Advanced Gun-Stock Carving

THE FIRST HALF of this treatise explored something of the art-historical background of gunstock carving and had a go at providing a basis for understanding the tools that are appropriate for good work. In this concluding half, let's put those tools to work.

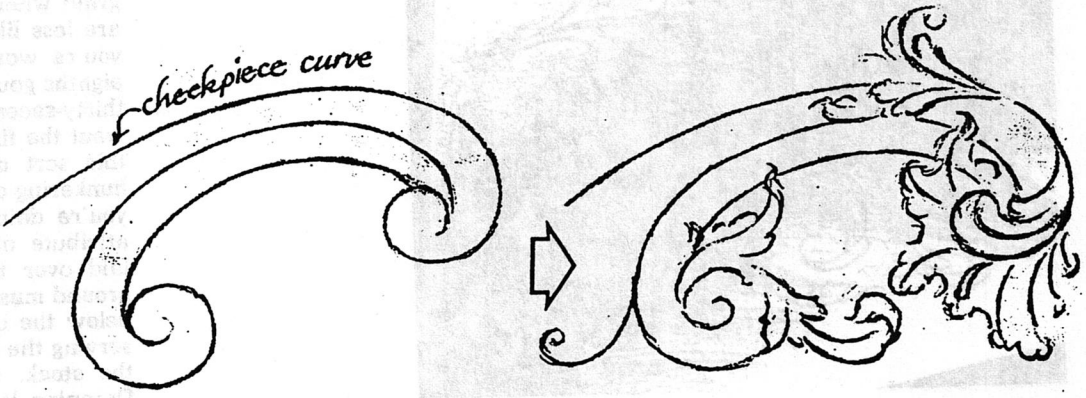
The first tool that concerns the carver is the pencil, which — unless he has a good understanding of flow and design — can be the downfall of his carving before he takes his first cut. I've long noted that treatises on engraving suggest that the neophyte spend many hours practicing *drawing*, though I've found that very much of that becomes irritating. As a consequence, I spent a good number of years drawing lackluster carving patterns on stocks. To create your own design, you must first be able to draw; and for that reason, practice work is certainly in order, even if the intent is to copy old work. The old saw about idle hands holds a certain truth, and nowadays if I find myself with nothing else to do — such as waiting for a lethargic waitress in a restaurant — I doodle whatever scrolls and leaves come to mind. No doubt, some of the napkins that I've left behind have branded me a bubble-brain to whomever cleared the tables, but I care not.

When it comes to drawing a design that is to be cut, I never resort to paper for the design. Paper is flat, but a gun stock is curved; and I have a devil of a time drawing a design a second time and making it come out as well as it did at first. *Well*, you might say, *transfer it with carbon paper!* You can do that; but I think it best to consider the stock a piece of sculpture, and designs drawn on paper then transferred don't always fit the curving lines of the stock as they should.

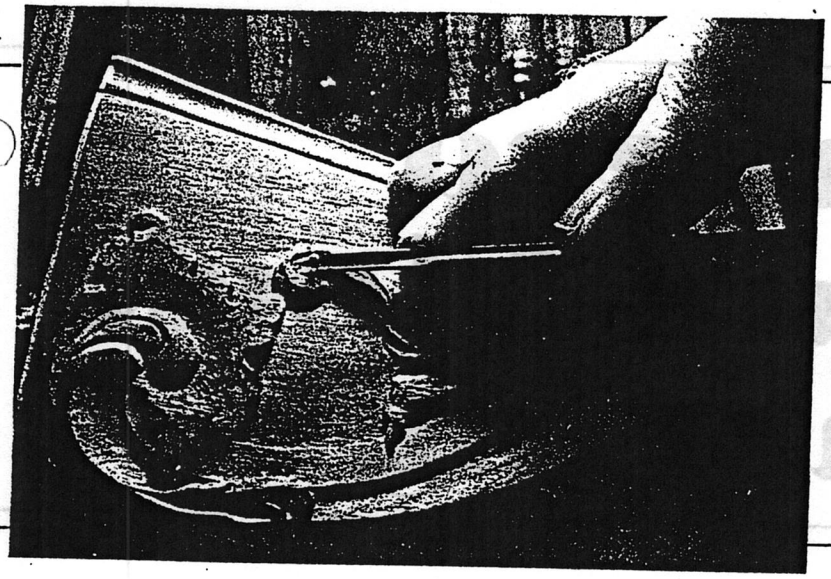
You should draw no design without sketching-in a basic skeletal framework first. Every carving design, no matter how elaborate, can be broken down into a few simple curves and lines, just as Hogarth perceived his S-curved "line of beauty" in virtually everything of organic form. I use a soft-lead pencil for the work, and I prefer Dixon's black number-2225 film-marking pencil — particularly for drawing on darker walnut. With a basic form in mind, I sketch the framework quickly, picking-up the curve of a cheekpiece where that is appropriate, and erase or sand-away the line frequently if it doesn't suit me.

