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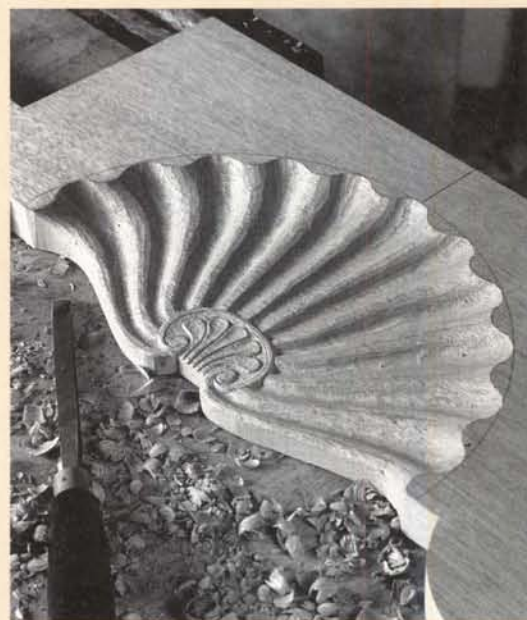
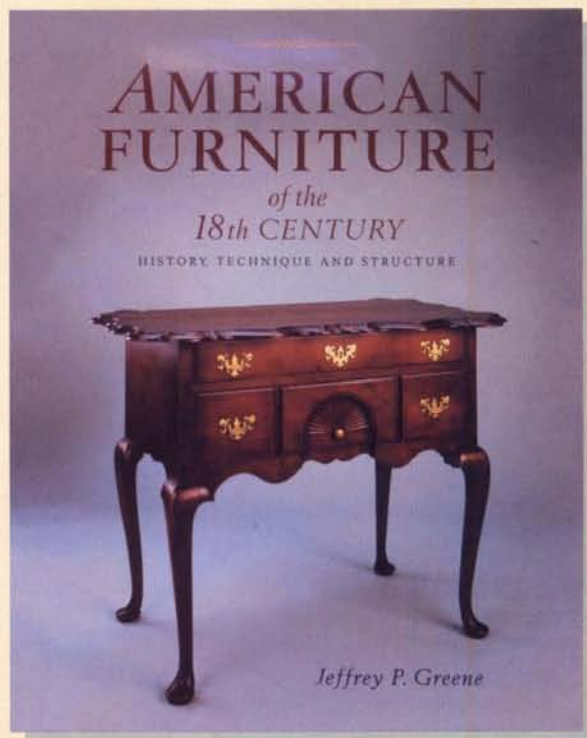
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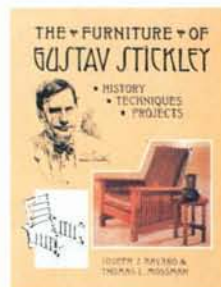
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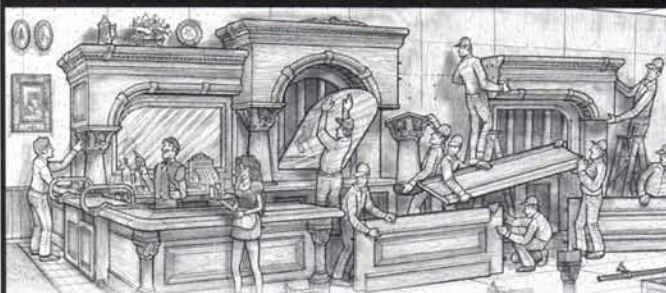
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On the cover: Cabinetmaker Michael Strefler designed this cupboard after an early 19th-century original from his native Germany. See p. 75.
Photo by James Steeves.

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HOME FURNITURE CHANGES: SIX ISSUES A YEAR

You might have noticed a few changes on the cover of this issue. These changes reflect an increase in the number of issues each year and a new price. We will now publish six issues a year. Instead of the seasonal date, we will date our issues with a single month. For example, this issue is October 1996 rather than Fall 1996. The next issue will be January 1997 rather than Winter 1996. Starting with the March 1997 issue, we will publish every other month.

—Timothy D. Schreiner, editor

FURNITURE-PRICE WAR RAGES AMONG READERS

I would like to respond to the letters from Mr. Svjagintsev and Mr. Sartin (Spring 1996). Mr. Sartin in particular states: "When will you take seriously your responsibility to help us learn to price our products as well?" Pardon me, but in none of your subscription offers have I seen this promised. I agree with Mr. Adinolfi. Because of all the different circumstances that could affect a project: from skill level to geographics and so on and so forth you would be undertaking an impossible task. I believe the best and perhaps only method of pricing artisan-made furniture comes from experience. And even then the old-timers will miss on occasion. If they wish to justify their price quote to a prospective client, I suggest they acquire a current catalog of a fine

furniture maker. However, even here a lot of variables can still come into play. I look upon *Home Furniture* as a journal and forum where we can explore, critique, compare and otherwise enjoy and delight in the offerings of our peers. There is also the question of real value versus "perceived value." In other words whatever the traffic will bear. When we create a new piece from one of our designs, a piece where all the harmony of the wood and artist is brought to fruition, we have a one-of-a-kind piece in which price would lie in the eye of the beholder.

—S. Richard Jensen, Minot, Me.

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As one of the many self-taught woodworkers who have benefited from absorbing your magazine, I have to side with the "give us prices" crowd. But I also see the point being made by the opposition.

I have a simple solution to the dilemma: a fax-back service that would be similar to those in use by used tool resellers. Call a number (I would not be opposed to a 900 number with a minimum charge), punch up the issue number and page of the item you would like and then your fax number. Hang up and wait to see what the builder of the piece has to say about the conditions of construction, and the price he or she was able to get for the piece and how they felt about the price.

This solution would satisfy both camps. The prices would be available for those shops who are in need of a price comparison, while leaving the

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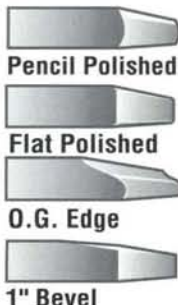
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magazine untarnished by dollar signs.

Many of us are doing business in a vacuum. It helps to have the support of our peers in pricing our work. By seeing the price of these pieces we would have a second opinion on our own estimate. I believe this would: make us more confident in our pricing; reduce our chances of underselling a project; which will in turn make us more profitable; which will in turn allow more time to practice our sketching and design; which will in turn lead us to better craftsmanship.

So please get the ball rolling by setting up a means for readers to retrieve pricing on the pieces that you have presented.

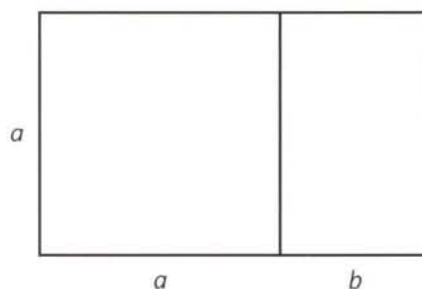
—John Gillis, Tupper Lake, N.Y.

WHEN A PROPORTION IS GOLDEN

Thanks for the fine article on "Designing with Dividers" (Summer 1996). I have admired Timothy Philbrick's work for many years. I read this piece at the same time as I was organizing material for a furniture design course I will teach in the fall at Palomar Community

College. While Philbrick's analysis is sound, he misses a fundamental point that could be of some interest to your readers.

Rectangles with ratios of 1:2 or 3:4 or 5:4 are pleasing enough, but what makes a proportion "golden" is more mathematically fundamental.

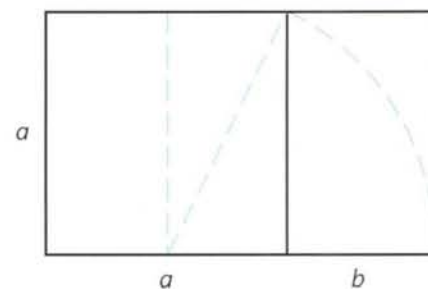


The short side of the rectangle relates to the long side in the same way that the short section (b) relates to the long section (a). In formula: $a/a+b = b/a$.

That is why if $a=1$, $b=.618$, and the proportion of $a:a+b$ is 1:1.618. The golden rectangle thus has an internal harmony which is based upon mathematical function rather than upon external considerations such as taste or fashion.

There is actually an easier method

to find an approximation of the golden section. Beginning with a square, you bisect the base and find the distance from that centerpoint to the upper corner with a compass. You then draw an arc to meet the baseline, thus creating a satisfying proportion:



I will leave it to the mathematicians to decide whether or not this is the same ratio.

—Paul Henry, Carlsbad, Calif.

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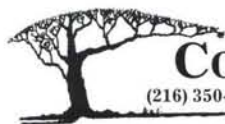
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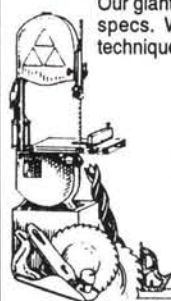
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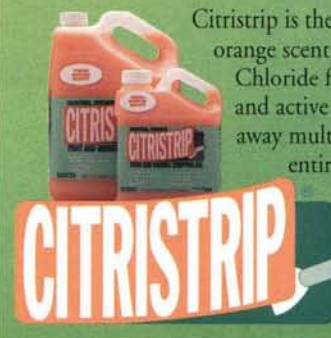
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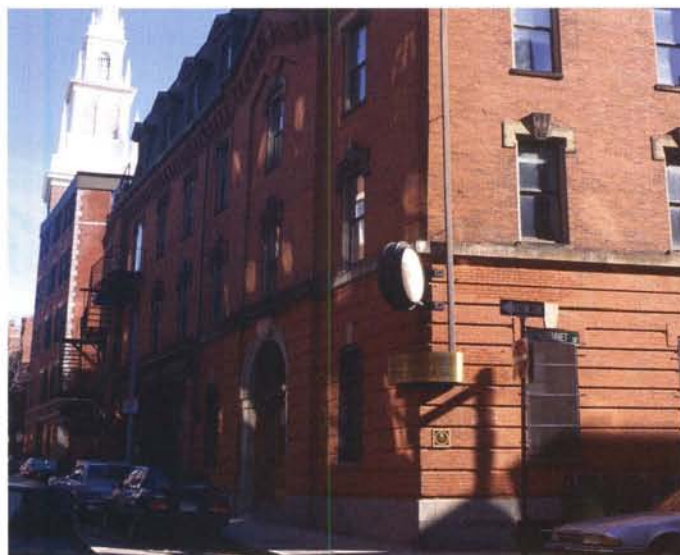
WHERE TO LEARN FURNITURE MAKING, FROM CRAFT CENTERS TO DESIGN SCHOOLS

I am interested in schools for furniture design and building. I have heard of a few here and there. What programs are out there and which would you recommend?

—Glen Ray, Alton, N.H.

There are many opportunities to learn furniture making and design, from weekend workshops to four-year degree programs. Which one is right for you depends on what you want to learn.

For basic technique, community colleges and vocational schools are good places to start. Many schools offer evening courses in basic woodworking. There are also



A century of craft. Founded in Boston's North End in 1885, the North Bennet Street School provides vocational training in woodworking and other crafts.

plenty of workshops sponsored by woodworking stores, guilds and community craft centers. You can absorb a lot in a weekend or daylong seminar, and it's usually an economical way to learn a new skill or hone an existing one.

If you are looking for something more rigorous

and comprehensive, there are many full-time programs to choose from. Among the best-known are the North Bennet Street School in Boston and the fine woodworking program that is run by James Krenov at the College of the Redwoods in Fort Bragg, California.

One of the premier furniture-making schools in the country, North Bennet Street was founded more than a century ago and is a trade school in the old-fashioned sense. It offers courses in carpentry, jewelry, locksmithing, bookbinding and musical instrument-making, as well as its highly touted 80-week program in traditional cabinetmaking. The school also offers seminars and summer woodworking courses.

On a par with (but very different from) North Bennet Street is the woodworking program directed by James Krenov. Nine-months long (although some students are invited to stay for two years), Krenov's program has attracted a devoted following of students who have been moved by his furniture and

Chairmaking in the country.

Students at Drew Langsner's Country Workshops in North Carolina learn chairmaking and green woodworking techniques.



his books. Krenov lectures and works alongside students, building his own furniture. Studying with Krenov is not only a way to learn exquisite technique, but an opportunity to work with (and be inspired by) a recognized master of the craft. To learn more about the school and about Krenov's personal approach to woodworking, read his books and visit the school to see the student work.

For more formal training in design, there are many schools that offer both undergraduate degrees and graduate certificates. Among the institutions that grant degrees in furniture are the School for American Craftsmen at the Rochester Institute of Technology, the Rhode Island School of Design in Providence, the California College of Arts and Crafts in Oakland, the University of the Arts (formerly the Philadelphia College of Art and Design) and Sheridan College of Art and Design outside Toronto. Again, the best way to see whether any of these programs is for you is to look at the student work being done there.

Finally, there are numerous opportunities to learn from established craftsmen who run their own workshops and seminars. Chairmaker and author Drew



Learning from tradition. Each student at the North Bennet Street School builds a chair, a case piece and a table, as well as their own toolbox.

Langsner offers workshops in rural North Carolina, teaching green woodworking and chairmaking. Recent instructors have included the chairmakers John Alexander, Brian Boggs and Don Weber. Another chairmaker and author, Michael Dunbar, runs Windsor chairmaking courses out of his shop in southern New Hampshire. In both cases, small classes of students ranging from novice to advanced levels spend a weekend or week working on a project, and

often get to take home a finished piece.

The Center For Furniture Craftsmanship in Rockland, Maine, directed by woodworker and author Peter Korn, offers numerous classes on woodworking techniques. Recent instructors have included Krenov, Alan Peters, Michael Fortune, and Silas Kopf. The Center offers intensive one- and two-week workshops in all aspects of furniture making and from novice-level skills to advanced. Classes are never

larger than 12 students.

Woodworking programs like those of the Center for Furniture Craftsmanship and Langsner's Country Workshops are also offered by the Anderson Ranch Arts Center (Snowmass Village, Colorado), Penland (Penland, North Carolina), Haystack Mountain School of Crafts (Deer Isle, Maine), and other crafts organizations and individual craftsmen. You can learn an enormous amount in a short time at these concentrated workshops.

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DARKENING OAK WITH AMMONIA

I chemically darkened the white oak used in my "Craftsman-style Wall Cabinet" (p. 56) using ammonia fumes. This is a time-proven process which relies on a chemical reaction between wood with a high tannic acid content (such as white oak) and concentrated ammonia fumes. The quality of the color achieved by fuming is different than that given by any other method. Most stains leave the pores darker than the rest of the surface; fumed oak is a consistent color throughout. The color also goes more deeply into the wood, so light sanding can be done after the fuming and nicks and scratches won't show any lighter wood underneath.

I built a "fuming chamber" out of 1/4-inch plywood joined with duct tape at the corners, making it just large enough for the cabinet with about an inch of clearance. I placed the completed cabinet in the enclosure along with a small tray of ammonia and set a piece of plywood on top. A strong ammonia solution (approximately 30 percent) available from chemical supply companies works best for this, but do heed the warning labels since the fumes are quite toxic. Household ammonia will work but it will take longer for the

wood to darken.

It requires anywhere from a couple of hours to a couple of days to darken the wood and it has taken some experience for me to learn to control the process. Be prepared for a shock when you open the chamber. The first time I tried fuming a piece I feared I had made a big mistake when I saw the greenish-gray color of the wood as it came out of the fuming chamber. It was a great relief to see it turn a beautiful warm brown upon applying the finish.

The finish I used was a home brew of boiled linseed oil, beeswax, turpentine and japan drier. The proportions of this mixture aren't critical. I use approximately two parts of linseed oil to one part turpentine. The amount of japan drier depends on the quantity of finish you are mixing (just follow the directions on the can). I just add chunks of beeswax by eye. I mixed the ingredients together, heated the mixture to melt the beeswax, then brushed it on heavily while still warm. I left it overnight and then wiped off the excess.

Because this cabinet is a decorative piece, I didn't feel that it would need a thick finish for protection. As I recall, it only got one coat, but that was enough to

Fumed oak cabinet. Rather than relying on a stain or finish to darken the wood, the author fumed this oak cabinet with ammonia.

bring out the color and give the wood a dull sheen that seems perfectly at home with the quaint nature of the cabinet.

Although this finish has worked well for me, I now use a linseed oil and beeswax finish called "Tried and True" developed by another cabinetmaker, **Joe W. Robson** (14 Prospect St., Trumansburg, NY 14886; 607-387-9280). This finish produces a similar look but builds more quickly and offers more protection. It also saves time. ("Tried and True" is also available from **Garrett Wade Co.**, 161 Avenue of the Americas, New York, NY 10013; 800-221-2942.)

—Gary J.W. Spykman

MILK PAINT: A VERSATILE FINISH AND EASY TO APPLY

We used milk paint on our "Painted File Chest" (p. 48) to produce a deep red color. Milk paint became popular in this country in the 1800s as a durable and affordable alternative to imported paints. It was made from natural earth pigments and lime with

milk products as a binder. Today, milk paint is available in either a powdered form (you mix it with water) or in a pre-mixed form.

We prefer the ease and safety of pre-mixed milk paint and we often used Stulb's Old Village "Buttermilk" paint which comes in about 20 colors, all reproductions of paints used in colonial America.

Unlike enamels and satin finishes that impart sheen, milk paint can appear from flat to a velvety matte. On pieces that will get a lot of use, we recommend a protective coat of oil or varnish to prevent scuffing (especially for things like table legs). Without any coating, milk paint shows up scuff

marks quite easily, but they can be removed with a damp rag.

Milk paint can be applied easily with a foam brush and generally covers in one coat. It also can be thinned with water for a more transparent color, or layered and sanded for an aged finish. Since it is water-based, and therefore tends to raise the wood grain (especially on softwoods), we like to spray the pieces with water first, then sand before painting. On our file chest, we mixed two colors—Stulb's Salem Red and Blanket Chest Red—and applied two coats before finishing the piece with a gel varnish.

—Daniel and Patricia Moses



Sliding on paraffin. Nothing but paraffin comes between these drawers and the drawer pockets they slip into. The insides of the drawers are lightly finished with shellac.



Milk, no sugar. A mix of two different red milk paints produced the the deep color of this cabinet. A top coat of gel varnish protects the surface.

FINISH TO MAKE A DRAWER SMELL GOOD AND SLIDE EASILY

I take a minimalist approach when I finish drawers like those in my "Silver Chest" (p. 68). I lightly coat the inside with shellac polish and use nothing but paraffin on any surfaces that will contact the drawer pocket. I don't use mechanical slides, so the drawer *is* the slide; finish means friction.

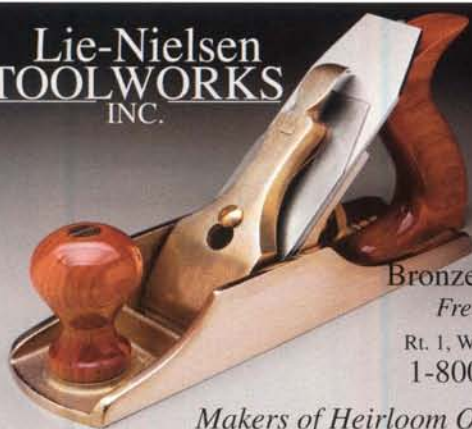
I put two coats of shellac polish on all the interior surfaces and on the drawer bottom before assembling the drawer. Shellac polish is ordinary shellac thinned with alcohol until it no longer gets sticky when rubbed between finger and thumb. Once it's dry, I sand with 400 grit sandpaper and finish with Goddard's Cabinetmaker's wax. Because the shellac dries almost instantly, it only takes a few minutes to complete a drawer. This produces a soft, matte finish that also smells great years after

it is applied. I use the same finish on any surfaces that are closed in. Oil and lacquer produce a strong rancid smell in an enclosed space like a drawer. I finish the outside of the drawer front to match the rest of the piece.

I never put finish on the outside of the drawer sides, which would most likely get gummy over the years. After assembling the drawer and planing it to fit, I rub paraffin on the outside and the bottom of the drawer sides and on surfaces inside the drawer pocket that it will touch. I buy the paraffin in sticks at the grocery store; it's the kind used for sealing jars. I simply rub the stick over the drawer surfaces. It doesn't go on evenly, so I use 0000 steel wool to rub it in and polish it smooth. Then I buff it with a cloth and the drawer is finished. This is not a fix for a drawer made badly to begin with. The paraffin is just the icing on the cake.

—Paul Harrell

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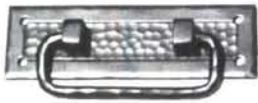
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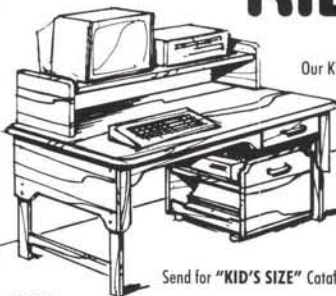


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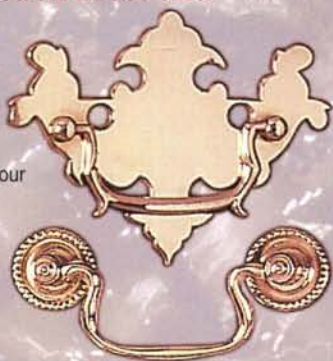
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Evolution of a Chair

A contemporary chairmaker
expands the Appalachian tradition

BY BRIAN BOGGS





Converting a log into something light, strong, beautiful and comfortable is a challenge chairmakers have dealt with for centuries. After all this time, many of us are still searching for a better way to make a tree fit the human body. I started getting caught up in this search about 13 years ago after reading *Make a Chair from a Tree* by John Alexander. Since then I've made more than 800 chairs in dozens of forms, im-

proving my designs as my eye and skills developed. I concentrate on one model at a time, changing the design gradually and continually developing my style. Because I keep a fairly narrow focus, each chair builds on the discoveries I made in the ones before. My latest chair, although it may look like a departure, comes right out of its predecessors. And the story of its design describes the course of my career.

A chairmaker's progress. Over the last 13 years Brian Boggs has developed a striking personal style. His new fan-back chair, far left, shows his ability to move traditional chairmaking forward without leaving it behind. The other chairs, from right: an anonymous Appalachian chair made early this century; Boggs's first chair, made in the traditional style; one of his first arrow-backs; and his current ladder-back.



Bowing arrows. This arrow-back chair, with its back posts running far past the top rail, led Boggs to try a crest rail that capped the posts in his new fan-back.

