



Author John Meyers carves on an upright easel-like support, with drawing and panel mounted side by side. Parallel lines on the panel and drawing make it easy to check details. The rack of overhead lights accentuates the depth of field developed in the carving.

Relief-Carving

Tricking the eye to create a different perspective

by John E. Meyers

I've always been fascinated with relief carvings. I am amazed how much emotion and detail carvers can create by shaping two-dimensional images in a relatively thin slab of stone or wood. It's really something of a magician's trick: By "tucking" one piece of a person or object behind another, you can tell a visual story in what appears to be a miniature version of the real world. That's satisfying on a very basic level. Relief carving may not be the world's oldest profession, but it has probably been with us since someone invented the knife. Be it in the form of expertly detailed Eskimo scrimshaw, the ornate boats and paddles of the South Sea islands or the classical elegance of Renaissance murals, humans have a need to embellish the objects in their world.

When I explain relief carving to students, I ask them to visualize a magician taking a deck of playing cards from his bag of tricks. The deck of cards gives us a medium with 52 levels. In comparing this to the carving of work horses and a hay wagon, shown in the

top photo on the facing page, the last 10 cards in the deck would equal the background. If you slide those 10 cards over so they stick out from the rest of the deck, the next level (working from the background forward) includes the trees and foliage at the horizon line. Pull out five more cards so that they are not quite as high as the ten background cards. The next level would be the sheaves of hay in the wagon and the wagon racks, and so on to the top of the deck.

One common error in carving a relief—forgetting how these cards stick out, yet remain part of the deck—is not tucking the subject matter into the carving in its proper sequence. The best way to avoid this error is learning to see how the foreground, usually the ground, water or a floor, "tapers" or "wedges" through several levels in the carving to the horizon line. In the hay wagon relief (top photo on the facing page), for example, note how the cedar rail fence diminishes in height and recedes into the background, creating a sense of perspective. If the foreground did not wedge

into the horses' hooves (or if the bottom of the hooves were undercut) then you would have a "cliff" problem and the horses would look as if they were glued on the panel. The fence and plowed furrows in the bottom photo at right are other examples of how receding lines create perspective.

Once you learn to see the wedge and bury the foreground figures into it, you're well on your way to mastering relief carving. In this article, I'll discuss some ways to work with these wedges to the horizon line, sketch out the scene accurately, then transfer it to a prepared panel in such a way that you can continually resketch the drawing as you carve away more layers. The carving requires no special tools or techniques. Just make sure your tools are sharp and you block off and rough shape the general forms before adding any details.

Preparing the drawing—The first step in carving any relief is to prepare a detailed drawing the same size as your wood panel. You'll need a full-size plan because it's a lot easier to work out the details on paper than it is to experiment on the wood. Don't risk ruining the panel: It's not easy to patch a miscut section. To prepare the drawing, use Bristol board, blueprint paper or other durable stock. I like to work from photos I take of my neighbors and the farms near my home. Sometimes I'll combine elements from several photographs in a single drawing. If I get stuck on a certain pose, a family member poses for a photo. I also keep a mirror next to my carving bench, so I can refer to my anatomy.

Gluing-up panel stock—I carve 1½-in.-thick edge-glued butternut and black walnut panels, but some carvers prefer basswood and red oak. To minimize warping and other wood movement problems, I glue up boards with less than 10% moisture content (MC). I find these assembled panels are much more stable than single, wide planks, as long as the width of the boards is less than four times the thickness of the stock. The boards should also be straight-grained and, if possible, the same color and patina. Avoid sapwood, dark streaks and knots.

Size the pieces so the completed panel will be slightly larger than your drawing, to allow for squaring and trimming. I also rabbet the perimeter of the panel, so the relief will fit in a frame. The rabbet is generally ½ in. wide and creates a lip about ⅜ in. thick, which will equal the thinnest area of my carved panels. The boards (and grain) should run vertically, to emphasize how the wedge goes to the horizon. To assemble the panel, I butt-joint the boards, applying Elmer's Carpenter's Wood Glue to both long edges of each board, then apply pipe clamps approximately every 6 in. Don't use splines or dowels because you risk cutting into them as you carve.

