

I have been making boxes since I started turning eighteen years ago. There is a certain mystery about the interior of a box that I like. I have read Richard Raffan's book on boxes. I met Chris Stott and was inspired by his boxes. I also met Willard Baxter and became interested in threaded boxes. All of these wonderful people and others have inspired me to continue my infatuation with box-making.

Acorns have been a style of box that I have always been drawn to. I have made acorn boxes, some with threads and some without, since I started turning. I have refined my design with carving to give the boxes a more organic look and would like to share my style of acorn box with you.

### Getting started

My favorite color scheme for an acorn box is a dark top with a lighter-colored bottom, but by using all kinds of woods you can get a great diversity of looks. Start with two dry blanks for endgrain turning, one for the box bottom and one for the top. The bottom blank should be about 2" (5cm) square by 3" (8cm) long; and the top blank, about 2½" (6cm) square by 4" (10cm) long. I make the bottom of the box first. Mount the blank in a four-jaw chuck, true up one end, and make a tenon with a shoulder for a solid grip in the



# TURN AN ACORN BOX

Dennis Paullus

chuck. Re-chuck the piece with the tenon in the chuck so the shoulder of the tenon is tight against the face of the jaws.

I use a basic set of turning tools for box-making: a roughing gouge, ½" (13mm) spindle gouge, ⅜" (10mm) bedan, ⅜" drill bit, small round-nose scraper, parting tools, ½" skew, and calipers. Start by truing up the blank with a roughing gouge and square the end with a parting tool. Use the long point of the skew, presented flat on its side, to make a small divot in the center of the endgrain. This divot helps to center the drill bit. Mark the depth you want to drill (about 2", or 5cm) with masking tape on the drill bit and start the drill in the divot, pushing gently (*Photo 1*). If you

are using a drill bit that is not mounted in a chuck or handle, secure the bit in a pair of locking pliers for a better grip. Pull the drill bit out to clear the chips as needed—otherwise, it could get stuck in the hole. Drilling out the center makes endgrain hollowing a lot easier.

### Hollowing the box

I use a spindle gouge to rough-hollow the interior of the box, using the left wing of the gouge to cut from the center to the outside (*Photo 2*). Make multiple passes until you reach the bottom of the box, which is indicated by the bottom of the hole you drilled previously. I try to shape the inside of the box with a curve similar to the profile I want for the ▶

## Hollow the acorn body



**1** With the blank re-chucked and trued up, drill a center hole to aid in the endgrain hollowing.



**2** To hollow the inside of the box, cut from the center hole toward the outside edge. I prefer a spindle gouge for this step, but a round-nose scraper will do the job also.



**3** Use a small round-nose scraper to refine the inside of box bottom.

outside. Switch to a round-nose scraper to refine and finish the inside. Light cuts with a sharp tool will usually produce good results (*Photo 3*). I have found that a modified scraper with side-cutting capabilities makes this job easier.

I then use a pencil as a depth gauge to mark the inside bottom depth on the outside of the box (*Photo 4*). This is a reference line that will help in shaping the outside profile. Start removing excess wood below this line. Cutting toward the chuck, finish shaping the box. In this direction, you will be cutting with the grain and, with a good bevel-rubbing cut, should get a relatively clean surface on the wood (*Photo 5*). Check the wall thickness as you go, with the goal being an even wall thickness from top to bottom. Leaving the wall a little

heavy in the bottom is fine, as it will give the box a little weight in that area.

With the box still attached by a small stem, sand the inside and outside. I like to use quarter sheets of abrasive folded into thirds. Folding them this way makes them a little stiffer and you have several edges and surfaces to use. To avoid confusing the grits while sanding, I stack the folded abrasives from fine to coarse grit (including 320, 240, 220, 180, 150, and 120), with the finest on the bottom of the stack so all I have to do is reach for the next grit in the stack.

The box bottom is ready to be parted off. Use both hands to start the parting cut and then hold the parting tool in one hand and catch the box with the other under the toolrest (*Photo 6*). I do not like reaching over the top of the

toolrest. As an alternative, you can part most of the way through the stem and finish the cut with a handsaw with the lathe off. The remaining nub at the bottom of the box will be turned away later, using the box's top as a jam chuck.