AN APPALACHIAN APPROACH

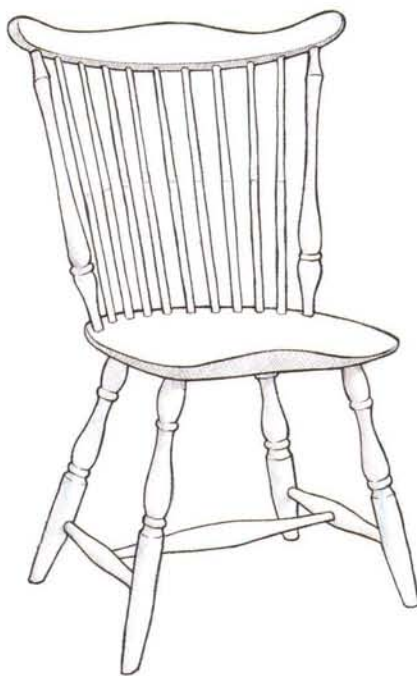
When I began building chairs I was living in the Kentucky countryside with virtually no money and few tools (none of them electric). My wife, Pat, was expecting our first child. So I stepped into traditional chairmaking in a most authentic manner, inspired by good instruction and motivated by dire need. I worked with what I had, even when it meant that my first mortises were chopped with a sharpened screwdriver. But I began to learn how a traditional Appalachian chair was made and why.

Many early makers of Appalachian chairs weren't necessarily full-time

furniture makers. Chairmaking was just one way to pull in a little winter income. Consequently, the process and designs stayed simple and were little affected by fashion. Using green wood—from a fresh-cut tree—offered numerous advantages. Green riven wood is very quick to work with hand tools, and the strength of the straight grain stock that results when you rive the wood allows parts to be cut thin, making for a flexible frame that enhances comfort. Another great advantage, particularly in a chair, which must absorb terrific dynamic stresses, is wet-dry joinery, which pairs slightly damp legs with bone-dry rungs. The tenon on the dry rung is sized to the wet mortise and then assembled. As the moisture content in the two approaches equilibrium, the mortise shrinks and the tenon expands, making a joint locked so tight it needs no glue. And if properly made, it is less susceptible to failure over the long haul than a glue joint in dry wood. These old advantages form the foundation for all my chairs.

TWO OLD WAYS TO BUILD A CHAIR

FAN-BACK WINDSOR



The seat is the foundation of a Windsor chair, anchoring the back above and the legs below.

POST-AND-RUNG LADDER-BACK



The back legs, or posts, are the foundation of a post-and-rung chair. The seat is woven over the top rungs.

THE WINDSOR INFLUENCE

After I'd made a hundred or so Appalachian post-and-rung chairs, I took a two-week workshop with Vermont chairmaker Dave Sawyer to learn how to make Windsor chairs. Sawyer, who formerly made post-and-rung chairs, is one of the finest Windsor makers around.

While Windsor and post-and-rung chairs require many of the same skills and rely on round joints and shrinkage of the wood for joint strength, they are fundamentally different in their design. In Windsors a thick wooden seat separates the back and arms from the legs. The slab seat anchors all the back supports, including the spindles, which are made thin so they flex with use for comfort and to absorb stress. The legs get socketed into the seat as well, and are splayed to ground the chair firmly.

In post-and-rung chairs, in contrast,

the rear legs, or posts, are continuous from the floor to the top of the back, and they anchor the stress of both the back and the lower base. Both the Windsor and the post-and-rung have proven their success for centuries.

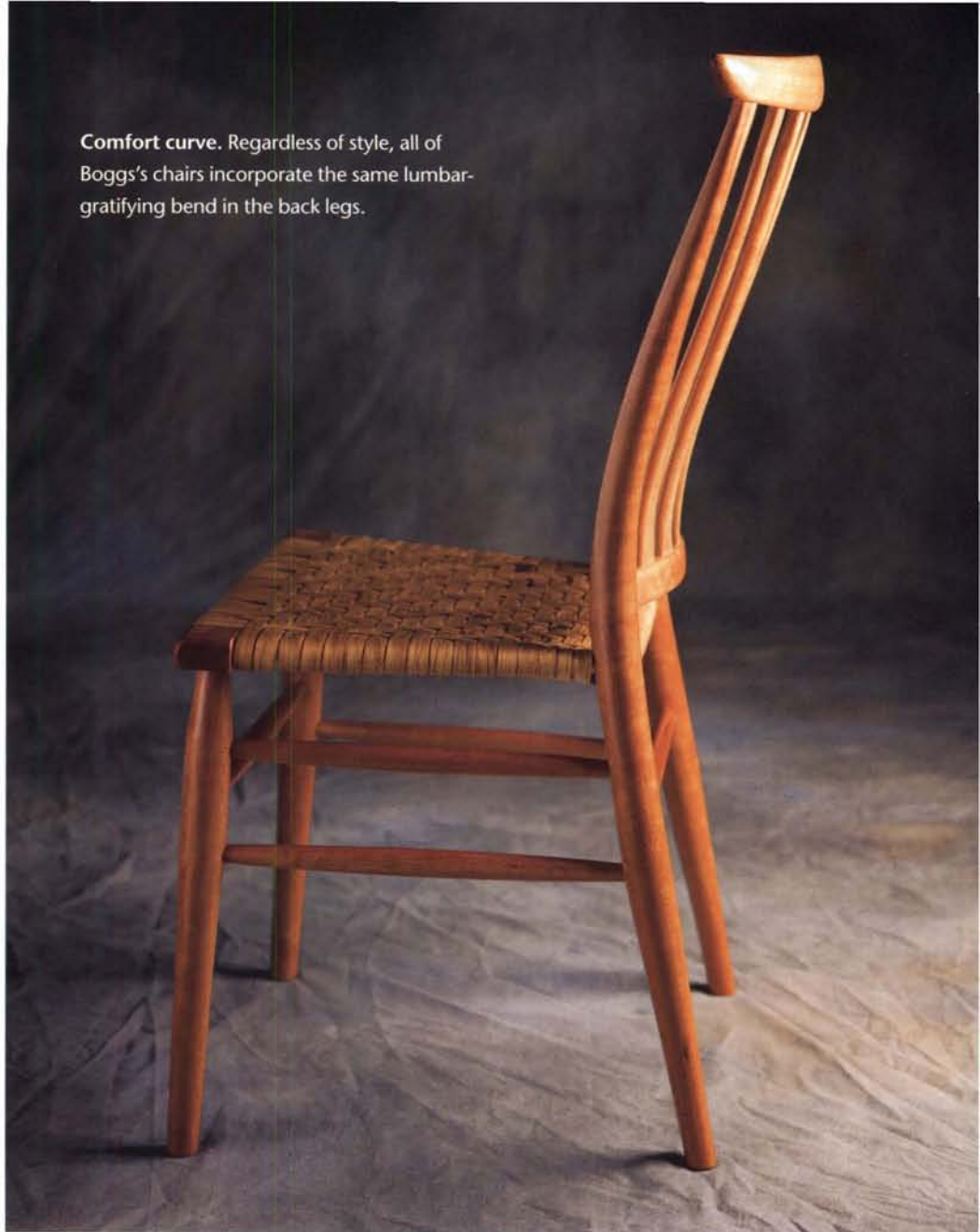
Working with Dave Sawyer was an excellent experience and a great introduction to working with compound angles. But about 20 chairs later, I realized that it was too much for me to offer both Appalachian post-and-rung chairs and Windsors. Choosing between them was difficult, but I felt more at home with the Appalachian style. I didn't want to drop everything I had learned with Dave Sawyer. I liked a lot of things about Windsors, especially the splayed legs and the vertical lines in the back. So I decided to incorporate those features into my post-and-rung chairs.

FINDING COMFORT IN A BANNISTER

My attempt to merge what I liked in Windsors with post-and-rung chairs resulted in what I called an arrow-back (see photo facing page). I had looked through some books of antique furniture to see what had already been done with this idea and found bannister-back chairs with steam-bent vertical back supports and splayed legs built in the 18th century. I adapted these forms in my arrow-back.

A big advantage with this design was that I could easily adjust the exact location of the lumbar support. I bent extra long spindles to a shape that felt good on my back. Then, in a dry-fitted back frame clamped to a stool, I taped the verticals to the back and adjusted them up and down until they felt just right on my back. When I built the chair this way, I discovered that almost everybody found the same curve comfortable. Once I had this right, I bent the back legs for all my future chairs to the same curve, whether I was making a ladder-back, woven-back or arrow-back. I even did this with an early set of bird-cage

Comfort curve. Regardless of style, all of Boggs's chairs incorporate the same lumbar-gratifying bend in the back legs.



Windsors. In fact, virtually any chair can be designed to incorporate these curves to greatly increase comfort.

Applying these curves to my ladder-backs not only improved their comfort but gave them a bit more pizzazz. Building the chair essentially around the human form really brings it to life, and adds warmth to the straight-lined architectural environment most folks call home.

A BETTER PLACE TO SIT

With the backs of my chairs getting more comfortable and more refined, a

problem with the old seat construction became clearer. Following the example of centuries of Appalachian chairmakers, I had been weaving the seat over a top set of rungs. And as in the old chairs, the tops of the front legs stuck out above the seat. This kept the top rung joints away from the end of the leg, where it would be susceptible to failure; but it also meant the protruding leg always poked you in the thigh.

I had seen another construction on some early Queen Anne and Chippendale chairs that I thought might



Tying back and base together. Rounding the backs of the spindles made a visual link with the rounded legs and rungs.

solve this problem. It had a flat rail at the front instead of a rung, a piece thick enough to contain both the tenon at the top of the front leg and the tenon of the side rung. I decided to try out something similar on one of my ladder-backs.

In addition to converting the front rung I made the side rung a rail as well and gave it a rectangular tenon. I made the tenon long enough so the leg tenon came up through it, locking the side rail in place (see drawing facing page). I cut a step into the leg tenon to give it more resistance to stress without resorting to a larger tenon that would have weakened both the side rail tenon and the front rail.

This new arrangement made my chairs stronger and made them look a bit more refined. It increased the comfort in two ways, first by removing the protruding legs and second by putting the side rails in the same plane as the front rail, making the seat less slung. When I saw how well the seat worked on my ladder-backs, it migrated to all the other chairs I built.

A MORE FORMAL CHAIR

A year ago, a woman who admired my ladder-back chairs asked if I could make a set of chairs that would have the same spirit but be more suited to a formal dining room. I decided I would do an update of my old arrow-back chairs, incorporating the new seat I'd developed for the ladder-back.

There were a couple of details on the arrow-back that I wanted to improve. One was the arrows themselves, the spindles. I liked their shape, which is traditional, but I wanted something more contemporary. Another was the offset where the verticals met the top slat. This ridge hit the shoulder blades of tall customers, interrupting the continuous comfort of the arrows. It also created a visual interruption in the flow of the back. One more thing to change was the way the posts continued past the top slat. I thought it

made the chair look too tall.

For the contemporary feeling, I tried using straight-sided spindles. The first ones I mocked up were straight-sided, parallel to each other, and rectangular in section (see bottom photo facing page). There was something interesting about them, but they seemed fat and clunky in contrast to the rest of the chair. After several more experiments on the dry-fitted mock-up, I arrived at the current design, with the spindles tapered and fanned (see photo at left). To make them flow better with the chair's rounded elements, I rounded the back of each spindle while leaving the front flat. This made them look thinner and more organic, and produced a single line at the side, something I'd admired in Sam Maloof's chairs.

Eliminating the offset between the arrows and the back rails meant using different joinery. In my old chairs, the arrows slipped full thickness into the mortises in the crest rail. To produce spindles and rails that were flush, I put shouldered tenons on both ends of the verticals. To fix the problem with the legs extending too high, I borrowed from the past again and made a crest rail that extends over the legs like a fan-back Windsor.

STYLE MEETS TECHNOLOGY

I have always tried to work as much as possible by hand as I build my chairs. This is partly because I enjoy working simply, but also because I think that to understand traditional chairmaking you must understand the traditional ways of working wood. But I find that some designs are just impractical to build by hand. Adding routers and other power tools to my operation has enabled me to build fresh versions of old chairs efficiently and have plenty of time for hand work, too. In this new fan-back, for example, I wouldn't consider cutting the shouldered tenons on the spindles by hand. One pass with a router cuts them all at once in perfect alignment. Then,

with the router quiet, the organic flow of swells and curves in the back is a good home for handwork.

A BARK SEAT

The rustic look of a woven bark seat is one element in my chairs that keeps coming into question as I refine my designs. As an alternative, I have made seats with woven cloth tape, and I made one set of ebonized fan-backs with a padded leather seat. I also have plans for using real rush on my new designs. A carved wooden seat is also in the works.

So far, however, all these diversions have only served to reinforce my love affair with hickory bark. It is very strong and makes a comfortable, resilient seat. I love the way it looks, and it gets more beautiful with age. And I like the way it ties me and my chairs to the Appalachian tradition (for a description of harvesting hickory bark, see *How They Did It*, p. 96). Bark was used by indigenous tribes for baskets and lashing material, and by early white settlers as harness material, substituting for leather. A logging friend told me he has used hickory bark to pull his log truck out of a mud hole when he didn't have a chain. Bark can substitute for many things—but it's hard to find a substitute for bark.

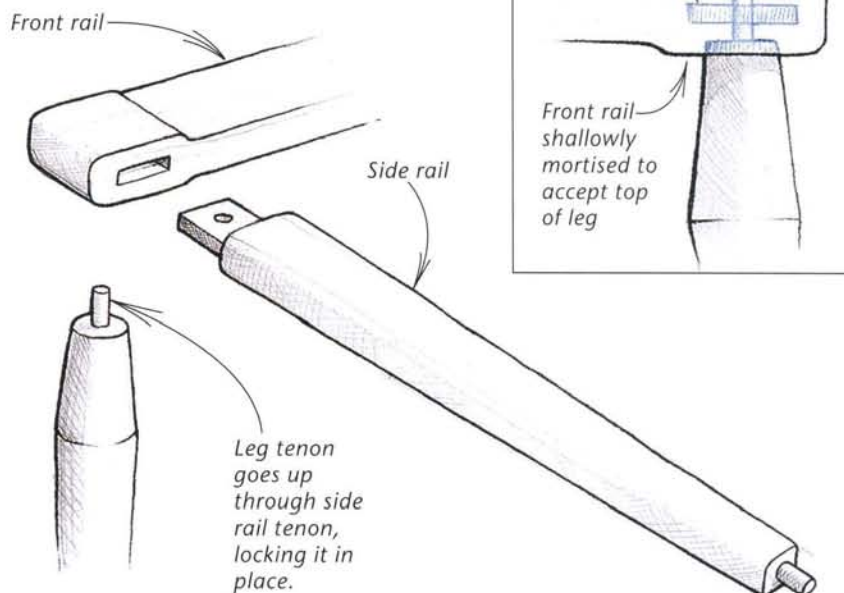
I'll keep looking, but I think I'll always have a preference for bark. Bark seats are one of the things that attracted me to this kind of chairmaking to begin with. Besides, I just want to push the Appalachian tradition a bit, not leave it behind. ■

Brian Boggs is a chairmaker in Berea, Ky.

Fan-back unfolding. Boggs designed his new chair by mocking up the back; the base stayed the same as his ladder-back's. This early mock-up shows thick, straight-sided spindles, rectangular in section.

A STRONGER SEAT

Boggs's frame seat, inspired by Queen Anne and Chippendale examples, eliminates the protruding front leg that compromises the comfort of traditional post-and-rung chairs.



Architectural Ornamentation

Borrow the best from classical buildings

BY MARK BELLONBY



*f*urniture design has long been influenced by architecture. Break-fronts are often reminiscent of formal classical building facades. Pilasters with capitals often flank the doors or drawers of a *secrétaire*. Pediments and cornices top many cabinets, giving them a look of miniature monuments or temples. As a standard practice in the 17th century, German cabinetmaker apprentices were required to make pieces of furniture in the style of buildings to teach them the beauty of architectural proportion and detailing.

As a practicing architect, I have always been fascinated by some of the repeat-pattern relief designs on old stone facades. One of my favorites is the flowing wave motif seen on many buildings from the late 19th and early 20th centuries. When I needed a carved border design for the backboard of a glove table I was designing, I decided to use the wave decoration. It seemed the perfect accent because the table backboard featured a scallop shell above a pronounced ebony “waterline.” As a basic motif, I found the wave to be an appealing and flexible geometric form, one that could be adapted with a modern twist for use on a contemporary piece of furniture.

LOOKING FOR A PATTERN

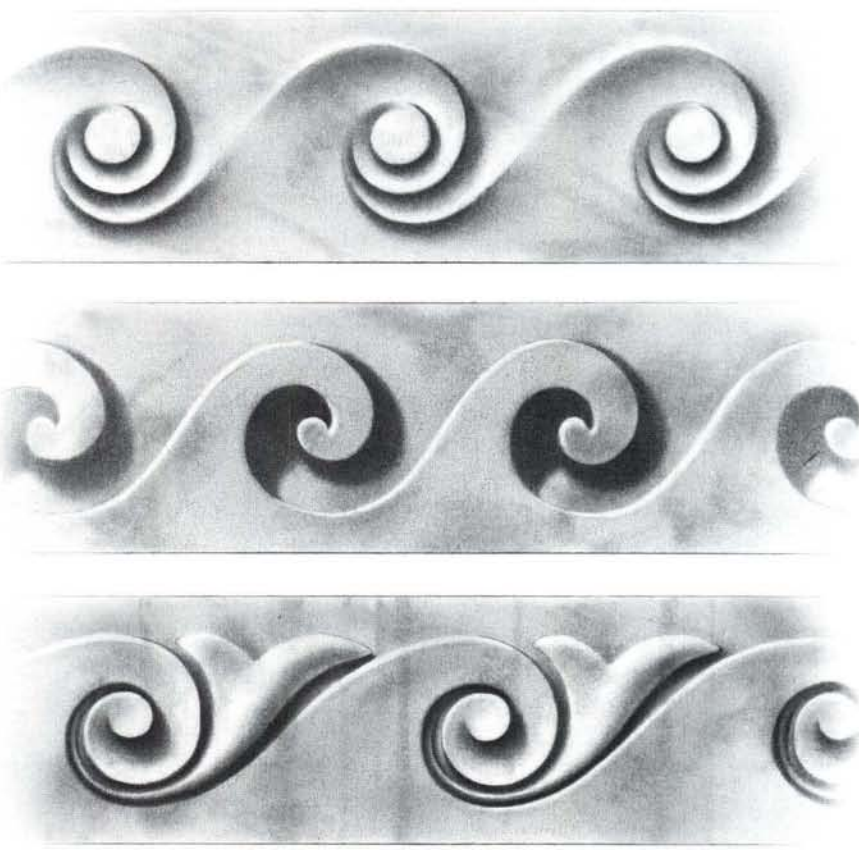
To find my wave, I made a brief photographic survey of some examples in the downtown area where I work in Washington, D.C. The city has many fine traditional neoclassic buildings, and it was not difficult to find graceful examples of the repeat wave pattern, many of them not far from the White House. The National Gallery of Art, the

Architecture and furniture design meet.

The author used architectural decoration on his glove table. Pediments, moldings, friezes and reeded pilasters are often borrowed from buildings for use on furniture.

FURNITURE DETAILS ON A FACADE

The author found several examples of a favorite style of ornamentation near his office. The evolute spiral band, which resembled a wave, fit the subtle nautical theme of his table. He chose the complex pattern shown in the bottom drawing.



Renwick Gallery, the recently renovated Evening Star building, the Department of Commerce and the American Bar Association building are all prominent buildings adorned with variants on this spiral theme. The border patterns on these buildings are elegantly proportioned. The Renwick Gallery has the most straightforward relief, a flat diagram with little shaping and detail. Its simplicity gives it graphic strength. The National Gallery has perhaps the more elegant example, a cast bronze grille at the entryway with a leaf-and-flower configuration closely related to the wave.

My preference, however, was for a limestone entablature at the second level of a somewhat worn and ordi-

nary neoclassic structure that formerly housed the basement Chinese restaurant where I often ate lunch. Most surfaces of this relief are sculpted, with precious little flat surface. The profile on my glove table is similar to this example. I chose a less modeled carving, because my backboard allowed for only a narrow carving band and I wanted enough plain surface so that it was compatible with the tabletop.

SOME ORNAMENTATION DATES TO ANTIQUITY

What I call “the wave” had been captivating architects and furniture designers for centuries before I noticed it outside the Peking Restaurant. It is a pattern traceable in many variations to

Catching a wave. A survey of patterns on buildings produced a wide variety of wave motifs. The moderately complex example used on the table leaves some flat surface to mimic the tabletop.

1990s Etch-A-Sketch. A computer aided duplication of the wave and produced a full-size sketch, which helped the author carve a mock-up and eventually the real cherry backboard.



ancient civilizations, and probably wasn't symbolic of water originally, but was simply an abstract geometric design. One book in my architectural library shows it in the forecourt of the tomb of Agamemnon at Mycenae, which dates to 1325 BC. A version even appears more than 1,000 years earlier as the common "rope and feather" ornament of Egyptian bas-relief stonework and painted decoration.

Fourteen similar relatives of this pattern, called "Evolute-Spiral Bands," are shown in the *Handbook of Ornament*, first published in 1888.

ANTIQUE DESIGNS MADE EASY BY MODERN COMPUTERS

As a 16-year-old student at Hill School in Pottstown, Pennsylvania, I had the privilege to study under Carl A. Pacanovsky, who was a Slovakian altar

carver in his youth. Other schools had mechanical drawing classes. We studied furniture design. We were expected not only to produce plan, elevation and isometric drawings but also to build the piece. It was great training and I use it today, although now my final designs are worked out on a computer. I use a drafting table in the early conceptual phase of designing buildings and furniture. Nevertheless, much of the tedium of drafting already defined concepts can be alleviated by thoughtful use of computer drawing. For example, in the development of my glove table design, once I got one wave design I liked it was easy to repeat it again and again.

Computer drafting also allowed me to develop half of a symmetrical front elevation, then "mirror" it to create the other half. But perhaps best of all, the computer permitted me to quickly duplicate individually intricate decorative items such as the scallop shell and the wave motif, and to rescale each until the best size resulted.

