



Walnut drops its leaves early in the fall, silhouetting its stark, open crown. It is a messy lawn tree, producing catkins in spring and large leaves—along with bushels of nuts—in autumn. In contrast to this open-field tree, a woods-grown walnut reaches for sunlight, resulting in a long, clear trunk, but the most recent 10 to 20 years of growth will be light-colored sapwood.

Walnut

The cabinetwood par-excellence

by Jon Arno

In lists of the various properties of cabinetwoods, American black walnut, *Juglans nigra*, stands near the middle in every category. There are dozens, if not hundreds, of woods that are stronger and denser. There are a few woods with better figure and richer color. Some hardwoods are substantially easier to work than walnut. And many fine cabinetwoods are a good deal less expensive.

Yet walnut is so flexibly appropriate for a broad range of uses that, overall, it rivals any other wood in the world. It might, in fact, be the very best cabinetwood of all. What does walnut bring to the party that causes it to stand out? To answer this question, we must consider not only its physical properties, but a number

of subtle things that appeal to other senses and to our emotions.

Take gunstocks, for example. Of the four woods commonly used, only walnut is rated "excellent" in the physical attributes a gunstock requires. It has been the favored gunstock wood since colonial times, long before laboratory testing could confirm our pioneers' instincts. The substitutes, hard maple, yellow birch, and sycamore may surpass walnut in one or two respects, yet, in the final balance, walnut becomes the standard, the perfect gunstock wood. In weight it is heavy enough to absorb some recoil, yet not so heavy as to be arm-wearying. For its weight, it is outstanding in strength, hardness and shock resistance. It is stable enough not to endanger the precise alignment between metal

and wood. It machines beautifully. Walnut's dark color, aesthetics aside, is a particular asset—the runners-up all require staining lest they be conspicuous in the field, and are, therefore, more difficult to touch up if dented or scratched.

Notice how many of these attributes are also desirable for furniture. In the gamut of cabinetwoods, there are only a handful of woods as well endowed. In addition, walnut is neither ring-porous like oak or diffuse-porous like maple. It is what most experts call "semi-ring-porous," with a gradual transition between earlywood and latewood. This helps to make for little, if any, chatter in its resistance to the cutting edge, allowing shavings to peel off with a wax-like roll. Walnut has adequate ring-porosity to show a beautiful grain pattern, but is diffuse-porous enough to make the use of fillers optional in most furniture applications—if unfilled the pores will show but not be objectionable.

In walnut, we have a wood that is not too hard, not too soft, not too open-textured, not too plain . . . not too anything (except maybe too expensive). Like Baby Bear's porridge, it's just right.

I suspect that walnut has been so long entwined with human history that we have developed a genuine emotional attachment to it, one that runs deep. Walnut of the English or European variety, *J. regia*, has been with us both in our cabinetmaking and in our diet since ancient times, when our ancestors imported the tree from the Middle East and reestablished it in western Europe, where it had been extinct since the last ice age. In the 1600s,

European walnut supplanted oak as the premier furniture wood, until it, in turn, was supplanted by Honduras mahogany. During the American colonial period, when mahogany furniture imported from England was in style, walnut was sometimes stained red by domestic cabinetmakers in an effort to emulate the imports. It could be argued that, in Europe, mahogany is still the standard by which other cabinetwoods are measured. Yet in America this has not been the case for a long time. Today, we take Philippine "mahogany" (lauan and other species of *Shorea*) and stain it dark brown to imitate the walnut that is closer to our hearts.

Strictly speaking, current style is an intangible. Walnut has other intangible features as well. Particularly high on such a list is the pleasant aroma of a piece of walnut as it passes through the planer or the tablesaw. I am abnormally fastidious about keeping my shop clean because I know a clean shop is a safer shop. In fact, I will sometimes stop in the middle of a project to sweep the floor, but I have been known to let walnut shavings lie for days. To me, the scent of walnut ranks with fresh-ground coffee as one of life's great treats. Under certain conditions, however, particularly when a carving block of unseasoned walnut has been set aside to dry slowly, thriving micro-organisms can imbue the wood with a lasting, sourish odor best described as a stink. Even so, it helps clear the sinuses.