Like the work of a water-color painter, such work is best done at arm's length, so to speak. Stand back and review these lines critically, to see that they complement both the stock architecture and themselves. When that framework flows as it should, *then* move in and begin filling-in detail, beginning with the larger elements and ending with the smaller. One of my illustrations here was the developmental skeleton for the stock pattern shown in one of the photographs; I drew the first lines on paper for the sake of illustration, but my original lines were on the stock.

I often draw all of the carving on both ends of a cheekpiece to see whether I've balanced both the amount



John usually makes his rough or preliminary drawings on the stock itself rather than on paper; but for this article, he sent these three sketches of the pattern that he carves in later photographs — first the "skeleton," then the same sketch with details roughed in, and finally the finished pattern (on the stock) with all the details drawn in, even though he may cut some away as he carves the pattern.



John Bivins

CARVING and FINISHING

and the position of the main carving designs. I don't waste time with drawing but go about it like killing snakes, and I seldom spend as much as an hour even on an elaborate pattern for the cheekpiece side. Don't be discouraged, however, if the creation of a carving pattern takes you hours of pencil grinding; most of us go through that. Just don't become bogged-down with details, and learn to head for the back yard and yodel a bit before that red mist of frustration begins to arise over a leaf that doesn't fit or a scroll that remains clunky after seventy-three erasures. *Relax!*

With all of a carving pattern drawn-in, even the parts that you'll cut away in the process of modeling later, you're ready to start cutting. One thing that I should mention here — a little item that's basic to carving stocks — is leaving excess wood where it's needed for a raised design. Many beginning carvers are surprised to know that there is only *one* such place, and that is right behind the cheekpiece. You must leave wood there, since you don't want to cut the butt plate away in the process of grounding. In all other areas, particularly around the wrist and lock mortise, carving is a matter of *sinking* the pattern below the lines of the completed stock. Trying to leave excess wood in those areas while you're shaping a stock would not only take all of the fun out of stock-making but would often result in clunky lines in one place or another.

Look at stock carving as rather like sculpting an irregular piece of marble whose inherent shape is desirable. In seeing the work from that point of view, you can readily understand that carving a stock is a process of removing material in such a fashion that you don't alter the lines of the stock in the process. If you change the flowing curves of a well designed stock by carving it, then like as not, the carving won't be successful.

The first matter at hand is grounding, and although that work can be tedious, I rather like it. It's one of those things that you can do that doesn't require enormous concentration all the way through, so you can let your mind wander at times. But you'd best learn just *when* grounding isn't so critical, unless you want to lose the tip of a leaf. If you should have that happen, incidentally, don't reach for the glue. Instead, cut the offending thing away and *redraw* that part of the pattern, even if it takes a stiff jolt of Wild Turkey to help you do it.

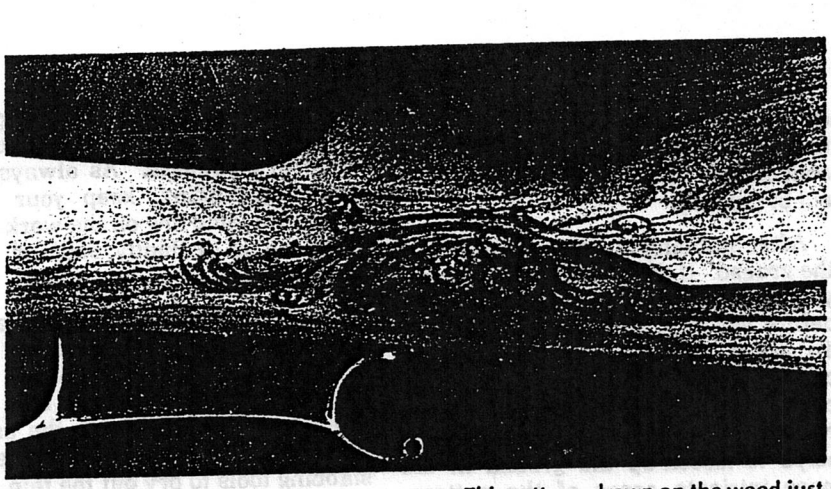
The flattest area of a stock is behind the cheekpiece, and that's a distinct help in grounding what is usually the largest chunk of carving on the stock. If you have an elaborate pattern with many overlaps, you may have left as much as an eighth of an inch of stock standing proud of the butt plate at that point. I don't think that I've ever left much *more* than that, and most carving in fact needs less.

