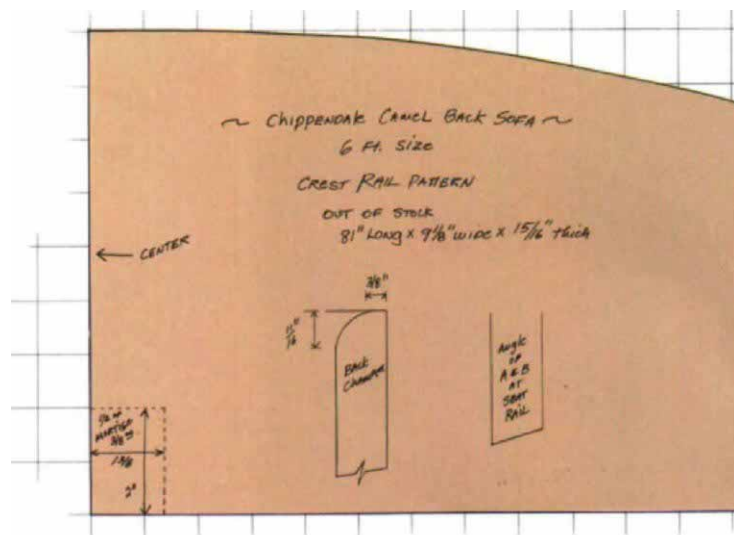


Chippendale Sofa

Templates for the basic frame, and some design options

by Norman L. Vandal



Any professional woodworker has to keep an eye on the market. Over the years I've earned a living making things that simply weren't available anywhere else, everything from period architectural components to period planes for restorers who wanted to stick their own moldings.

Many of my furniture customers come to me because of the double jeopardy of buying antiques: originals are not only very high in price, they may also be in very poor condition. In January 1983, for instance, a Philadelphia camelback sofa sold at Christie's, New York, for the record price of \$264,000, even though it had some serious problems—amputated leg bottoms had been pieced in, the rear legs had been cut off and refastened, and the stretchers had been replaced. Keeping all this in mind, I thought it a good idea to add a camelback sofa to my designs.

I wanted to stay faithful to the lines

and solid joinery of the originals, so I studied Chippendale sofas in museums and period-furniture books. Surprisingly, my best source turned out to be copies of *The Magazine Antiques*. Dealers like to sell furniture stripped of its upholstery to ensure buyers that it's original, and many of the ads showed the entire frame and the joinery. I saw that period cabinet-makers varied the shape of the legs, front seat rail and crest rail without changing the shape of the basic frame much. I figured that I could do the same for my customers, and build a good frame to sell for a little over a thousand dollars, which compares favorably in price with factory "reproductions," and, in my opinion, greatly surpasses them in quality.

Templates and variations—Joinery details are shown on the facing page. Sofas are not as difficult to make as they may

look. Unlike upholstered chair seats, which are always trapezoidal, sofa seats are rectangular. Thus a measured drawing of the frame's end view shows many parts in true dimension. With these parts as a starting point, I worked out a reliable set of templates, shown throughout this article, for the angled parts. The templates take care of the tricky problems, ensuring that everything will go together and stand square.