I should defer to the medical profession on this topic, but the reason the aroma of walnut evokes such pleasant emotions and a

About the other walnuts

My vote for the royal family of cabinetwoods must be *Juglandaceae*. This botanical family includes *Carya*, the hickories (including pecan), and the true bluebloods of the line, the *Juglans*, which are the walnuts and butternut. There are broad differences among the *Juglans* species, but most walnuts overlap so much in color and density that you may have to examine cell structure to tell them apart for certain.

The walnuts and the hickories comprise some 50 or so species worldwide. The hickories are limited to eastern North America and southern China, while the walnuts have a broader range in North America, Central America and northern South America, as well as in Eurasia.

The wood of the old-world tree, *J. regia*, is slightly softer and lighter in color than our black walnut, *J. nigra*. European walnut also shows subtle differences resulting from the climate and soil where it has grown, and for marketing reasons may be called French, Balkan, Italian, etc., but it is all the same species. Very little solid stock escapes Europe, although the veneer called circassian burl is sometimes seen on the market here.

Black walnut is not our only domestic species—there are *J. major*, or Arizona walnut, and *J. microcarpa*, which is called little walnut, Texas walnut or nogal. Occasionally, wood from the several species of walnuts from South and Central America shows up, called either tropical walnut or nogal. These are beautiful woods, a little softer, a little coarser textured and somewhat darker than our black walnut, judging from the few samples I have seen. These species are true walnuts, unlike African walnut (*mansoniana*) and Queensland walnut, which have borrowed the name but not the pedigree.

The several Oriental species of true walnuts, native from northern India to Japan, produce woods that are almost never seen in our market. I haven't worked with Japanese walnut, *J. cordiformis*, but it is reputed to have a warmer, yellowish hue than our native wood.

Butternut, *J. cinerea*, is our other major domestic species of *Juglans*, and one of my personal favorites. While butternut is somewhat coarser in texture, its figure is virtually the same as black walnut. If you have ever wished there was a wood that worked as easily as pine or basswood yet looked like walnut, butternut is as close as you will ever get. With an average specific gravity of only 0.36, it is actually less dense than Ponderosa pine at 0.38 and substantially less dense than black walnut at 0.51. At the extreme ends of the scale,

though, the hardest, darkest-colored butternut and the softest walnut can be difficult to tell apart. Yet even then, butternut tends toward gray-tan and gingery tones, while walnut shows more purple.

Butternut has prevalent tension wood and tends to fuzz up a little in sanding. Being soft, it will generally drink an extra coat of varnish before it fills to a polishable surface, and it will not endure as well in daily use—this may be important if you are making a table, but it's almost irrelevant for a mantel clock or a picture frame.

Finally, claro walnut is a term used freely by lumber dealers on the West Coast, usually to describe highly figured walnut harvested from overmature trees in nut plantations. Some of this wood is probably English walnut that was grafted to a native rootstock, a practice that can promote a flame figure low in the stem. Other possibilities are two species native to California, *J. hindsii* and *J. californica*, found respectively in the northern and southern parts of the range. All of these claro walnuts are true *Juglans*, but the name is no guarantee of which species the walnut is, nor that it is particularly showy. I suspect at this point that I'm just splitting hairs. Let me affirm that in the walnut family tree there are some beautiful dark woods but no black sheep. I, for one, will welcome walnut under any name in my shop—none of it is what you could call bad.

—J.A.

sense of well being may be more than psychological. According to a USDA Forest Products Laboratory publication, walnut contains ellagic acid, a sedative and tranquilizer. They report an incident in which a dog chewed on a black walnut statue and fell into a deep sleep for two days. There are also reports that various tribes of American Indians used to throw crushed walnuts or butternuts into ponds to stupefy fish.

Walnut's chemical potency should come as no surprise to gardeners. One of our native black walnut's most active constituents is a substance called juglone, which is apparently part of the tree's biological defense system. Juglone is toxic to other plants, such as apple trees, and especially to members of the tomato family. It would appear to pose no problem to cabinetmakers, however. It polymerizes into dark pigments in the wood tissue, which, I presume, makes it inert.