In any event, the idea is to remove as much wood as possible in the shortest time, for there's little point in messing with it. The safest and quickest method is to use a gouge, cutting across the grain where you can; cross-grain cuts are less likely to result in tears when you're working fast Using a three-eighths gouge, I rapidly cut to within a thirty-second of an inch or so of where I want the finished surface to be. Now, this sort of thing requires a bit of hunkering down and squinting at what you're doing. Good carving has the attribute of appearing to have been laid over the ground. That is, the ground must be sunk on an even plane below the carving so that you're preserving the basic surfaces and lines of the stock, even as you lower them. Dropping lower on one side of a big

scroll than on the other removes some of the ability of the carving to appear as a flowing part of the whole. This isn't something that you should become hysterical about; simply let your eye move back and forth over the stock at times to pick up basic rough discrepancies in the plane of the ground. Keep the work in slight shadow while you're grounding, just as you should for virtually all carving work.

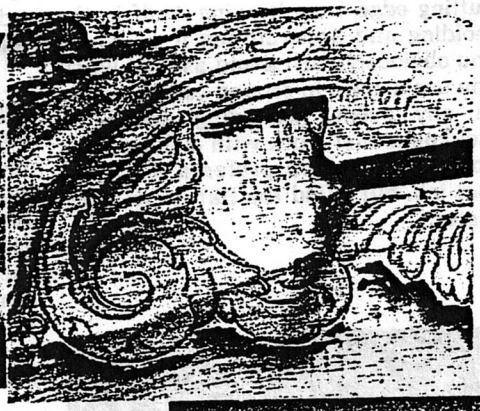
In cutting the rear cheekpiece carving, I prefer to rough-in the ground before outlining the carving, and I cut quite close to the drawn pattern. Cutting-in the pattern is actually a matter of vertical stabbing cuts; and if you've cut away most of the ground, a tool won't wedge in the wood so badly — since material outside the pattern is allowed to move slightly as you stab-in the line. Of course, there are other ways to outline carving, such as using a parting tool. Nice carving, though, has crisply defined edges that provide a good shadow line to the viewer — and some of that definition, along with other tricks such as undercutting, are best done by vertical cuts. That is not anything new; it has been the accepted way of doing clean relief carving for centuries.

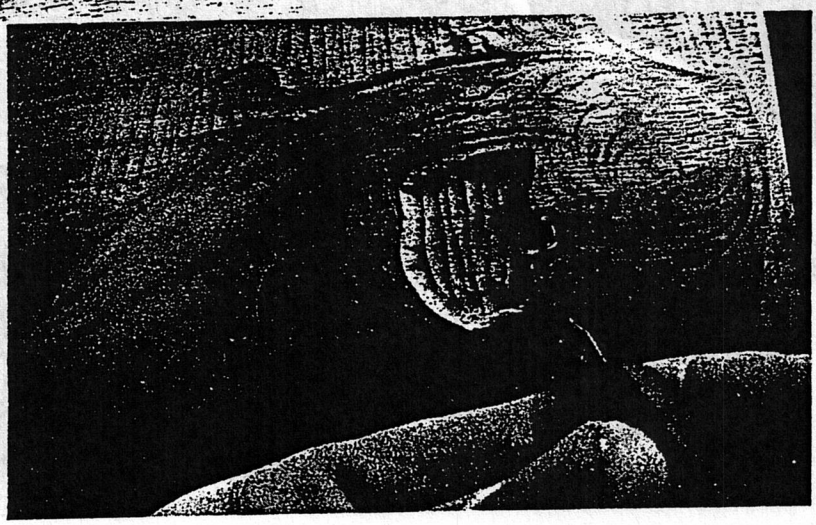
Professional carvers who adorn furniture and interior architecture own more gouges than any kind of tool. Having many different radii and profiles of hollow tools makes outlining fast and efficient except for the time spent in looking for just the right tool to stab-in a curve. Most of us can't afford such an impressive array of gouges, so we must make do. I would certainly recommend that whenever you can adapt a radiused tool to your carving pattern, use it. There are times when the volute of a scroll can bear a little alteration if you find a tool that almost but not quite fits. To take measure of that, push the tool onto the pattern ever so lightly, and then take a look to see what that curve is going to do. If it works, then push the tool in firmly. There's no need to tap a gouge with a mallet when you're outlining, even in hard wood, for there's a limit to how deep you can cut in any event. It's better to avoid burying the tool and to plan to deepen the cut later if necessary.



This pattern, drawn on the wood just ahead of the cheekpiece, is ready to be carved. Note the detail of the pattern and the width of its lines.

If none of your hollow tools fits a curve, then you must resort to stabbing-in with a straight tool. The smaller the radius, of course, the narrower the tool must be. In the first half of this treatise, I showed small shop-made flat chisels intended for stabbing-in. As I noted there, the corners of the blades were stoned away to avoid leaving notches in the edges of the carving. Like the gouge, these small flats are simply pushed in. Overlap their cuts as you follow a line. Though you may use wider tools to cut on a long, gradual curve, I prefer to stay with narrower





Carving begins with rough grounding, with a gouge (*above, left*). Stabbing the pattern's lines into the wood (*above, right*) is usually the work of a gouge, but small flat chisels can be used (*right*) when none of the gouges on hand fits the curve being stabbed-in.

