



*Pennsylvania stands such as this one produce much of the top-grade cherry available today. Black cherry was the first tree to get a foothold after the region was clear-cut about 100 years ago. The drawing below (actual size) shows cherry blossoms in late May.*



# Cherry

## *A rose among woods*

by Jon Arno

To the American cabinetmaker, there's something special about our domestic black cherry, *Prunus serotina*. It's the second most popular hardwood (after oak) used by furniture manufacturers in this country. And if price is to be taken as a measure of popularity, only black walnut is consistently more expensive than cherry among our major native-grown timbers.

The mystique behind cherry's popularity (and I can't deny it influences me more than it should) is tradition. Cherry was a much-prized wood among Colonial cabinetmakers and also among the magnificently skilled Shaker craftsmen of the 19th century. Certainly, its great working characteristics were important considerations to these old masters at a time when hand tools were the *only* tools. But, I suspect, there was yet another, ulterior motive for its use, at least among the Shakers: Members of that religious sect disdained frills, and the natural beauty of cherry allows a woodworker to create a piece that's exceptionally appealing to the eye—without compromising the functional design with fancy moldings or bric-a-brac.

Cherry is a member of the rose family, *Rosaceae*. This family, with its more than 3,000 species, is one of the most important in the plant kingdom. Were the rose family to vanish tomorrow, it would take with it not only the beauty and fragrance of the rose, cherry wood and cherry pie, but also a host of other flowers and edibles—plums, peaches, apples, raspberries, almonds and many, many more. The so-called "rosewoods" of commerce, by the way, come from tropical species of the genus *Dalbergia*, which is a member of the pea family, *Leguminosae*. None of these

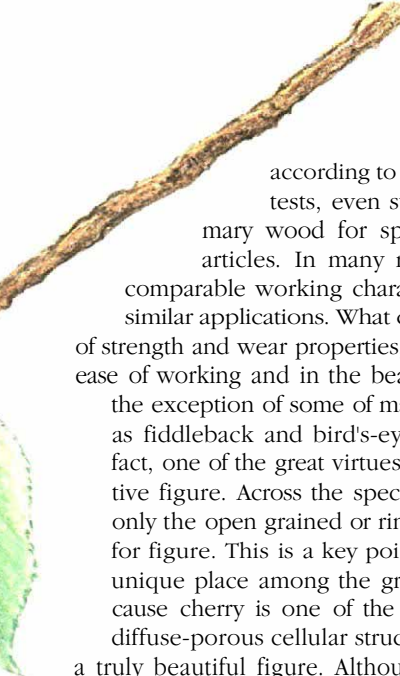
rosewoods is close kin to the true rose. The rose family is well-endowed with woody perennials, shrubs and even trees, some of which—like apple and plum—have been used in cabinetmaking for small items and woodenware since ancient times.

Like apple trees, orchard cherry trees don't produce a lot of usable wood because much of the tree's energy goes into fruit production, rather than toward making timber. Only our wild black cherry is plentiful enough—and energetic enough—to fight for its place in the forest canopy and produce logs of usable dimensions. Black cherry can attain diameters of 4 ft. to 5 ft. and heights of about 100 ft., but seldom in the same tree. A 3-ft.-dia., 80-ft.-tall cherry tree is a mighty respectable specimen. While black cherry is the giant of its family, it's a mere also-ran among the maples, yellow-poplars, oaks and walnuts it competes with in the wild.

Cherry has an average specific gravity of 0.47 (green volume to oven-dry weight), making it hard enough for most furniture and woodworking purposes. On the average, it's 8% to 10% lighter in weight than American black walnut, more than 15% lighter in weight than sugar maple and downright soft in comparison to most of the oaks.

For a wood that's so beautifully figured, cherry is exceptionally easy to cut with reasonably sharp tools. This is a great blessing on those tedious but necessary little jobs, such as mortising for hinges, hand-joining and surface-planing.

