Just as a musician practices scales and chords without resulting in a complete song, a beginning woodturner should practice cuts and motions repetitively, without having a finished project as the goal.

Photo: Caitlin Egan

THE SCALES AND CHORDS OF *SPINDLE TURNING*

Kip Christensen

When I was in eighth grade, I wanted to learn the trumpet. I signed up to take beginning band, and my parents were kind enough to pay for private lessons. My teacher, Mr. Warner, became a significant mentor, who not only helped me learn to play the trumpet, but also taught me valuable life lessons. I approached my first lesson with great anticipation, expecting to learn to play a song or at least a simple tune. I envisioned myself in a few short weeks playing solos with the band and even improvising on the fly.

My first few lessons were filled with surprises. I learned that before I could play exciting music, I needed to master some fundamentals I had not even thought about, such as how to stand, sit, and breathe properly while playing, how to build the muscles and endurance needed to produce good tone, etc. Mr. Warner taught me that the best way to learn a complex skill is to break it down into the smallest elements possible and practice those elements over and over in a short period of time—and to do this repetitively until it could be done with little mental or physical effort. My home practice assignment consisted not of learning to play a tune, but rather of playing scales. I loved playing the trumpet and over several years became fairly good at it, all the while beginning my practice sessions

by playing scales. Most accomplished musicians, but particularly those playing a stringed instrument such as piano or guitar, have probably spent many hours practicing scales and chords.

Repetitive practice of the essential elements, without interruption, is foundational to learning almost any skill. Examples include basketball players shooting hundreds of free throws and golfers hitting buckets of balls at a driving range. Practicing the "scales and chords" of any skill develops muscle memory and frees the mind from focusing on the technique, allowing increased efficiency, creativity, and personal fulfillment.

Good technique takes time

In teaching woodturners, both young and old, I have found that—like me learning the trumpet—beginning woodturners are often impatient and unrealistic. They expect to create beautiful work without spending time developing the fundamentals. In woodturning, it is possible to create functional and even beautiful objects without spending long hours practicing basic skills. But often this accelerated pace means sacrificing good technique, and projects might require unnecessary time and extra sanding. For those serious about learning to turn, I recommend spending ample time working on what I call the "scales and chords of woodturning." Similar to riding a bike, once the fundamental skills are mastered, they come back quickly, even if you have been away from the lathe for a while.

The "scales and chords of woodturning" can be practiced on any spindle element, or shape, such as beads and coves. The important principle is that the shape be broken down to its simplest steps, and that those individual steps are practiced repetitively without distraction or interruption. For example, beginning turners are often taught to practice cutting beads by turning a "bead-and-cove stick" or a row of beads. However, turning a full bead requires two cuts: a right-half bead cut and a left-half bead cut. Muscle memory for making bead cuts will be developed faster not by turning a series of beads, but rather by repetitively turning half beads. This is true of other common spindle shapes and cuts, such as roughing, planing, peeling cuts, V-grooves, and more.

Repetitive practice of the essential elements, without interruption, is foundational to learning almost any skill.

Exercises you can try

This section describes several spindle cuts you can use as part of a "scales and chords" exercise. Start with a piece of wood that turns easily, has straight grain, and is about 2" (5cm) square and 6" (15cm) long. With the piece mounted between centers, begin at the tailstock end and work toward the center, choosing one of the cuts to practice. Regardless of which cut you are working on, take very light cuts of about 1/32" (1mm) per pass until the bottom of the cut is about 1" (25mm) in diameter. Within only a few minutes, you will have made many "right-sided" practice cuts before you reach the center of the workpiece. When you reach the center, start from the headstock end and make similar but "left-sided" cuts until you again reach the center of the wood.

A companion article I wrote in the February 2016 issue of *AW* (vol 31, no 1, page 14), "*Ten Principles of Clean Cutting*," provides additional information about making some of the cuts described below. ▸

Remove corners with spindle-roughing gouge

Hold the tool handle low and cut with a peeling angle. Begin the first cut about ½" (13mm) away from the end and cut toward that end. Begin the next cut ¼" (6mm) to ½" past the beginning of the previous cut. Make the cuts deep enough to remove the corners and most of the flats. Continue these short, nibbling-type cuts as you progress toward the center of the spindle (but cutting toward the end of the blank). The bevel should glide lightly on the wood throughout the cut.

Planing cut with roughing gouge

Planing cuts should produce a clean, smooth surface. Hold the tool handle low and take light planing cuts the full length of the cylinder. To create a cylinder of consistent diameter, position the toolrest parallel to the lathe bed, pinch the tool between your thumb and fingers, and glide your hand along the toolrest while making the cut.

Bead cut with a skew



When forming a bead using the heel, or short point, of a skew, begin the cut with the tool lying on its side. This cut requires several simultaneous motions: swinging the tool handle vertically and horizontally, as well as rotating, or twisting, the tool. Light contact with the bevel should be maintained throughout the cut. Only the lower half of the cutting edge should be cutting wood. At the end of the cut, the tool will be nearly on edge.

