The Kansas City Woodworkers' Guild Presents:
Don Kruse's Hand Cut Mortise and Tenon and Panel Raising Clinic

Ever wonder what sort of excessively heavy iron gizmo you could use to chop mortises while hopping up and down? Don Kruse demonstrated his foot powered Barnes Mortising Machine for cutting the mortise portion of a mortise and tenon joint. These 135 pound wonders of cast iron, spring steel and sharp chisels began production in the second half of the 19th century. Barnes kept supplying them into the 1930s. A little careful adjustment with a hammer moves things into final alignment. Accessory chisels were available for cutting the mortises for shutters. Models made prior to Don's example used large ash bows instead of a coiled spring to return the chisel at the end of each cut. For more information and illustrations see http://www.tooltimer.com/barnesmort.html. Don also brought along a couple of moving fillister planes useful for raising the panels to go inside the frame and what bore a striking resemblance to a brand new Stanley #46 to cut those pesky grooves in the rails and stiles. Locating these vintage tools and returning them to working condition just takes patience, elbow-grease and a little luck.

Don's demonstration of the mortise cutting drew upon members of the audience to come forward and pump the peddle of the Barnes machine. Anthony Ingo seems to be making some progress with the mortising machine but he will need to bulk up if he has plans in the sash making industry. An important tip for using these machines is to bore a relief hole for the chips. A brace and bit is the obvious choice for this task according to Don. For small or delicate stiles, cut them long so you can leave "horns" to be cut away later. This extra material will minimize the chances of splitting the end of the stile during mortise chopping.

Cutting the groove to accept a panel should be done before cutting the mortise but can come after with no ill effects. In the best of all worlds, you will have a combination plane, grooving plane or small moving fillister plane blade that matches your mortising chisel. If not, just get it close and it will be fine. And while cutting all those grooves, keep two things in mind.

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First, always reference your fence to the same side of the rails and stiles and second make a small sample piece called a muntin to help later when testing the raised panel lip. The muntin keeps you from dinging up your work pieces while testing the panels. Please note the hearing protection. Occasionally these hand tools can be quite loud, typically when they fall off the table and smash a toe.

Once the sample mortise was completed, Don moved on to a sample tenon. Standard practice with hand-cut mortise and tenon joints is to cut the mortise with whatever chisel size is appropriate and then cut the tenon to fit. Pick your reference face, mark out for the shoulders and saw to your line. A small tenon saw and careful cutting keeping two scribe lines visible at all times makes this quick work. To make a smoother shoulder cut, use a sharp chisel to pare along the waste side of the scribe line. This deepens the line, giving the saw a track to ride and stops splinters on your show surface. And don't forget about the haunch at the outside edge of the tenon to fill in the groove. A little careful paring and the tenon will pop into the mortise with perfect tension and mating glue surfaces.

Next Don moves to the panel for the door. Awfully hard to get that in the frame after gluing tenons into the mortises so remember to make this before glue-up. Don brought out a couple of moving fillister planes for raising the panels. A good moving fillister plane for this task will have a skewed blade to minimize splintering as you work across the grain and have a nicker or knife that slices the wood fibers just ahead of the main blade. Lacking a nicker or even a skewed blade one can use a sharp marking knife and score a deep line first. Some moving fillister planes have sloped bottoms and even shaped bottoms to create pleasing shapes for the border of the panel. One doesn't need these, a standard moving filster can be used or even an un-fenced shoulder plane. Just pay attention to layout lines so that the bevels meet in the corners of the panel.

Don demonstrated the smaller of two moving fillisters by cutting two sides of a sample panel. Audience members were again encouraged to try their hand at this technique. An important tip to help make a clean panel is to have some extra stock of the same thickness that you can clamp along the exit edge of the panel work piece. This protects the end grain fibers from shredding and spelching as the blade exits the cross-grain cut. Don invited the attendees to step up and try their hand at cutting the panel bevels. With just a little practice those brave enough to try found how easy this task really is.

Don's presentation and working methods were a fantastic introduction to using vintage hand tools to make a solid joint with very pleasing decoration. Hand tools do not mean you have to work slowly and Don emphasized this point throughout his presentation.

Pictures by Bill Ward
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