DETAILS MUST ACCOMPANY GOOD BASIC TABLE DESIGN

The composition of the glove table was well developed before the wave design for the backboard was even started. The top was planned in a shallow arc with a rounded edge detail so that the table could fit in a narrow hallway. I decided to grace the front with three drawers—two for

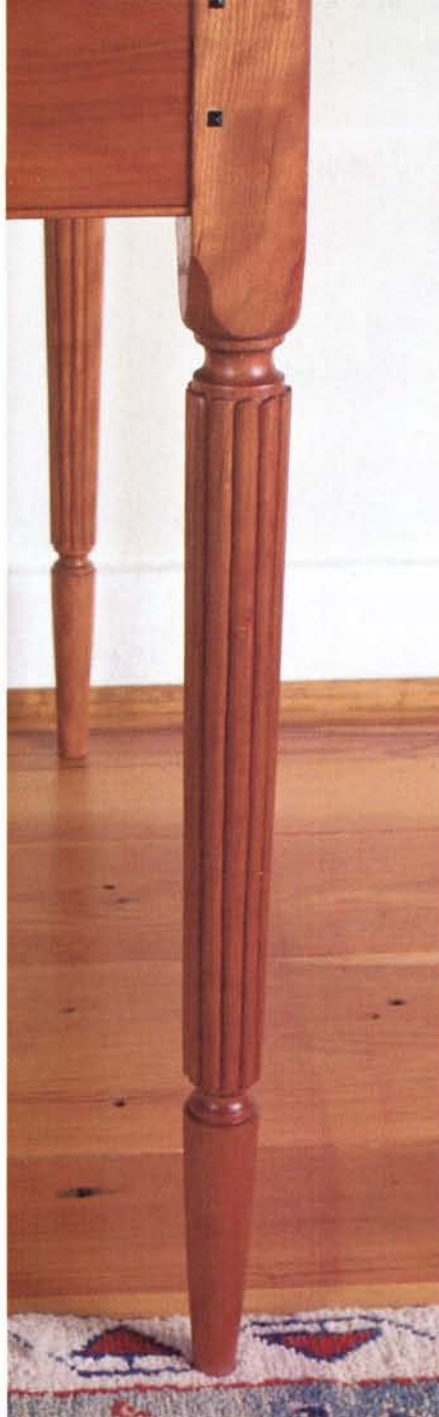
gloves, one for keys—and the back with a backboard to keep mail and other small items from sliding off. The first version of my hallway table was more rectangular and modern than the final one. The final version had a more traditional expression, one that has some resemblance to Sheraton tables of the late 1700s because of the reeded legs—another architectural element often borrowed by furniture makers.

I kept joinery design highly traditional with pegged mortise-and-tenon joints where the sides and lower front rail meet the legs, and doubled-dovetail joints connecting the upper rail to the legs. I finished it with several rubbed coats of tung oil and varnish that highlighted the depth of the curly grain figure in the top and kept the carving from being overly shiny.

DESIGN SUBTLETIES UNIFY THE COMPOSITION

Just as in furniture, successful architectural facades are unified by good design techniques. Horizontal moldings can visually tie together strong vertical elements such as piers or columns. Small moldings on windows and doors can reinforce the form of a larger cornice above.

I spent considerable time working at the compositional unity of the glove table, because I believe that many furniture designs fail to connect disparate elements. My leg reeds in part relate to the lobes of the scallop shell above them. The curved ebony waterline molding at the backboard top brings the eye to the carved band below, and causes the shell to float above. The dark molding terminates with a small scroll flourish atop a cherry block that aligns with the leg below. To reinforce the ebony at the waterline, curved ebony inlays on drawer fronts provide a backdrop for the polished brass pulls. The pulls were chosen for their scalloped profile, which mimics the shell above and reeds below.



An architectural leg to stand on. The table's Sheraton-like legs borrow from reeded columns, which, like the wave pattern, are also borrowed from architecture.

A nautical theme. The backboard of the glove table features a carved scallop shell floating on an ebony waterline atop the carved wave.



A MUTUAL INFLUENCE

Architecture and furniture are related more than is often recognized. I believe that both are arts constrained by functional requirements, which may be celebrated or hidden by the designer. Often the two arts are thoughtfully synchronized, as in the work of Charles Rennie Mackintosh, Frank Lloyd Wright and Gerrit Rietveld. Sometimes they meld completely, as in the Califor-

nia houses and furniture by architects Charles and Henry Greene.

Usually, if there is any borrowing to be done, furniture design accepts a loan from architecture—as in my glove table. But New York City's contemporary AT&T building with the Chippendale top shows that the influence can flow in both directions. ■

Mark Bellonby is a Washington, D.C. architect.



Pushing the cabinetmaker's art. With its serpentine facade and stunning marquetry and carving, this reproduction of the historic Holmes bookcase is smaller than the South Carolina original (photo on opposite page) but certainly no small undertaking.

A Cabinetmaker's Dream

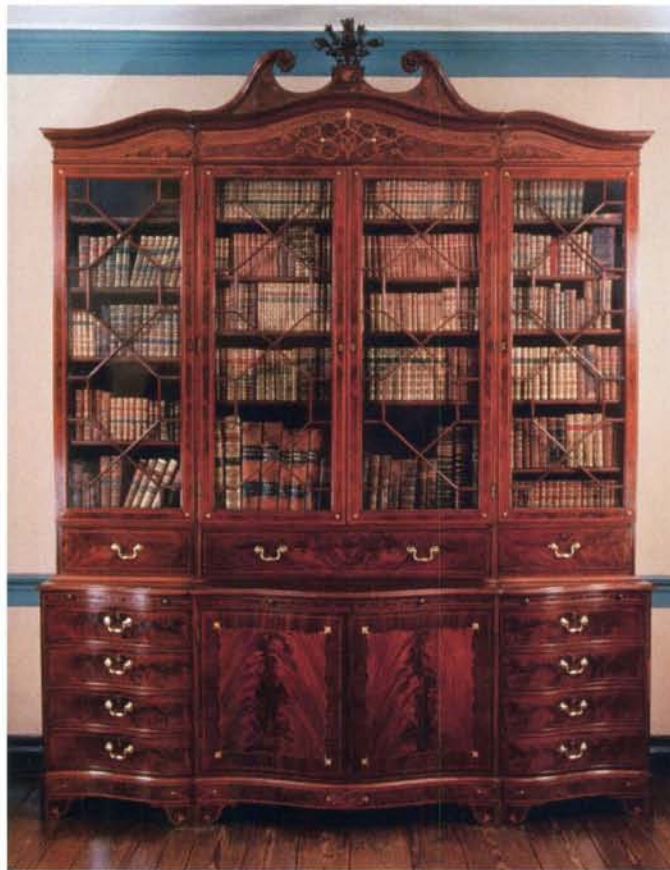
Building the Holmes bookcase is as much a challenge today as it was 200 years ago

BY DOUG MOOBERRY

Years ago, while on a trip to Charleston, South Carolina, I marveled at the craftsmanship that I saw there—wonderful entrances, carved mantels, ornate windows. But what caught my eye most of all was a piece of furniture, a library bookcase built in the 1770s by a craftsman unknown. It was the Holmes bookcase, one of the most stunning pieces of cabinetmaking I had ever seen.

Much later, when a couple who had been interested in our work asked us about dining room furniture, my thoughts returned to that grand old bookcase. The clients had in mind a cabinet to store and display silver, something bigger than a sideboard, and a fancy bookcase seemed just the thing. But a commission like this had to be approached in just the right way. "The

museum at Yale has a nice library bookcase," I suggested. "There are some good English designs from Chippendale." Pause. I had on my lap a copy of Milby Burton's well-known book on Charleston furniture, which has a picture of the Holmes bookcase on the frontispiece. "Then there's this Charleston piece."



A mahogany colossus. The original Holmes library bookcase is spectacular not only for its size (11 feet high) but also because of its superb craftsmanship and detailing.

THE NEWPORT OF THE SOUTH

The Holmes bookcase says as much about the city of Charleston as it does about the craftsmen who made it. Like Philadelphia, Boston and Newport, Charleston in the 1700s was a thriving port city and a destination for European cabinetmakers eager to cater to the growing business class. Standing 11 feet high, the bookcase is considered one of the finest pieces of American furniture ever made. It is a form taken

right from Thomas Chippendale's design book, *The Gentleman and Cabinet-Maker's Director*, a hugely influential sourcebook for 18th-century furniture makers in America.

The design from the *Director* reflects the balanced, stoic symmetry of Pompeii and Herculaneum, the architectural remains of which were being

Some details had to go. In scaling down this piece, marquetry had to be rearranged or eliminated, as in the case of these inlaid flowers in the scrolls on the original (right).



Miles of marquetry. Nearly every surface on the Holmes bookcase has some form of decoration. The reproduction bellflowers in the pediment (above) are made to resemble the original ivory (right).



unearthed in the 18th century to inspire a generation of designers, among them Chippendale. The craftsmen who made the Holmes bookcase used the Chippendale drawings as a start and added curves, marquetry, inlay and color to temper its enormous size. The serpentine facade invites the eye to investigate other features, like the floral and geometric inlay framing the figured veneers. Ivory inlays and the rippled hand-blown glass add color and texture. The magnificent cartouche, or central carving, in the pediment—in this case a carved basket of flowers—reflects an agrarian theme relating to the local economy. To us, as cabinetmakers, this piece is spectacular, its technical artistry as challenging today as it was 200 years ago.

A MATTER OF SCALE

In the Heyward-Washington House in Charleston where the Holmes bookcase stands, we arrived one day with cameras, tape measures and drawing tablets. Steve Latta (who was going to take the lead in building the reproduction) and I were left alone with the bookcase. We had made a number of Chippendale pieces over the years, but this was to be by far our greatest challenge. Sunlight reflected off the mahogany and the grand antique seemed to say: "So you're ready, are you?"

Our first task was to scale the case down to 8 feet to fit in the clients' home. The original, built for a library, had a central desk which we decided to leave out. Our cabinet would have three sections: the base, which has pullouts for serving; the center cabinet of glass doors; and the elaborate, flowing pediment.

Back home in the shop, Steve played with numbers. Our first plan—removing the desk section and reducing the remaining sections by an equal percentage—seemed deceptively simple. After scaling everything down, we realized that the pullouts would be too low for serving. To make up for this we had to borrow height from other



Crafting a cartouche. Some of the foliage in the original basket (below) may have been replaced. Carver Kevin Arnold had to research the form before carving his version at left.



places, drawing each section in detail to save inches without upsetting the stately proportions of the original. Every surface has decoration, so scaling down (if possible at all) meant removing or rearranging inlay patterns and marquetry. We were trying to squeeze a great painting onto a smaller canvas; we hung our drawings on the wall, each time stepping back for a finer critique.

THE WORK OF MANY HANDS

An extraordinary antique such as this was not the product of one lonely craftsman. Cabinetmakers in colonial America routinely farmed out specialized jobs, like carving and marquetry. In reproducing this masterpiece, we worked much the same way.

Kevin Arnold, our carver, tackled the pediment, reinventing the cartouche because the original foliage seemed to be missing (cartouches tend to be delicate and break easily). After trips to the Winterthur Museum in Delaware



Improved, not just new. The serpentine doors were the only feature made in a new way. To keep the veneer from cracking, the doors were laminated rather than coopered out of solid wood.

and consultation with period experts, Kevin copied the basket and rose from the original but made it smaller. He used acanthus leaf foliage—a common appointment of the period—because we felt it harmonized with the classical features of the bookcase.

Like the carving, the marquetry on the original probably had been subcontracted to a specialist and the quality of the work was exceptional. Steve

made sample after sample; each time the flowers got a little better, the geometric patterns a little tighter.

Fitting the blown glass—made in Germany—was no less a challenge. Hand-blown glass is neither flat nor of uniform thickness, which makes cutting it a delicate task. With our deadline around the corner and the extra glass we ordered still in a warehouse in Germany, we coerced a friend, John

Rush, to cut and fit the 80 pieces of wiggly glass.

DASH TO THE FINISH

The bookcase gradually came together until our deadline—our annual open house—was less than two weeks away. Suddenly it seemed like there were not enough hours in each day. The pediment work had only just begun: Kevin was still working on the basket carving while Steve was putting the pediment together and starting on the painstaking marquetry. Everyone was showing signs of stress. In the final two weeks before the open house, the shop logged 456 hours of labor. We were running out of time.

Five minutes before the guests were to arrive at the open house, Kevin took the basket of flowers off his bench for the last time and placed it on the case. We met our deadline, probably under similar circumstances as the original 200 years ago. ■

Doug Mooberry is the proprietor of Kinloch Woodworking Ltd. in Unionville, Penn.

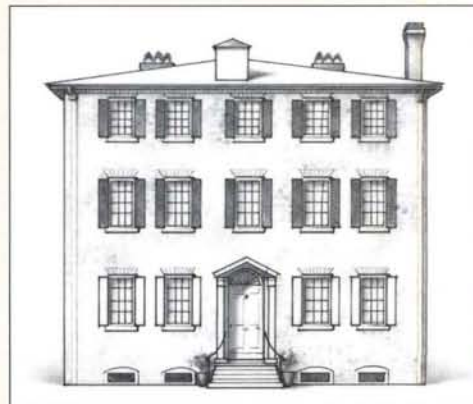


A masterpiece recreated. Steve Latta (rear) spent six months building this version of the Holmes bookcase, with help from Doug Mooberry (seated) and Kevin Arnold (at right).

The Holmes Bookcase: A Colonial Treasure

BY J. THOMAS SAVAGE

Long mistaken for a post-Revolutionary neoclassical piece, the commanding Holmes bookcase was actually made in the 1770s for the British emigré John Edwards. Edwards's daughter, Elizabeth, married attorney John Bee Holmes in 1783. The bookcase was owned by Holmes's heirs



until it was given to The Charleston Museum in 1947; it is now on display at the Heyward-Washington House (above) in Historic Charleston.

The history of the bookcase has not always been so dignified. The pioneering furniture historian Esther Singleton, who photographed and wrote about antiques at the turn of the century, recorded in her 1906 book *The Furniture of Our Forefathers* that "two or three of the original drawers were used by the British officers for horse-troughs. Their places have been supplied by 'new ones' made directly after the Revolution." Damaged or not, a 1783 probate inventory of John Edwards' property lists a "large Mahogany Book Case" valued at 100 pounds, quite a large sum at the time.

What makes the bookcase unique, among other features, is the lavish use of floral inlays and "strapwork"—the geometric inlay in the pediment above the doors. This type of decoration represents a synthesis of British and German influences, and while research has yet to reveal the names of the craftsmen involved, it is tempting to suggest a German immigrant, Martin Pfeningner, as a candidate. In the *South Carolina Gazette* of April 13, 1773, Pfeningner advertised "Cabinet-Making in all its branches, Also Inlaid Work in any Taste," a remarkably early reference to inlay in America.

The Heyward-Washington House (87 Church St., Charleston, S.C.) is open to the public year-round. For more information, call The Charleston Museum at (803) 722-2996.

J. Thomas Savage is the director and curator of the museum division of the Historic Charleston Foundation.

Cloud Rise Bed

BY GARY ROGOWSKI



An image fit for slumber. The cloud rise form, seen in the gently stepped rails of the headboard, adds lift to the strong horizontal lines.

*f*loating clouds rising in the sky. Mist in the hills. What better form than the cloud rise to shape a bed? What better image for sleeping? Used by the Chinese for centuries in their furniture, the cloud rise gave me just the subtle accent I wanted for this bed. No blustery posts or gilded cherubs staring down at my sleeping customers; just a refined form with a few details was enough to satisfy my design sense and their taste.

This design, as with all others ever

dreamed of in sleep or while awake, springs from several sources. The taper of the legs, flaring like trees as they descend to the ground, is a basic architectural form. Charles Rennie Mackintosh used it successfully in some of his furniture designs, and I liked the way it gave a solid and stable look to the bed posts. This became one of my starting forms.

Another dominant form—the overhanging rail in the headboard—is a feature I have always enjoyed in Chinese furniture. This same shape also



Asian inspiration. The cloud rise, seen here in the footboard, is a common feature in traditional Chinese furniture.

can be found in Japanese temple design, particularly in the gates that front those sacred spaces. I felt the strong horizontal line contrasted nicely with the taper of the legs. It also seemed to fit well with the broad expanse of a futon or mattress that would fill the bed.

With my horizontals in place and the leg shape defined, I now had a frame within which to design some pleasing

shapes. The cloud rise (also called a “cloud lift” in Greene and Greene furniture) became a focal point for both positive and negative shapes. I could use it in the head and footboards, creating shapes that would also define the negative space between these rails. In other words, the positive cloud rise in the head and footboards gives the negative spaces the same shape. I also

used the cloud rise in the long bed rails in two versions of this design, and left them square in a third version with a slightly different headboard (see photos facing page).

A beautiful feature of a design like this is the freedom it allows when filling up the space within the structural frame of the headboard. There were, I discovered, many ways to divide and decorate this space. In the first rendi-



Headboard is a canvas. The open-framed headboard can be divided and decorated in different ways. In this one, the central field is no longer solid, and the orb is larger.

Similar design, different details. This variation on the cloud rise bed stresses the horizontal. The central image, a stylized seed pattern in rosewood, provides contrast.



tion, I used tapered columns in both the foot and headboards, similar in shape to the bed legs, to help support the long top rails. Then I decided that a strong contrasting shape—a rosewood orb—would be a wonderful counterpoint to all those horizontal lines. In another version, I used three narrow horizontals, and in a third I decorated the headboard with two stylized seed forms (see photos above). ■

SPECIFICATIONS

DIMENSIONS

84 in. long, 66 in. wide and 36 in. high.

MATERIALS

Cherry and rosewood.

FINISH

Oil and varnish mixture.

Shaker-style Apothecary Chest

BY THOM DUPREX



Finding a new function. The apothecary chest was used in pharmacies for storing small items. The author used the form to make a quilter's work table.

this apothecary chest was designed as a sewing storage chest and work table. It provides a large work surface at a comfortable height with plenty of convenient storage.

As the name suggests, the apothecary chest was a staple in old pharmacies. It often had rows and rows of differently-sized drawers in which a pharmacist kept all his powders and chemicals. Those cabinets are things of the past, but the name has survived and remains a common description of a chest with a lot of small drawers.

I decided to use this form for a sewing chest in part because my wife, Faith, had taken up quilting and needed small storage spaces. She suggested a large, walk-around sewing surface at standing height with lots of drawers (she not only stands to cut fabric but prefers to sew standing up). I adapted the design (mostly the drawer configuration) from a 19th-century Shaker apothecary chest. The piece is a utilitarian success not only for quilting but also for stashing yarns, crochet cotton, embroidery floss,



Pulls grow with the drawers. The turned cocobolo drawer pulls are graduated in size vertically, as are the drawers.

stencils and patterns.

The chest is unmistakably Shaker in pedigree, and I used highly figured bird's-eye maple to give its plain form some distinction. Because the piece was designed to be placed away from

the wall, I used bird's-eye maple panels on the back as well. Graduated drawer sizes (and pulls) provide vertical balance, which I thought would be important on such a wide chest.

I used bird's-eye maple veneer over a medium-density fiberboard substrate for the side and back panels. The top is also veneered and surrounded by a solid maple frame. Using veneered rather than solid panels made it easier to match the figure and added strength and stability. The drawer fronts and corner posts are solid maple. ■



SPECIFICATIONS

DIMENSIONS

55¾ in. wide, 26 in. deep and 36 in. high.

MATERIALS

Maple, bird's-eye maple veneer, poplar and cocobolo.

FINISH

Shellac and varnish.

Veneer makes it stable. Using veneered panels instead of solid adds stability and allows the maker to consistently match the striking bird's-eye figure.



We'll have your chair ready in 2,000 years. The design of the author's reproduction 17th-century Chinese chair is the culmination of millenia of unbroken development.

Classic Chinese Chair

BY RANDOLPH DEMERCADO

i came to building Chinese furniture by way of bonsai trees. As I studied bonsai in books I was impressed by the tables the miniature trees were displayed upon. Unfortunately, the good Chinese tables I found were expensive and the less expensive ones were poorly made. With no real background in woodworking, I decided to make my own. Little did I know, as I considered these pieces whose lines had been refined over several millenia, that I was starting out by building some of the most complex furniture ever made.

My mentor in Chinese furniture making was Gustav Ecke. I found him in an old, dimly lit bookstore in New York City. I didn't know what I was looking for, but when the owner heard my story he pulled a copy of Mr. Ecke's classic book *Chinese Domestic Furniture* from the shelf. I started to thumb through it and with each flip I became more excited. Here were photographs of this beautiful furniture along with full measured drawings and detail drawings that clearly revealed how the pieces were put together.

I took the book home and charted a decade of woodworking in an afternoon. Since then I've made a career of building Chinese furniture from the classic Ming and Ching dynasties, or roughly from the 14th to 19th centuries.

It was several years before I made this chair, even though it was the



Sweet, but not simple. The grace and fluidity of its lines belie the complexity of this chair, which is the most difficult piece the author has ever made.

piece that struck me most strongly that first day. It is lucky I waited, because it turned out to be the trickiest piece I've made. Its fluid lines belie some very complex joinery that requires extremely precise measuring and benchwork. Marking and cutting the scarf joints that connect the five pieces of the arm bow was particularly exacting work. As with all the Chinese pieces I've made, however, the involved joinery recedes once the piece is assembled. The joinery is not there for show, but in the service of the strength and the flow of the piece. Only the craftsman (and Mr. Ecke) know how hard-won this furniture's simplicity is. ■

SPECIFICATIONS

DIMENSIONS

24½ in. wide, 19 in. deep and 40 in. high.

MATERIALS

Padauk.

FINISH

Tung oil.

Painted File Chest

BY DANIEL AND PATRICIA MOSES

Personal necessity can cause one to recognize a more universal need, which in turn can inspire a new creation. Such was the case with our file chest. Growth of the home-based office (including our own) and our desire to make office furniture artful as well as functional were the motivating forces behind this project.

One of the most striking features of this piece is the color, which was inspired by the red and black contrast often found in Navajo, Turkish and Oriental textiles. These colors, like the textiles themselves, endure and transcend the whims of the design industry. We mixed two different colors of red

milk paint—one that was very bold and one more muted—to get just the right hue, and we used an ebony stain for the stand. (For more about the milk paint, see *The Finish Line*, p. 22.)