Cherry is excellent on the lathe. It's in a class with walnut and,



according to USDA Forest Products Laboratory tests, even superior to maple, which is a primary wood for spindles, rollers and other turned articles. In many respects, cherry and maple have comparable working characteristics and are well-suited for similar applications. What cherry gives up to maple in terms of strength and wear properties, it more than makes up for in its ease of working and in the beauty of its color and figure (with the exception of some of maple's special grain patterns, such as fiddleback and bird's-eye, but these are not typical). In fact, one of the great virtues of cherry is its remarkably attractive figure. Across the spectrum of cabinetwoods, generally only the open grained or ring-porous woods will rival cherry for figure. This is a key point in truly understanding cherry's unique place among the great woods of North America, because cherry is one of the very few woods that combine a diffuse-porous cellular structure with nearly ideal density and a truly beautiful figure. Although fine woods in many applications, other diffuse-porous woods—basswood, yellow-poplar, birch and maple, for example—are either too soft for furniture that will experience hard use, or too bland to produce a finish with real character.

Why cherry captures the important benefits of a diffuse-porous wood while offering a fabulous figure is perhaps best explained by contrasting its cellular arrangement to that of a more typical diffuse-porous wood, maple. The modest, flatsawn figure of typical maple results from thin bands of fibrous tissue along the annual rings that are produced by the tree at the end of each growing season. The pores are of small, uniform diameter and are very evenly dispersed throughout the wood. In cherry, however, the pores—formed early in the growing season—are slightly larger and form a band along the annual ring. This anatomical distinction is quite subtle, but it's significant enough to give cherry's figure far more character than maple and other typical diffuse-porous woods. In effect, cherry is a semi-diffuse-porous wood (see photo, below right), and owes much of its beauty to this feature.

America's other great (and, some would say, finest) timber, black walnut, approaches the other side of the spectrum in that it is semi-ring-porous. This distinction may seem academic—of little interest, except to botanists—but it's important. The size and arrangement of pores—or, more accurately, vessel cells—give cherry a clear advantage over walnut in at least one important furniture application: tabletops. Cherry's grain is so tight that it virtually never needs to be filled in order to achieve a glass-smooth finish. Just an extra coat of a reasonably high-bodied varnish followed by a good rubdown will do the trick. To use this same technique on walnut is possible but, at best, it's a labor of immense love because walnut will drink up the first two or three coats of varnish like an overworked camel.

It's my opinion that, among common domestic hardwoods, only sugar maple is functionally superior to cherry for tabletops. That's due to maple's finer, less-porous texture and greater dent-resisting hardness. Even this conclusion, however, is suspect when the issue of relative stability is brought into consideration. On this feature, maple is adequate, but cherry is outstanding.

Cherry is extremely stable in terms of expansion and contraction when exposed to changes in humidity. This feature made it a favorite species in the printing industry when poured-lead type was the state-of-the-art. A printer could set a page on a cherry-wood block and store it for months without fear of having the block distort the next time it was put on press. But while stability

is indeed a great virtue of cherry, I must confess that when I was a much younger man, my blind faith in wood technology books—which universally extol the stability of cherry—led to one of my most embarrassing woodworking blunders.

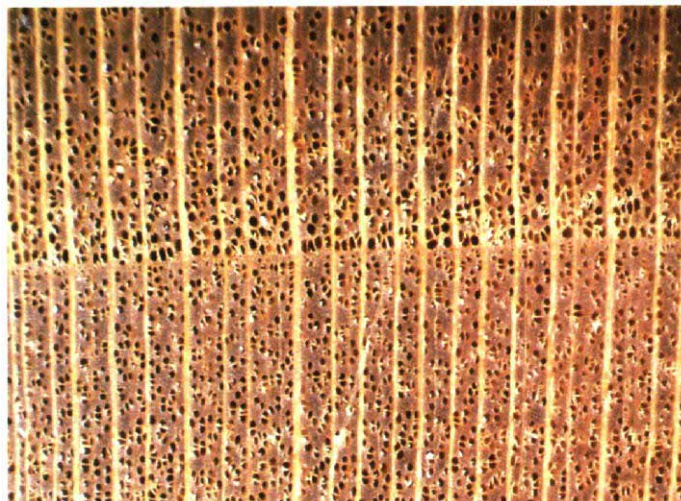
I already had plenty of shop experience with cherry, but my first opportunity to get a real "steal" on the stuff came about when some trees had to be cut down to clear a lot in my neighborhood and make way for a new house. After years of paying \$3 a board foot for store-bought stock, I was absolutely ecstatic when the builder told me these cherry trees were mine for the taking—*free!* With abject faith in the renowned stability of the species, I was totally certain that air-drying the wood was going to be a piece of cake. So, to hasten the process, I brought it home green from the mill and stacked it up with stickers in our very hot attic. There, it spent the months of July, August and September, completely undisturbed.

