

Design and formation of a Louis XV leg

John Leko draws and creates legs in this highly shaped French period style; covering both original work and the duplication of an existing piece

As furniture styles go, Queen Anne and Louis Quinze legs appear to share a common visual heritage. With their fair, flowing curves, many woodworkers are reluctant to work in these styles due to their perceived complexity. While the cabriole is a more familiar shape to many, the basic French leg is actually a bit simpler to construct.

Both style legs exhibit a continuous taper when viewed from the 3/4 position (see page 25), but beyond this they diverge. A proper cabriole's visible surfaces gently curve both down and across the leg. Louis XV legs however, feature chamfers, front and rear, that vary in width down their length. Finally, the side faces are concave rather than convex as one might find on a cabriole.

This article provides information applicable to the design and creation of an original leg. It also discusses applications when working with an existing piece, and provides suggestions for situations where the solid wood surface does not show.

Drawing the leg

Many makers use templates as their starting point when working in the Queen Anne style. With Louis XV however, these aren't as prevalent. Drawing the leg gives complete control over all of the elements dictating its final appearance. From a practical standpoint, it provides the template for the leg. I find it easiest to draw at full scale, the actual size of the leg. This way, the completed drawing can be adhered to suitable template stock such as MDF or quality plywood, and any dimensions can be taken directly.

Begin by measuring up from the line representing the floor plane the height of the desired leg and strike a line. We're producing two views, so be certain to sufficiently extend these. From this, draw the apron depth. The becquet (see page 25) is located along the apron bottom where it meets the leg. Typically, the leg begins to taper about 4 to 5 cm below this point. So, draw another horizontal line here. For ease of presentation, we'll draw the side view first although this isn't mandatory. You can begin with whichever view makes you comfortable when creating an original (see Reproducing an Existing Piece on page 26). I like to drop a vertical from the front face of the leg/apron to the ground plane in the side view. This guideline locates the front