We chose poplar because it takes paint well but used birch plywood for the lid to prevent seasonal movement, which could crack the paint. The construction is simple, with the front and

back connected to the sides with rabbets and countersunk screws covered by poplar plugs. Two poplar guides hold the standard-sized file folders.

The legs of the stand (which is separate from the cabinet) have a gentle curve, giving the squarish chest a shapely perch. The soft lines of the legs are reflected in the handles of the chest, creating a balance between hard and soft edges.

The hardware is particularly important to the aesthetics of the piece. Blanket chest hinges are traditionally used on the inside of chests, but this pair of hinges was designed to fit outside to show its rustic, hand-forged beauty. The front and side handles are antiqued brass and were chosen for their elegant shape and tooled design. (For more information about the hardware, see *Sources*, p. 104.) ■



Detailed files. Poplar guides hold the hanging folders. The lid is held open by a single black, braided cord.

SPECIFICATIONS

DIMENSIONS

Overall: 36 in. wide, 16 in. deep and 36 in. high.
Chest without stand: 33¼ in. wide, 14¾ in. deep and 13½ in. high.

MATERIALS

Poplar, birch plywood, steel and brass.

FINISH

Milk paint, ebony stain, gel varnish and water-based polyurethane.



Furniture for the home office. Drab sheet metal cabinets are not the only storage choice. This file cabinet, with forged hardware, provides handsome file storage.



Decoration resides in the hardware. The hand-forged steel strap hinges and antiqued brass handles add texture and adornment to a spare, simple form.

Glass-Topped End Table

BY DAVID GEER



A universal proportion. Looking down on this table, the top aprons form a golden rectangle. Wedged dowels hold the glass in place.

i designed and built this simple table for myself over a year and a half, while I was doing other woodworking and building a house. Looking back on it, extending the construction process was a reward in itself. As I worked on it, I continually examined my motives for haste, and I gave greater attention to the wood, the tools, and the creative process.

Looking down on the table, the apron forms a golden rectangle. This wonderful proportion, I feel, lends a universality and an historical legacy to the piece.

I developed the asymmetrical arcs of the aprons through trial and error, using a full-sized drawing. This took several hours over a few days before the proportions looked and felt right.

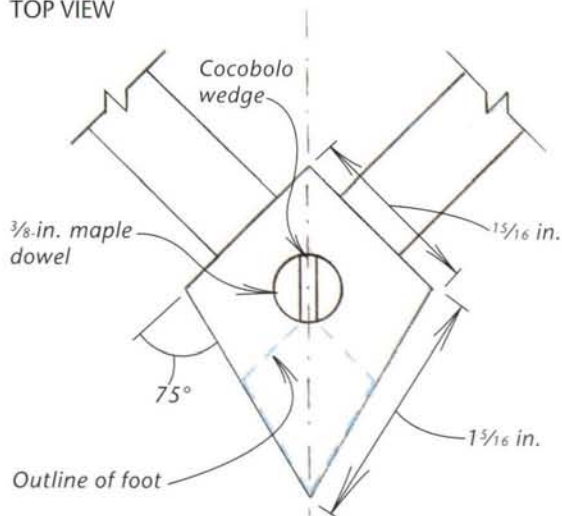
I cut the diamond-shaped bevel on the legs at 75°, tapering to approximately ½ inch by ¾ inch at the foot. The apron tenons are pinned with ⅜-inch maple dowels.

The gentle arcs of the ½-inch glass top were intended to play off the

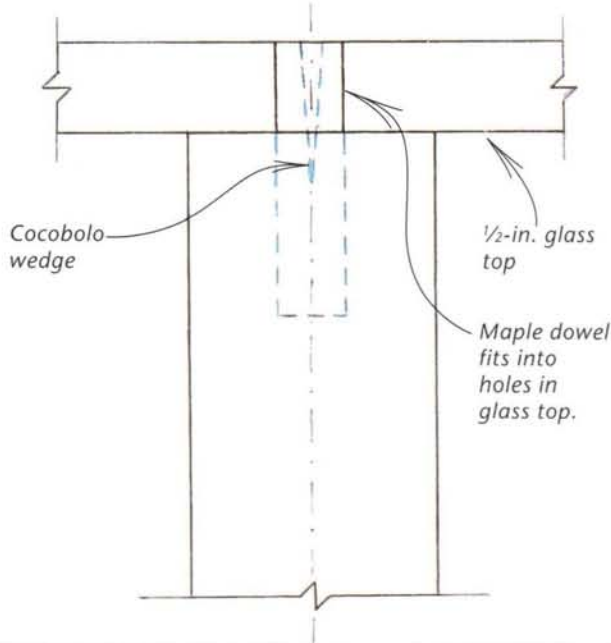
curves of the apron. The top is held in place with ⅜-inch maple dowels, which protrude through holes drilled into the glass. I used cocobolo wedges in the dowels to hold the glass securely. ■

A DIAMOND-SHAPED TAPERED LEG

TOP VIEW



SECTION VIEW



SPECIFICATIONS

DIMENSIONS

28 in. long, 17⅞ in. wide and 22¼ in. high.

MATERIALS

Maple, glass and cocobolo.

FINISH

Oil.

Cherry Music Stand

BY CHRIS BECKSVOORT



Looks and lightness. The author sought to make his music stand better-looking, lighter and less costly than the standard folding metal stand. He succeeded in making it lighter and prettier, but he could not make his less expensive than \$48.

*m*y aim in designing this music stand was to improve on the look of the standard folding metal model and to make it as light or lighter than a typical 2½-pound metal stand. In terms of cost, at \$48 the folding metal stand comes out miles ahead, but two out of three isn't bad.

The U-shaped foot (actually a parabola) was not an original idea. I had it filed away from something I saw years ago. However, I did clean it up by tapering both the height and the thickness. I then decided to attach a thin tapering post—with a sliding piece inside—leading up to the top section, where the sheet music sits (see *How They Did It*, p. 96).

The upper section proved to be more difficult. I had nothing specific in mind, so I filled a whole page with intersecting lines and curves. In frustration I started working on the base. Two cut-offs from the bandsaw fell to the floor, landing on top of each other. That was it! I tried two intersecting parabolas, then four. It tied the top and



Repeating arches unite. After giving up on a design for the top, the author cut arches for the base. When two cut-offs fell across each other on the floor, he instantly saw the design he needed.

base together visually and it also allowed me to use one form for laminating the parts.

With a design I liked and a final weight of 1¾ pounds, the stand achieved my goals. One of my earliest customers, familiar with my Shaker work, commented that it looked Californian. Another noted the intersecting arches and dubbed it "baroque." ■

SPECIFICATIONS

DIMENSIONS

19 in. wide, 13 in. deep and 43 in. to 59 in. high.

MATERIALS

Cherry.

FINISH

Tung oil.



Plane is dazzling. Veneer from an unusually vibrant English plane tree gives the sideboard its sizzle.

Fiery Sideboard in English Plane

BY JACK ALBERTI

much of the furniture I build is decorated with eye-catching, repetitive-patterned marquetry. But I knew as soon as I entered the antique-filled dining room where this sideboard was to stand that I'd have to design in a more traditional vein to make this commission work.

Still, I couldn't see making a piece that didn't have some fairly strong visual activity. So once I had the design roughed out, I began looking for interesting wood. My clients had expressed a preference for something reddish-brown, such as mahogany. I try to avoid using rainforest woods in my work, so I investigated other options and came up with two fascinating woods I had never worked with: mesquite and English plane.

The mesquite, hard and dense, had the color we wanted, and I decided to build the frame of the sideboard with it. Then there was the English plane veneer for the doors, top and sides. English plane is in the sycamore family, and up close it shows the lace-like figure characteristic of sycamore. But this flitch had extraordinary color as well. By book-matching consecutive sheets, I obtained a flame pattern, which, along with the torrid color, gave the sideboard its name: Inferno. ■

SPECIFICATIONS

DIMENSIONS

62½ in. long, 18¾ in. deep and 38 in. high.

MATERIALS

Mesquite, English plane veneer and medium-density fiberboard.

FINISH

Lacquer.



Hidden hardware. Touch latches and concealed hinges keep the sideboard's exterior free of hardware.



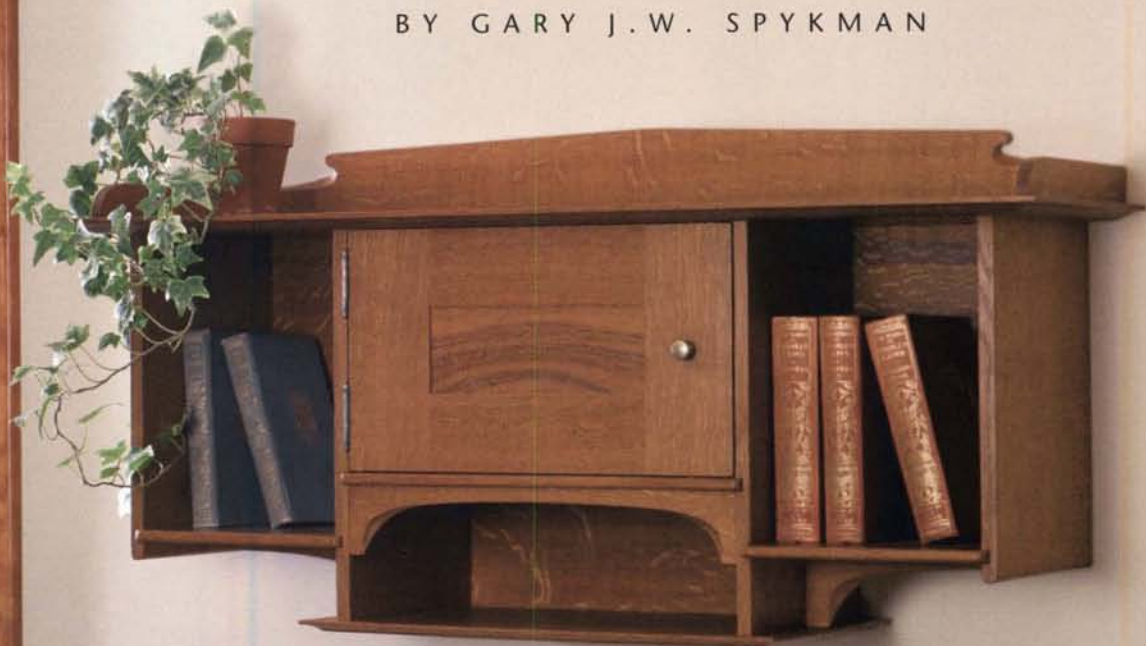
Grooves that bind. Legs and molding stand proud of the doors and panels but a V-groove (above) provides a visual binding to the carcass.



Flames in frames. Mesquite legs, rails and lipping provide frames with muted contrast for the fiery plane veneer.

Craftsman-style Wall Cabinet

BY GARY J. W. SPYKMAN



No need for bulk. Much of the grace of this design derives from the use of thinly milled quartersawn oak. No surface is thicker than half an inch.

the plans that inspired this cabinet were published in the November, 1905 issue of Gustav Stickley's magazine, "The Craftsman," as part of a series called "Home Training in Cabinet Work." It is described as "very convenient as a storage place for valued trifles and also to hold a few favorite books." The designer is not named, but the scale and proportions are so perfect and the curves show such grace that it is clearly the work of a master, perhaps even Harvey Ellis, Stickley's chief designer.

I find myself pondering this design often, trying to learn its lessons. The form is bold, yet there is refinement in it, with gouged curves betraying an Art Nouveau influence. Part of this delicacy derives from the use of thin material (all the parts are $\frac{1}{2}$ inch or less).

Though I wanted to make a cabinet like this since I first saw the simple line drawings, the discovery of the perfect material finally gave me the impetus to build it. I live on the island of Martha's Vineyard, where there is only one supplier of hardwood lumber, so it was with great delight and surprise that I discovered two planks of exceptional white oak—quartersawn to reveal the

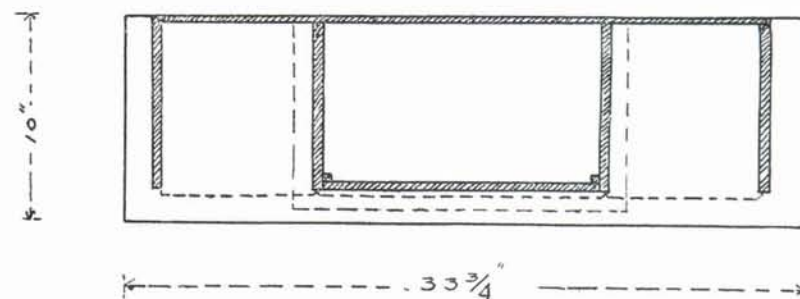
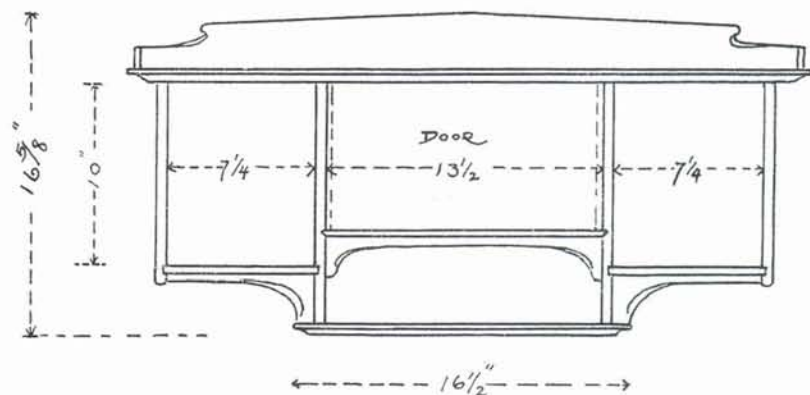
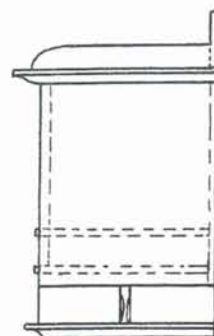
telltale rays—mixed in with the regular stock. One of these boards had attractive stripes of darker wood (usually called mineral streaking) which ran through one end. I chose this piece for the cabinet and featured the streaking as a highlight, which is especially noticeable in the door panel. (For information about how the cabinet was finished, see *The Finish Line*, p. 22.)

I made one major change from the published design: In the original plan, the door is a single board hung with "long strap hinges, which are good in

design and clever in construction." I didn't want to pay for custom hardware (this was not a commissioned piece) but without the hammered brass hinges I felt the single-board door would look incomplete. Because I have long admired Arts and Crafts frame-and-panel doors with wide stiles and rails and relatively small panels, I decided to use this type of door instead. Rather than hardware being a major element, I kept it as minimal as possible, using the structure of the door itself to add to the character of the piece. ■

DESIGN OF A WALL CABINET

SCALE OF INCHES



SPECIFICATIONS

DIMENSIONS

33 $\frac{3}{4}$ in. wide, 10 in. deep and 16 $\frac{5}{8}$ in. high.

MATERIALS

Quartersawn white oak and brass.

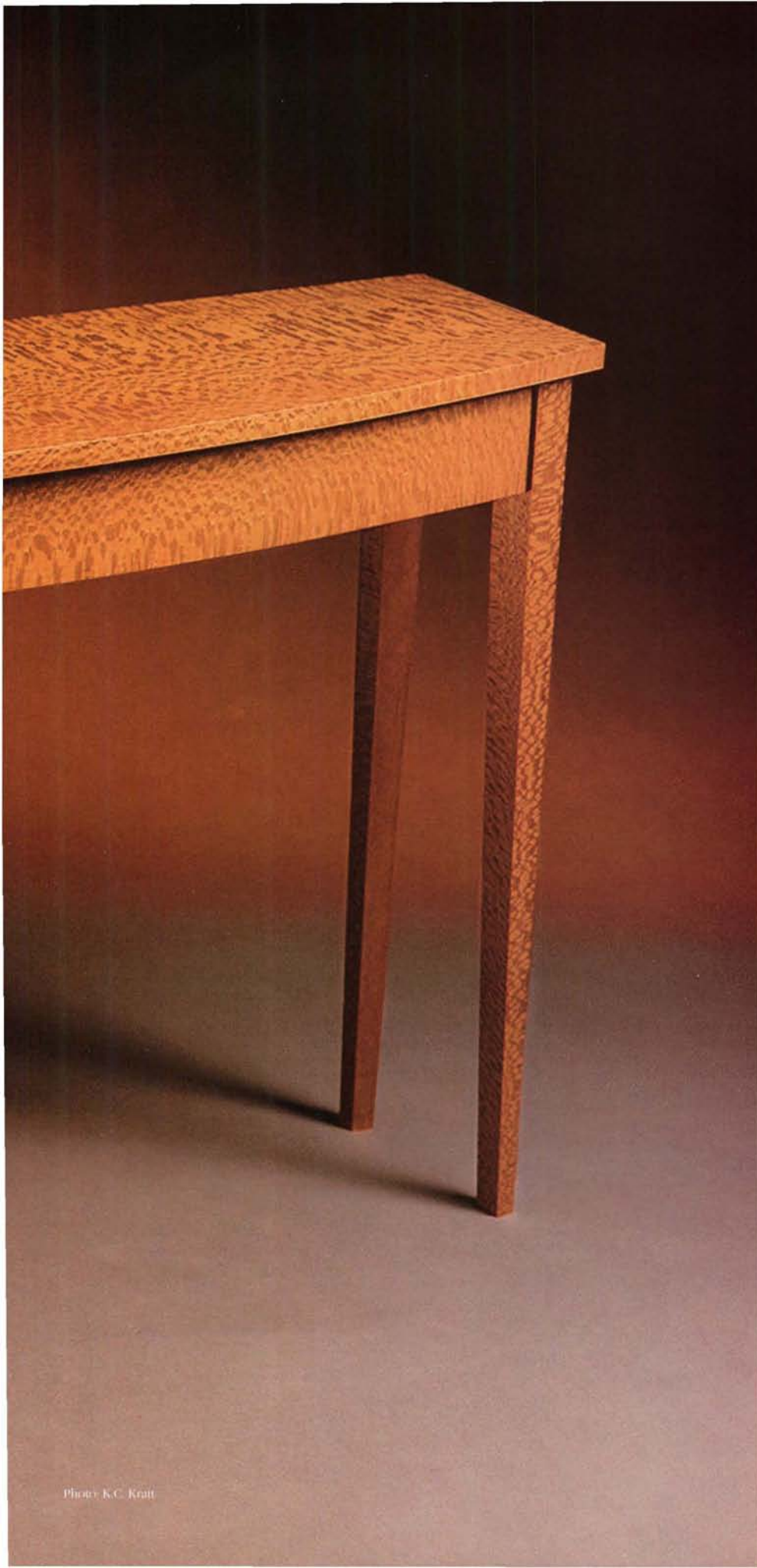
FINISH

Mixture of boiled linseed oil, turpentine, beeswax and japan drier.

Lacewood Hall Table

BY ANTHONY BUZAK





*t*wo windows and a door determined the shape of this table. My customers wanted to have a table for their entryway, but their front door opened into the space where the table was to stand. I decided to make it a shallow table and curve the top, taking advantage of what room the door allowed me.

The table's length was also a function of its placement. It would stand between a pair of windows that were 60 inches apart. I made the table 54 inches long, using nearly all the space but stopping short of making it look like a squeeze.

My approach to furniture design is to keep it simple; this was the simplest solution I could find. ■

Spangled simplicity. Lacewood and an arched front give a plain table presence. (To learn more about lacewood, see Sources, p. 104.)

SPECIFICATIONS

DIMENSIONS

54 in. long, 14 in. wide and 29 in. high.

MATERIALS

Lacewood, lacewood veneer, medium-density fiberboard and bending plywood.

FINISH

Oil and varnish mixture and wax.



Carved Maple Armoire

BY MILES
KARPILOW

Ambidextrous armoire. Karpilow's maple cabinet divides the entry hall from the dining room and serves both. It has drawers for table linens on the dining room side (left) and a coat closet on the entry side (right).



*i*n 1991, some old friends of mine lost their house in the Oakland Hills (California) firestorm. They decided to build a new house on the foundations of the one they had lost. When they asked me to design an armoire for it, the new house existed only on paper. Still, the constraints on the design of the armoire were quite real. The house had an open plan and the armoire was to serve as a room divider. Even though freestanding, it was integral to

the design of the house. It would stand between two Tuscan columns and help separate the entry hall from the dining area. The side of the cabinet facing the entry would be a closet for coats; the dining room side would have two drawers for table linens. I could go where I wanted with the design from there.

My furniture designs are original—except for some Greene and Greene reproductions—but I can often trace



Abstract irises. The carving design blends the author's interest in Russian Constructivist art with his drawings from nature (at far left).

my ideas to historical sources. This piece has a variety of such links. The Tuscan columns brought the early Renaissance to mind. And although the wide crown molding may resemble something by Charles Rennie Mackintosh, for me it has a Quattrocento feeling. The idea of using bun feet came from some 17th-century northern European furniture and some *Pennsylvania Dutch* wardrobes I had seen and liked. But the particular shape I arrived at was actually suggested by a grapefruit-shaped English lawn-bowling ball I picked up somewhere.

Two more disparate influences shaped the carving. I had been looking at Russian Constructivist art and wanted to use some of its sharp, energized forms in contrast with the classical lines of the piece. I then incorporated organic curves derived from my nature drawings to soften the design. ■



SPECIFICATIONS

DIMENSIONS

42 in. wide, 27 in. deep at case and 87 in. high.

MATERIALS

Maple and ebony.

FINISH

Waterborne polyurethane.



Chair gets a second chance. The chair shown at left is the author's second and improved version, with an upholstered seat, a wider front stretcher and stronger joinery.



Curved Armchair

BY FRANCOIS BRETON

Waking up one morning, I had a clear vision of this chair. Inspired, I made a few sketches and then a full-scale drawing. I made four chairs at first, using templates for gluing the curved pieces. I carved the seats out of basswood and used through-tenons with rounded shoulders, which create a shadowline at the joint.

I liked the look of the rounded shoulders on the tenons, but they were too

small and unwieldy and, as a result, the frame racked. So I made all the pieces a bit bigger, getting rid of the rounded tenon shoulders and replacing the two front stretchers with a single, wider one to reinforce the whole assembly.

I also replaced the carved wood seat with a more comfortable upholstered one. I think the second version is simpler and more solidly built. ■

SPECIFICATIONS

DIMENSIONS

22 in. wide, 26 in. deep and 32 in. high.

