secondary wood for the drawer construction. The design is modified from a Carlyle Lynch drawing and my efforts with Sketch-Up.

The table base is fairly straightforward with tapered legs, mortise and tenoned aprons and drawer blades attached with double tenons (lower) and dovetails (upper). The back apron and drawer blades are flush with the legs. However, the sides have
double aprons, with the center part of the outer aprons providing the support arms for each top leaf (see pictures later in this article). The drawer runners and kickers are typical and the drawer is constructed with half-blind dovetails in front and through dovetails in the back.

Before gluing the table together, I used my Dremel rotary tool in a Veritas plunge base with an edge guide and 1/16” bit to cut the slots for stringing. Stringing was cut on the table saw, thickness sanded using a small drum sander on my drill press, and tapered slightly (Jim Russell homemade stringing taper jig) so that the bottom of the stringing would slide into the slots more easily. The stringing was glued in place and planed flush.

The banding was a very simple design – a piece of maple sandwiched between two layers of walnut and then sliced very thin. The base of the legs were excavated using a chisel and small router plane. The tricky part was making sure the banding met as it wrapped around the tapered leg surfaces.
Next came construction of the support arms and their knuckle hinge joints. The best instructions I found were by Tom McLaughlin in the November 2008 Guild of New Hampshire’s journal *The Old Saw*. Layout and measurement need to be very precise.
The joint was cut using the table saw, hand saw, block plane, chisels, gouges, and sandpaper. Finally, a hole through the five leaves of the joint was drilled for a 1/8” brass rod.

Next, the support arm “apron” was fitted to the side of the table base and the end of the arm sculpted with a scroll saw and router. The fixed sections were then glued to the table base. (The swinging arm was attached later using the brass rod after the finish had cured).
The drop leaf or rule joint was next. Again, precise layout was key. I used two *Fine Woodworking* articles for written instructions: *FWW* January/February 1990 pp. 48-52 by Mac Campbell and *FWW* September 2008 pp.68-73 by Michael Zuba. A 3/8” cove and 3/8” quarter round router bit and a block plane created the joint. The brass hinges (Lee Valley 1-1/4” X 2-1/8”, Part # 00D1710) are specifically designed for this joint and are asymmetric. The mortises for the hinge leaves were excavated with a trim router and straight bit and for the hinge barrel a small chisel was used.

Once the hinges were temporarily installed, a little sanding ensured the leaves would move without binding.
Using Sketch-Up, I printed out a full size pattern for the ellipse shape of the leaves and cut them on the band saw. The edges of the whole table top were then profiled at the router table. Cut-offs from test pieces of the rule joint routing process were used as backer boards to prevent tear-out in the corners where the edge profile mated with the rule joint.

Keeping with the overall simple design, the same banding and stringing were applied to the table top leaves. To echo the leg banding, the banding runs horizontally when the leaves are down.
Again using the walnut/maple/walnut sandwich theme, I made a simple drawer pull.

Finally, being winter and having an enclosed basement shop, the piece was finished with water based polyurethane - General Finishes Enduro-Var semi-gloss, four coats on the base and six on the top.