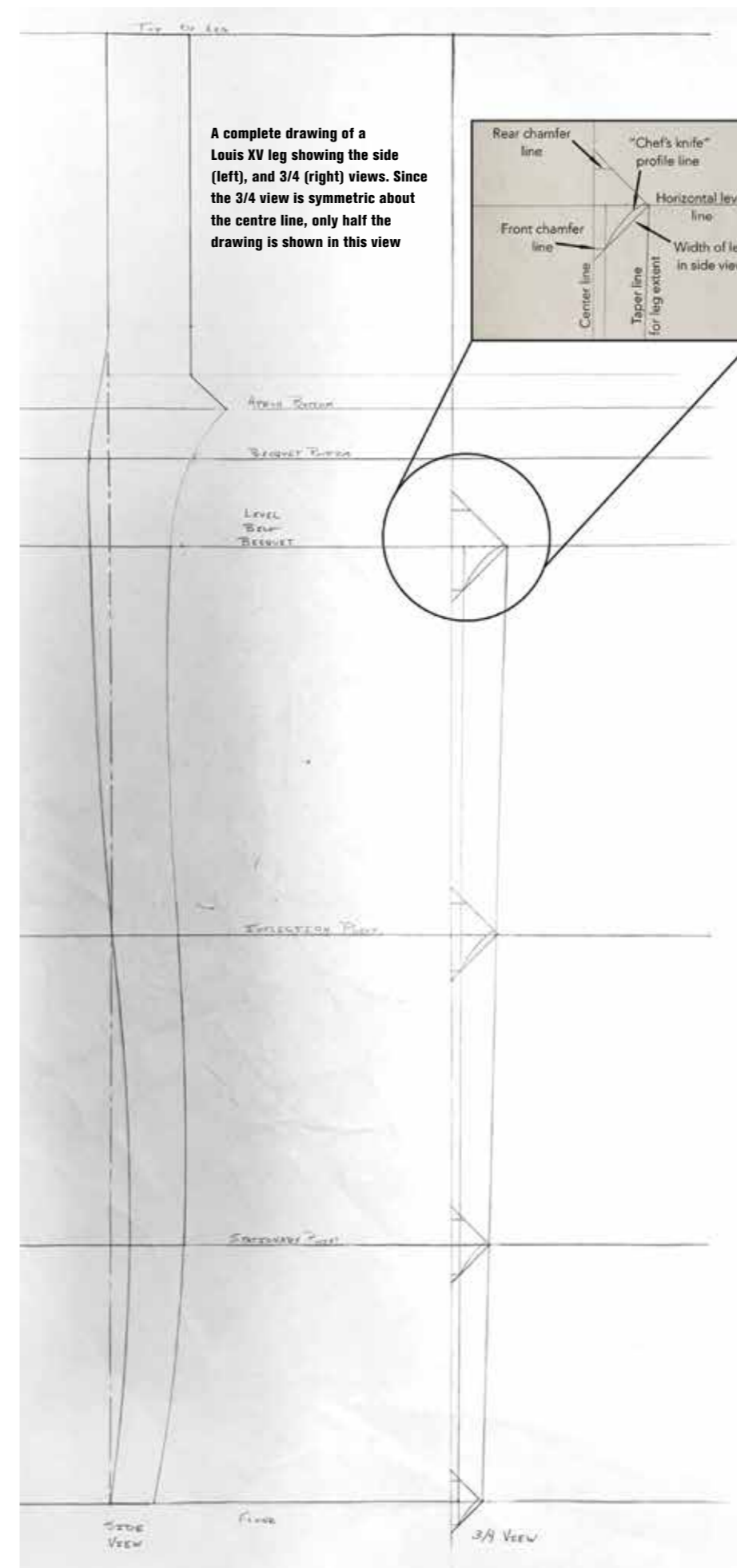
PHOTOGRAPH BY T. LECO

tip of the 'foot' of the leg where it meets the floor. Next, locate the inflection, where the curve of the leg switches from being concave to convex, and stationary, the local minima/maxima points. Strike horizontal lines across both views at these points. These four points, the level below the becquet, the front most point where the foot contacts the floor, and the inflection and stationary points, constitute the minimum necessary to define the front profile of the leg. Connect them with a smooth, continuously flowing curve. Continue this curve upward to include the

point at the top of the leg, and the lowest point on the apron to complete the top of this portion of the view.

There is no requirement that the rear profile be identical to the front. However, here are a few points to consider when drawing it:

- To generate a pleasing design, the curve of the leg where it meets the lower apron should be continuous.
- Also, keep in mind that the thickest portion of the leg should occur at the level just beneath the becquet. The leg tapers from

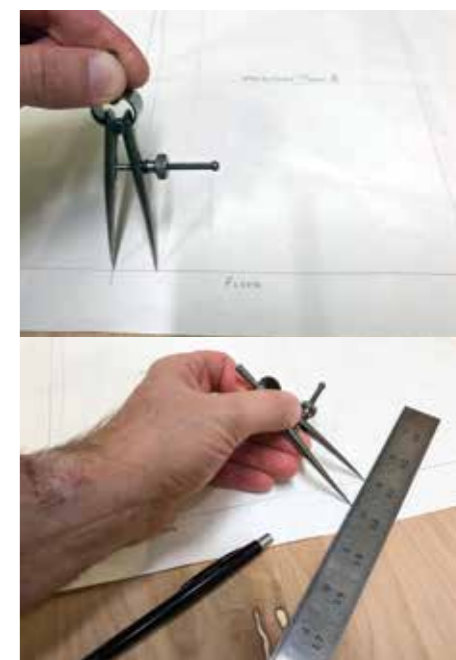


- this point to the floor.
- Finally, you can specify the width of the foot at the floor level.

Considering this, draw the rear curve to complete the side view.