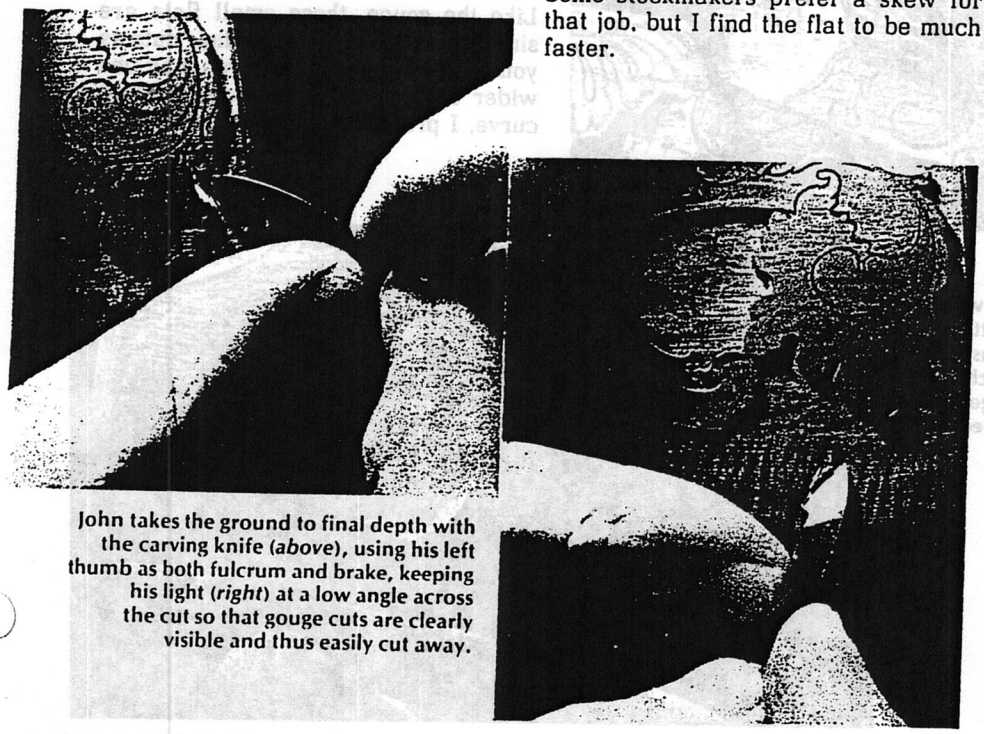
tools since there is less tendency to wander off the line. It's really more difficult to cut-in a long, gradual curve than a small, tight one, and I often concentrate on those first to get them out of the way.

After stabbing-in, remove the rest of the ground. If the pattern is a high one, you will likely have to stab-in again before you reach the finished ground. To assist in grounding around deep carving, I often make a number of flat-chisel cuts around the pattern with a two-millimeter flat tool; this technique helps to loosen-up the ground in the more intricate areas of the pattern. Though you can use a variety of flat and quarter-round chisels for grounding, I find that the carving knife makes the quickest work of the job. In part one, I described the knife that I use. I control the blade precisely by using my left thumb as both a fulcrum and a brake, as I mentioned before. The intent is to make light cuts, leaving as clean a surface as possible. In curly maple, it's altogether too easy to pop wood out when you're following the folded grain that causes the curls.

Respect the grain flow of the wood and the way that it wants to be cut, and don't try hogging cuts. If a piece breaks away, sink the ground deeper. You can't really sand-away those little hickies, and they'll stand out like preppies at a hog killing if you don't excise them with the knife. Don't kid yourself; nice groundwork takes *time*. In working a really bitchy piece of wood, I've been able to hold an entire day's work in the center of my palm — tiny flakes nibbled off the stock with surgical cleanness. As always, while you're grounding, keep your articulated-arm lamp low on the work so that each cut is distinctly outlined in soft shadow.

Really tight areas where the knife won't reach are another matter. To be blunt, I simply break the waste out of such places. After making cuts in the ground at right angles to the carving pattern, I simply use one of the little stabbing tools to pry out the thin flakes of wood left after the chisel's nasty work. You can then deepen and finish such areas by judiciously scraping with the grain.

