

step by step

# Turning Dutch Foot Legs



Back in 1990 when both the Guild of New Hampshire Woodworkers and my business, Big Tree Turnings, were new, I was making table legs for various furnituremakers. Both Teri Masaschi and Matt Burak repeatedly ordered Dutch foot legs, and in a few years, I turned hundreds of them. Over time I tried different methods of turning the legs. The procedures described here were developed during those years of experimentation and production.

Dutch foot legs were popular in the Queen Anne period. They were also called club foot, pad foot, spoon foot, or even (incorrectly I think) cabriole legs. Dutch foot furniture legs are turned on a lathe and are different from cabriole legs. Cabriole legs are sculptured legs usually cut out with a band saw, then finished with spoke shaves and other tools. *The Dutch foot legs described here are produced entirely on the lathe requiring no band saw work prior to and no hand work after the turning.* But there are also hybrid forms in which the ankle is hand carved after the turning to obtain more curvature than is possible by turning only.

This is multi-axis turning, which means that more than one pair of center points are used on the workpiece. One set of center points are the normal

ones which are at the center of the square on each end. The second set of centers are offset in opposite directions so that one part of the turning (the node) will run true in both setups.

On simple legs, the node is at the transition point at the bottom of the pommel. This is the point where the square meets the round and must be centered. The simplest form of leg has just a straight taper from the ankle up to the pommel (square part at the top of the leg). More complicated forms have decorative beads just below the pommel, and sometimes the leg has a long curved form instead of a straight taper. On these the node is at the fattest point in the curve.

to form the toe and the bottom of the foot.

Nearly always the offset is along the diagonal line. The exceptions to this would be for a round table (with a round apron) or a center leg.

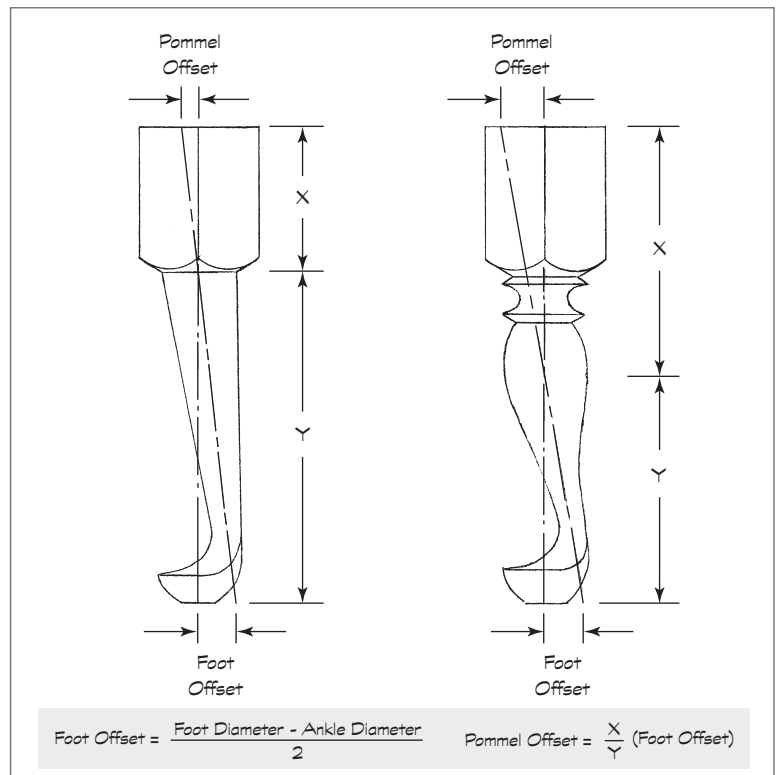
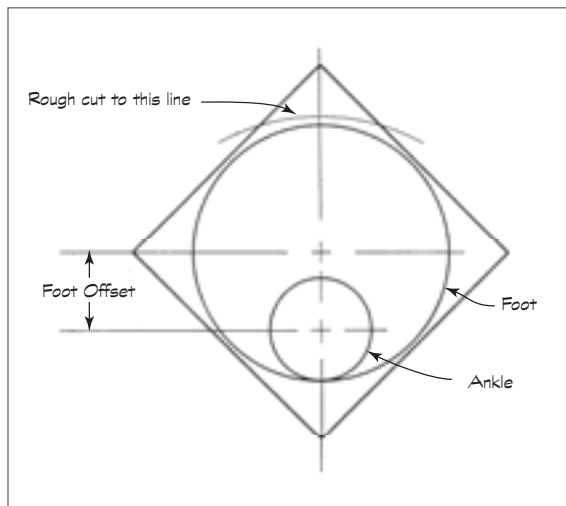
The first thing to calculate is the offset at the bottom, or the FOOT OFFSET. Just remember this simple rule: *Subtract the radius of the ankle from the radius of the foot, and you have the FOOT OFFSET.*