By summer's end, the wood was indeed dry, but as I lifted the attic door and turned on the flashlight, the sight that greeted me had the general dimensional configuration of a curly head of windblown hair, split ends and all. To this day—with the exception of what I fed to my fireplace—the only usable thing I've gotten out of what should have been well over 200 board feet of prime cherry is one Shaker cabinet doorknob. Aside from its potential in providing an occasional 6-in. lathe billet, the cherry that's left is totally worthless. To draw a moral from this story (and perhaps spare others the same experience), cherry is exceedingly stable *once* it's dry, but not necessarily *while* it's drying.

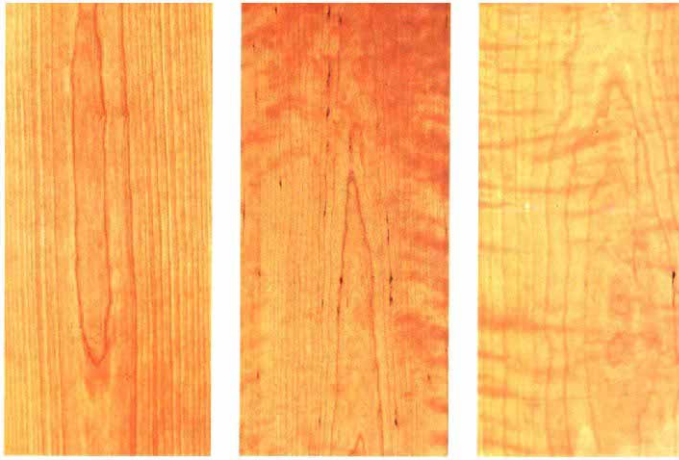
Over the years, I got to know the black cherry species well from many other perspectives. As a firewood, it is superb. When a stick or two of slightly green cherry is laid on the hot coals of a fire, the aroma is unforgettably delightful. The fruit is small, almost black in color and, in my opinion, it'll never replace the commercial Bing for flavor in the raw state. It's bitter to the point of unpalatability when eaten off the tree, but it makes a good wine with a deep purple-red color. In Colonial times, the fruit was packed into jars of rum to produce a potent favorite of the era called "cherry bounce." That, too, I've experimented with, and it is indeed tasty, but really not substantially different from a modern fruit brandy.

American black cherry is not a reliable producer of fruit—at

Photo: R. Bruce Hoadley



*This ten-power macrophotograph of cherry endgrain shows the slightly larger pores at each annual ring. These give the wood a desirable grain pattern without making the grain hard to fill.*



*These three veneer samples show the range of cherry's character, from the very high grade on the left, to gummy (center), to the figured heartwood at right.*

least, not in the harsh climate of northwestern Wisconsin where I cohabited with it. Some years it will hardly set fruit at all; in other, good years, the crop will be plentiful to the point of becoming a nuisance. The cherries litter the lawn, and their dark juice stains clothing. Swarms of birds devour, process and deposit them on cars, sidewalks, roofs and windows. The botanists would call this bird-to-cherry relationship "symbiotic" because it helps to propagate the species—not only to nearby fence rows and under telephone lines, but across considerable distances. As a result, black cherry has a sporadic and yet very extensive range. It's most plentiful in the hardwood forests of the eastern and midwestern United States and southern Canada, but its range extends down through the mountains of Mexico into Central America.

Like most other hardwoods, black cherry grows wild, not in planted stands. As long as there's a supply of seeds from local trees and sufficient sunlight, the trees do well. In fact, experiments over the last 20 years have proven that cherry does best if left alone: Efforts to produce knot-free wood by pruning low branches from selected trees seem to generate more branches.