Transferring the drawing—Once I'm satisfied with my drawing, I trace it onto the wood, transferring the image with either dark chalk spread on the back of the drawing or with regular carbon paper. Affix the drawing to the top edge of the panel with masking tape. This will avoid slippage while tracing and will allow you to peek at the panel image before the drawing is removed to make sure all the lines are clearly transferred.

Before you remove your drawing from the panel, take a 24-in.-long carpenter's level and grid the drawing approximately every two inches both vertically and horizontally. If you take the time to level the edge of your easel and carefully align your panel and drawing with the edge, the level will prove especially handy for drawing the grids. You can easily make sure all your lines are plumb and parallel, which will make it easy to redraw them if they're carved away. I label the vertical grid lines A, B, C, etc., and the horizontal lines 1, 2, 3, etc. Therefore, by crossing any two grid



Hay wagon relief involves carving on six different levels, extending from the high spots—the horses' heads and the front of the fence rails—to the background, which is at the same level as the rabbet cut to fit the completed panel in a frame. The various levels should be broken down graphically.



Relief carvers use converging lines, as in the receding fences and furrows above, to create a sense of depth in thin, carved panels.

lines on the panel with a pencil, you can determine exactly where you are carving in relation to the drawing. Should some of your sketch be carved away, you can use a level, as shown in the top photo on the next page, to re-establish the grid of the carved area and resketch the missing details. Sometimes I'll cut out a square of the drawing, say a face or other important area, align the grids and tape the drawing next to the area being carved. Because the grid of the drawing and panel are identical, it's easy to match areas.

Roughing out the relief—I find the quickest way to get rid of waste wood is with a radial-arm or hand-held circular saw. Set the blade to cut within ⅛ in. of the finished level in the area being worked. This method is ideal for background areas, such as the open area at the rear of the work horse/hay wagon carving. Make your saw cuts about every ¼ in. and knock off the remaining waste with a mallet. You could also remove the waste by boring a series of overlapping holes with a Forstner bit or by routing out major background areas.

With most of the waste removed, I outline the major forms by making perpendicular cuts around the edge of the figures and oth-



A 2-ft. level is used to transfer grid lines from original drawing to carved area of panel depicting an elderly couple on a porch swing. Here, a section of the drawing including the figures has been cut out of the main drawing and mounted next to the area to be carved.



Carving always proceeds from broad, general forms to details. Outline the major elements with a chisel or gouge (above, left), model the major shapes, undercutting the forms as needed to create a three-dimensional look, and refine the details as shown (above, right).

er forms (as shown above in the bottom, left photo) with a mallet and $\frac{1}{4}$ - and $\frac{1}{2}$ -in chisels, before moving onto details (as shown above in the bottom, right photo). After smoothing the background with gouges, I regrid it. Use a set of calipers or a compass if you have trouble gridding accurately over the various thicknesses.

I usually remove the excess wood and smooth the background while the panel is clamped flat to a work table, but then set the panel in a vertical position, as shown in the photo on p. 78, just as an artist mounts his canvas on an easel. It's also important to step back and view your work from a distance (6 ft. to 8 ft. away) as you complete each section of the carving. Gainsborough, the English portrait artist, had 6-ft.-long handles on his brushes so he could work and view his progress from the right perspective. As you start carving, I'm sure you'll appreciate the value of this.

Shaping the major forms—As you develop your drawing, you will get a sense of how the elements of the carving relate to one another. Remember, it's important to rough out the shape of the

whole carving, striving for a three-dimensional look on each element, before doing any fine detail. After outlining all the major figures, begin to taper from the foreground to the outline cuts. On the horse wagon shown in the top photo on the previous page, for example, this would involve tapering the cedar rails toward the horizon line. In the end view of the couple-on-the-swing relief shown in the top photo on the facing page, you can see how the porch slats taper back below the couple's feet. Also note how the whole panel tapers back to the rabbet that will eventually fit into a frame.