For example, if the square is  $1\frac{3}{16}$ " use  $1\frac{3}{4}$ " ( $\frac{1}{16}$ " less) for the foot diameter ( $\frac{7}{8}$ " radius). The ankle diameter is  $\frac{3}{4}$ " ( $\frac{3}{8}$ " radius). Therefore the FOOT OFFSET is  $\frac{7}{8}$ " minus  $\frac{3}{8}$ ", or  $\frac{1}{2}$ ".

The smaller offset at the top (pommel) can then be computed from the law of proportional parts (X/Y). For example, if the top square is 5" and the turned part is 20", then the POMMEL OFFSET is  $\frac{5}{20}$  of  $\frac{1}{2}$ " (that is  $\frac{1}{4}$  of  $\frac{1}{2}$ " or  $\frac{1}{8}$ ".

## The Turning Process

Basic legs can be made in two steps – first off center to make the taper, the ankle, and the top of the foot; then second on center





1 Using a center-square to mark diagonals. Make four lines. Squares available from Grizzly.



2 Marking the offsets.



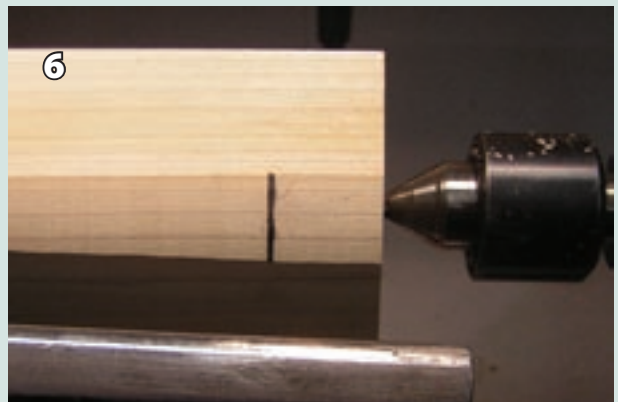
3 Making the transition cut at the node with a skew chisel.



4 The transition cut completed. Notice that it is about  $\frac{1}{8}$ " deeper than the flat. The left side is the finish side.



5 Rough out to  $\frac{1}{8}$ " above the second shadow line as pointed out by my fingernail.



6 Draw a line indicating the height of the toe on the flat produced in the previous step.



7 Cutting the top of the foot.



8 Top of the foot completed.

The length of the top square (pommel) should be an inch or two longer than the width of the apron. After preparation of the square, mark the limit of the top square with a dark pencil.

Mark out and punch the true centers in the usual way at both ends of the square. Then mark and punch the offset centers on the diagonal line. Check that they are in opposite directions, and that the larger offset is at the bottom (foot) end.

Mount the work first on the offset centers, and make the transition cut on the pencil line. On straight tapered legs, the diameter at this point is usually 10% to 15% smaller than the square.

Rough turn the leg to remove a little of the outside corner. Proceed to within about  $\frac{1}{8}$ " of the first shadow line (see diagram). Now you can mark the point of the toe with a dark pencil line drawn on the flat area formed in the previous step.

Make the top of the foot first. Make sequential curved cuts which approach the pencil line and the correct ankle diameter.

Turn the taper of the leg using a straight edge to check your progress. Sand this part including the whole length of the leg and the top of the foot.

Mount the work on the true centers and starting at the heel, cut down to the bottom of the foot. Sand this part being careful not to blunt the sharp line at the toe which is important to the look of the finished leg. ■



**9**  
*A  $\frac{3}{4}$ " roughing gouge is used first to taper the leg. The left hand is used to dampen workpiece vibration. The gouge is guided by the thumb.*



**10**  
*A shallow spindle gouge is used for final finishing. The left hand dampens vibrations and can detect errors that the eye cannot.*



**11**  
*A broken sanding belt works well on straight tapers.*



**12**  
*Light pressure and patience are required to carefully sand the intermittent part at the top of the foot.*



**13**  
*Use a  $\frac{1}{2}$ " spindle gouge to round the bottom of the foot. The curve begins just above the point of the toe.*



*Before & after showing an alternate foot design*



**14**  
*Finis*