Part of buttstock carving usually calls for running the lower butt moldings, which I first either pencil or scribe in and then cut with a sixty-degree long-jointer checkering tool. I often deepen that line by running a knife blade down the line made by the jointer — but if you have to do that, take bloody good care, since a sharp blade rather fancies the flow of the grain and may take off toward parts unknown. I sink moldings with a flat chisel, angling the tool very slightly so that the side of the blade bears lightly on the molding as it's cut. This slight angling prevents the corner of the cutting edge from burying itself in the molding and undercutting it — which you obviously must avoid as well when you use a knife to ground your carving. In any event, grounding around a molding is fast work with a flat chisel. Some stockmakers prefer a skew for that job, but I find the flat to be much faster.



John takes the ground to final depth with the carving knife (*above*), using his left thumb as both fulcrum and brake, keeping his light (*right*) at a low angle across the cut so that gouge cuts are clearly visible and thus easily cut away.

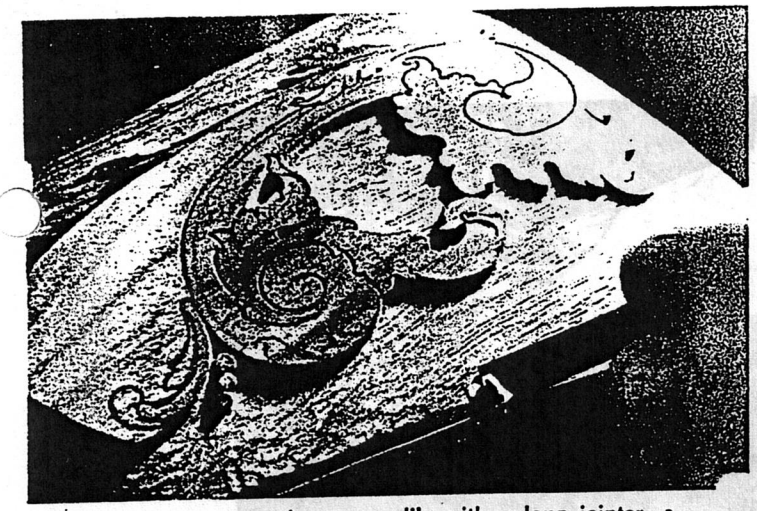
I prefer to ground all of the carving on a buttstock before proceeding with other work, though of course you can ground one section at a time if you prefer. One part of carving that I don't care for particularly is sanding the ground, and I simply like to get the odious task out of the way all at once. If knifework is clean, and all of the gouge cuts have been removed around the rear carving (the gouge isn't used in grounding the wrist and other upper-stock areas), the sanding isn't too bad a job. You should use a gritpaper that grinds the tiny dips and ridges of the knife cuts flat rather than riding over them — on hard maple, this means 150-grit garnet paper.

For European walnut, I've found that 280-grit wet-or-dry paper usually works well enough, since walnut cuts more easily than maple does. I cut something like three-inch squares, fold them once, and have at it with vigor, taking care to sand closely around all of the carving and moldings. For tight spots that are difficult to reach with paper but too large to be scraped clean, I simply fold the piece of paper an extra time and sand with the edge of the crease. If you do that, you're better off with a lighter paper than the heavy C grades, which tend to break their adhesive films when they're bent sharply.

Another trick that is useful for crannies is to glue paper to pieces of veneer and cut it up with scissors, in the shapes that you need. While sanding, I constantly move the light to see that I'm leveling the surface perfectly smooth, and I frequently dust-off the work with a rag or toothbrush so that I'm not beguiled into believing that the ground is perfect when dust is actually masking hickies. Maple is especially bad about this.

On maple, I follow the 150-grit garnet paper with 220-grit and then dampen and whisker-off all of the ground as many times as needed. This avoids any possible complication in carrying-out that job after the carving has been given nicely detailed modeling — which doesn't take kindly to torch flames or being dubbed-over with gritpaper. I want that ground finished except for the last few touches with paper before I model the work.

Modeling tends to separate the sheep from the goats rather quickly. If you've drawn a relatively advanced pattern, it goes without saying that you must *understand* what you've drawn before cutting it — how a leaf must look if its



Butt mouldings can be run readily with a long jointer, a checkering tool, then relieved with a flat chisel like this.

tip twists or curls, and how the fold of a leaf forms a sharp ridge and a little teardrop-shaped "eye" that must be slightly undercut on each side for effect. Gunstock carving is largely adapted from forms in nature, and there is little in nature that is represented by a straight line or a plane. Leaves undulate and curl at their edges. They may be lobate or spiny, almost to the point of appearing tattered, and they seem to writhe with a certain ordered asymmetry — which is the essence of baroque art. Carvers, sculptors, and engravers who are truly artists study these details in nature so that they can render them with vitality in their own translations.

We should learn something from that, but in my case, I am far more a historian of the decorative arts than an artist, and I have been content to study the techniques used by early carvers. Photographs in books and magazines are not as good as seeing three-dimensional objects, however, and the carver who wants to model with effective detail will take every opportunity to see original work "in the flesh."