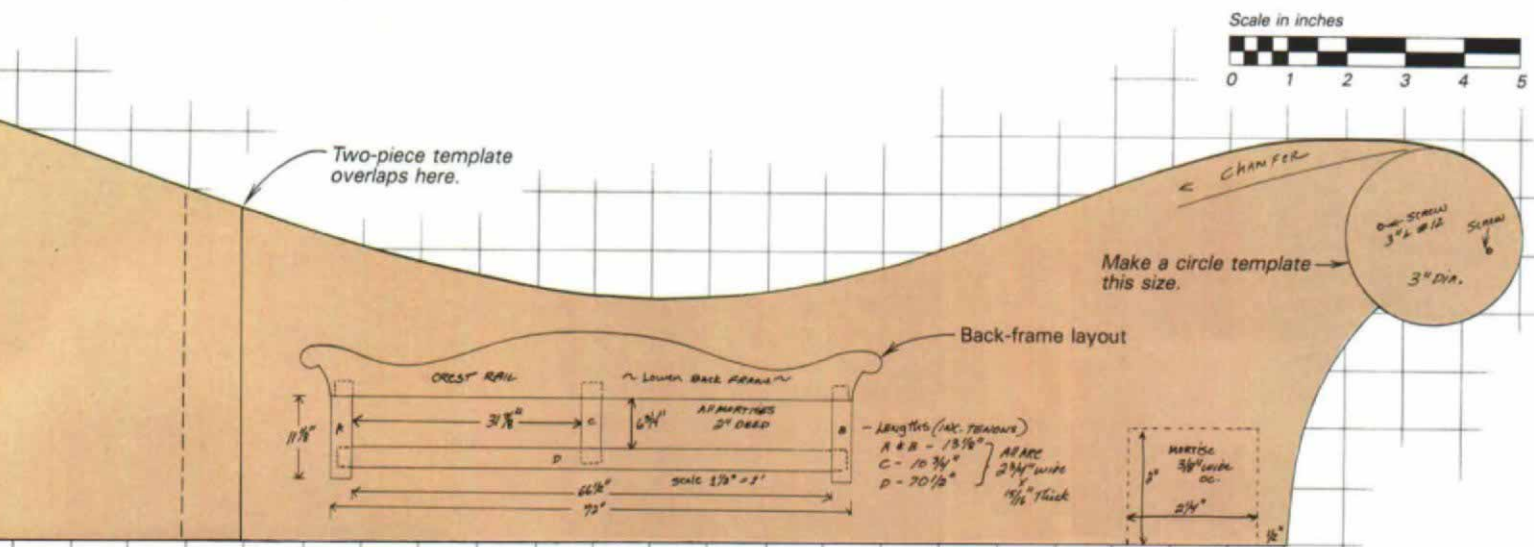
When building a sofa, you first make the end frames, which include the legs, end rails and side stretchers. Then you connect these with the seat rails, center and frame stretchers, and back frame, and finally you add the arms. In period sofas, there are variations in the arm roll and its supports, and I selected the system I felt worked best. The templates given here are for a New England style sofa with Marlborough legs, which can be blocked or left plain. Straight-leg sofas were the most numerous, exemplifying the Chinese influence in the Chippendale style. Yet the molded leg and the cabriole leg shown on p. 65 work just as well. For the Philadelphia look, as shown at left, the variations are simple: Marlborough legs, peaks on each side of the crest, and a serpentine front seat rail. You'll also find templates for the crest rail, vertical arm supports, and upholsterers' bar (the upright member underneath the arm at the back—it gives the upholsterer a surface around which to pull and tack the material).

Scale up the templates to full size, either by following the grid lines or by photo-enlarging them. I made the templates from heavy cardboard so I could cut them out and trace the parts directly from them. As you can see in the drawings, on my templates I've carefully laid out mortise and tenon dimensions and other useful information.

You don't need templates for the front and rear seat rails—just mark them out

Adapting the basic templates yields this Philadelphia-style sofa with serpentine front.

