

Learning how to read the grain

by R. Bruce Hoadley

Before feeding a board into a surface planer or hand-planing it, it's important to read the board's grain, or you risk tearout. There are many routines for doing this. Most woodworkers simply examine the edge of a board to determine the inclination of the cell structure. But close scrutiny may sometimes be too time-consuming, as when feeding a large quantity into a jointer or a surface planer, or when you simply cannot see any useful detail because the lumber has roughsawn edges. Even-grained and fine-textured woods such as basswood pose similar problems.

One helpful gimmick when planing flatsawn boards is to use the board's U-shaped or V-shaped surface figure to determine grain inclination. As shown in figure 1, on the pith side of a board (the heart, or inside, of the tree), the rips of the Vs point with the grain, so you would hand-plane in that direction. On the bark side, the Vs point against the grain. My memory crutch goes like this:

Pith side, Plane with the Points (of Vs)
Bark side, Backwards

The rule works on boards with any visible V-shaped markings. After a while it becomes automatic. You instinctively glance at the end when you pick up a board; if you are working a pith side, you subconsciously hand-plane with the points, and so on.

Of course, with wood it's not always that simple. For example, you may have a board with Vs going in both directions. Let's assume you have a board that has a bark side surface with the appearance shown in figure 2. The "bark side, backwards" rule of thumb helps you recognize zones of the board, so you would hand-plane zones A and C from left to right, as shown, but zone B from right to left. If you keep in mind that the knives of jointers and planers actually cut in the opposite direction to the direction of feed, reading the Vs would also help you decide to send the board into a planer left-end-first. You can anticipate good results over most of the board (zones A and C), but with possible trouble where the cutterhead would be working against the grain (zone B). Knowing where the troubles will occur, you can take lighter cuts, slow the race

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of feed, or use alternatives (such as abrasive planers or sharp hand-tools) to minimize filling and sanding later.

Complete Vs are handy, but they're not always present. Consider the boards shown in figure 3, where the points of the Vs are gone and only their sloping sides are present. The drawing shows which way the Vs pointed in the wider board from which each strip was removed. Careful inspection reveals that within each growth ring the latewood edge indicates which way the Vs point. This is difficult to determine with even-

grained woods (such as birch or maple), but with uneven-grained woods (such as spruce, hemlock, fir, oak or butternut) it will be as easy as looking at the V-direction. Another way to state the rule is: On the pith side, within each growth ring, plane from early to late; on the bark side, backwards.

Every board came from a tree stem—the growth-ring figure can help you to interpret the inclination of the grain. If you learn to read it and work with it, you will have fewer surprises, and better surfaces in your finished work. □

Fig. 1: Working with the grain

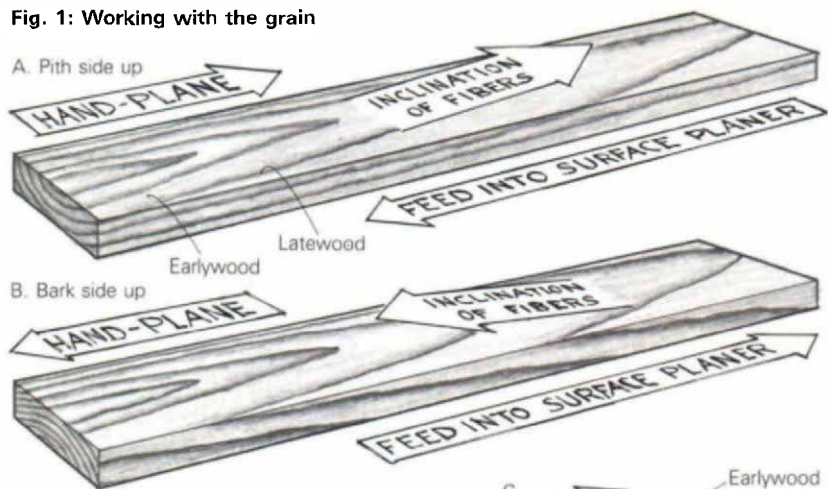


Fig. 2: Grain reversal

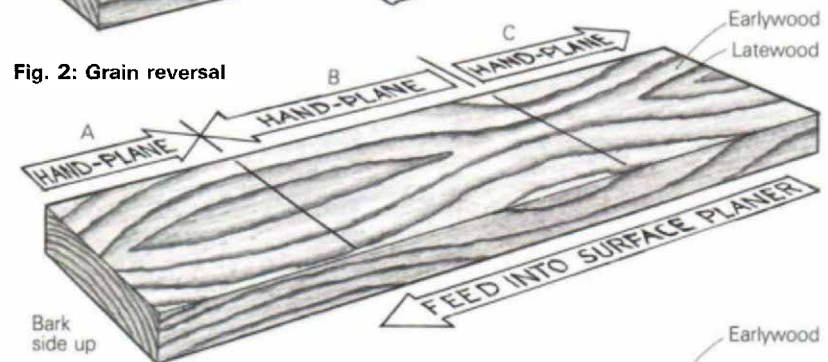


Fig. 3: Reading grain without points