It is a waste of time and energy to begin modeling with hollow tools. I start with what I call *flat* modeling — all the modeling that I can do with either the knife or flat chisels. If a leaf is to be hollow on both sides of a central vein, then I chamfer both sides of the leaf with the knife, cutting right down to the finished height of the carving. Similarly, I use the knife to relieve overlaps, to drop the edges of elements that are to curl, and to round the volutes of scrolls.

Dramatic carving, as far as I am concerned, shows very precise and well defined hollows and flutes, with sharp, crisp ridges. The flutes in

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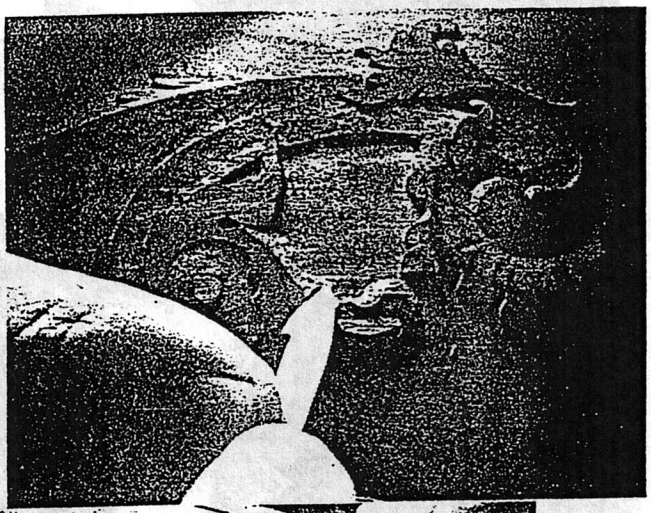
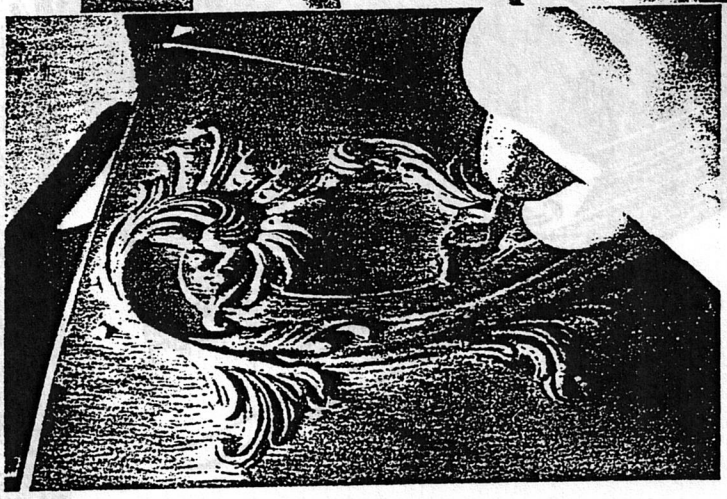
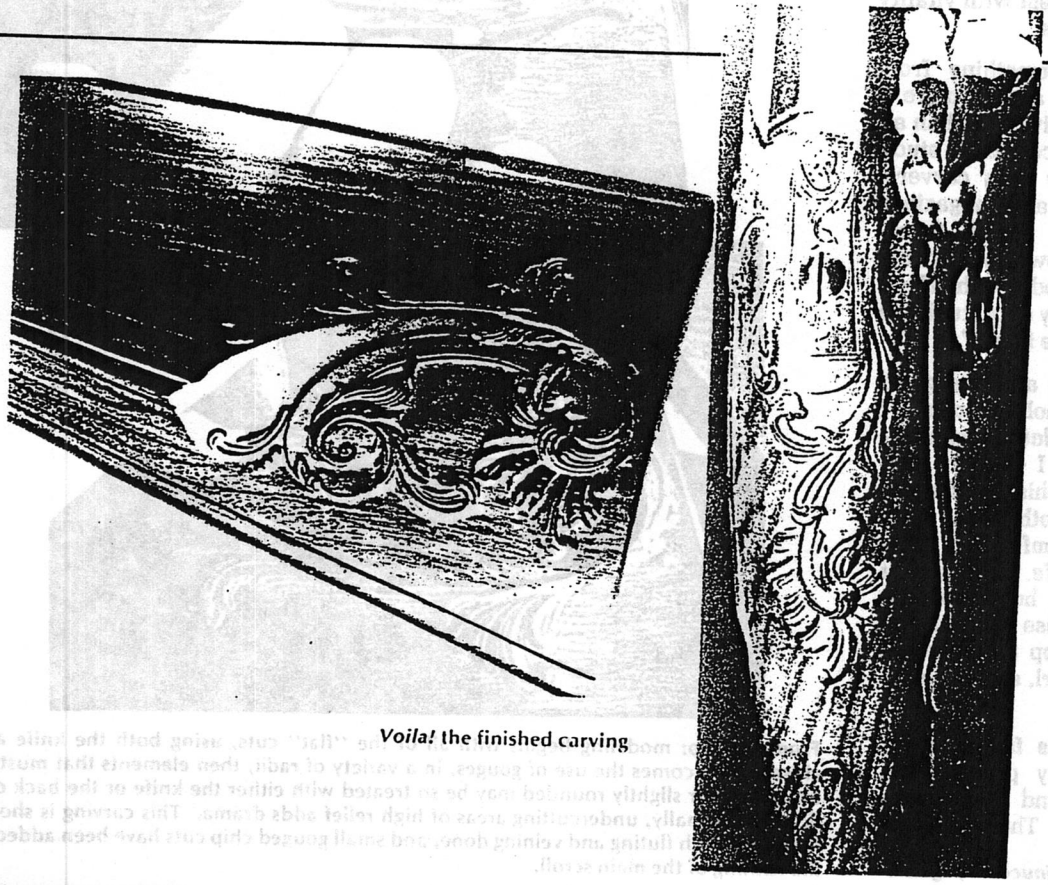