MATERIALS

Yellow birch and synthetic leather.

FINISH

Aniline dye and lacquer.

Modern Rolltop

BY JAMIE RUSSELL



Fresh slant on tambours. Descended from the 18th-century rolltop desk, this one flattens out the rounded lid and removes the drawer case below.

Some ideas come at the drafting table. Others come on the highway. The idea for the original version of this desk came while I was behind the wheel. I'd been asked to make a fall-front secretary, but I couldn't come up with anything. Then, while cruising on Saskatchewan's highway 12 late one night, I remembered a tambour desk I'd seen with a slide-out writing surface concealed in its interior. Why not use the same idea?

The first version I built was in the "California roundover" style exemplified by the work of Art Espenet Carpenter, a man whose work I greatly admired and with whom I later apprenticed. Over the course of eight versions, I moved away from those voluptuous curves to something more austere and better suited to my personality and my surroundings.

The things people make tend to reflect their environment. I love the lush vegetation of California, but it won't grow in Saskatchewan. Here, the cli-

mate is fairly harsh, with long, bitterly cold winters, hot summers and regular droughts. The plants and animals that survive here all have a definite place in the overall scheme. I think this rule of survival is also a key to good design. Every element in a piece should have a practical reason for being there.

Details like the swelling of the tapered legs where they meet the rails and the sloped drawers with integral carved pulls might seem mere decoration, but there's a practical purpose for them. The swelling in the legs makes the joinery easier and stronger. Sloping the drawers gives me a tad more room in the lower drawers and harmonizes with the slanted sides, making it more inviting to sit at the desk. And carving the pulls, while giving the piece a flair that store-bought pulls never would, uses wood that otherwise would be sliced away as waste when the fronts were cut to the slope (see *How They Did It*, p. 96). ■

SPECIFICATIONS

DIMENSIONS

44 in. long, 24 in. wide and 40 in. high.

MATERIALS

Cherry, white birch, plywood, plastic laminate and canvas.

FINISH

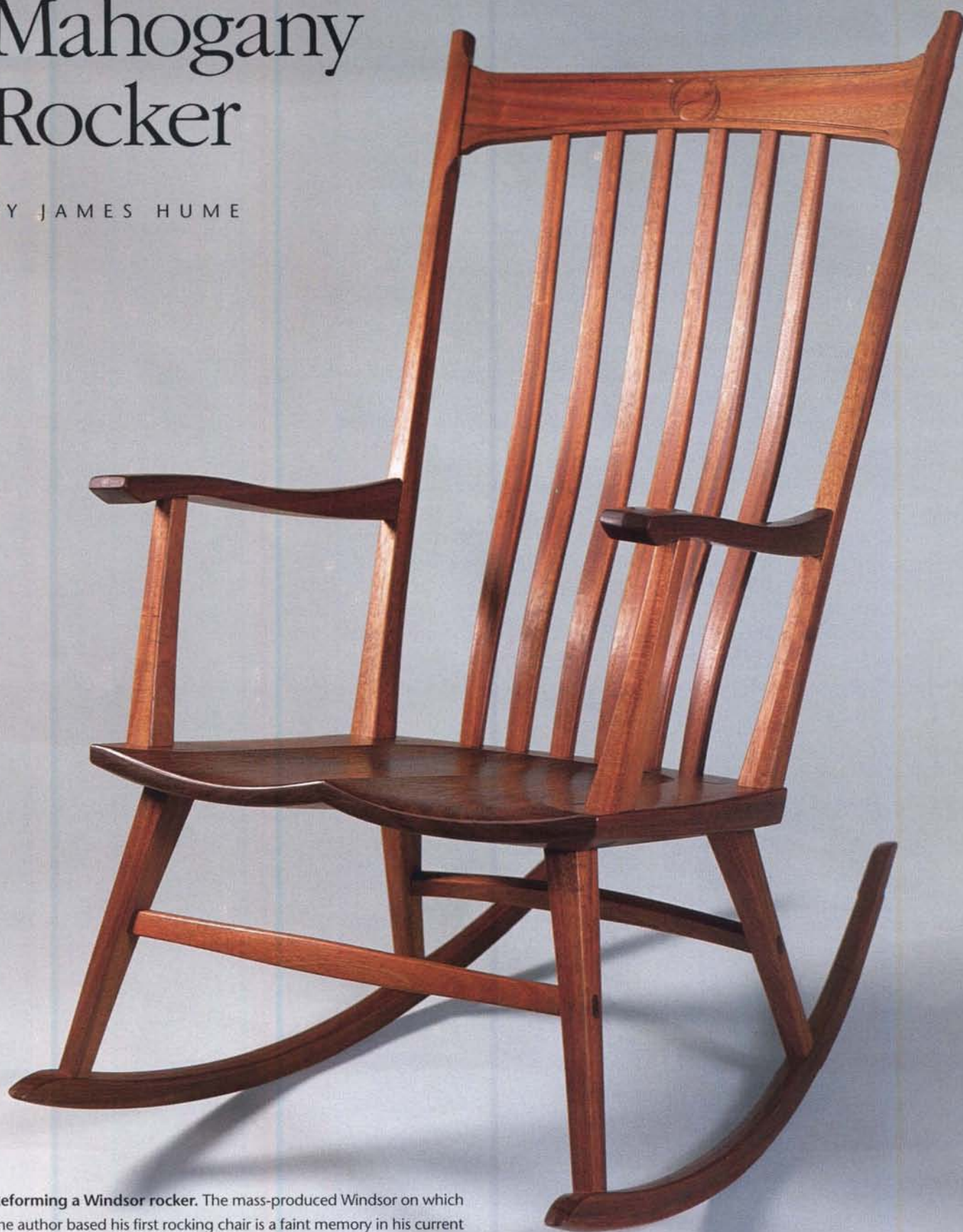
Watco oil mixed with urethane.



Open for business. The tambour and the writing surface of the desk are linked: pull out the writing surface and the tambour retracts.

Mahogany Rocker

BY JAMES HUME



Reforming a Windsor rocker. The mass-produced Windsor on which the author based his first rocking chair is a faint memory in his current chair, above, which is looser, more personal and more comfortable.

the first time I made a rocking chair, I used measurements, angles and proportions from an old Windsor-style rocker commercially made in the 1950s. I made a couple of modifications and dove in.

In that first chair, I removed side rungs between the legs, as well as extra upright spindles under the arms. After I finished the chair, I found that my modifications had brought out the old design's weaknesses. I suddenly saw an imbalance between the negative spaces above and below the seat.

When I made my latest chair, I changed the angle of the post beneath the arm, tilting it backward until it was more or less in line with the front leg. I also moved the rear posts back so that they are above the rear legs, making the framed space above the seat more balanced with the one below it (see the drawing below).

I also was disturbed by the tense look the straight backslats gave that first chair. So for this version I curved the backslats to achieve a more relaxed appearance while improving the comfort.

Though it's not often used in rockers, I chose mahogany for my current chair for the great color it takes on, especially after a year or so, when the purple

tones strengthen. I used edge tools—planes, scrapers, gouges, spokeshaves and knives—to finish all the surfaces of the chair. The result is a sparkling quality that I much prefer to the dull glow of a surface that has been smoothed with sandpaper. ■



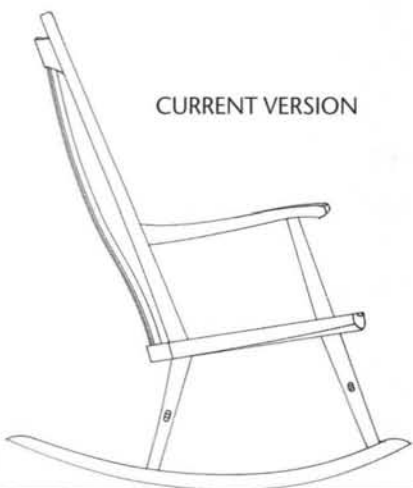
Gouging makes the seat glint. The field of gouging on the rocker's saddle seat (above) draws the eye and pleases the hand.

ROCKER EVOLVING

FIRST VERSION



CURRENT VERSION



SPECIFICATIONS

DIMENSIONS

23 in. wide, 38 in. deep and 41½ in. high.

MATERIALS

Honduras mahogany and walnut.

FINISH

Varathane oil and paste wax.

Silver Chest

BY PAUL HARRELL



a few pieces of sawn bubinga veneer left over from a table I had made several years earlier were the inspiration for this silver chest. I first made the chest's top, with its ends bowing slightly outward, from the largest pieces of veneer. I imagined I would make a small side table of some kind, but I really had no clear plan. I was just looking for a way to use the last bits of this exceptional wood.

The top sat in my shop for a long time while I was involved with other projects. When I returned to it, I sketched a two-drawer chest with veneer on the ends running vertically. This allowed me to use all the veneer I had and show it to better advantage than the end table I had planned at first.

When I mocked up the piece I had in mind, with its tapered legs and gently convex ends, I began to realize that the curve on the ends was perhaps too subtle. Because the top was already made and I had to follow its curves, I needed a way to emphasize them. The solution I came up with was making the legs fairly wide as seen from the side, and I planed this wide surface to the shape of the curve of the top. I added bowed stretchers at the very bottom of the legs

to bring the curve down to the floor, and used the crosspiece connecting the midpoints of the stretchers to emphasize it a bit more. (See *The Finish Line*, p. 22, for a description of how I finished the drawers.) ■



Sandwich board.

Bubinga veneer faces the drawer fronts inside and out. Rosewood accents appear on the top, the pulls and the tenons.

SPECIFICATIONS

DIMENSIONS

20½ in. wide, 16 in. deep and 26⅞ in. high.

MATERIALS

Bubinga veneer, mahogany, rosewood and Baltic birch plywood.

FINISH

Kaldet resin oil.

Veneer determines the design. Some leftover bubinga veneer suggested the size and shape of this silver chest (left). Mahogany legs and frame complement the bubinga instead of competing.



Bubinga waterfall. The author extended the pattern of the veneer from the chest's top down its tall sides.



Curved Bed in Cypress

BY BILL PALMER



A low-profile bed. Supported on slats rather than a boxspring, this mattress is only 19 inches off the ground.

Shaped like a chair. Nobody likes a straight-backed chair, so why should a bed be any different? The curved headboard (below) adds comfort for sitting up and reading.



SPECIFICATIONS

DIMENSIONS

86 in. long, 64 in. wide and 28 in. high.

MATERIALS

Cypress and cypress veneer, Jamaica dogwood, plywood, brass and steel.

FINISH

Varnish sealer and satin polyurethane gel.

because I build my designs more than once, I usually find something I can improve upon. In this piece, it was modifying the design into a collection of soft curves. The material itself, cypress, is quite soft and made it necessary to stay away from hard edges that could be marred easily.

I originally designed this bed for a loft bedroom with a low ceiling. It is

low to the ground (19 inches to the top of the mattress) and has hardwood slats to support the mattress, rather than a box spring, which would have added to the height.

In my view, a bed should be strong but should not appear heavy. It should blend masculine and feminine features and invite lounging and reading, as well as offer a visual focus to the bedroom. The matched veneer panels give the

headboard prominence, and inlaid decorative squares of Jamaica dogwood give detail to the relatively featureless footboard and side rails.

Beds, of course, must be collapsible. In this bed, the bolts holding the side rails to the footboard are hidden, attaching to threaded brass bars buried in the legs of the footboard. ■

Japanese Chairs

BY JUN ISHIBASHI



A steadying influence. The author placed stability at the top of his design criteria for his Agura Chair, which is made for a person sitting cross-legged, as well as for his triangle-seated tea chair.



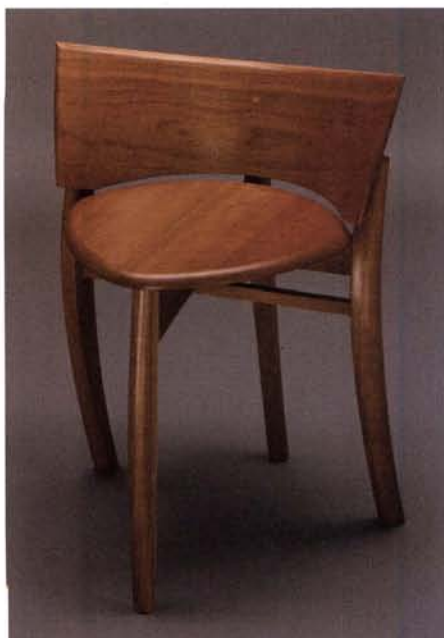
*p*eople often say to me, "Your chairs are about to dash out." Or they ask, "Have you made this in the image of some animal?" When I develop a design, I usually don't have an image of a galloping antelope or a giraffe lingering around the savanna. I just start from the angle of the function or objective that the chair will have to fill.

My Triangle Chair is not for taking a long relaxation but to have a short sitting, such as just long enough for a cup of tea. Therefore, I adopted a triangular base as a starting point so that the seat would not touch the thigh. Then the back board was designed to hug the waist to give a feeling of stability while sitting in the chair. The actual stability of the chair is enhanced by four legs, which seem irregular given the shape of the seat.

I chose either maple or black cherry for material because the mild figure in the grain does not get in the way of the total form of the chair.

It is not unusual for me to compromise between structural design and

A wide berth. The Agura Chair uses an expansive seat, wide arms, a solid stance and dark foot accents to enhance the feeling of stability.



A leg up for short sittings. The Triangle Chair (above), with a three-sided seat and only one front leg is designed so that the thigh does not touch the seat.

Twisting convention 90 degrees. Most chairs have two front legs and two back legs. The author's Triangle Chair (right) has a front leg, a back leg and two side legs.



SPECIFICATIONS

DIMENSIONS

Triangle Chair: 19 $\frac{1}{16}$ in. wide, 18 $\frac{1}{2}$ in. deep and 23 $\frac{1}{4}$ in. high.

Agura Chair: 39 $\frac{3}{8}$ in. wide, 23 $\frac{3}{8}$ in. deep and 24 $\frac{1}{4}$ in. high.

MATERIALS

Triangle Chair: Black cherry or maple.

Agura Chair: Beech and black walnut.

FINISH

Triangle Chair: Polyurethane resin.

Agura Chair: Wax.

aesthetic design. Where and how much I should compromise depends on how the chair is to be used. In making the Triangle Chair, I gave up just a bit of the sleek look I wanted to maintain strength in the front leg, which receives most of the weight and stress. In my belief, the best furniture is that

which has a harmony between structure and beauty.

The Agura Chair is named for the Japanese word that refers to the cross-legged way a person sits for Zen meditation. The seat is widespread horizontally with a mild dishing in the middle. Its armrest is extended so that you can lean on it almost horizontally

with your feet off the floor. Stability was the most important design objective of this chair. The second objective was to leave the beech as open to direct exploration as possible. I wanted to leave it with no finish, but I had to compromise with a wax coating for durability. ■



Schrank shrunk. The author reduced the proportions of a much larger early 19th-century German original when he designed his schrank.

A German Schrank

BY MICHAEL STREFLER

Cabinets like this one were made in my native Germany between 1700 and 1900, and flourished as well in Austria and Switzerland. Their ornamentation, moldings and profiles ranged widely from region to region. I borrowed my design from one built in 1830 by an anonymous cabinetmaker in Germany. It was not of one particular style, but combined elements of the



Upright sideboard. Schranks were often outfitted as closets, with coat hooks and linen shelves inside. This one is made to store dinnerware.

late baroque style—the tremendous crown molding and powerful carvings—with the neoclassical style—the plain form of the panels and the back.

Working from photos, I estimated the height of the original to be more than 105 inches. Such great size was not uncommon among these pieces. They often reached 4 feet in depth and 9 feet in height. Many of the houses they

were destined for were lavishly built, with ceiling heights of 12 feet or more. A small cabinet in such an enormous room would have caused the impression of miniature furniture.

My piece was designed for a house with 8-foot ceilings, so I scaled the piece down considerably. For aesthetic reasons as well as proportional



Adapted detailing. The moldings and carvings are scaled down but retain the power of the originals.

ones I changed the bulky crown of the original cabinet to one with a finer, more flowing profile and added the frieze of upright flutes beneath the crown to achieve a balanced overall appearance. The open-book moldings on the front stiles, nearly $\frac{3}{4}$ -inch deep, add to the overall appearance of power and solidity.

A combination of wedged tenons and mortised cleats make the 550-pound cabinet easy to knock down for transport. Putting it back together takes about 15 minutes.

The interior of my piece is completely different from the original, which was divided down the middle. On the left side were three shelves and on the right side were four wooden hooks fixed to the back. It was probably used for storing clothes.

I designed my cabinet for storing china, crockery, tablecloths and everything else needed in a dining room. The shelves are graduated with the deepest shelf at the bottom so that items on the top shelf can be reached conveniently. ■



SPECIFICATIONS

DIMENSIONS

Overall: 77 in. wide, 26½ in. deep and 80 in. high.

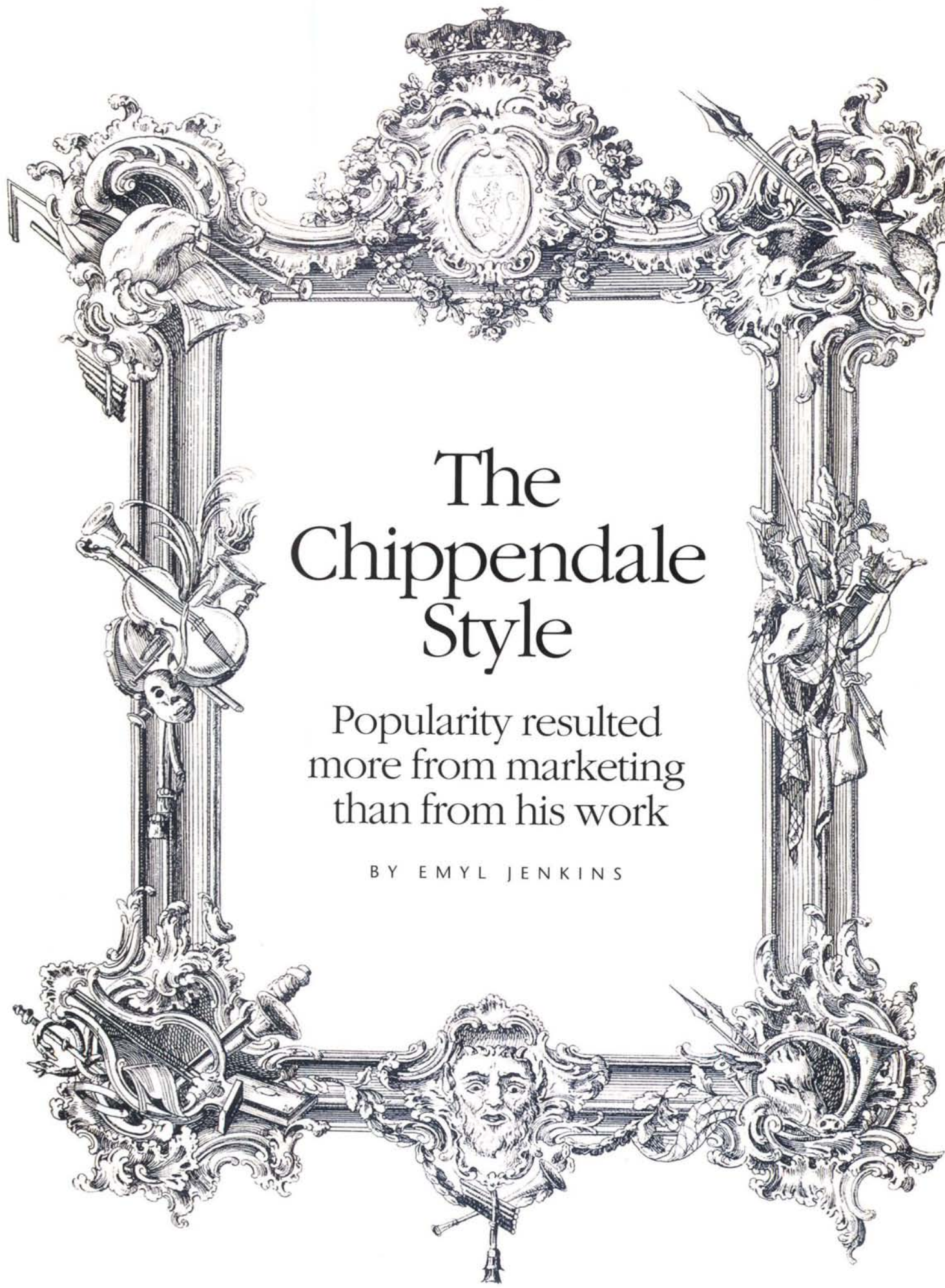
Case: 63 in. wide and 20 in. deep.

MATERIALS

White oak.

FINISH

Stain and lacquer.

An elaborate, symmetrical decorative border in a Chippendale style. The border is composed of four main sections: a top section with a crown and a central oval medallion; a bottom section with a bearded man's head and crossed tools; a left section with a violin and a mask; and a right section with a deer head and a quill. The border is filled with intricate scrollwork, floral motifs, and various objects like a key, a sword, and a book.

The Chippendale Style

Popularity resulted
more from marketing
than from his work

BY EMYL JENKINS

Chippendale. The name has a romantic, even noble, aura about it. It is a reputation that seems well-suited to the man reverently referred to as "the Shakespeare of English cabinetmakers." Flowing lines, graceful decoration, solid construction and rich finish define the work of the man whose renown is so great that his name stands for the attributes he espoused. Chippendale is the most widely recognized name in the annals of furniture design and manufacture, and continues to be a force in furniture design to this day.

How could one man have made all that furniture? How could one man have worked in so many different motifs—Gothic, Chinese and Rococo? How did Chippendale's famed work, *The Gentleman and Cabinet-Maker's Director*, gain its worldwide reputation when other design books were also in the marketplace?

Thomas Chippendale did *not* build all that furniture, but he *did* work in many styles, and, yes, others' designs *were* as good as his. To put Chippendale into his proper and well deserved place in history, it is time to look at Chippendale, the entrepreneur. This 18th-century Englishman not only achieved widespread fame, but he also succeeded in making "Chippendale style" as popular in 1996 as it was in 1766. The secret boiled down to this: Chippendale captured a great look and then marketed it for all it was worth.