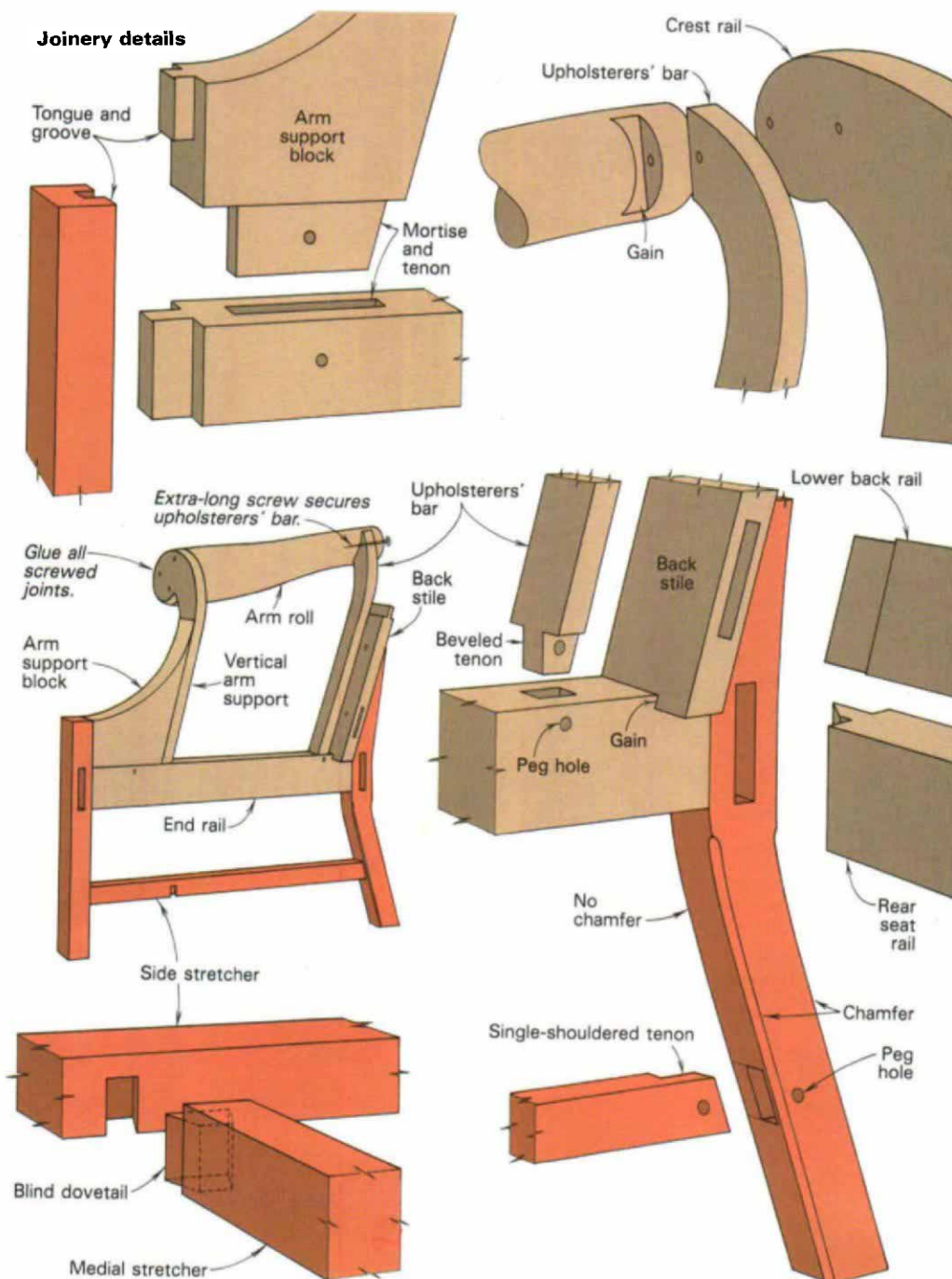




directly on the stock. (If you plan a serpentine front seat rail, of course, you'll have to work out a full-scale top-view template for the curve.) The center legs, front and back, fall exactly in the middle of the rails. As shown in the photo on p. 63, the front seat rail is one piece; the rear seat rail is two pieces, each tenoned into the back center leg, which needs to be full length to support the center of the back. In addition to the low stretcher between the center legs, an upper stretcher prevents the frame itself from spreading. This frame stretcher (which will be hidden by the upholstery) is tenoned off-center into the seat rails, so as not to weaken the legs. Locate it toward the bottom of the rails, where it will not interfere with the setting of upholstery springs. Original sofas didn't have springs, just webbing, but your upholsterer may suggest that the modern method is better. For more on upholstery and whether to agree with your upholsterer or not, see p. 64.

The tenons on the side stretchers have only one shoulder, at the outside. I make the center stretcher the same way, and offset the mortises in the center legs so the stretcher will be centered.

Materials—Most of the frame will be hidden by upholstery, and period cabinet-makers knew this full well. Legs, which showed, were top-grade wood. Mahogany predominated in Philadelphia; cherry was peculiar to Connecticut. Walnut was used in high-style pieces from all areas, and you'll find that the finest sofas, with formal Marlborough legs or ball-and-claw feet, are always mahogany or walnut. But secondary woods are another matter. I've seen seat frames made of maple and oak, and even chestnut in some New England examples. The back frames are usually of a softer wood, sometimes pine, although yellow-poplar or basswood holds the



tacking better. If you can find it, soft maple is an excellent wood for the frame. Whatever you use, test some scraps, and avoid any wood you can't easily drive a tack into, or one that won't hold it well.

Arm rolls are always a soft wood, and pine or poplar is suitable. The vertical arm supports should be hardwood, but avoid woods such as oak or ash because they may split when the upholstery is tacked on. Curly maple would be my first choice here (somebody once suggested plywood, but it doesn't hold upholstery tacks well).

Construction—Many of my construction notes are shown on the templates, but here are some additional hints.

