

Ash's distinctive bark, with its neat, contrasty striations, makes the tree easy to identify at any season of the year. Its compound leaves, composed of leaflets on a central stem, are among the first to fall in autumn. A distinguishing characteristic of black ash is the leaflets' close attachment to the stem.

Ash

Counterfeit oak or quality cabinetwood?

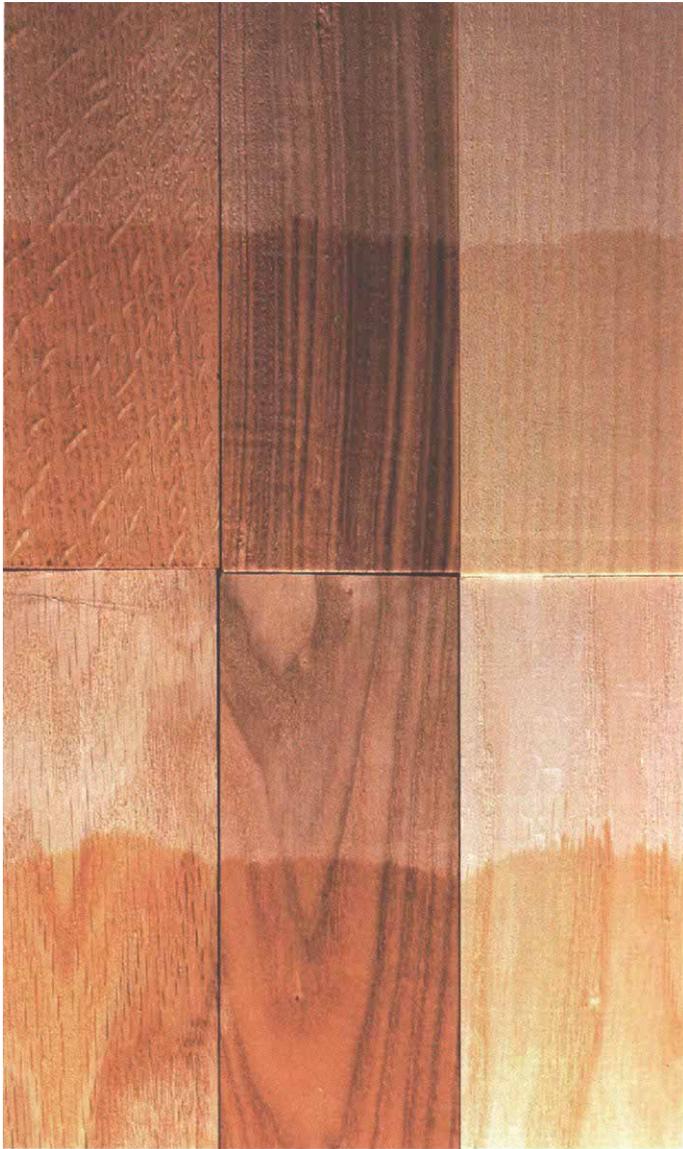
by Jon W. Arno

At a recent antiques show, I found a dozen or so turn-of-the-century commodes labeled "oak." The general public and a lot of antiques dealers seem happy enough to identify every light-colored, open-grained wood as oak at a glance. The oak label serves as a convenience for pricing and dating such pieces, but it isn't always accurate. Two of the commodes at the show were of mixed wood construction (predominantly elm); the three nicest were unquestionably ash.

Most people may not have much reason to care. Ash and oak are both open-grained woods, with similarly attractive and somewhat racy figures. Furniture made from either wood has a look of solid quality. Yet I think ash outclasses oak in several important ways, at least from a cabinetmaker's viewpoint—the two woods have decidedly different characteristics. For starters, oak is a

member of the beech family, *Fagaceae*, which includes the oaks, the beeches and the chestnuts. Ash belongs to the olive family, *Oleaceae*, and is related to lilac and forsythia.