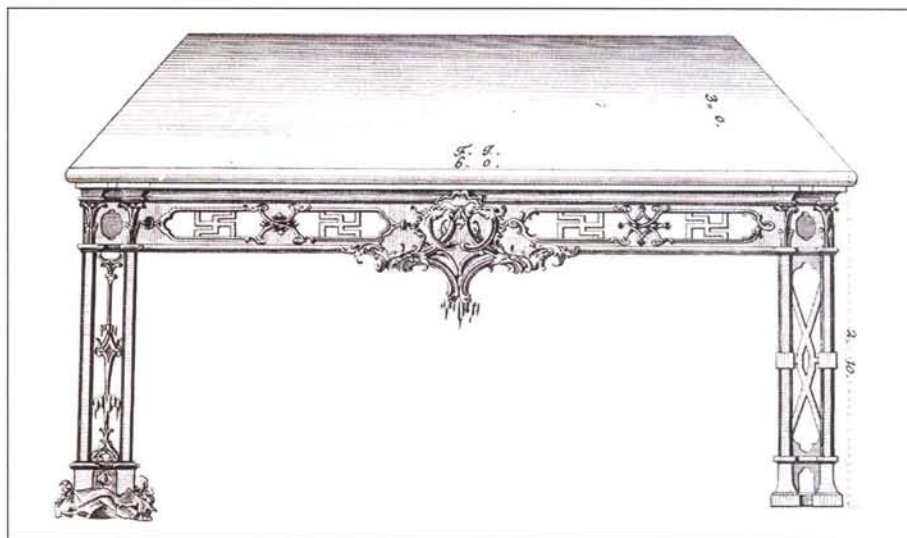
LITTLE IS KNOWN ABOUT CHIPPENDALE THE MAN

Thomas Chippendale was born in Oteley, England, in 1718, the son and grandson of furniture craftsmen, joiners and carpenters. He moved to London where, in 1748, he married Catherine Redshaw. As was the norm in his day, Chippendale was a furniture designer involved in the diverse skills required to furnish a house—from window treatment to fireplace design to upholstery to furniture selection. Invoices for various homes he furnished testify that he was a craftsman, designer, se-



A mixture of motifs. This George III mahogany bureau-cabinet combines many different Chippendale motifs: bracket feet, gothic arched mullions, pierced escutcheons and Chinese-style fretwork and quarter-columns.

One drawing, many options. Each drawing in the *Director* gave different ornamentation options on each side of a piece, and most builders chose elements from several different drawings. The 1765 side table (bottom photo) is a rare near-replica of a single plate (below).



Chippendale's Motifs

Most of the designs in *The Gentleman and Cabinet-Maker's Director* were based on three most popular furniture styles of the time: Rococo, Chinese and Gothic. Chippendale was not the only designer to use these styles, nor did they originate with him. But the *Director* publicized them as no other publication had—forever associating Chippendale's name with these styles.



Ornamentation overload. This 1755 mahogany commode's C-scrolls, apron cartouche and carved ribbon-tied flowers and foliage characterize the Rococo style.

ROCOCO

Rococo had its origins in Paris during the early 18th century. Full of scrolls, shells, jagged surfaces and robust curves, the design was intended to imitate "rugged nature." Though the designs looked great on paper, craftsmen found the patterns difficult to execute, and the more sedate English public found the look too frivolous and sensuous when carried to the extreme. Rococo ornamentation was definitely best when used in small doses. Though Chippendale's Rococo-inspired sketches are visually thrilling and probably his best known designs, little furniture of this style copied line for line was ever made.

CHINESE OR CHINOISERIE

This variation was by far the most popular of Chippendale's styles featured in the *Director*. The English had fallen in love with the exotic Oriental look much earlier in the 18th century, and frequently employed pagodas, lattice and fretwork in their architectural designs. William Linnel, another English furniture designer, had already brought the style into favor in furniture for

lector of woods and an employer of craftsmen and specialists from carvers and gilders to joiners and carpenters. In 1754 the first edition of his now famous *Director* was published.

How could a young man from the provinces produce the greatest and most influential furniture design book in history? The answer, according to Chippendale's biographer, Christopher Gilbert, goes back to a chance meeting between Chippendale and another young Englishman, Matthias Darly, an engraver, print seller and political caricaturist. These two ambitious English chaps—one a furniture maker with a sharp eye for design, the other a talented artist aware of fashion and style of the day—came up with a great idea: a furniture design book with a

new and innovative look. To give the book credibility, they found a hungry writer who penned a suitably erudite preface with exuberant references to art history and classical design. Armed with youthful boldness, Chippendale and Darly used their connections to round up an impressive list of subscribers whose names are published at the back of the book. The result: a monumental opus, *The Gentleman and Cabinet-Maker's Director* by Thomas Chippendale, with 98 of the 147 drawn plates by Darly.

THIS DIRECTOR HAD SOMETHING FOR EVERYONE

Actually, pictures and pamphlets of furniture designs had been around since the 16th century, but they were

primarily intended for a small, elitist audience. The *Director* was different, and that's what made it so successful. Chippendale carefully included different styles for different tastes and featured almost every type of domestic furniture known at the time. Shown alongside elaborate, grandiose and impractical (but great-looking) furniture were simpler pieces suitable for town and country houses. Instead of showing only one furniture style, as was the custom, Chippendale's book included pieces in all three of the most popular styles of the day—the Rococo, Gothic and Chinese fashions. Finally, while some of the designs shown in the *Director* were to be made of mahogany, others were intended to be fashioned in a softwood and then gilded or



The look of the East. Chippendale helped popularize Asian details. This library cabinet of the period sports a pagoda-form pediment and Chinese details in the fretwork and latticework of the top molding.

the home. But Chippendale carried the Oriental decorative elements to their fullest and most attractive state. He took basic themes—light, feathery landscape elements, fully opened flowers, pagodas, lattice railings and bridges—and combined them with restrained Rococo scrolls to create an unforgettable look.

GOTHIC

The “gothick” taste, as it was called at the time, originated in England during the 1730s and reappeared in the 19th century when archeologists unearthed medieval artifacts and writers conjured up medieval memories. Pointed arches, quatrefoil panels, clustered columns, tracery and all types of architectural finials adorned beds, chairs, tables, even lanterns, stands, fire screens and especially bookcases. —E.J.



Medieval memories. In this 1770 side table, the pointed arches and quatrefoils in the apron fretwork as well as the clustered-column legs show the medieval influences in the Gothic style.



English genes. Free of ornamental scrolls and fretwork, this mahogany chest still has the strong linear design, shaped bracket feet and bail brasses that today we dub “Chippendale.”

japanned (painted, then varnished to simulate lacquer).

The *Director* outshone all competitive design books with its variety, comprehensiveness and innovative designs, as well as the quality of the engravings. It became a best seller.

The publication's fame spread so rapidly that a second edition was printed in 1755, and Chippendale continued to publish more designs that were combined into a third, larger edition in 1762. Chippendale's name was soon synonymous with the finest, most elegant furniture money could buy.

The *Director's* unparalleled popularity inspired a rash of new design books. Some even slavishly copied the *Director* in format and design, but none equaled Chippendale's success.

In March of 1763, a French edition was published. The “Chippendale look” in the form of the book, sketches and the furniture itself was soon found worldwide. It even traveled with enterprising European settlers to Brazil, Venezuela and Argentina.

AMERICANS EMBRACED THE CHIPPENDALE STYLE

Meanwhile, English furniture craftsmen and designers continued to flock to America, the land of new opportunity. They took with them the latest and most sophisticated English styles, the very designs that Chippendale extolled in the *Director*. Some of the itinerant craftsmen left England's shores with no more than memories of the styles they had made or had seen be-

ing made stored away in their heads. Others had rough, freehand sketches on scraps of paper.

Wealthy Americans who traveled to England returned home with stylish new furniture purchased in London's chic cabinet shops, plus copies of the new design books, including Chippendale's *Director*. Sketches derived from the books soon circulated throughout the colonies. Newspapers advertised the services of the newly arrived craftsmen and featured articles describing the current trends in furniture design. Americans' appetites were whetted.

Those well-to-do colonists who could not travel abroad commissioned chairs, chests and tables like those in sketches they had seen. This furniture made in America naturally took on a slightly different look from the original English designs. After all, the local craftsmen were working within the constraints of their shops and, equally impor-

tantly, in the freer, less grand and less rigid social atmosphere of America. Ultimately American craftsmen interpreted Chippendale's basic designs and ornaments to suit 18th-century American lifestyle and philosophy.

THE STYLE WAS NEVER OUT OF FASHION FOR LONG

Furniture based on Chippendale's *Director* became the furniture of choice during the second half of the 18th century. Chippendale's original intention had been to promote himself and build up his business. But the book was more powerful than even he imagined. The *Director* broadcast Chippendale's name before the public from the Baltic to the Mississippi to the Amazon. Had he not published the

book, and had the book not been so well received, Thomas Chippendale would probably be no better known than his contemporaries William Hallett, John Cobb and Thomas Haig.

After the book was published, Chippendale's business thrived. He expanded his Maiden Lane storefront and was elected to The Society of Arts. Robert Adam, England's great architect and fellow furniture designer, commissioned Chippendale to furnish many of his finest rooms. Chippendale's work continued to receive accolades after his death.

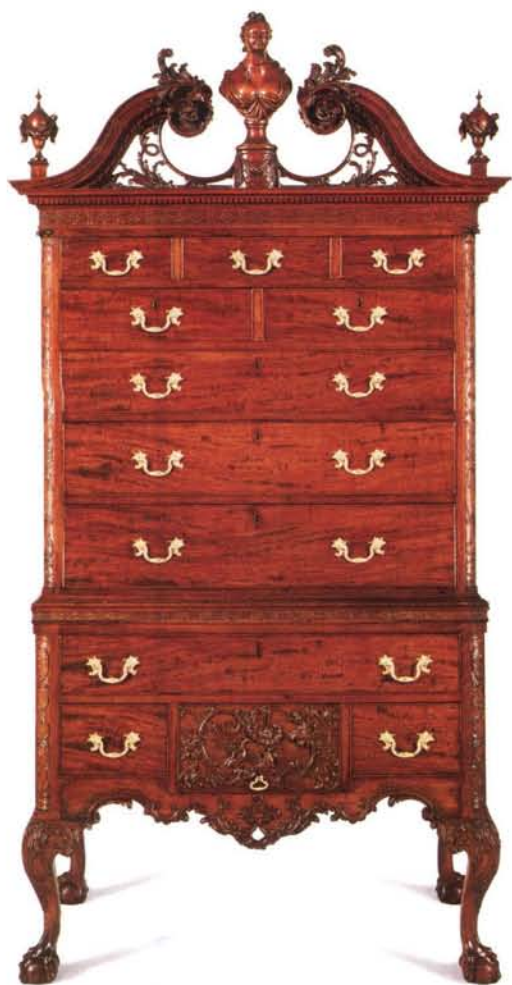
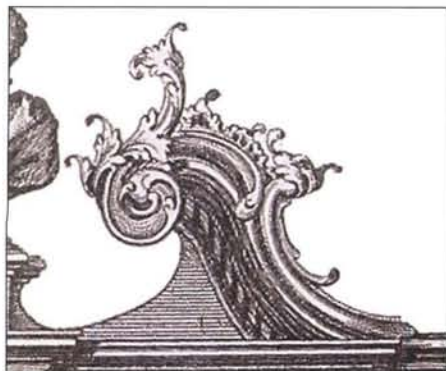
But styles come and go. By the end of the 18th century even the Federal-like designs of Hepplewhite and Sheraton had seen their day. Regency and Empire were on the horizon, as was Biedermeier, and soon the various Victorian styles would emerge.

However, Chippendale's name and designs had staying power. English writer J.T. Smith predicted in 1828 that "as most fashions come round again, I should not wonder ... if we were to see the unmeaning scroll and shell-work ... revive; when Chippendale's book will again be sought after with redoubled avidity."

THE MAN BECAME A LABEL

With the dawn of the Victorian era, those Rococo scrolls and shells, as well as the Gothic pinnacles and turrets, and the Chinese-influenced lattice work and carving once again added just the right decorative touch. Thanks to the *Director*, Chippendale's name as well as his designs were revived.

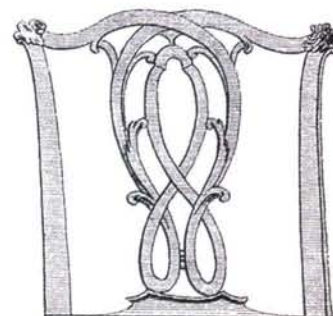
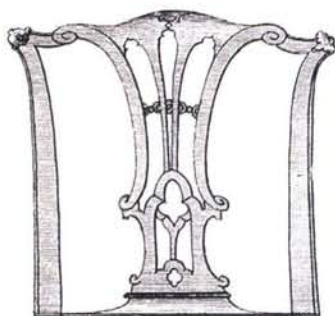
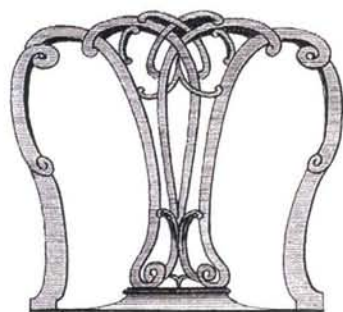
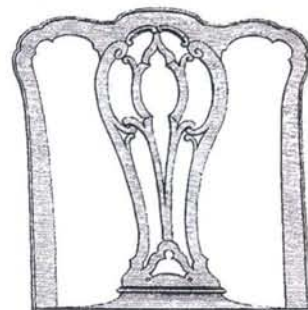
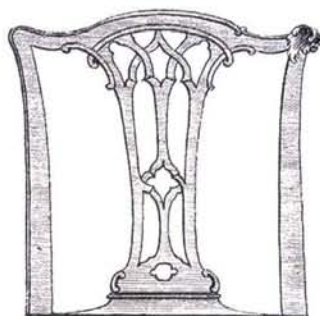
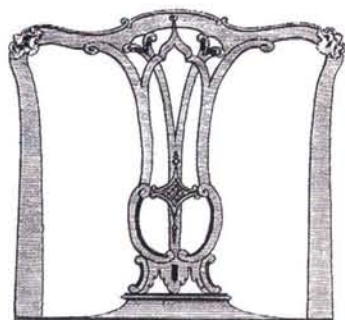
The truth is, it was Chippendale's *name*, more so than accurate knowledge of his designs and furniture, that became revered a century after his death. Furniture historian John Gloag described it best. "Respect for the magic of his name was far more potent than the example of his work. To the late Victorians and Edwardians he had ceased to be a man—he had become a label." And so the all-inclusive label "Chippendale" was coined. It became



Something borrowed. While this 18th-century Philadelphia highboy is in the Chippendale style, the only elements adapted directly from Chippendale are the finials (above right) and the scrolled pediment (top).



CHIPPENDALE'S CHAIR BACKS



such a widespread term that a turn-of-the-century writer scornfully reported that one woman, upon seeing a sketch of a dark-finished piece of furniture with the note that it should be "made in Chippendale," asked, "What wood is Chippendale?"

Chippendale's influence was almost as strong in the late 19th century as it had been in the 18th. The difference was that "Chippendale-inspired" furniture was being churned out by furniture companies and factories instead of the craftsman's workshop.

By the early 1900s, machines did most of the work, cutting and shaping the parts that were then fitted together. That cut down on time and cost. To the basic machine-made frame the early 20th-century craftsman skillfully added ornamentation and a hand-rubbed finish. Best of all, the moderately prosperous working man could afford elegant-appearing furniture, sturdy enough to last a lifetime and as-



sociated with that magical name that had come down through the ages—Chippendale.

How magical? In 1930, Emily Post wrote in her book, *The Personality of a House*. "A perfect key for one who is

American Chippendale. This chair, made in the Mid-Atlantic states, is considered to be in the style of Chippendale because of the curved crest rail and the carved and pierced back splat, but it is not a direct copy of any chair design in Chippendale's book.

building a new interior would be a Chippendale mirror. ... His fretwork-rimmed tables and China cabinets, and the long-beaked bird amidst the scrolled "C's" of his name ornamenting his gilt mirror frames, are dreams of Celestial loveliness."

The dream continues today. ■

Emyl Jenkins is a senior member of the American Society of Appraisers and is the author of Emyl Jenkins' Reproduction Furniture: Antiques for the Next Generation (Crown, 1995).

Memorials to the master. Frank Pollaro's latest Ruhlmann reproductions are these twin chiffoniers in amboyna burl and faux ivory with the signature torpedo leg. The original was designed in 1922.



Is It Ruhlmann, or Is It Pollaro?

A New Jersey furniture maker takes on a legend

BY ZACHARY GAULKIN

Jacques-Emile Ruhlmann, the masterful designer of Art Deco furniture, might be amused at the upstart from New Jersey keeping his name alive. Youthful, handsome and overflowing with raw rust belt charm, Frank Pollaro couldn't seem more different than the fussy French designer, one of the giants of the furniture world who has been described as "a little man with bright eyes peering out from behind thick tortoiseshell glasses."

The contrast goes deeper. Ruhlmann was an artist, a wizard with the pen who would draw complex designs and tell his disbelieving craftsmen to invent ways to build them. People who make furniture today view Ruhlmann the way aspiring actors think of Laurence Olivier: a legend whose work was so striking that few try to copy it. Frank Pollaro, on the other hand, is no artist (although his confident bearing—some might call it a studied swagger—is an art form in itself). Pollaro's wizardry is reproducing those designs to exacting standards, and he's not shy about his skill. Not long ago he purchased a full-page advertisement in *Architectural Digest* showing a Ruhlmann chiffonier with ivory and shagreen inlay. Over the photograph (in suitably bold type) it reads: "Ruhlmann or Pollaro?" It's definitely Pollaro.

Few, if any, question his ability. "He's a craftsman of 80 in the body of a 29-year-old," says Leonard Cuozzo, a self-described Art Deco lover and one of Pollaro's customers. "People are absolutely blown away by his furniture." In fact, the only criticism of Pollaro's work is that it is *too* perfect. But you get the feeling the old master would be proud of his disciple's skilled hand and faithful eye. "I've found the perfect mate," Pollaro says. Sir Laurence Olivier, meet John Travolta.

ADVENT OF ART DECO

To understand the chemistry at work here one must go back to 1925 and the famed *Exposition Internationale des Arts Décoratifs*, the exhibition that



A little man with a big name. Although he never built a piece of furniture himself, Jacques-Emile Ruhlmann crafted a reputation as one of the last great French *ébénistes*.

Still made the old way. After designing and building a number of Ruhlmann reproductions, Pollaro now leaves some of the cabinetwork to others in the shop. Here Clifton M. Watts fits amboyna doors to the twin chiffoniers.



would, much later, give birth to the term "Art Deco." Ruhlmann was quite accomplished and respected as a furniture designer before 1925, but the exhibition was his international debut. Visitors by the thousands saw his sumptuous rooms and exquisite furniture in the *Hôtel du Collectionneur* pavilion, which epitomized the sheer luxury of French interior design of the

early 1920s. "Even at the time, Ruhlmann's furniture was very expensive and was being collected by museums," says Tony Fusco, president of the Art Deco Society of Boston.

Ruhlmann and others were carrying on the tradition of the 18th-century French *ébénistes* by producing highly refined, exquisitely formal and expensive work. Ironically, the exhibition

Opulence the order of the day. Ruhlmann designed interiors, not just furniture. These Deco-inspired rooms, built by one of Pollaro's customers, show how the furniture was meant to be displayed.



Preview of modernism. This bold, square cabinet (above) is a reproduction of a 1927 design. Although the form is rectilinear, Ruhlmann could not avoid putting a subtle curve in the doors and the base.

Ruhlmann used the finest materials. This original dressing table and chair, designed in 1930 and recently sold at auction, are wrapped in amboyna burl with ivory and sharkskin.





marked the beginning of the end for this type of modern court furniture. By 1925, much of Ruhlmann's most celebrated work had already been designed and the luxuriant style he championed was giving way to spare forms designed for mass production. Keenly aware of the shrinking market, Ruhlmann abandoned his most opulent designs in the second half of the 1920s; he died of a sudden illness in 1933.

A HUNGER FOR LEARNING

Their obvious differences aside, Ruhlmann and Pollaro do share a real kinship. Ruhlmann grew up in a family steeped in the building trades. His father owned a painting and wallpaper firm which under Ruhlmann blossomed into a decorating and renovation company employing 600 people. Ruhlmann did not attend fashionable art schools but rather learned at the feet of the workers themselves and, although not a craftsman himself, appar-

ently always felt at home among them.

Pollaro's interest in craft began early. The son of a demolition worker, he recalls as a child asking his father to cut up boards so he could join the pieces back together. He started making money at woodworking with the help of his high school shop teacher, Bill Welch (whom Pollaro calls "The Chief"). Welch used to give the young woodworker jobs in high school even if it meant hiding out in the school's shop instead of in class. "He got focused early," Welch says. "I told him, 'Don't stay in one place too long. The more you move around, the more you learn and the faster you learn.'"

Pollaro took his advice. ("Whatever The Chief says, I do," he tells people.) After graduating from a high school outside Newark, New Jersey, Pollaro went to the Philadelphia College of Art to study interior design, but theory held no interest for him. A year later he was back in New Jersey, working in cabinet



Exquisitely simple. Pollaro's version of the Cabanel chiffonier (above) was made without having seen the original. The difficulty, he says, is not in making the piece but in establishing the delicate proportions and detailing.

shops and promising each employer that he would have his own business by the time he was old enough to buy liquor legally. "When I was 15, I thought I could do this on my own. As it turned out, I had to wait until I was 21."