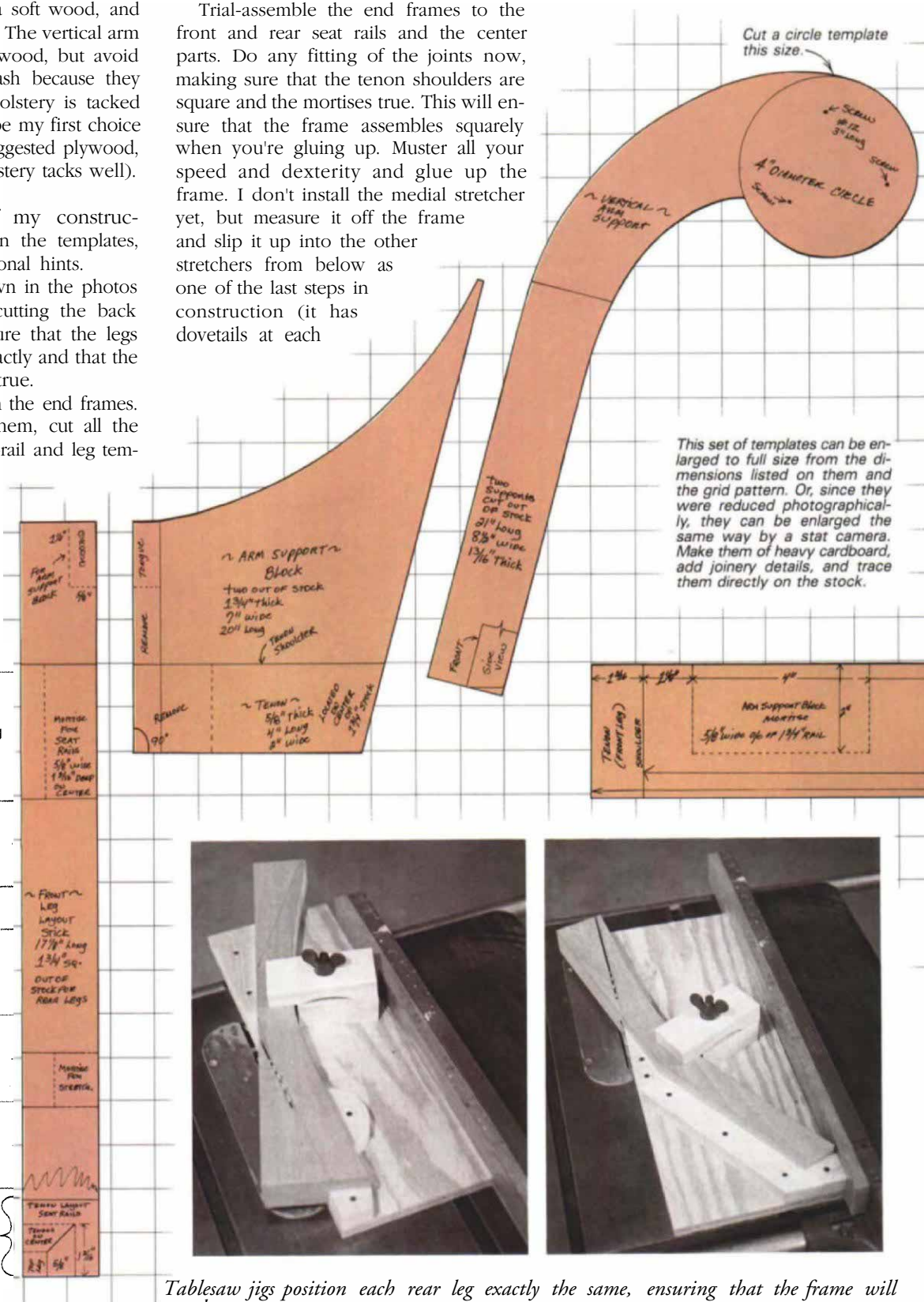
The tablesaw jigs shown in the photos below will help when cutting the back legs to shape. They ensure that the legs will match each other exactly and that the straight sections will be true.

