Offset Axis Water Bird Demonstration Handout

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Here is a link to a YouTube video I made of this project.
https://youtu.be/ivSU_0fismw

Introduction

I turn a water bird using an offset axis technique. This project can be done on a mini lathe and is easily done using a scroll chuck.

Design

You can make these tall or short. Consider using a contrasting wood for the beak.

Wood

Most any interesting wood dry enough not to crack. It should be have relatively straight grain free of knots. Blanks for small birds are about 2" square x 4.5" long. For a taller bird try 2 ¼" square and about 8" long. Use a small scrap of contrasting exotic wood for the beak. A pen blank can work.

Tools

- Four jaw chuck with 50mm jaws
- 3/8" or ½" spindle gouge (SG)
- 3/8" bowl gouge optional (BG)
- Spindle Roughing Gouge (SRG)
- Japanese flush cut saw
- parting tool
- Drill with 3/16" bit
- Vernier calipers

Steps

You can scale the project up using a longer piece if you like but you may want to practice with a smaller one like this.

1. Turn between centers and add a chuck tenon to fit your chuck. Make the tenon at least 3/8 long but not so long that it will bottom out. On the other end mark a line thru the center and mark an offset center point on this line 5/8" from the edge.
2. Put the blank loosely in a chuck, tilt the blank and bring up the live center into the offset point you just marked ½" from the edge. You should still have the jaws touching wood all around with part of the blank touching the face of one or more jaws. Tighten up the chuck jaws. Start with a slow speed and turn it up as your confidence permits and the lathe is not shaking.
3. Come down about 2 ¼ from the head end (headstock) for this size project and start cutting a taper toward the tail stock until the ghost image stops at about 7/8". I use a 3/8" diameter BG or a SG. Make the head about 7/8". Plan to start measuring about ¼" from top to eliminate the damage from the live center point so the bird doesn't have a hole in

his head! Use calipers to transfer head diameter along the grain axis. Start shaping the head. I try to make the head perfectly round and round is not easy.

4. Drill a 3/16” hole with a brad point drill bit for the beak while the blank is still on the lathe and there is still TS support to prevent flexing or splitting. I use an awl to mark the drill spot and I like the beak pointing to the side and slightly down which I think adds interest.
5. Take small cuts to eliminate that small nib on the top of the head left for tail stock support.
6. Turn the neck down to about ¼” the skinniest part where it joins the head. Make concave cuts along the top of the body and flaring into the neck without stopping. Take slow and light cuts. Pay particular care to the entry cut and then rotate handle to right for a slicing cut as the body flares into the neck.
7. Sand everything turned in this axis.
8. **Change the axis** by re chucking the blank with all the jaws against the shoulder. Start cutting the underside of the body. Make sharp slicing cuts and work to keep a crisp edge. Mark where the parting off cut will be. Mark the top edge of the base about 3/16” from the parting cut. Start cutting a cove between the base and the body where the legs are. Sand before parting off the lathe. Part down to perhaps a ¼” and finish with a Japanese flush cut saw.
9. Turn a beak from a contrasting piece of wood if you have it. An exotic scrap or a pen blank can do fine. Pen jaws work great to hold a small square blank or you can turn between centers and hold in a collet chuck. Turn it to fit the 3/16” hole you drilled and glue it in with CA or wood glue.
10. Add eyes with an awl or drill with a drill bit perhaps about 3/32”. Sometimes I mark the hole with a felt tip pen and sand of any excess. On large walnut birds, I skip the eyes.

Finish

Use the finish of your choice. I typically use three or more coats of Minwax Antique Oil on most of my turnings applying off the lathe. I wait at least a couple of days after the final coat until I can no longer smell the finish before using the Beall Buff system. You might want to buff before gluing in the beak!