MAKING THE MASTER PROUD

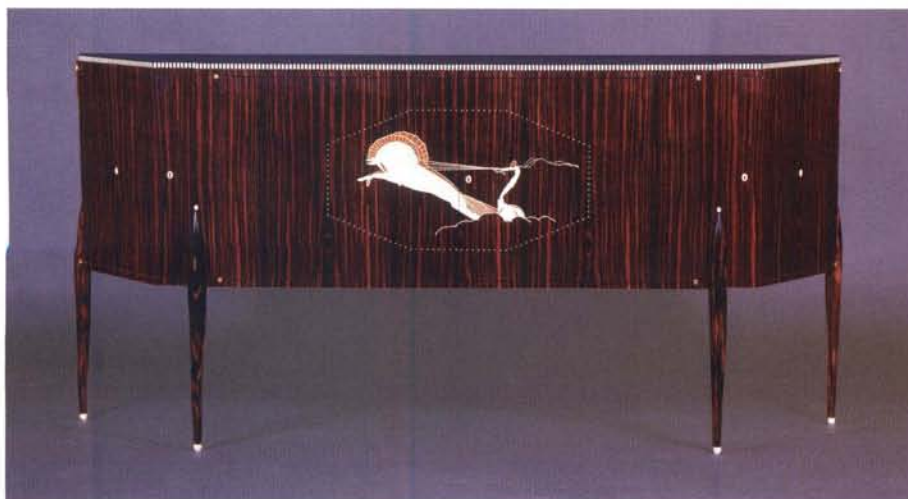
Pollaro decided to take on the legend when he was just 26 years old and running a successful shop making custom furniture and interiors. He had discovered Ruhlmann in high school when he saw a photograph of a famous cabinet with a basket of flowers inlaid on the front—an object that has come to symbolize a generation of French design. "I saw that photograph and I said,



An ambitious start. This reproduction of the kidney-shaped Cabanel desk (above) was one of Pollaro's first. Ruhlmann's original desk (right) contained more than 1,000 pieces of ivory inlay, cut and fit by hand.



Rigid form, fluid decoration. Ruhlmann's "Meuble au char" in ebony and ivory was first displayed in Paris in 1919. Pollaro's rendition (below) is faithful to the precise geometry of the original.



"That's it. That is *it*."

His first pieces sold almost immediately. "When we started making this stuff, we had no idea it would sell," says one of Pollaro's longtime employees. "We didn't even know if people had heard of Ruhlmann."

Still, you can almost count Pollaro's Ruhlmann customers on one hand. His reproductions account for less than a quarter of his shop's output—not a surprising statistic when a chest of drawers can go for \$40,000 and the crate to ship it in might take a couple of days to build. But Pollaro's decision to reproduce Ruhlmann was a savvy one despite the limited market. In the 1960s, when the current Art Deco wave was just a ripple, Ruhlmann originals were scarce but not outrageously expensive. Today the prices can be astronomical. Few people have the millions it would take to decorate a home—or even a room—in French Art Deco, so they go to Pollaro.

BEAUTY IN TECHNIQUE

Ruhlmann's appeal, both then and now, has to do with the unflagging level of detail combined with enormous technical challenges. "Ruhlmann's sense of discipline was the mark of his superiority," writes Florence Camard, author of *Ruhlmann: Master of Art Deco*. The delicate, torpedo-shaped *fuseau* leg—a Ruhlmann signature—is a technical marvel and emblematic of his approach to design. Veneered and fastened to the outside of a case or table, the leg has shapely contours with hairline inlays separating the tapered facets. It sometimes took his craftsmen more than a week to make one leg and months to complete one piece of furniture. But Ruhlmann—who probably never built a piece of furniture in his life—seldom let engineering interfere with his ideas. He sketched furniture as an artist would, letting his draftsmen and artisans figure out how to build it.

What Pollaro sees in Ruhlmann is an excitement about furniture, a desire to push the craft to luxurious levels. "I

love this furniture because the guidelines are so rigid," he says. "To build these pieces is hard enough. Then you have to clad them in veneer." In the Cabanel desk, designed in 1918, there are 1,000 pieces of ivory inlay cut and fit by hand. The desk surface is shagreen, the polished skin of a shark or ray. "Ruhlmann picked the finest materials available on the planet. When you build one of these pieces, you end up with a couple hundred dollars worth of sawdust on the floor."

There are few woodworkers in the United States remaking Ruhlmann, says Frank Klausz, another New Jersey craftsman, as well as a teacher and author. Pollaro's furniture "is very close to the originals and even better in some ways," Klausz says. "Ruhlmann is the most difficult to reproduce. It has to be precise and perfect—it is because it is perfect that people say it is beautiful."

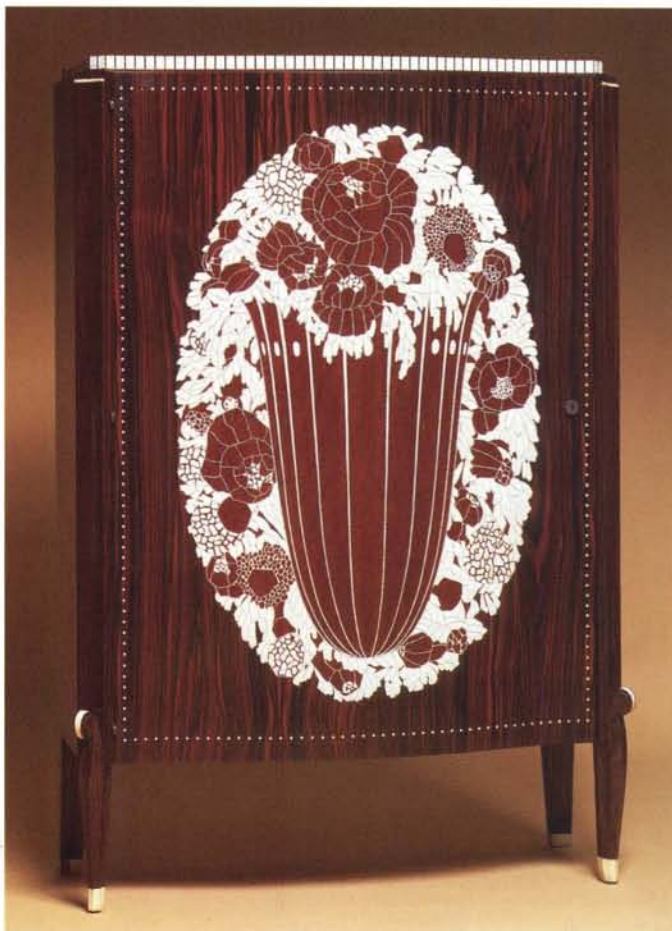
Pollaro is not bashful about this kind of praise but he also realizes that he has an edge. Even though he must recreate subtle curves and delicate details, usually with little more than a photograph, the furniture itself has already been proven. This gives a craftsman the luxury, as Klausz says, "to be more critical and more fussy about the work." It frees Pollaro to focus on what he does best. "I am not an artist or a designer," Pollaro says. "My strong point is as a craftsman, to interpret what I see. It's not me against Ruhlmann, it's me against Ruhlmann's best craftsman and I don't have Ruhlmann looking over my shoulder and yelling at me."

Pollaro's zealous effort to remain true to his hero is also a curse. Usually, reproducing someone's work is flattery and, sometimes, bestows a kind of immortality. Antiques dealers, however, are skittish of reproductions being represented as originals. Pollaro addresses this by making his work indelibly his own, by inlaying or carving his name, the date and the words "Ruhlmann Reproduction" on every



Ruhlmann inspired. This cupboard melds a number of Ruhlmann designs from the 1920s, in which he put differently-shaped boxes on a pedestal with cast legs and lock plates.

An Art Deco icon. Now in the Metropolitan Museum of Art, this ebony and ivory cabinet (below) is one of Ruhlmann's most recognizable designs and the one most often associated with 1920s French Art Deco.



piece. Still, those in the antiques trade are reluctant to give his work their imprimatur (or even to talk about it for publication).

For someone so deeply in love with the furniture Ruhlmann created, this is hard to understand. "The only thing I

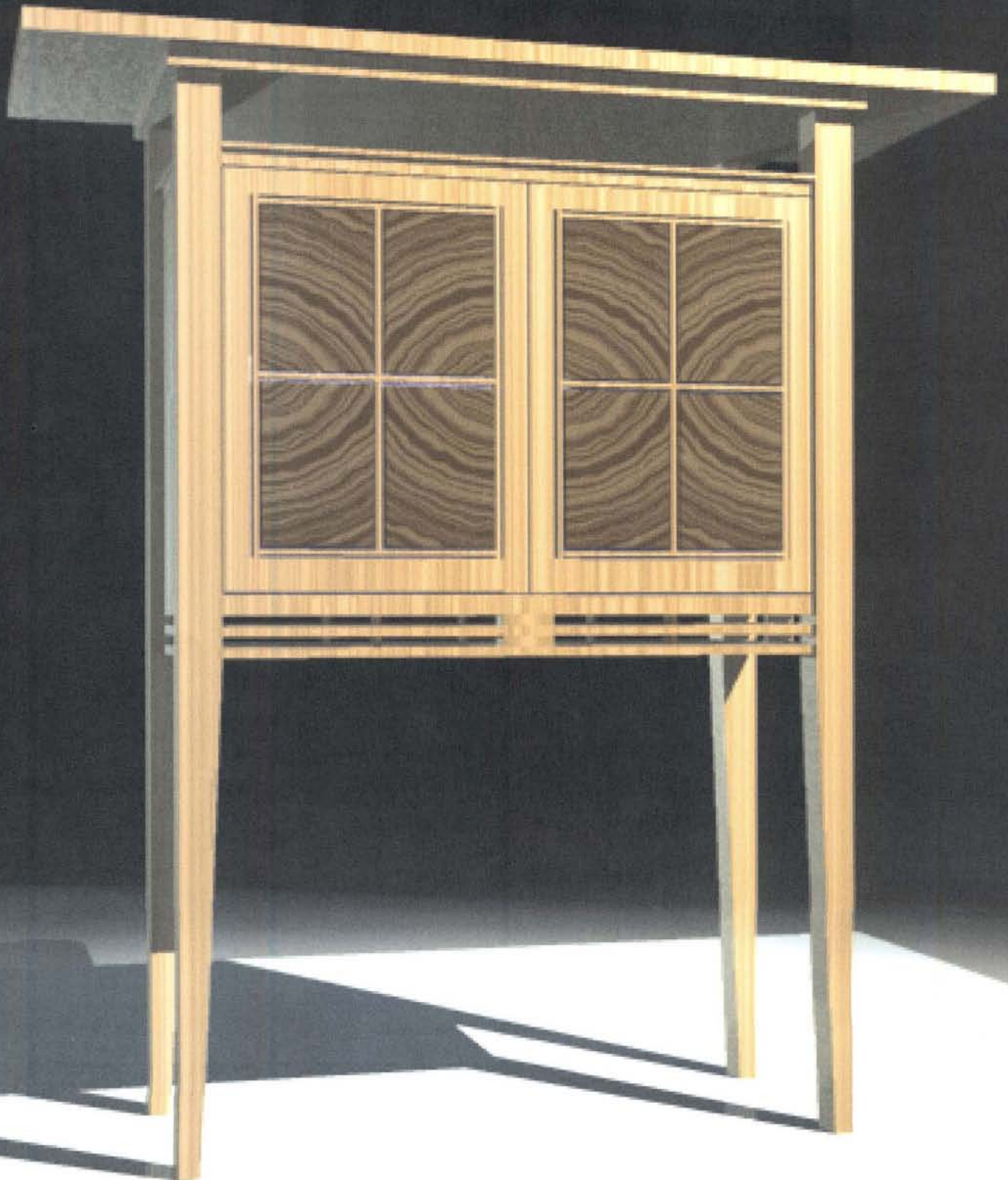
enjoy more than building this furniture is looking at it," Pollaro says. "I would rather look at a Ruhlmann piece than make it." ■

Zachary Gaulkin is an associate editor at Home Furniture.

Animate Your Designs

Furniture comes to life with 3-D software

BY CHARLES RADTKE



typically I begin designing a piece of furniture by first envisioning the main surface—the part of the piece that greets you. A table begins with the top, a cabinet starts with the doors. I produce shop drawings that are often as simple as a rough sketch on a scrap of paper on my workbench. In the case of this cabinet, the eight-way book-matched walnut doors with curly maple frames were fabricated first.

But the design of this particular piece represented a deviation from my usual routine. Instead of constructing a model out of shop scraps and refining it through alterations in the materials, I “built” the cabinet in a three-dimensional computer animation program

first and then refined the “model” almost without setting foot in my shop.

As an experiment, two architects—and my collaborators in this adventure—named Thomas Kubala and Joel Krueger helped me to create an animated 3-D model to see whether it would enhance “real world” design decisions. It did. I believe that someday many furniture designers will work at least partially in this medium, because the flexibility to digitally apply color and realistic grain patterns was, frankly, seductive. And, unlike most CAD drafting programs, the animation software we chose gave us the ability to rotate the model and see it from all sides.

UNLIKE SHOP MODELS, 3-D CAN EMULATE GRAIN

In addition to testing whether the 3-D model led to better design work, I wanted to see how well the relatively sterile digital images, however sophisticated, would translate to living materials and to a design process that celebrates the unique character and subtle nuances of the chosen wood. When a designer sketches a piece of wood furniture without the figure of the grain, he leaves out some of the most important design lines on the piece. Grain-use decisions can make a piece look either integrated or scattered. Although grain figure can be studied by making an in-shop mock-up with real pieces of wood, such a model is instructive only if it is made from the precise wood species intended for the actual piece. In this instance, I had very little curly maple to spare, and none that I cared to squander on experiments.

In our somewhat crude experiment, during which we did not use the full capability of the software, we were able to reproduce the grain figure on my cabinet by “painting” it onto the 3-D model. The technology is available to even more accurately portray the real grain by taking a crisp photo of the wood and scanning it into the computer. This would have given us an accurate rendering of the grain pattern, texture and color in exactly the correct places on the model. It seems clear that in the near future, designers will scan a photograph of the specific room for which the piece is being created, then insert the designed piece into the image of



No 3-D glasses needed. Although a few of the details lacked refinement on the computer animation sketch (opposite page) of the author's cabinet, he was able to judge final design and grain patterns (left).

the room to see how the piece will look. We elected to save time by choosing grain patterns that were available within the software, then modifying them greatly to simulate the wood I had already chosen. Because the piece was a speculative one, we had no particular room to test its fit in a context.

3-D LETS YOU VIEW IT FROM ALL SIDES

It became clear early on that the 3-D model was helpful in establishing the stance of the cabinet prior to beginning major construction. The model also helped to determine how much space there should be between the floor and the cabinet bottom, as well as propor-



Spin the top—and front and sides.

Animation software allowed the author to rotate his cabinet 360 degrees before building the real thing. But he warns that it is only a tool, not a substitute for good design sense.

The 3-D Software

The author first “built” his cabinet in Virtus WalkThrough Pro, software for architects and interior decorators that lets them create an object or a space and walk through it and around it. It is also used by movie directors to

design sets and mock up shots. The software, which sells for \$369-\$495, includes some stock wood grain patterns that can be applied to models. It requires 8 megabytes of RAM, but 16 is preferred. The more powerful your machine (Mac or Windows system), the faster you can rotate your design.

tions and dimensions in general.

One of the most important benefits was that the technology allowed us to select various points of view, "walking around" the cabinet and viewing it from a variety of perspectives.

We were also able to analyze fine-scale details. For example, we looked at a number of options with regard to

the wedged tenons that peek through the veneer top. Should I wedge the tenon diagonally or straight—with two wedges or possibly three? All these smaller details were considered and mocked-up on the 3-D model prior to final glue-up.

EVEN COMPUTERS HAVE SHORTCOMINGS

The model was less helpful in establishing the weight of the elements themselves. For example, the actual legs are far more delicate than we were able to perceive in the computer model, and the top of the finished piece is actually about 4 inches shorter. Just as in the case of sketches, the satisfying proportions generated by the computer needed to be modified to varying degrees when shaping the wood itself. This may have been a result of the nature of the materials, the fact that computer models are in reality "flat"—or both. With that in mind, I did not rely on a 3-D computer model to dictate the final proportions of the piece. Those decisions were and should be made throughout the hands-on woodworking process.

It is paramount to keep in mind that computer 3-D design is merely a vision that needs to be molded to the design-altering qualities of each piece of wood. While it is possible to mock up grain to be either flat or quarter-

sawn, I feel that grain should be painted into the model only after wood has been selected. There is no sense in mocking up a wood or grain pattern, no matter how beautiful, that is not in your inventory of materials or is not available on the market.

Clearly the exercise did demonstrate that the 3-D images supported the exchange and development of design ideas. As a common frame of reference, it allowed us to conceptualize and try a range of possibilities prior to committing them to wood. Digital imaging is a powerful tool, and one that I believe will be used increasingly by the computer-literate designers among us. They will show how this tool can be used not only to write correspondence and draft orthographic shop drawings of our creations but also to bring our designs to life. But like any tool it should be used appropriately and with care. I base my decisions—in the computer or on the drafting board—on decades of experience and a well-developed design eye. I do not now, and never will, consider myself a computer designer. The wood and your eye have to be paramount in the design of furniture. And in the end the piece must be well-crafted. The computer doesn't help you there at all. ■

Charles Radtke designs and builds furniture at his shop in Cedarburg, Wis.



WalkThrough Pro is available from **Virtus Corporation**, 114 MacKenan Dr., Suite 100, Cary, NC 27511; (800) 847-8871; or e-mail: info@virtus.com.

To expand his ability to achieve more "photo-realism" in his design models and apply more realistic grain, the author took the added step of exporting

his WalkThrough Pro file into Specular Infini-D, marketed as modeling, rendering and animation software (for Macs only). For example, Infini-D lets the user import a photo of the actual grain pattern on wood in the shop and "apply" it to the computer model in the desired place. It pretty much takes a

Power Mac with 8MB RAM (20 preferred) to run this program. Infini-D is available from **Specular International**, 7 Pomeroy Ln., Amherst, MA 01002; (800) 433-7732; or e-mail: info@specular.com. It retails for \$899 but can be found in some stores for \$499.

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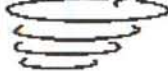
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how they did it

Some furniture makers in this issue have developed unusual or innovative techniques that are important to the success of their projects. *How They Did It* illustrates those techniques.



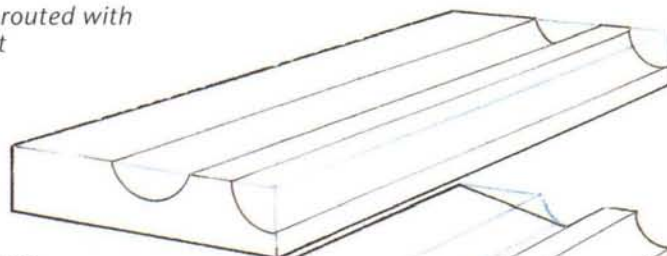
CARVING INTEGRAL DRAWER PULLS

The integral pulls add about half an hour of labor to each drawer in my “Modern Rolltop” (p. 64). They more than pay for themselves in added appeal. I begin after the drawer is assembled and has had its final fitting.

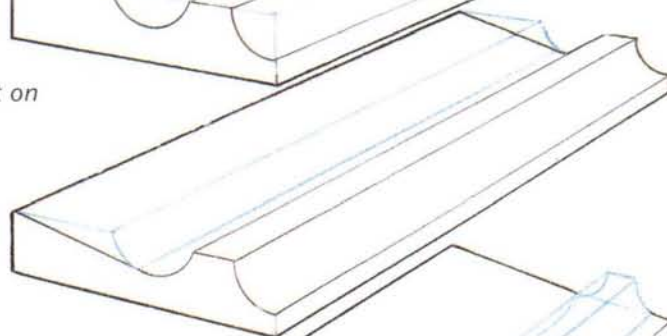
My carving method combines hand and power tools. To begin, I cut a round-bottomed groove in the top edge of the drawer front with a ½-inch core-box bit. Then I cut a groove in the face with the same bit. The last machine process is to tilt my tablesaw blade to the slope of the drawer front and rip off the face. This leaves a sloped face with a ridge projecting across its top. I work the ridge down from the center to the ends with a spokeshave, leaving it high in the center. Because the spokeshave will

PULL CARVED INTO DRAWER FRONT

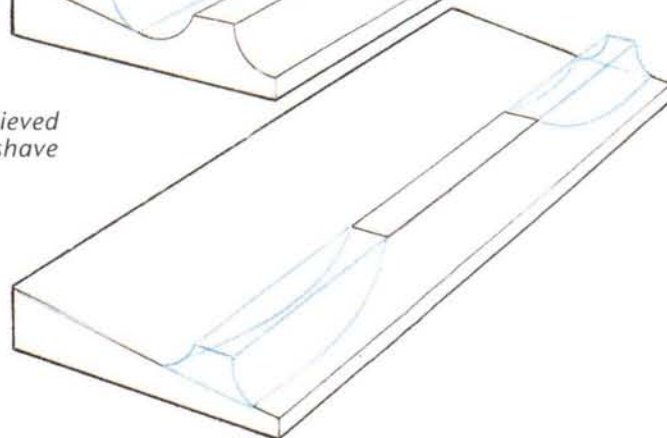
1. Grooves routed with core-box bit



2. Bevel cut on table saw



3. Areas relieved with spokeshave



consistently repeat the curve that comes naturally to it, locating the center is the only layout I need to do. Any minor variations in the pulls I regard as evidence of human involvement, a positive attribute. I remove the router and tablesaw marks with sandpaper, 80 grit through 400 grit, wrapped around a thin sanding block with one edge rounded to fit the routed groove.

—Jamie Russell



Touch me. Carved pulls can make a drawer inviting instead of ordinary.

MUSIC STAND JOINERY DESIGN

Although the joinery for the top section of my “Cherry Music Stand” (p. 52) looks the most difficult, it really isn’t. It’s simply a matter of precise layout, cutting accuracy and repetition. There are four ½-inch arches connected by 16 tiny lap joints, none of which are square. I use a razor blade or surgical knife to mark the joint, then saw it very carefully.