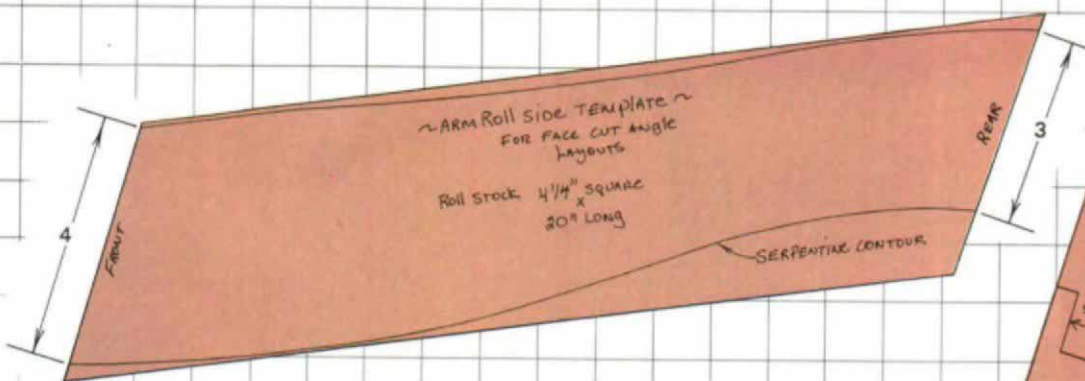
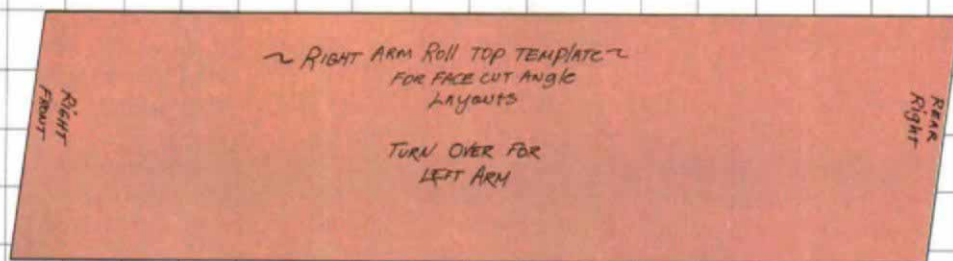
Begin construction with the end frames. Before test-assembling them, cut all the joints shown on the end-rail and leg tem-

plates, and shape the legs and side stretchers. Then permanently assemble the end frames. The arm rolls, their support blocks and the vertical uprights will all be added later. Secure the tenons with pegs.

Trial-assemble the end frames to the front and rear seat rails and the center parts. Do any fitting of the joints now, making sure that the tenon shoulders are square and the mortises true. This will ensure that the frame assembles squarely when you're gluing up. Muster all your speed and dexterity and glue up the frame. I don't install the medial stretcher yet, but measure it off the frame and slip it up into the other stretchers from below as one of the last steps in construction (it has dovetails at each

Stock sizes and joinery details are shown on most templates. Sizes for straight pieces are listed in table at lower left corner of page.