From the top: modeling begins with all of the "flat" cuts, using both the knife and chisels; next comes the use of gouges, in a variety of radii; then elements that must be chamfered or slightly rounded may be so treated with either the knife or the back of a flat chisel; finally, undercutting areas of high relief adds drama. This carving is shown here with both fluting and veining done, and small gouged chip cuts have been added to the ruffling of the main scroll.

Special areas sometimes call for special tools or touches, such as grounding in a tight spot (*above*) with a bottoming tool, notching a large leaf (*upper right*) with a parting tool, and paring the ground of a wrist carving (*right*).



Voila! the finished carving

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leaves and scrolls, however, are not cut just for the sake of having flutes; they should relate to the organic form of the element that is being modeled. Leaves don't necessarily have single big flutes to define them. Rather, they may have smaller flutes on both sides of a single ridge, or they may dip sharply on one side or the other, or the tip may undulate with a flute cut across the leaf. When I'm modeling the hollow areas of a carving, I choke-up closely on whatever gouge that I happen to be using. Care is necessary in running a gouge off the end of a leaf, for it's altogether too easy to snap off more of the edge of the leaf than you can stand to lose. When possible, make such cuts from the edge inward unless you're sure of the cutting quality of the wood.

Veining, which is done with the smallest gouges, is one of those techniques that gives movement and vitality to carved elements, though it can be overdone. Restrained use of the parting or V tool can complement the veiner nicely to identify individual lobes of a leaf and the like. The use of gouged chip carving, quickly done by stabbing a gouge straight down and then picking-out a second angling cut, is another technique that should be used with restraint.

Carving is often most effective when it isn't a solid whirling mass of detail but rather is broken into areas of *condensed* detail. Areas that must be rounded or chamfered — and there are really very few of those in good work — can be pared with a small flat chisel, cutting with the bevel up. Flats should have two to three degrees of bevel on the *back*, both to assist with such delicate paring cuts and to relieve cuts slightly when you're stabbing straight down.

On a relatively high pattern, undercutting is a subtle addition to the work that gives the appearance of even higher relief and adds a bit of illusion to the work, making elements seem to float above the surface. Using a tiny stabbing-in flat tool, I make angling cuts under leaves where appropriate and scrape-out the waste. No more than a sixteenth of an inch of undercutting can add quite a bit of three-dimensional illusion. I use a stiff toothbrush, bearing down hard, to clean loose fibers out of such places, and brush all over the carving vigorously to polish things up.

Good carving should be largely finished with tool cuts. If the carving tools are kept sharp, and the wood being worked is hard and dense, the hollowed areas of the modeling need no other treatment. Large flat areas usually need cleaning-up with gritpaper to remove knife cuts, though judicous paring with flats or shallow quarter-rounds can often do the same job. When I have to sand such things, I generally use 280-grit wet-or-dry paper folded over and avoid like the very plague dubbing-over any sharp edges of leaves and other such elements. Such surfaces can also be scraped, which is likely what the old boys did. Professional carvers avoid sandpaper the way that a classic stockmaker shuns white-line spacers. If you have a broomy area of the stock that just doesn't allow clean flutes, however, wrap a bit of paper around some pin stock and clean the thing up. Clean tool cuts provide some of the life of a carving, so such cheating with gritpaper should be kept to a minimum.

The wrist area of a gunstock is one of the more tedious areas to carve, since there is so much ground to remove. The long "baluster" of the wrist can largely be taken down with the carving knife, though long paring cuts with a flat chisel add speed to the work. Though I stab-in the critical areas of lock moldings, such as the beavertails at the tips of that area, the long and gently curving areas of such moldings — particularly under the stock — can be outlined with a parting tool that is either pushed by hand or lightly tapped along with a mallet. I prefer to use a mallet, since it's faster and seems to provide a bit more control in following the line.