It is more difficult to get a ½-inch by ⅝-inch shaft to slide flawlessly into a thin post. That thin post actually started as a piece 2 inches by 4 inches. I drilled a series of ¼-inch

aligning holes down both sides, and cut it into two pieces of 1 inch by 4 inches. With a specially ground cutter—½ inch by ⅝ inch, with ⅛-inch radius shoulders—on a table saw, I cut a groove 24 inches down the center of each piece, fencing off the same edge (see drawing below). Then I carefully oiled the grooves with linseed oil to keep the glue out, and glued up the matching faces. I pounded ¼-inch dowels into the holes for realignment and clamped it until the glue was dry. I cut a tenon at the bottom to fit a mortise in the base. After gluing the base to the post, I bandsawed it to taper it



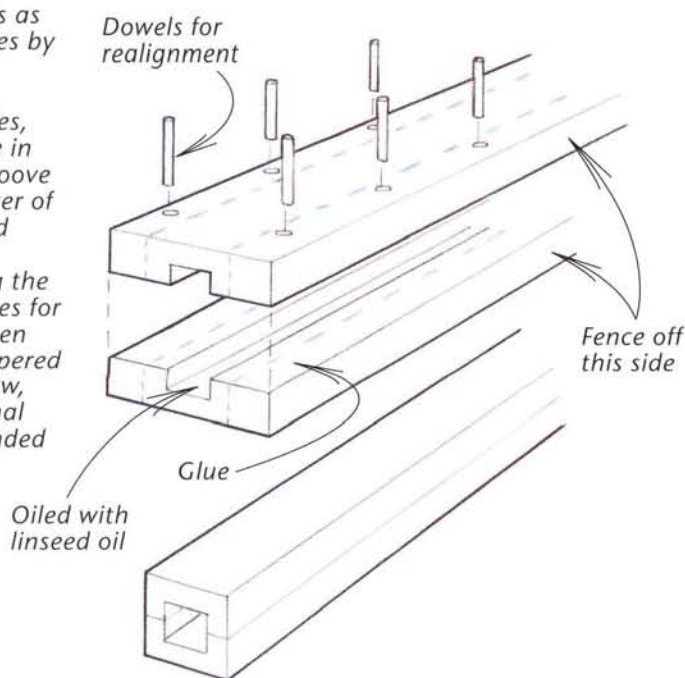
Adjustable sliding shaft. The top section of the music stand slides into the bottom post, which is tenoned into a mortise in the base.

upward, rasped it to a final shape and sanded it smooth to give a perfect transition from the parabolic foot into a shaft that is only ¾ inch by ⅝ inch at the top.

—Chris Becksvoort

MAKING THE STAND FOR THE SLIDING SHAFT

The post starts as a piece 2 inches by 4 inches. The author drills alignment holes, saws the piece in half, cuts a groove down the center of each piece and glues it back together using the pre-drilled holes for alignment. Then the piece is tapered with a bandsaw, rasped to a final shape and sanded smooth.



HICKORY BARK SEAT: A PLEASURE TO USE, AN ADVENTURE TO HARVEST

A hickory bark chair seat just may be the best there is: comfortable, resilient, long-lasting. It is good-looking from the day it goes on and the more you use it the more beautiful it becomes. But while you may find using one a pleasure, making one from scratch, like those shown in “Evolution of a Chair” (p. 26), is something else. After cutting over 15 linear miles of hickory bark for chair seats, I still haven’t found a method for making splints that qualifies as easy. I still do it, though, because I like the seat so much and because it is central to the Appalachian tradition I work in.

A tree’s bark is anything outside the cambium layer, the thin, live ring where new cells are formed. The bark used for chair seats is not the tree’s rough outer bark, but its inner bark, the leathery layers between the outer



bark and the cambium.

It is possible to harvest bark year round, but the most practical time of year to harvest is in the spring and early summer. During this part of a tree's growing cycle the bark peels easily because the cambium, where you separate the bark from the tree, is slithery with growth.

I usually fell my own trees. I look for straight-trunked hickories with at least 15 feet of clear trunk. I go for smaller trees, at most 12 inches in diameter, because the bark of more mature trees is not as supple. I cut trees where the forest needs thinning or trees that have suffered fire scar or other damage but still have good bark.

I often leave the trees on the forest floor to decay when I've peeled the bark. Sometimes hickories as small as 12 inches in diameter are used for tool handles or pallets, and this is an ideal situation, because the wood also gets used. But usually the wood is just not worth the trouble. I don't like to use wood from such small trees in my chairs, because it is apt to warp and has poor color (although it makes excellent spindle and bow stock for Windsors). If this sounds wasteful, I'd say that it's a matter of perspective. On a 12-inch diameter log the value of the processed bark is about four times the value of its lumber kiln-dried. To me it seems more wasteful to use such trees for pallets and discard the bark.

Once I've found and felled a tree, I cut inch-deep incisions along the length of the log with a chain saw.

BARK SAFARI: GOING INTO THE WOODS AFTER A WOVEN HICKORY SEAT

1. Unzipping a hickory. Brian Boggs harvests and weaves hickory bark for the seats of his chairs. Removing the bark starts with incisions made with a chain saw.

2. Working with the upper crust. The hardest work comes here, drawknifing the stiff, crusty outer bark to reveal the pliable, leathery inner bark.

3. Point of departure. The cambium layer, where new cells are generated, is the dividing point between the wood and the bark.

4. Beginning the peel. Boggs nudges his drawknife in at the cambium and uses the blunt edge to spring the bark from the log.

5. Sloughing off. Once the peeling begins, the bark slides right off the log.

6. Slit to width. A homemade utility knife with a pair of blades $\frac{3}{4}$ -inch apart makes quick, even strips.

7. A bark seat—the best there is? A woven hickory bark seat is handsome, comfortable and long-lasting.

make the incisions about six inches apart. The next job is to remove the crusty outer bark with a drawknife, exposing the inner bark. This is very hot, hard work. You straddle the log and go after it. Once the outer bark is removed, I go to the butt end of the log and ease the drawknife into the cambium layer and under the inner bark. The bark separates easily in a long, floppy strip. I roll it up, tie it, and it's ready to go back to the shop. Then I turn the log and attack the next six-



1

inch wide strip. There's not a lot of technique involved here, but it takes practice to get to a point where your product is worth your pain.

I like to let the bark sit under a tarp for several days before working it. The inner layer is not as sticky then and the outer layer softens from the moisture given up by the inner layer. By tying the bark in tight rolls I keep it from warping as it sits. When the bark is ready to work I roll it out, cambium-side up, and cut it into strips by hand. I



have made a double-bladed utility knife that cuts nice, even widths.

Next the strips must be sliced into layers thin enough for weaving. There are all sorts of ways to do this—from drawknifing to thickness on the tree, to splitting by hand, splitting with a knife-blade bandsaw, or soaking the bark so long that it separates naturally. I have tried everything I have ever heard of and am still experimenting.

Currently I am using a machine built for me by an ingenious basket maker

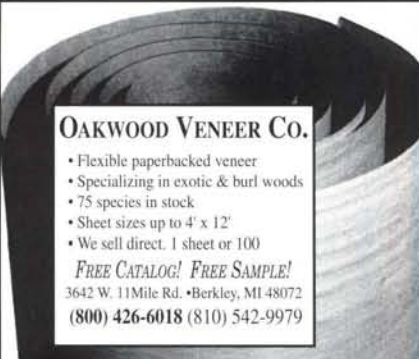
and machinist, Dave Nash. I just feed one end of the strip into this splitting machine like feeding a thickness planer. The machine slices the bark to thickness. It is possible to get three to four splints from a single $\frac{3}{4}$ -inch strip, but after the second splint, the bark quality diminishes.

As soon as I split the bark, I roll it up loosely and hang the rolls to dry. Once dry, the bark will keep for many years, needing only a hot bath to return it to suppleness. I soak the dry splints for

about 30 minutes before weaving.

Sometimes I wonder about the practicality of making my own bark splints. Bark season comes at one of the busiest and most chaotic times of the year. But I love getting out to the woods and even enjoy the hard work. And cutting my own bark is the only way to ensure the quality I want. But yes, a part of me enjoys seeing my bark knife hung on the wall, signifying the end of another bark season.

—Brian Boggs



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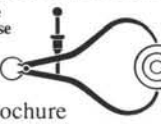
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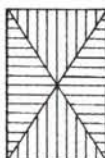
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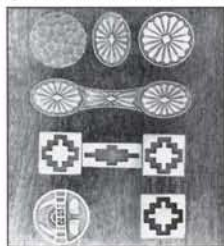
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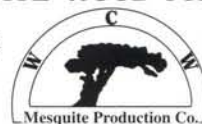
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LACEWOOD

Down under they call it Southern silky oak. In the United States we call it lacewood. This magnificent and abundant timber is *Grevillea robusta*. They say that if you eliminated the ubiquitous eucalyptus from Australia, this tree would be the prominent species of arborescent plant life on the continent. While it is native to Australia, it can be found growing in tropical and subtropical climates throughout the world. One may encounter it as a street tree in some of the great cities bordering the



Mediterranean. And if you happen to be working in the heat of the tea plantations of the Kenya Highlands or the hills of Sri Lanka you can rest in the shade of the large, fern-like, evergreen leaves of this tree. They are planted there to protect the delicate tea leaves from burning in the tropical sun. You may find that you actually own one—in the form of a very popular houseplant—known simply as grevillea. There are many plantations of lacewood trees in widely scattered parts of the world, including South Africa, Samoa and Hawaii. The trees rise up 100 to 150 feet with diameters of two

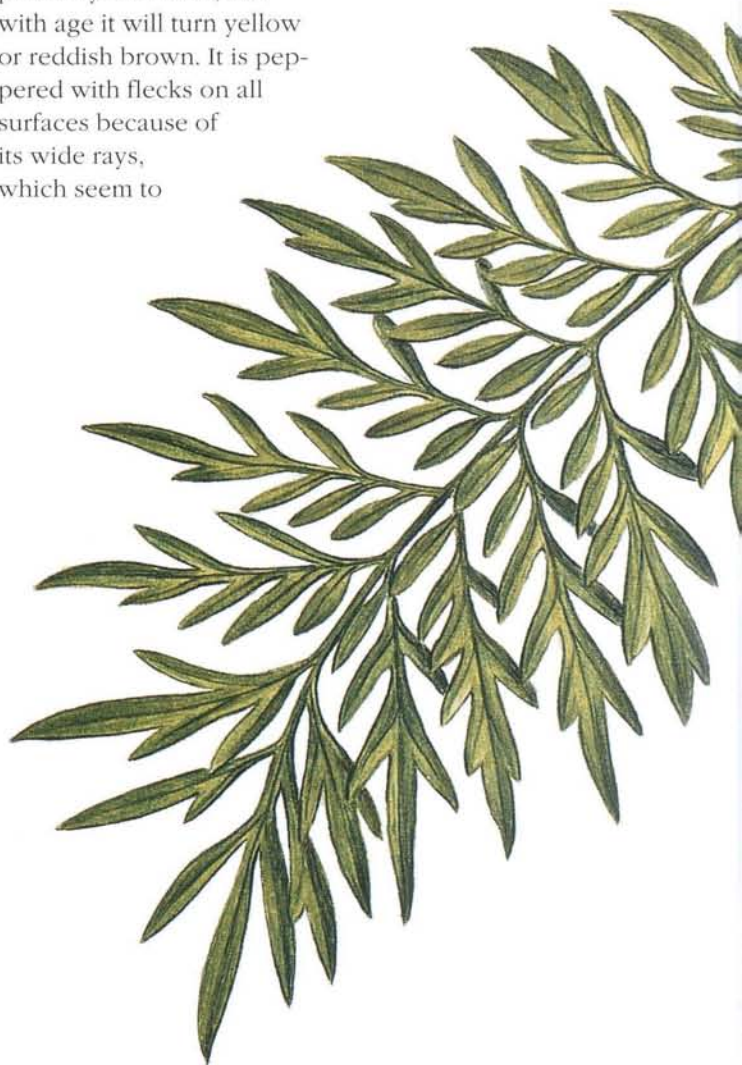
to four feet. Many lacewood trees will yield two 16-foot sawlogs clear of knots. The specific gravity of the wood is in the 0.51 range but the plantation-grown wood from Hawaii is said to be a bit heavier.

When freshly cut, the wood of the lacewood is a pinkish yellow hue, but with age it will turn yellow or reddish brown. It is peppered with flecks on all surfaces because of its wide rays, which seem to

twist and turn. On the quartersawn (radial) surface the flecks are small and uniformly close, creating a pattern not unlike the cloth from which the name lacewood was derived. Ah! but on the flat-sawn (tangential) surface the ray flecks



Rife with ray fleck. Lacewood's prominent rays are evident any way you slice it.



really excel. Here they stand out like embedded and sanded stones. You are apt to get mesmerized looking at them.

Notwithstanding the structure of the wood, which contains some of the longest fibers in hardwoods along with the meandering

rays, it is relatively easy to work. An unpublished

report on file at the U.S. Forest Products Laboratory calls lacewood one of the best woods ever tested in the lab for all-around machinability. Still, there are some things to keep in mind. There is some tendency for the wood to chip at the rays when

planed; sharp tools should remedy this problem. Also, the rays tend to be harder than the surrounding wood and consequently it is advisable, if you are trying to achieve a truly flat surface with abrasives, to sand cross-grain before sanding along the grain. On the downside, the wood is susceptible to powder-post beetle and termite attack and is not recommended for external use unless it is treated. Further, sawdust and green wood may cause skin inflamma-

tion. The finished wood, however, is safe to handle.

Lacewood is a great wood for fine furniture, veneer and turning where an unusual grain pattern is desired. (For an example, see the "Lacewood Hall Table" on p. 58.) It is often paired with plainer woods to prevent the lacewood's attractive grain from becoming overpowering. It is stocked by many hardwood dealers throughout the United States, but one must be careful when asking for it, as there are other woods described as lacewood in the marketplace. Our English friends would probably be shown European plane, which is much like our American sycamore, if they inquired about lacewood (see the "Fiery Sideboard in English Plane" on p. 54). It, too, has this lacy look, but much subdued. To complicate matters, the Australians identify two lacewoods: Southern silky oak (*Grevillea robusta*) and Northern silky oak (*Cardwellia sublimis*). Although from different genera, they are nearly identical, and either will please the discriminating woodworker.

James H. Flynn is the editor of *A Guide to Useful Woods of the World* (King Philip Publishing Co., Portland, Me., 1994).



STRAP HINGES CUSTOM-MADE FOR THE OUTSIDE OF A CHEST

Daniel and Patricia Moses had the strap hinges for their "Painted File Chest" (p. 48) custom-made by blacksmith and foundry owner **Dave Mitchell** (8E Hadco Rd., Wilmington, DE 19804; 302-998-1181). Because the

Strapped to the outside.

Custom strap hinges of hammered steel were placed on the outside of the chest to display their hand-forged beauty.

hand-forged hinges are made to be seen and felt, they fit on the outside of the chest rather than on the inside, which is a more traditional method.

Mitchell also darkened the steel with his own linseed oil solution to create an almost black color, much darker than the light to medium gray of hand-forged steel. Although often called hand-forged iron, Mitchell says the material used today to resemble traditional methods of blacksmithing is technically steel in its composition, rather than iron.

The handles on the chest are made of brass and are available from **Whitechapel Ltd.** (P.O. Box 136, Wilson, WY 83014; 800-468-5538). The handles also were darkened by using an acid antiquing solution. Although the antiquing was done by Whitechapel, the company sells a pre-mixed solution for darkening brass.

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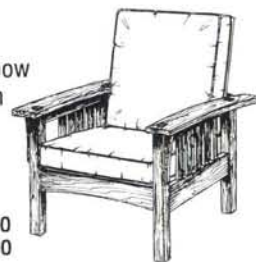
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about the furniture makers

Home Furniture prints the addresses and telephone numbers of the furniture makers featured in each issue, unless the maker requests that they be omitted.



RANDOLPH A. DeMERCADO

(above) first encountered woodworking when he was growing up in Jamaica and his father hired a craftsman to build a suite of furniture. The man did it all with hand tools in the family's garage. DeMercado later emigrated to the United States and he now makes reproductions and interpretations of Chinese furniture (306 Lakes Rd., Warwick, NY 10990; 914-986-2815). "Classic Chinese Chair" on p. 46.

JACK ALBERTI

made his way from aerospace engineering to full-time furniture making by way of home building and pipe organ construction. His furniture often features surfaces decorated with repetitive-patterned marquetry (P.O. Box 236, Poquonock, CT 06064; 860-683-8805). "Fiery Sideboard in English Plane" on p. 54.

CHRIS BECKSVOORT

is a writer, gardener, speed skater and professional woodworker. He is also a contributing editor for *Fine Woodworking* magazine (P.O. Box 12, New Gloucester, ME 04260; 207-926-4608). "Cherry Music Stand" on p. 52.

MARK BELLONBY

graduated from The Hill School in Pottstown, Pennsylvania, where he took a three-year program in furniture design. He then pursued a career in architecture, studying at Dartmouth and the University of Pennsylvania. He is a partner in a firm in the nation's capital, but has continued to design and build furniture for 25 years (6626 Weathford Court, McLean, VA 22101; 703-506-0640; Scot4560@aol.com). "Architectural Ornamentation" on p. 32.

BRIAN BOGGS

is a chairmaker who conducts workshops around the country and is working to set up a chairmaking operation for students in Honduras (118 Lester St., Berea, KY 40403; 606-986-4638). "Evolution of a Chair" on p. 26.

FRANCOIS BRETON

has been designing and building custom furniture since 1983. He sells his work directly to customers and through retail stores in Montreal (999 du College, Room 36, Montreal, Que., Canada H4C 2S3; 514-989-1447). "Curved Armchair" on p. 63.

ANTHONY BUZAK

spent 20 years running an audio and video electronics repair company before diving into furniture making full-time. After several years working in other shops, he set up his own custom furniture business in 1991 (60 Dexter St., Tonawanda, NY 14150; 716-693-1749). "Lacewood Hall Table" on p. 58.

THOM DUPREX

began a second career as a furniture maker in 1989 after 25 years in telecommunications. He now runs a one-man shop in northern New Hampshire and builds custom furniture in Shaker and 18th-century styles (P.O. Box 279, Brushwood Rd., North Haverhill, NH 03774; 603-787-6359). "Shaker-style Apothecary Chest" on p. 44.

DAVID GEER

has been a full-time woodworker for about 10 years. He builds houses, is interested in drawing and design and collects and uses Japanese hand tools (158 Stage Rd., Monroe, NY 10950; 914-783-0117). "Glass-Topped End Table" on p. 50.

PAUL HARRELL

studied furniture making under James Krenov. Since 1990, he has been making furniture in his one-man shop in central North Carolina. His article "Designing Along the Grain" appeared in the Spring 1996 issue of *Home Furniture* (87 Mantis, Pittsboro, NC 27312; 919-542-2743). "Silver Chest" on p. 68.

JAMES HUME

works wood in the large, clean shop he built beside his house. He also works metal there, fabricating fuel tanks, air foils and aluminum bodies for dragsters and funny cars. His preparation for this dual career included work in cabinet shops and a stint as an assistant cartoon animator with Hanna-Barbera (2040 Prairie Rd., Sedro Woolley, WA 98284; 360-856-1646). "*Mahogany Rocker*" on p. 66.

JUN ISHIBASHI

is a professional furniture craftsman who graduated from the Woodworking Department of the Hannoh Professional School in 1985 and then worked for two furniture manufacturing companies. He has been designing and building furniture at his small studio since 1992 (Wood Craft Hane, 28 Momonoki Tokigawamura, Hikigun Saitama, Japan 355-03; 0493-65-1506). "*Japanese Chairs*" on p. 72.

MILES KARPILOW

studied painting at Tyler School of Art in Philadelphia and at New York University. After working eight years as a frame carver and gilder in New York and San Francisco, he began making furniture in 1961. He now makes custom furniture, cabinets and entry doors (999 43rd St., Oakland, CA 94608; 510-655-5272). "*Carved Maple Armoire*" on p. 60.

DOUG MOOBERRY

is the proprietor of Kinloch Woodworking Ltd., which specializes in 18th- and 19th-century American furniture (Kinloch Woodworking Ltd., Rt. 82, Unionville, PA 19375; 610-347-2070). "*A Cabinetmaker's Dream*" on p. 36.

DANIEL AND PATRICIA MOSES

owned a gourmet restaurant before going into the furniture business in 1989. Daniel got his start as a woodworker by building custom accessories for boats during college. Patricia's studies in anthropology and art influence much of their work (American Furniture & Fine Craft, 197 W. Meyran Ave., Somers Point, NJ 08244; 609-653-2016). "*Painted File Chest*" on p. 48.

BILL PALMER

learned woodworking in Canada before moving to Key West, where he built his home and workshop. He can often be found kayaking through mangrove islands in the Florida keys (Designs: Fine Furniture, 1026 Truman Ave., Key West, FL 33040; 305-294-9570). "*Curved Bed in Cypress*" on p. 70.

CHARLES RADTKE

plunged into furniture making at St. Paschal Friary, Oakbrook, Illinois, in 1982, and now creates pieces for collectors worldwide (N70 W5334A Bridge Rd., Cedarburg, WI 53012; 414-375-8703). "*Animate Your Designs*" on p. 90.

GARY ROGOWSKI

poured concrete and worked as an auto mechanic before becoming a full-time woodworker. For the last 20 years he has been designing and building custom furniture, teaching woodworking and contributing to *Fine Woodworking* magazine (1104 N.E. 28th, Portland, OR 97232). "*Cloud Rise Bed*" on p. 41.

JAMIE RUSSELL

has been operating a one-person shop specializing principally in furniture since 1977. He is largely self-taught, helped along by symposia of the Saskatchewan Woodworkers Guild (Box 157, Vanscoy, Sask., Canada S0L 3J0; 306-934-0082). "*Modern Roll-top*" on p. 64.

GARY J.W. SPYKMAN

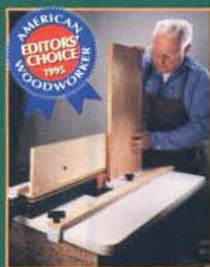
specializes in furniture in the Arts and Crafts tradition, inspired by the work of Harvey Ellis, Charles Rennie Mackintosh and the Greene brothers. He lives and works on the island of Martha's Vineyard (G.J.W. Spykman, Cabinetmaker, P.O. Box 2273, Edgartown, MA 02539; 508-693-6402). "*Craftsman-style Wall Cabinet*" on p. 56.

MICHAEL STREFLER

learned woodworking in his father's shop in Germany. In 1987 he earned a German master's diploma. He and his father have since immigrated to Nova Scotia, where they run a two-man furniture shop specializing in traditional joinery and design (Chester Furniture, 248 Stanford Lake Rd., P.O. Box 40, Chester, N.S., Canada BOJ 1J0; 902-275-5833). "*A German Schrank*" on p. 75.

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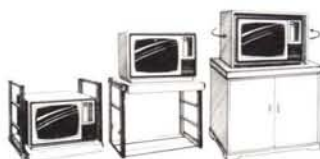
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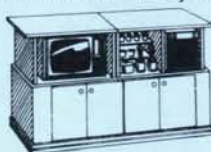
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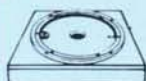
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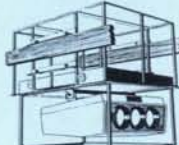
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