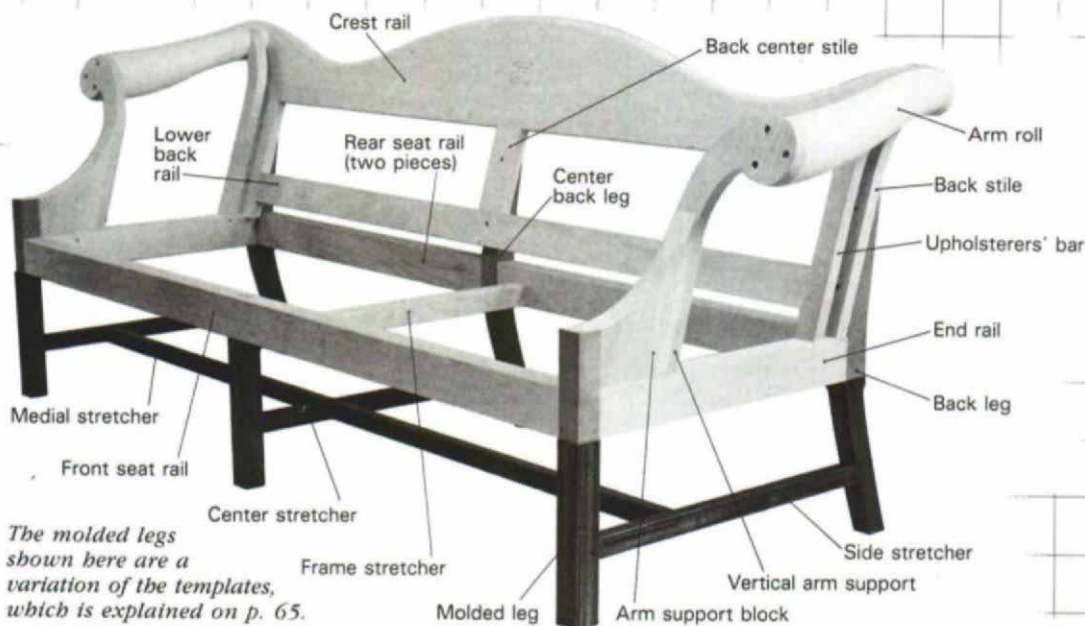
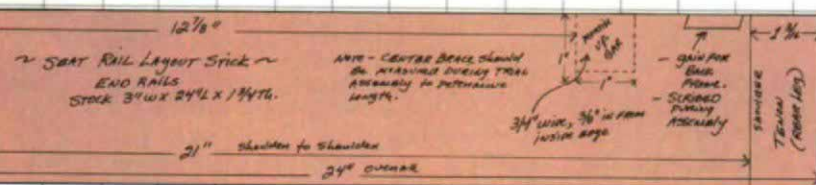
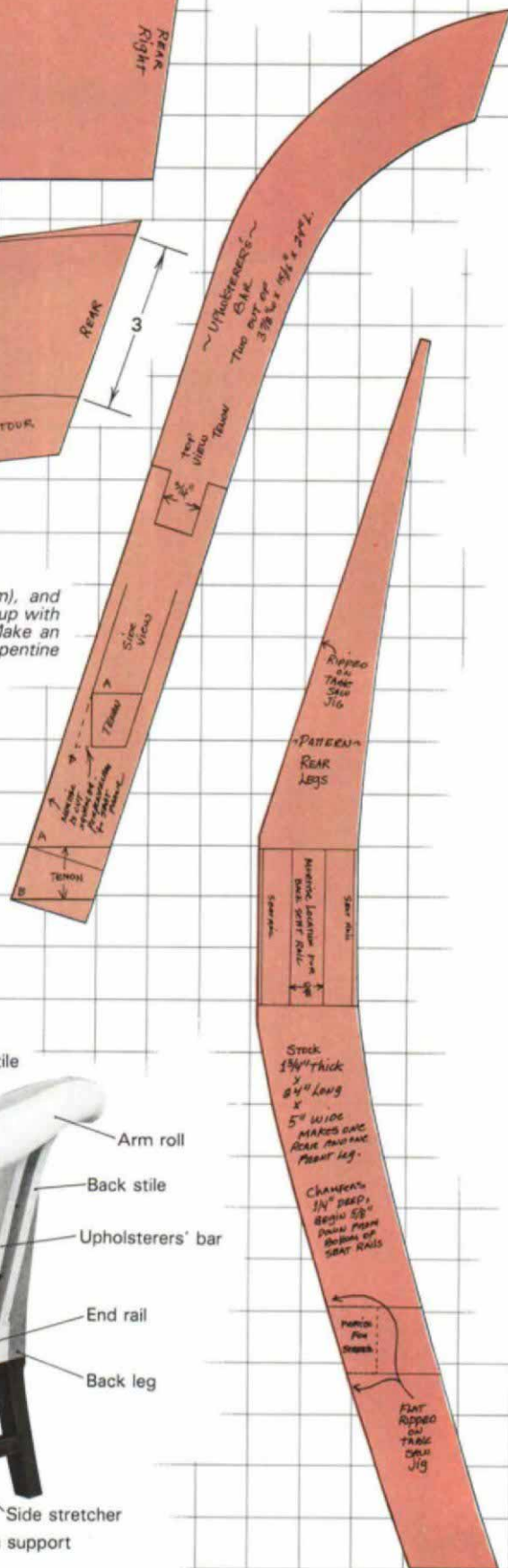
Laminate arm-roll stock from 8/4 and 4/4 lumber, then trace the above templates to lay out the compound end angles. Lay the top-view template on the laminated block, trace it (and its

mirror image on the other arm), and then trace the side view to line up with the corners of the top view. Make an additional template for the serpentine side curves.

Scale in inches



Before assembly, cut joints as shown on templates, except where noted.



The molded legs shown here are a variation of the templates, which is explained on p. 65.

Getting a frame upholstered

by Bob McCarthy

First, the bad news: a good upholstery job can cost as much as \$1500, and you may have trouble finding a shop that will do it right. Now the good news: if the job is done right—and I'll tell you how to be sure that it is—it will easily last 15 years.

The period sofa: Upholstery and wood-working have both changed a lot since 1780. A true reproduction sofa frame would not have screws, modern glues or upholsterers' bars. There wouldn't be a machine mark anywhere, nor any trace of sandpaper. And a period upholstery job would have no springs or cushion, and would be stuffed with Spanish moss or horsehair. To most people, such a sofa would be very uncomfortable.

Yet modern upholstery methods can recreate the period look—taut, crisp lines—and provide comfort at the same time. As you read on, keep the following basics in mind: A Chippendale camelback sofa should be padded very tightly and never overstuffed. The back should not be padded too thickly or it will push the occupant forward. The seat should slope slightly from front to rear to hold a cushion, if used, in place. Do not allow staples anywhere; someday your sofa will be reupholstered, and staples are difficult to remove without breaking them, which leaves razor-sharp studs sticking up.

Finding the right shop: Many shops specialize in reupholstering and are not qualified to tackle a bare frame, but any large city probably has a shop that can do your job right. Ask a nearby museum for recommendations, check with interior decorators, and keep looking.