### Box top as jam chuck

As you did with the bottom portion of the box, mount a piece of wood in the chuck to make the box top, or acorn cap, and form a tenon with a shoulder. Re-chuck the workpiece, true its surface, and square the end. I use calipers to transfer the size of the box's rim onto the endgrain of the top blank (*Photo 7*). This is just a starting point. Make the first hollowing cuts inside this diameter and work up to the finished size. I use a  $\frac{3}{8}$ " bedan to rough the top out. I like the top

## Shape the bottom



**4** Make a pencil line on the outside of the box indicating the inside depth. This is an important reference for when you begin to final-shape the outside of the box.



**5** Shape the outside of the box, being careful not to cut through its bottom.



**6** Part off the acorn box.

## Hollow the cap, finish the bottom



**7** Using calipers, transfer the outside diameter of the box rim to what will become the top of the box.



**8** After hollowing the box top, gradually reduce the inside diameter of its rim until the bottom fits inside with a good friction fit.



**9**



**10** Using the unfinished box top as a jam chuck, finish turning the acorn's bottom.

## Shape the cap



11 Shape the outside of the acorn cap, sand only the inside, and part off.



12



13

An acorn box turned and ready for carving.

to be pretty deep so the fit to the bottom will be fairly secure.

Once the roughing out is done, switch to a round-nose scraper to create a dome inside the box top. I do this to make the top lighter, and I like to add a little detail in the top, too. Now size the opening in the top by cutting a little at a time until you achieve a good friction fit with the box bottom. I use my skew, presented on its side, for this task. Check the fit to the bottom frequently (switching the lathe off) and continue to make cuts until the bottom fits securely in the top (Photos 8, 9). There is no need to “bottom out” the top of the box by pushing the bottom all the way in. I leave a small gap and also put a very slight taper on the sides of the top so that as the box expands and contracts it will always fit. With a good friction fit, use the top as a jam chuck to hold, finish-turn, and sand the bottom of the box (Photo 10). Set the box bottom aside.

As you did with the bottom of the box, mark the inside depth of the top on the outside surface. Rough-turn the basic shape of the top below this reference line, then refine the overall shape. Lightly sand the inside of the box top. Since you will be carving shapes and texture on the outside of the acorn cap, it is not necessary to sand the outside. Part off the top as you did the bottom, either catching it under the toolrest or cutting it off with a handsaw with the lathe off (Photos 11, 12).

## Carving

With the turning done, it is time for carving (Photo 13). My carving is not meant to convey an overly realistic example of an acorn, but rather to approximate its look with an organic look and feel. I also want the operation to be simple and use only one burr shape for carving, though I do use two different systems to drive the burr. I use a flexible-shaft carver for roughing out and a micro-carver for detailing. The burr is a steel cylinder covered in carbide chips. I use the same burr shape in two sizes, but they have the same scratch pattern.

I lay out the divisions on the top by eye with a pencil so they don't look too refined. I usually lay out at least five lobes, but I have done as many as eight. I start with the flexible-shaft carver to rough-carve the entire top, pulling the cutter toward me for better control (Photo 14). Then I switch to the micro-carver to clean up and refine the lines (Photo 15). I am looking to introduce as much depth and as many shadow lines as possible.

Once you finish carving, you will need to sand the fuzz from the edge of the inside of the box top. You have completed the project now, except for applying a finish. I put at least two coats of urethane oil on the top and bottom, a sealer, and then at least one top coat (satin sheen) but more if I feel it needs it. I let the finish dry for several days and then buff the box bottom to a

smooth, soft gloss with a buffing wheel and Tripoli compound.

I like this style of acorn box and I hope you do, too. Try making a variety of them in different sizes and woods. ■

*Process photos by Larry Sefton.*

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## Carve the acorn cap



14 With the main carving sections laid out, begin shaping with a burr and rotary tool.



15 Refine the shape and details with a smaller burr.