One of the walnut tree's few shortcomings is that it produces logs with a relatively large amount of almost pure white sapwood. Slicing it all off would be an appalling waste. Fortunately, by injecting hot steam into the kiln during the drying process, the sapwood can be darkened somewhat. This procedure is certainly beneficial in view of our limited supply of walnut, but it seems to dull the richness of the wood's overall color. To my way of thinking, there is something special about a piece of carefully air-dried walnut with its subtle, almost translucent blue-purple highlights. Unfortunately, like flowers, youth, and so many of this world's beautiful things, the magic of a freshly planed piece of air-dried walnut is a fleeting pleasure. Age and exposure to light will bleach its vivid tones, and over the years the strikingly blue-purple highlights mellow out toward the gold or amber side of the spectrum.

As far as price goes, I wish I could offer some novel schemes for scavenging a deal on this stuff, but there aren't any. Even the small backwoods sawmills know what walnut is and what it is worth. Black walnut generally runs between \$3 and \$5 per board foot, depending upon the grade, and butternut (see box, facing page) usually costs about \$1 less per board foot. The problem is, there is no such thing as an inferior species of walnut and everybody knows it. There is no compelling reason for walnut to be in scarce supply other than the universal demand for it. As it is, the demand makes the wood of this relatively plentiful tree seem scarce.

Walnut is a pretty tree with its deep brown, almost black bark and its bright light green compound leaves, but it is a beauty that belongs in the forest where competition for sunlight forces it to produce a tall, unmarred trunk. In this setting it is a capable competitor and will develop diameters in excess of 5 ft. and heights of 100 ft. or more. In the open, like most hardwoods it has a propensity to branch out, forming a dome-like crown which much reduces its value as a timber source.

Although its crop of tasty nuts is an important asset, the tree is not that popular for landscaping. Because walnut leafs late in the spring and loses its leaves early in the fall, its appearance is stark and dead looking for much of the year. There is no particular beauty to its flowering, it is a catkin producer, and a messy tree on a well-manicured lawn. Its nuts attract squirrels that are generally more skillful in collecting the crop than all but the most watchful homeowner, and add injury to insult by planting a few of them in gardens where they are chemically hostile to other plants.

While we woodworkers might unanimously agree that walnut plantings should be sharply increased, the economics of growing hardwood timber on valuable eastern land is, pardon the pun, a

Making walnut-husk stain

The pigments in all parts of the walnut tree are plentiful and, for better or worse, downright indelible. Anyone who has tried to husk walnuts by hand knows all about the durability of this stain. Even crushing the fresh leaves with bare hands will leave you with a dirty, two-pack-a-day, yellow stain on your fingers that defies a scrub brush. The pigments in the husk of the nuts and the root bark make excellent dye for cloth and, of course, they give the wood its much prized color. In the case of American black walnut, this is the well-known and often strikingly purple-streaked chocolate brown.

Those cabinetmakers with a flair for experimentation can get at this pigment and produce a stain that will transfer some of walnut's beauty to other less-endowed woods. To begin, collect a few pounds of the nuts, preferably those that have fallen to the ground and are beginning to darken and decompose. Husk them and loosely pack a quart jar full of the husks (sans the nuts—eat those). Fill the jar brim-full with non-detergent ammonia, the ordinary sort, not the sudsy kind.

Cap the jar and allow it to stand for a few weeks. The ammonia will leach out the pigment, and this mess can be strained through cheesecloth to produce a jet black liquid that, admittedly, is something of a trial to work with. Wear rubber gloves and apply the stain with a rag in a well-ventilated work space, preferably outdoors. The stain is water based, and two coats are generally necessary because the first coat raises the grain and must be rubbed down with fine sandpaper or steel wool.

It's a foul-smelling, messy process, but it works, and I promise that the results are definitely worth the trouble. —J.A.



Walnut-extract stain, best made from decomposing husks, is excellent for darkening mahogany, and produces a patina on pine that continues to darken with age. Woods shown, from front to rear, are poplar, pine, mahogany, cherry and maple.

tough nut to crack. But contrary to popular opinion, on good sites walnut is not a slow grower. It spurts up rapidly for the first decade or so and then begins to slow down as it enters into nut production. The tree seems to oblige us woodworkers with the reasonably quick accumulation of woody tissue, but then it taunts us in taking its own sweet time mellowing it into the rich brown heartwood we seek. □

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