Request a list of references from the shop, then take the time to go and look at some of their work. A good shop will cooperate with you in making your sofa what it should be—they will allow you to specify materials and methods, and will put the agreement in writing.

Springs: Springs weren't used in upholstery until the mid 19th century, but they lend support critical to appearance and comfort. Well-tied springs should last for years, webbing alone simply will not, which is why I recommend springs even though they aren't authentic. For the seat, I would insist on coil springs, hand-sewn to the webbing and hand-tied together. For the back, I'd ask for Marshall spring units (light, muslin-covered springs).

Padding: Instead of horsehair, cotton batting commonly is used today. Period materials are hard to acquire, will increase your costs, and won't show anyway. Make certain that muslin is used to hold all padding in place.

Seats: If you want a traditional fabric, you should specify a tight seat, which means one with no cushion. This will look best, and avoids the problem of a cushion that won't stay put, but of course it "wears faster." If you want a contemporary fabric, then a single thin cushion wouldn't look bad. The cushion's box (the distance between the edge pipings) should be no more than 3 in. Cover the cushion on both sides so it can be flipped over. Zippers on the back prevent you from flipping it four ways, but are hard to talk upholsterers out of. Use down filling if you can afford it.

Fabric: A 6-ft. camelback sofa with a cushion requires 10 yards of 52-in. wide fabric. A material without a pattern can be "railroaded," that is, run horizontally thus saving some material.

Documentation for period fabrics can be found in old advertisements and, sometimes from remnants uncovered during reupholstery. Period fabrics are readily available, and I've listed a few of the best suppliers here. If you have a business letterhead, try to get wholesale prices. Still, be prepared to spend \$20 to \$50 a yard. It's poor economy to save on fabric or its support, as these are the most obvious fea-

tures of a piece. Damasks were popular on period sofas (a damask is a woven-pattern material, usually with floral motifs, whose design is accentuated by alternating glossy and dull surfaces). Period damasks were wool or silk. Many fine reproduction damasks are available today, in wool, silk or synthetic blends. Another good fabric choice would be wool moreen, a heavy fabric of a solid color embellished with a subtle embossed design. If you're fortunate, you may even find a decorator with some leftover fabric (designers often buy excess material as insurance against running short of a particular dye lot). I've bought such bolt-ends for a quarter of their normal price.

Have the upholsterer pad the rolls slightly to accentuate crisp curves. Ideas for piping, decorative brass tacking and other traditional variations can be seen in antiques books and museums.

If all attempts at locating a qualified local upholsterer fail, do not despair. Learning upholstery is not all that difficult. There are many books on the subject in libraries and bookstores. Few tools are required—mostly patience.

Sources: For traditional fabrics, try Colonial Williamsburg, Box CH, Williamsburg, Va. 23187, Historic Charleston Reproductions, 105 Broad St., Charleston, S.C. 29401, Brunschwig & Fils, Inc., 410 East 62nd St., New York, N.Y. 10021, Cowtan & Tout (chintzes), D&D Building, 979 Third Ave., New York, N.Y. 10022, and Stroheim & Romann, 155 East 56th St., New York, N.Y. 10022. For contemporary fabrics, contact Gretchen Bellinger Inc., 330 East 59th St., New York, N.Y. 10022, and Hasi Hester, 138 South Robertson Blvd., Los Angeles, Calif. 90048. □

Bob McCarthy upholsters period pieces and teaches adult-education courses on the subject. He lives in Columbia, S.C.

end and a lap joint in the middle). Next make the back frame—the specifics are shown on the crest-rail template. I prefer a single board for the crest rail, as on the originals, but you could glue it up. Size the materials, cut the joints, test-assemble, then glue the frame together. Peg the joints and cut the crest profile with a saber saw.

Glue the back frame to the leg uprights, and, when dry, fasten it securely with #10 or #12 wood screws, driven through the softer wood into the hardwood legs. (Period cabinetmakers usually used clinched nails, and for this reason the legs

on many of the original frames have split.)

With this much of the frame assembled, you can go on to the front arm supports, which consist of a curved vertical upright and a support block. I first cut the support block's straight edges, either with the tablesaw leg jig or with the saw's miter gauge. The block's joints into the leg post and the end rail are critical: a tongue-and-groove at the front leg allows you to slide the block down until its tenon fits in the end-rail mortise. If these joints are not precise, the arm will soon fail. I cut the tenon and the tongue on the table-

saw with the rip fence as a guide, sawing them in length and thickness to fit. Then I bandsaw the block's top curve.

Bandsaw the curved uprights and bevel the bottom edges so they set flat on the end rails. Glue and screw the uprights to the blocks, then fasten the assembled units to the frame with glue and pegs.