As you work into the panel, redraw your grid lines over each completed section so you can refer back to your drawing. Just think of each square as a small drawing in itself. Where there is a lot of detail, such as in a face, you can also use a finer grid, with lines $\frac{1}{4}$ in. to $\frac{1}{2}$ in. apart, then caliper it out on the panel. This type of accuracy is important to achieve a realistic look because every section can involve several levels. If you lose your reference points, details such as the horse harness or the chain on the

swing will be more intimidating than they really are. Again, the key is to work in broad strokes, to rough-out the carving, then do the details.

If you hit a bad internal knot or seriously miscut an area, all is not lost. Simply cut out that board from the panel and glue in a new one. Redraw your grid and carve the piece to match its neighbors. This is a lot of extra work and will definitely convince you of the value of working out all your questions in the drawing, before you actually start carving.

Defining details—Once you have the overall carving roughed into the approximate shape you require, redraw your image on the panel in detail. Here again, work from the front of the panel to the back of the panel. For example, complete the detail on the horses before starting in on the driver. Don't forget to connect minor pieces of detail such as the reins, which go from the horses' heads all the way back to the driver's hands. If possible, work with a movable overhead light source, such as a drafting lamp. The tighter you bring the light in over the top of the carving, the better depth of field perception you have.

Always get back and view each piece of completed detail from a distance—judge its merit in comparison to its immediate neighbors and the overall carving. When in doubt, do not carve anything until you step back and look again. Before carving, ask yourself, "Can I carve this section down without error?" If so, do it; if not, go back to your drawing. Get another picture or an actual piece of the material to study if you find your drawing does not clearly define a detail, such as the chain in the bottom photo at right.

In doing fine detail work, such as the sheaves on the wagon, the "shape" before detail principle still applies and an overall sheave "plug" has to be roughed out and tucked before applying the surface detail. The detail was put in a strand at a time with a #11 X-Acto blade (tucking some over, some underneath). The heads were shaped by rolling the edges over and then veined with a small parting tool and awl.

Finishing treatment—I always sand my carvings until they feel good to the touch. Usually I start with a 50-grit or 80-grit paper and work up to a 120 grit then 220 or 320. By cutting your paper up into 3-in. by 3-in. squares, and using a small piece of foam as backing, you can easily get into the nooks and crannies. Use 220 grit on fine details and sand with the grain where possible. On flat surfaces I use a foam-backed sanding disc chucked in an electric drill and go from 80-grit paper to 120 grit to 220 grit.

I usually finish the carving and frame with three coats of satin urethane. Thin the first coat 50/50 with mineral spirits for maximum penetration and sand the first two coats with 220-grit sandpaper. Use a Scotch Brite pad or 000 steel wool on the final coat. It's most important to coat the back of the carving and frame with the same number of coats as the front, thus allowing it to breath evenly and not warp. Finally, apply a coat of Minwax or carnuba floor wax and buff with a lambswool buffer chucked in an electric drill or with a soft cloth.

Framing a relief carving—Relief carvings tend to warp unless they are reinforced with a frame and back-support plate. The frame stock should have a lip on it for the carving to press against and should be wide enough so that no part of the carving's foreground hangs over the front surface of the frame. Before framing the carving, pad your table or work area with a flattened cardboard box or blanket to prevent damage to the relief. Push the carving into the frame and pin it in by squeezing in finishing nails behind the carving into the frame (similar to mounting a photo in a



End view of the couple-on-the-swing relief shows how the porch slats taper back below the couple's feet. Also note how the whole panel tapers back to the rabbet so that it will fit into a frame.



Carving is secured in the frame with finishing nails squeezed into place with a pair of pliers (above, left). The jaw on the outside of the frame is padded with tape to prevent marring. To reinforce and protect the carving, a plywood backing is nailed to the frame, as shown above, right.



The couple-on-the-swing scene, carved in a glued-up butternut panel, is based on magazine pictures and the author's own photographs.

frame). I find pliers with one head angled and one jaw padded with masking tape ideal for this, as shown in the middle photo above at left.

Once your carving is fixed into the frame cut a $\frac{3}{16}$ -in. thick Masonite or plywood back plate and nail it into place with small finishing nails, as shown in the middle photo above at right. This back plate adds strength the way siding reinforces the stud wall of a house and helps avoid warpage. Screw on a saw-tooth hanger (making sure you catch the frame edge under the back plate) or use wire and screw eyes. □

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