You don't have to be a botanist to quickly separate oak from ash. Oak has prominent rays that are easily visible on the flat-sawn surface, where they appear as bold lines called ray flecks. In some species of white oak, these flecks may be more than $\frac{1}{16}$ in. wide and well over 1 in. long, while in the red oaks they are generally smaller and darker. In fact, the rays are such a dominant feature in white oak that it's often specially quartersawn to expose them as broad bands or ribbons. These are extremely hard and dense, and in stained wood you could call their appearance either fantastic or outrageous, depending on your taste. I person-



Oak and ash are easy to tell apart. Oak has prominent rays, most pronounced when it's cut radially (top left), but also visible as a needlelike pattern on the tangential surface (bottom left). Ash's rays are hardly visible, allowing both radially and tangentially cut lumber to be mixed in the same piece of furniture. Brown ash is in the center, white ash on the right. The lower half of all samples has been oiled.



The rays, lines of cells extending from the pith to the bark, are much more prominent in oak (top) than they are in ash. Both woods are ring-porous: large cells produced in early spring are followed by more solid growth in summer.

ally don't like the effect, but if you do, score one point for oak, because no matter how you cut ash, it will not produce this pattern. Like all woods, ash has rays, but they are almost undetectable with the naked eye. As a cabinetmaker, I view this as one of ash's great virtues, because flatsawn and radially sawn boards can be used in the same piece with no surprises when the stain goes on.

Oak contains tannic acid. If you expose the wood to strong ammonia vapor, a chemical reaction will turn it dark brown. This staining process is known as fuming, and it won't work on ash. Personally, I use ammonia only on windows, but if fuming sounds like a good idea to you, score another point for oak.

Oak's acid content is a mixed blessing at best. A friend of mine once left a green piece of oak on his tablesaw overnight, and by morning it had permanently etched its shape as a black rust mark, which is still there after four years.

Ash's biggest advantage is that it is generally less dense than oak. If we cabinetmakers accept our two premier domestic hardwoods as having nearly ideal density—black cherry with a specific gravity of 0.47 (green to oven dry) and black walnut at 0.51—we find that the various species of ash straddle this range, while the oaks are all somewhat denser. Ashes run from 0.45 to 0.55, oaks from 0.52 to 0.80. Ash is by no means a soft wood in comparison to pine, basswood, butternut, poplar or aspen, but it is relatively soft when you consider its ability to withstand pounding and stress. Ash yields an end product with great strength relative to both its weight and the amount of energy expended to shape or fashion it. And what could be nearer and dearer to a cabinetmaker's heart?

Because of these advantages, ash was one of several favored woods in Grand Rapids factories during the so-called "Golden Oak" era. Oak got all the publicity, but ash often was the dominant species in those utilitarian and now quaintly obsolete mixed-wood pieces: the dry sinks, commodes, cupboards and wardrobes that were cranked out by the thousands in the late 19th century for America's growing middle class. I'm grateful that nobody thought to call the stuff "Golden Ash"—the lack of publicity helps keep ash at a reasonable price.

While keeping a low profile in cabinetry, ash has established a worldwide reputation as the wood for baseball bats and as one of nature's most perfect materials for tool handles. For these purposes, second-growth trees with straight, evenly spaced grain are selected and specially graded. The white-ash sample shown on this page was cut from a friend's woodlot and wouldn't make a bad bat. Such ash has great strength-to-weight ratio and rigidity. Also, once the surface is smoothed, ash polishes well. Whether this is achieved by constant contact with human hands, as in the case of a tool handle, or by the deliberate effort of a woodworker, the end result is a definite plus.

Within each annual ring, ash has a honeycomb of porous earlywood followed by a layer of dense latewood, making it a sort of natural laminate. The American Indians discovered that they could separate the layers by soaking the quartered log and pounding it vigorously. As the earlywood broke down, thin strips of strong, highly flexible latewood peeled off, which the Indians used for basket splints and ribs in their canoes.

There are over a dozen species of ash native to North America, but only a few of them reach timber size. Those that do all produce ring-porous woods. There are, however, some subtle differences that relate not only to the species of ash, but also to the environment in which the tree grew. Generally speaking, the

strong, straight-grained wood resulting from second-growth timber, which is so desirable for tool handles and sports equipment, is not the best for cabinetmaking. First-growth ash, or ash that has grown slowly for whatever reason, produces the nicest furniture lumber. For one thing, the ratio of heartwood to sapwood is greater in slow-growing trees. For another, these trees produce relatively more earlywood than latewood each season, which means that their wood is lighter in weight, more porous, and far more interesting in figure.