For the arm rolls, I always use clear pine, laminated from two pieces of 8/4 stock and one piece of 4/4. Period cabinetmakers used solid pine blocks, but nowadays these are hard to get. The arms meet their supports at compound angles,

both front and back. It's best to cut these angles before shaping the arms. Trace the angles from the side-view and top-view templates on the blanks, taking care that the left and right arms will be mirror images, then cut the angles. You could set up a bandsaw for these cuts, but I find a fine-toothed handsaw easier.

Test-fit the blanks, truing up their ends with a low-angle block plane if necessary. With the blanks in place, trace the circles of the crest rail and the arm supports on their ends as far as you can reach with a pencil. Then remove the blanks and use the two circle templates to complete the end shapes. Bandsaw as much waste as possible, then carve the rolls to shape. I use a drawknife, spokeshave, carving tools and planes.

Preparing for upholstery—On period frames, fabric was tacked directly on the part of the frame it was covering. Most modern upholsterers prefer to pull their material through narrow openings in the frame and tack it down on the back side. On our sofa, the lower back rail is higher than the seat rail, and provides such an opening there. The upholsterers' bar shown on p. 61 provides another opening at the junction of the sides and back frame. Although these bars aren't authentic, they add strength, and a frame with bars is easier to upholster.

The bar fits into a gain in the arm, also shown on p. 61. Fair the edges of the bar to the shape of the arm and ease them so as not to strain the fabric. Then relieve all the other sharp milled edges of the frame with a file so the fabric will lie over them smoothly.

The top edge of the crest rail should be rounded toward the front of the sofa. I scribe a line $\frac{3}{4}$ in. down the face, then round over the edge to this line with a drawknife and spokeshave. Don't bring the top back edge to a sharp point.

After finishing the legs, I seal the entire frame with a coating of two parts boiled linseed oil and one part turpentine. This helps keep dimensional stability, and it also improves the frame's appearance. One of my customers, upon receiving his completed frame, liked the look of it so much that he put off the upholstery job for six months. People like that make the extra touches worthwhile. □

Norm Vandal makes period furniture in Roxbury, Vt. He explained how he makes period molding planes in FWW #37
Black-and-white photos by the author

Variations on a theme

The Chippendale sofa frame I've designed is a foundation that can accept many stylistic variations. For instance, I made the classic Philadelphia-style sofa shown in the photo on p. 60 with Marlborough legs, a serpentine seat rail, and peaks on each side of the crest. The sofa frame shown in the photo on p. 63 is a simpler, New England design with molded legs.

Some of these modifications can be accomplished with very few changes in the basic templates. A serpentine front rail, for example, requires a curved template and affects the length of the two stretchers in the center. That's all—everything else can remain the same. Some variations call for more work. If you'd like to change the slope and splay of the arm roll, obviously you'll have to change the template for the vertical arm support as well as the length of the arm-roll templates and their end angles. The arm support block would probably be affected as well.

In the leg designs shown below I'm recommending that you choose $1\frac{7}{8}$ -in. stock for the front molded leg. This allows you to reduce the size of the leg post above the carving to $1\frac{3}{4}$ in., the same size as the post on the Marlborough leg. On my sofas, I do it a little differently, because I like to keep the front and back legs the same overall width. I start with $1\frac{3}{4}$ -in. stock, reduce the post to $1\frac{7}{8}$ in., then vary

the end-rail length, front-seat-rail shoulder distance and stretchers to accommodate the smaller post. If you'd like to try this yourself, you'll need to work out gains, chamfers and other minor changes at the front corners so the parts fit neatly. The arm-roll length also shortens by $\frac{1}{8}$ in., but this takes care of itself during truing-up.

All the following variations are found on original period pieces.

Legs: Straight, square; straight, molded; tapered, square; blocked-foot Marlborough, plain or carved; ball-and-claw cabriole (no stretchers) Some pieces have eight legs, but six-legged sofas are more common.

Seat rails: Straight; serpentine curved; exposed and ornamented. A 6-ft. length is common; other lengths are options.

Crest rail: Single-hump; peaked to each side of hump; varied in curve.

Arm rolls: Straight, tapered, cylindrical; serpentine; varied in slope and/or flare.

Stretchers: Plain; beaded-edged; relief-carved or with open fretwork.

You'll note that I show no stretchers between the back legs, yet you might see them on many period sofas. Rear stretchers take great abuse from climbing children if the piece is placed near the center of the room. Also, they make it difficult to clean under the sofa. They're not needed structurally, and I prefer to leave them out. but the choice is up to you. —N. V