Next, switch perspectives to the 3/4 view. Draw a vertical representing the centre line from the level beneath the becquet to the floor plane. The leg is symmetric about this line, so we only draw half. Use a pair of dividers to transfer the width of the leg at each horizontal level in the side view to a 45° line extended down from that level in the 3/4 view. This line should have terminal points at the centre line, and the horizontal section line (see below). Next, extend another 45° line upward from the intersection on the horizontal to the centreline. This creates a square representing the top view profile which would be visible if the leg were sawn at this level. To establish the taper, connect the ground plane profile at the point where the two 45° lines intersect to the identical point for the profile at the level below the becquet with a straight line.

A leg in this style features facets which flatten the arrises on the front and rear. These can be drawn on the floor plain, and top profiles (below the becquet) proportionate to the scale of the leg at these levels. As above in this view, a straight line connects these points to show the extent of the chamfer on the front of the leg. The addition of the concave faces to either side of the front chamfer are the final details to the drawing. Rather than being symmetric curves, they instead take the shape of the belly of a chef's kitchen knife when viewed from the side. A French curve can be helpful for this.



For each level in the 3/4 view, the leg width at each horizontal in the side view (top) is equal to the diagonal length between the centre line and the horizontal in the 3/4 view (bottom)

Forming the leg

Mill suitable stock such that at least one face, and adjacent side are flat and perpendicular. For situations when the leg will not be veneered, I prefer to use rift or quartered material, orienting it such that the growth rings run diagonally across the end grain of the blank. This leaves a pleasing straight grain pattern down the leg, and a series of concentric circles around the knee. Size the blank square, slightly larger than the thickest section on the drawing. Typically, this occurs in the area near the becqet. While the becqet can be formed from the same blank, it is easier and a more efficient use of material to adhere suitable blocks onto the leg.

Affix the side view from the drawing to template stock such as thin MDF, or quality plywood. Then cut and smooth to your lines. A cabinetmaker's rasp is a great choice here. Carefully align and trace the pattern onto the reference surfaces of the blank such that the rear side abuts a common aris, as is customary in the cabriole process. At this point, layout and excavate for any mortises, while the blank is still square. Cut and

smooth the leg to your lines. Make special effort to keep these surfaces square to one another as this mitigates problems further on. Check your work. At this point, the centre line in the 3/4 view should be straight without deviation. Work the adjacent face to make corrections. Address all imperfections at this stage, otherwise any problems will be compounded.

With the rough leg smooth and fair, lay out for the front and rear chamfers. These are progressive. That is, they become wider/narrower as you move up/down the leg. Use a divider or compass to take the dimensions directly from the 3/4 view drawing, then mark the appropriate positions on the rough leg. Connect these with a smooth pencil line to define the extent of the chamfer. A spokeshave and rasp allow you to quickly and efficiently work to these lines. The chamfers should have a uniform width. They should not be wavy. Check progress frequently as it becomes difficult to compensate for an oversized chamfer.

With the chamfers established, check the side view faces. These need to be a pleasing

proportion. If not, adjust the front and rear chamfers accordingly. As mentioned above, the faces adjacent to the front chamfer feature a concavity particularly unique to this style. Begin laying out for these 'knife blade' profiles by pencilling guidelines a couple of millimetres from their rear arisces. When working this area, these disappear, signalling your approach to the edge. I use a Veritas pullshave to rough out the material, but any laterally (as opposed to front-to-back) convex spokeshave will serve. A #4 sweep carving gouge can also be used. Pay special attention to the direction of the grain throughout the process, work from crests to troughs. The idea is to create a smoothly sweeping depression from the aris of the front chamfer to your guideline. Once established, the carving gouge refines these surfaces. Undulations down the length of the leg can be addressed using the rasp aligned in this direction, bridging the high spots in much the same fashion as a jointer plane. Finally, for a solid wood leg, remove the rasp marks with a convex scraper.



Choose rift sawn stock, where the growth rings run diagonal across the end grain of the blank, for legs where the solid wood will show



Carefully align and trace the side view drawing to the reference surfaces of the leg blank. Keep the 'rear' side of the template against the aris of the reference surfaces



Be certain to lay out and excavate mortises before cutting to your pattern lines



Use a rasp to smooth the blank to your layout lines...