In the lumber trade, most of the wood marketed as "white ash" comes from two species: white ash (*Fraxinus americana*) and green ash (*F. pennsylvanica*), both of which are plentiful throughout the eastern United States. Although on the average white ash might be a little denser and tougher than green ash, variations in growing conditions make the two overlap considerably. Another species, blue ash (*F. quadrangulata*), is of little consequence in the lumber trade because of its limited and sporadic range (around the Ohio and Mississippi River basins). It produces a wood that is almost identical to green ash, and it too is marketed as white ash. Blue ash gets its name from a blue dye extracted from the bark, which was once used for dyeing cloth.

The so-called "white" ashes make nice cabinetwoods once the project is complete, but three other species of ash are noticeably softer and easier to work: black ash (*F. nigra*), pumpkin ash (*F. profunda*) and Oregon ash (*F. latifolia*). To my way of thinking, black ash is the connoisseur's choice. Native to the Great Lakes states, New England and Canada, its environment is a harsh one, which forces slow growth that results in a lighter, less dense wood with exceptionally pretty flatsawn figure. The heartwood is a beautiful soft brown in color (in some parts of its range, black ash is referred to as "brown ash" by lumber dealers) and produces a natural "fruitwood" tone with nothing more than a coat of clear varnish. Because of its narrow annual rings, black ash was the preferred species for basketweaving, and like all the ashes, its stratified nature makes it one of the better woods for steambending.

Pumpkin ash, a similar species, is found in the South. It's less dense than the white ash species and extremely variable as a result of environmental conditions. Pumpkin ash growing in swampy areas will produce a buttress-like base that yields light, soft wood, tending to brittleness. On the West Coast, Oregon ash produces a reasonably good cabinetwood. Its specific gravity of 0.50 makes it somewhat softer than any of the white ashes.

Price and availability of the ashes depend a little on how creative you are. Like the old saying "Water, water everywhere, nor any drop to drink," ash is abundant, but my favorite grades for furniture usually end up as shipping crates and pallets, not in retail lumberyards.

Until recently, local lumberyards didn't have much reason to stock ash. Customers always seemed to be asking for maple, cherry, walnut and oak—and if not these, then some exotic timber. Today, at least in my area of Wisconsin, times are changing. Without much trouble, I can get select, kiln-dried ash at between \$1.40 and \$2.00 a board foot. The problem is, the mills aren't always careful to identify the species, and lumberyards therefore don't always know what they have. Most of the time it's white ash, and of such high quality that it lacks character.

To find my favorite, black ash, I look around at the beginning of the distribution chain, either buying direct from a mill or going to a pallet manufacturer. The last time I did this, about a year



Turn-of-the-century pieces from the 'Golden Oak' era—like the author's commode above—often are not oak at all, but ash.

ago, I got lucky. The pallet manufacturer said: "Yeah, I got some ash, but it's just that soft brown stuff from up near Rhinelander; you can have it for forty-five cents a board foot...." "Well, maybe I can make it work," I muttered. I took all he had, about 200 bd. ft., stickered and air dried it for a few months (with its low stump moisture content, ash dries well and easily), then had it planed for 10¢ a foot. Sure enough, it's a cabinetmaker's dream: beautiful, slow-grown northern black ash, at 55¢ a board foot. How sweet it is!

To conclude from all of this that ash is somehow an undiscovered, world-class cabinetwood to be ranked with walnut, cherry, rosewood and teak would be driving a point beyond its credible limits. Ash is nice in comparison to many woods, but it also has its faults. After praising ash for its laminate qualities, I should point out that the flip side of this feature is that the wood splits easily, as anyone who has spent much time chopping firewood knows (and appreciates). Ash is also very splintery, and unless your hands are callused from constant shopwork, you may pick up some splinters when cutting and coarse-sanding it. Once shaped, however, it smooths out nicely. Given its extremely open grain, ash must be filled before you can finish it to the kind of glass-smooth surface required for some surfaces, such as tabletops. And, finally, ash does not weather well when exposed to moist, outdoor conditions. Powderpost beetles and other wood-eating bugs absolutely love the stuff. If resistance to the elements is important to your project, score one last point for oak, white oak in particular. It weathers well. Especially in antique shops. □

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