Similarly, the parting tool can be used to cut major notching in leaves; cut the notches before outlining the leaf, to prevent the parting tool from tearing a chunk off the leaf as it passes the edge. For such work, I use only sixty-degree tools, since the ninety-degree parting tools make a cut that is entirely too bold for most applications. In *really* hard wood, the parting tool may be used for both veining and shading leaves and scrolls, though that can be overdone. Fine shading in great profusion is more the mark of nice engraving than it is of relief carving. The parting tool, of course, is also used for incised carving, a technique that I seldom use except for accents. Relief carving can actually be enhanced somewhat by the occasional use of an incised leaf cut-in alongside the relief work and then fluted lightly. Such things can further add to the illusion of depth. Good carving, in fact, makes use of such illusion as much as possible. For carving a gunstock is not like ornamenting furniture — where the carver may have a dramatic depth of wood to cut.

The work is by no means done when you make the last modeling cuts. Finishing a carved gunstock is something of a baroque experience in itself if you don't want to undo all that crisp art that you have so cunningly contrived. Walnut stocks are a particular problem, since the doggone things have to be filled. I can tell you from painful experience that it isn't worth the trouble of trying to fill with the finish alone. You must resort to mud — a pigmented filler, that is. Any high-quality reddish-brown commercial filler will do, particularly one that uses silica as a filler. I use an equivalent of the old Herter's French red for the purpose, and I daresay that it's no better than most anything else. It's all nasty stuff even though necessary.

Before using a pigmented filler, seal the stock thoroughly by slopping-on a thin varnish sealer until the wood takes no more, then wipe the excess off after twenty minutes or so. Use a toothbrush to get excess sealer out of the carving. After allowing the sealer to harden at least overnight, brush-on the filler cross-grain, even in the carving. After half an hour to forty-five minutes, wipe off all that you can, again cross-grain, and brush the goo out of all carving cuts — even if you see that the brush is pulling filler out of the pores as well. You don't want that junk in your carving cuts. I let filler stand for two days if I have the time, since it takes quite a bit of time for it to harden properly.

If it doesn't, you'll just pull it right out of the pores when you wet-sand. Before proceeding with anything else, I brush a second coat of sealer on the stock, taking care not to allow finish to pool in the carving. From this point on, you don't want finish left standing anywhere in the carving cuts or the ground next to raised areas, for you will not be able to get it out after it hardens. It will leave shiny places that look garish; which is why if you *do* allow finish to run into the carving, you must take a toothbrush and get it out before it hardens.

After the second coat of sealer — which is mostly lying on the surface — hardens, I begin wet-sanding. Since the dry stock was left with either a 220-grit or 280-grit finish before the sealing and filling, I wet-sand the first time with 320-grit. I prefer aluminum-oxide paper to carborundum when I can get it, particularly since the grit particles

are more uniform and tend to leave fewer scratches. The 320-grit cuts fast when it's lubricated with sealer, and it doesn't tend to heat the surface enough through friction to cause any filler to loosen. Don't allow that paper to run over any of the carving, though!

After wiping the surface dry with paper towels as I work, I let the stock sit for a few hours, then brush-on another coat of sealer. I use a three-quarter-inch sable for all such brushwork. Finishing proceeds in a standard way after that: wet-sanding a second time with 400-grit wet-or-dry, sealing again, then wet-sanding with 600-grit, taking care all the while to keep finish out of the carving. Final finishing consists of hand-rubbing two light coats of sealer onto the surface to give the carving a bit of gloss in its highlights, while the hollows and ground immediately surrounding the carving are both dull.

If you want even more contrast, you can dust the carving with bone black and then rub the stock down briskly with an old T-shirt. I treat maple pretty much in the same fashion except for omitting the filler.

I am always delighted to talk gunmaking if anyone has questions about any of the techniques that we publish here. I'd very much like to emphasize *talk*, however, since the time that I usually set aside for correspondence is from four to six in the morning, the fourth Tuesday of every third month, and I usually sleep through that, anyway. Call me evenings — 919-748-0275 — and I'll help in any way that I can.

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Bruce Hoadley, *Understanding Wood: a Craftsman's Guide to Wood Technology* (Newton, Connecticut: Taunton Press, 1980).

Pierre Verlet, *French Cabinetmakers of the Eighteenth Century* (New York: French and European Publications, Inc., 1965).

William Wheeler and Charles H Hayward, *Woodcarving* (New York: Drake Publishers, Inc. 1972).

carving tools:

Woodcraft Supply: 313 Montvale Avenue: Woburn, Massachusetts 01888

Frank Mittermeier, Inc: 3577 Tremont Avenue: Bronx, New York 10465