... followed by a scraper



The centre aris should be straight when initial shaping is complete



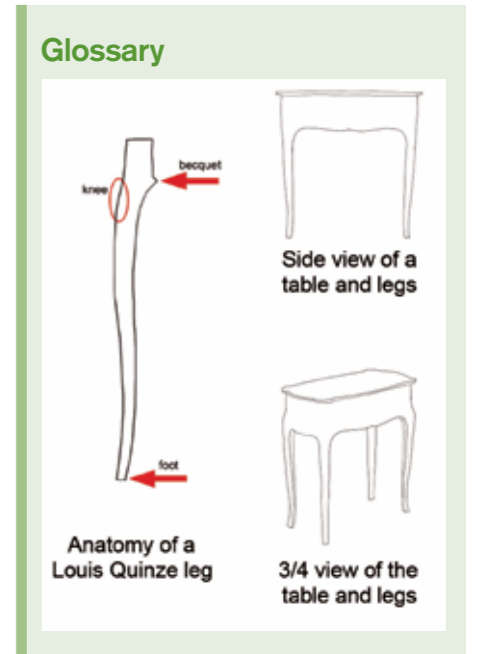
Above and right: marking the chamfer



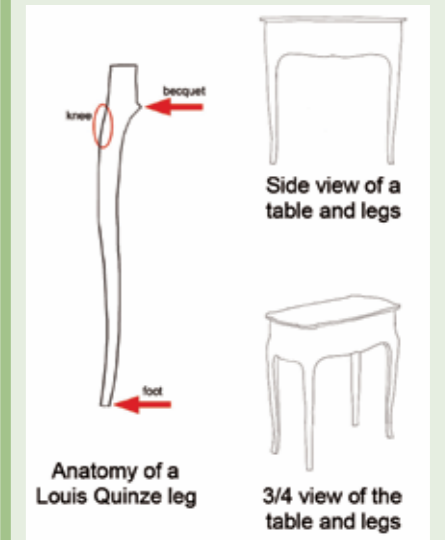
Connect the dots to draw the width guidelines for the chamfer



Remove material down to these guidelines using a rasp and/or spokeshave



Glossary





Pencil layout lines a few centimetres away from the rear arrises on the side faces of the leg. I use a Veritas pullshave to remove material quickly, but any convex spokeshave will work