Bead cut with a spindle gouge



Although cutting a bead with a spindle gouge is very similar to forming a bead with a skew, most people find it easier to use the gouge. Beads cut with a skew are usually cleaner, but a gouge-cut bead is usually sufficient. Notice that the bevel is gliding on the wood just behind the cut and that the flute is rotated away from the wood to about the two o'clock position. The tool handle must be swung sideways significantly during the cut to maintain proper bevel contact.

Cove cut with a spindle gouge



To make a cove cut with a spindle gouge, start with the flute on its side, in the three o'clock position. Begin with the tool handle fairly low, the tool securely anchored on the toolrest, and the bevel at 90 degrees to the wood. Make a light cut by lifting the tool handle slightly and advancing the tip of the cutting edge into the wood until a small shoulder appears. As you continue the cut, swing the tool handle horizontally and rotate the flute upward. At the end of the cut, the flute should be facing up, to the twelve o'clock position.

V-groove cut with a skew



The V-groove cut using the toe, or long point, of a skew is very similar to turning a shoulder from square to round. Begin by anchoring the skew firmly on the toolrest with the toe down and the cutting edge nearly vertical. Pick up a light cut on the outside diameter of the cylinder, and gradually raise the tool handle while advancing the tool to make the cut. Control the depth of cut by lightly gliding on the bevel, but only on the part of the bevel near the toe where the cut is being made. There should be a small gap between the bevel and the wood near the heel of the bevel.

90-degree shoulder cut

Turning a 90-degree shoulder with the toe of a skew is similar to making a V-groove, except the bevel is positioned 90 degrees to the lathe bed.

Parting tool cut

Parting cuts are rarely intended to give a clean, finished surface. However, two pointers will help you get relatively clean parting cuts without the tool binding when making deep cuts. First, lower the tool handle as far as possible to produce a peeling angle, rather than a scraping angle. The objective here is to cut so the shavings do not change direction much as the wood is removed. Second, to prevent the parting tool from binding in the cut, back the tool out about every ½" and widen the cut about 1/32". Repeat this process until you reach the desired depth of cut.

Peeling cut with a skew

To prepare for practicing the peeling cut, make several parting cuts along the length of the cylinder, leaving about ½" of wood between each parting cut. Next, anchor the side of the skew flat on the toolrest with the cutting edge parallel to the lathe bed. Lower the handle as far as possible and swing the tool handle upward slowly until a light shaving develops. Continue to raise the handle to keep the cut advancing until the final depth is reached.

Square-to-round shoulder with skew

Begin by anchoring the skew firmly on the toolrest, enter the cut on the very outside corners of the wood, and lift the tool handle gradually as the cut progresses. The depth of cut is controlled by lightly gliding only the toe part of the bevel near the cutting edge. There should be a small gap between the bevel and the wood near the heel end of the bevel.

Square-to-round shoulder with spindle gouge

Making this cut with a spindle gouge is very similar to making the cut with a skew. Note that the bevel is gliding on the wood just behind the cut, and the flute is rotated away from the wood to about the two o'clock position.

Final thoughts

Making these cuts, or almost any cut, over and over in a short period of time without interruption is the most direct method I know of to develop the foundational skills of woodturning. Just as no complete song results from playing scales on a trumpet or chords on a piano, no beautiful turned work is produced while practicing scales and chords at the lathe. But soon the techniques and skills will be at hand for you to apply to any type of turned work. ■

Unless otherwise noted, all photos by Stephanie Staples.

Kip Christensen teaches wood prototyping, furniture design, and manufacturing at Brigham Young University. He has a particular interest in woodturning education and has authored several articles and DVDs to help others learn the techniques of the craft.

You read the article—now see the video!

This article has an accompanying online video in which Kip Christensen demonstrates the scales and chords exercises described in this article. To view the video, visit tiny.cc/ScalesandChords or scan the QR code with your mobile device.

Do You Know Your Shavings?

Each of the various cuts described in this article results in a unique shaving. With a little practice, you'll be able to tell by looking at a shaving what tool and what type of cut was used to produce it. Can you match the wood shavings below with the cuts used to produce them (listed in the box *at right*)? Check your answers at the bottom of the page.

Sidebar photos by Caitlin Egan.

CUTS USED

a. Shearing cut using a spindle gouge, cutting a cove
b. Shearing cut using a skew, turning a bead
c. Shearing cut using a spindle gouge, turning a bead
d. Light peeling cut using a spindle roughing gouge, planing a cylinder
e. Peeling cut using a skew, removing excess wood
f. Peeling cut using a spindle roughing gouge, removing square corners

ANSWERS: (1) b. shearing cut using a skew, turning a bead; (2) e. peeling cut using a skew, removing excess wood; (3) a. shearing cut using a spindle gouge, cutting a cove; (4) f. peeling cut using a spindle roughing gouge, removing square corners; (5) d. light peeling cut using a spindle roughing gouge, planing a cylinder; (6) c. shearing cut using a spindle gouge, turning a bead.