The heart of cherry's U.S. range, and where it produces timber with maximum vigor, is in the central and Appalachian states. However, latitude, altitude and other macro-geographic and climatic factors are only part of what is important to the tree with respect to habitat. Cherry isn't very shade-tolerant. This, combined with its less than formidable maximum growth potential, makes good cherry lumber dependent on opportunistic natural events. The tree will grow vigorously in full sunlight along a fence row, but it will branch out low, form a broad crown and, over time, pick up a fence staple or two when it happens to be growing right where a post ought to be. All of this, of course, degrades the quality of the wood.

The best source for cherry right now is in the mountainous region running up through Pennsylvania and into New York. That part of the country was almost completely clear-cut about 100 years ago, and cherry—being something of a pioneer species—got off to a good start. Seeds spread by birds were abundant, the saplings were mostly unshaded by older trees and competition between the trees made them reach up for light, promoting tall stems. Foresters in the early 1970s were delighted to discover the maturing resource, just at the time when the trees were reaching their peak. (If left unharvested over the next 100 years, these cherry trees would eventually succumb to the beech and maple growing in the forest's understory.) At the time, the demand for cherry was quite low, because there wasn't enough quality wood available from other parts of the country to promote and maintain much interest. As

recently as the 1950s, cherry was one of the *least* used of our native timbers, having sunk to 28th place in the number of trees harvested. It was so scarce, in fact, that it ranked in price with rosewood and ebony. When the steady supply of Pennsylvania cherry began coming into the marketplace, however, popular demand grew as more and more people began to see the quality of the wood. Today, as mentioned earlier, the demand for cherry is second only to oak.

Cherry has a tendency to be a rather gummy wood, especially trees that have grown under less-than-ideal conditions. This gumminess can be a negative, especially when sanding the end-grain. The surface may quickly burn or darken when belt-sanded, requiring a great deal of tedious hand-sanding to soften the color. The safe approach is to give the endgrain a whisk or two with a sharp scraper, followed by gentle hand-sanding with a fine-grit sandpaper. Personally, I like "gummy" cherry. A certain amount of gum streaks well-dispersed in a slowly grown, wavy-grained piece of heartwood can be very attractive.

In furnituremaking, one of cherry's great attributes is the color it will eventually attain as time and chemistry work together to produce its unmistakable patina. The translucent, warm, amber-orange hue that only old cherry furniture exudes has eluded stain manufacturers to this day, and very likely always will. For starters, I have yet to find a convincing technical explanation of the chemistry of cherry's patina—I doubt if scientists really understand it yet.

Exposure to light definitely affects cherry and might accelerate the patina-building process, but I know from my own otherwise bitter experience in that absolutely pitch-dark attic, one of the few things my stack of cherry did right was to darken. (I think maybe I roasted it.)

The chemistry of cherry is certainly complex and not entirely friendly. Like peaches, almonds and some of its other close relatives in the rose family, cherry produces cyanic acid which, in high enough quantities, is lethal. Although the wood itself is non-toxic, wilted cherry leaves have poisoned livestock. There are traces of the poison in both the bark and the fruit pit. In fact, peach pits are high enough in cyanic acid to have once been an economically viable source for the deadly poison, cyanide.

I have no reservations about working with cherry wood and would do so far more often if it weren't for its price. Cherry is quite plentiful here in Wisconsin, but even here the best price I've found for FAS, kiln-dried stock is \$2.80 per board foot, unsurfaced. I've chased down a few sources of freshly cut green material at well under \$1 per board foot, but I'm understandably a little apprehensive about that alternative. Actually, I *have* successfully air-dried a few pieces of cherry since that disaster years ago (taking the normal care necessary with any wood), and my self-confidence has healed to the point that I would gladly take on the challenge again, but that's not the problem. I simply can't find good, wide pieces of cherry heartwood at the local mills. Demand for this "rose among woods" is intense, and doubtless the best of Wisconsin's production is shipped off to furniture factories and to woodworkers with fatter wallets than mine. What the mills here attempt to pawn off on us locals are narrow widths, slab cuts and sapwood. The art of avoiding that kind of "deal" is a skill the backwoods scavenger soon learns.

You know, come to think of it, it's only about a ten-hour drive from here to the cherry belt in Pennsylvania. □

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