

Understanding Wood,

Knowing how different woods behave

BY GARRETT HACK

Wood challenges me constantly. In the flush of excitement after landing a large commission for a set of public library tables, I glossed over the client's chosen wood, black locust. When the library expanded a year before, a stand of these trees was cut down and sawn into lumber with the thought that the wood might one day return to the library and begin a new life.

All I knew about black locust was that it was a very dense and hard wood, often used for fence posts, that seemed to last forever. From what I could see of the boards as I loaded them into my truck, black locust was a beautiful golden tan with an elmlike grain. Because the boards had dried flat and true, I was hopeful that the material was also stable.

Back at the shop I didn't waste much time getting out my well-worn copy of R. Bruce Hoadley's *Understanding Wood* (The Taunton Press, 1980) to see what words of wisdom this fellow woodworker and wood scientist had about black locust. Over the years I have often searched this book for insight into the complexities of wood. With thousands of different species out there and with each tree unique, nailing down the characteristics of a particular pile of lumber seems an impossible task. But after reading Hoadley's book, I find wood much easier to understand. What I read about black locust was mostly reassuring: It's as stable as cherry; the wood is nearly as hard as hickory; and the pores are densely packed (making finishing easier and providing for a better writing surface). I wondered, however, why I'd never seen a piece of furniture made of the material.

The answer became clear when I began working the stock with handplanes. One moment I was getting smooth shavings, then suddenly tearout. It didn't seem to matter in what direction I planed, the locust was uncooperative. I went back to Hoadley's book and found out why. One characteristic of black locust is interlocked grain, spiraling one way and then the other. It gives black locust a flash similar to the best satinwood, for which it was sometimes substituted.

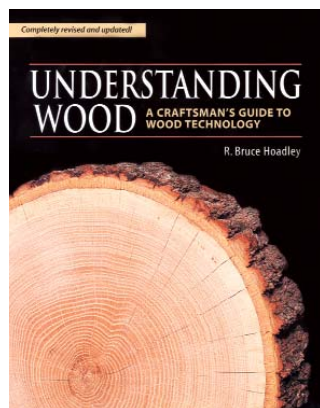


All I could think about was how much easier all this would have been if I had just used cherry, walnut or another traditional wood that was easily worked with hand tools. Many beautiful woods, such as bird's-eye maple or in this case locust, take twice the effort to prepare. But that's part of the adventure of using different woods. At least 34 different species grow on my modest wooded lot, and eventually I'd like to try them all.

While unusual woods have unique challenges, all wood is subject to shrinking, swelling and warping as the material gives up and absorbs moisture. Often this is the real challenge of working wood. You can either ignore wood movement and face the inevitable failures, as I did before I knew any better, or learn to work with it. Even after years of practical experience, I still regularly re-

Thanks to Hoadley

makes one a better furniture maker



R. Bruce Hoadley at work and play. When he's not teaching wood science at the University of Massachusetts Extension in Amherst, working on a forensic case involving wood samples or writing, Hoadley enjoys carving birds. His vast collection includes everything from life-sized goose decoys to delicate shore-bird specimens. A completely revised edition of his book *Understanding Wood* was published this fall.

turn to *Understanding Wood* to learn a little more about wood's behavior. Take, for example, my large black locust tables, with wide tabletops and lots of potential wood movement. Hoadley explains that quartersawn boards would have been a good choice for a tabletop, because they are more stable than common flatsawn boards and the cells exposed on the surface yield a distinct appearance. Every board is indeed different, but this sort of information helps in both picking materials and then deciding which would be best for tabletops, aprons or legs.

Because I'm interested in using many kinds of wood, I often look in Hoadley's companion book *Identifying Wood* (The Taunton Press, 1990). Written for the layperson, the book walks you through the steps involved in identification. The only tools needed to get started are a razor blade and 10-power magnifier. Seeing end grain under magnification leads to a whole new appreciation of the structure of wood fibers.

But it is *Understanding Wood* that proves the most useful to me in my daily work. The tables on wood movement, for example, allowed me to figure out how much those library tabletops would likely swell and shrink through a typical year here in Vermont. For many years I've relied on measuring and recording the width of a wide pine board I keep tacked on the wall in my shop. It's very useful to get an idea of where we are in the cycle, but it can't tell me how much a 52-in.-wide black locust tabletop will actually behave. Hoadley's book includes tables for more than 100 common woods. This is just the sort of vital information I use when fitting a deep drawer or wide panel, saving me the embarrassment of a stuck drawer or blown-apart door.

Plenty of books have been written about the practicalities of making furniture, from cutting joints to applying finishes. Certainly the success of each project depends on properly cut joints and appropriate finishes. Less obvious and just as important are the subtleties of how the grain orientation in those joints affect their longevity. Or how some tools can cut the wood fibers for a surface with clarity and depth to produce a superior finish. Hoadley, a longtime contributing editor to *Fine Woodworking*, offers plenty of insights into how to work with wood intelligently. He makes wood seem not so challenging after all. Now, I might not take on another black locust project, but because of Hoadley I'll be better prepared if I do. □

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