A #4 sweep 25mm wide carving gouge refines the concave profile



A convex scraper refines the surface

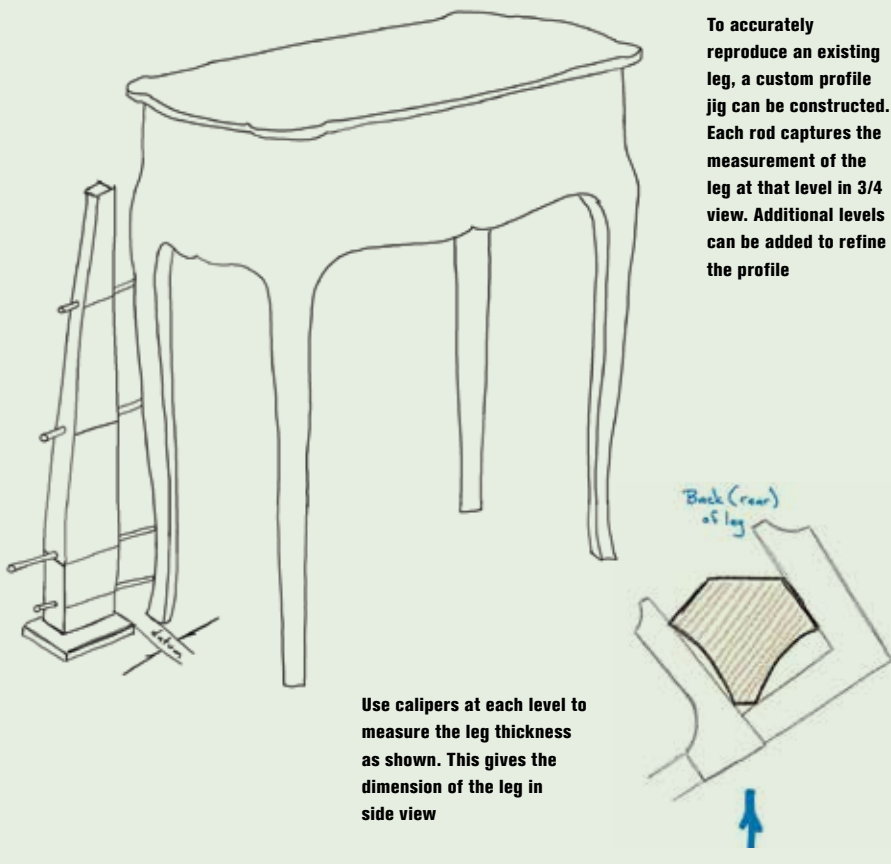
Reproducing an existing piece

Drawing the legs of an existing piece follows much the same procedure as for an original with the following exception.

Begin by drawing the 3/4 rather than the side view. As before, divide the height of the leg into multiple levels making certain that the previously discussed points are included. Add additional levels to further refine the leg shape. The greater the number of sample points, the closer the reproduction will be to the existing piece. A profile or finger gauge can assist with this process. A purpose-built version has as many fingers as levels desired for

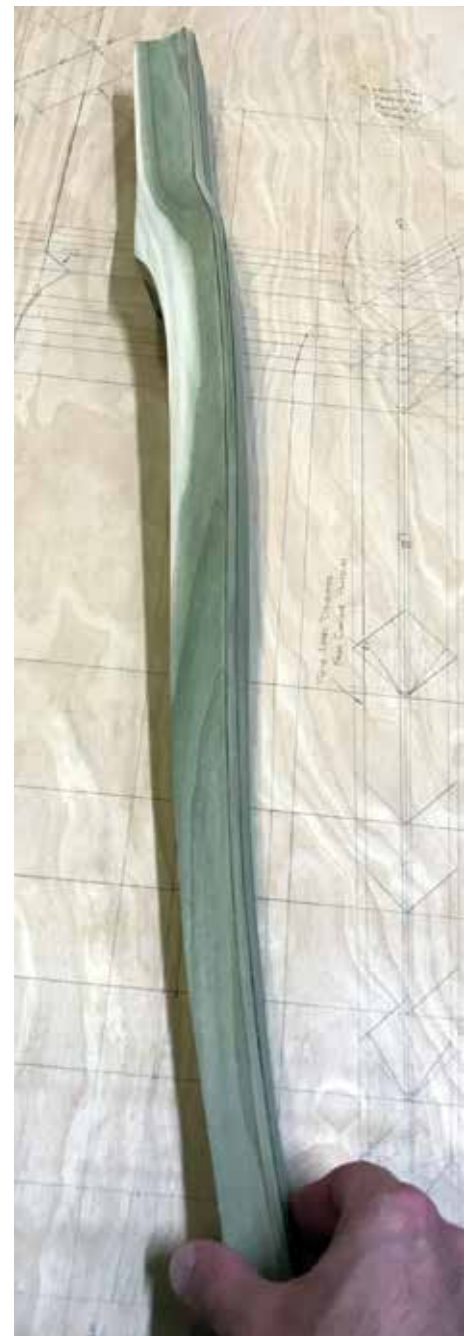
the drawing. By specifying a datum, the distance each finger protrudes can be recorded and plotted.

At each level, use a caliper (with masking tape covering its jaws to preserve the subject's finish) to measure the widths of the profile sides, and draw the front and rear chamfers to appropriate dimension. Note: for hand-shaped pieces, expect variation. The concave side faces can be approximated in the drawing with this information.



To accurately reproduce an existing leg, a custom profile jig can be constructed. Each rod captures the measurement of the leg at that level in 3/4 view. Additional levels can be added to refine the profile

Use calipers at each level to measure the leg thickness as shown. This gives the dimension of the leg in side view



A completed leg ready to be veneered