Pre-raising the grain; important step to complete waste of time...
Important Step or waste of time?

Pre-Raising the Grain

Conventional Wisdom tells us that we should pre-raise the grain whenever we intend to apply a water-soluble dye, water-borne stain, or water-borne finish. The logic supporting this position says that water in the finish will cause the wood fibers loosened by planning, scraping, and sanding to swell and "stand-up" resulting in a rough surface. It is further contended that by lightly wetting the grain first, allowing the wood to dry, and then lightly sanding again, the finisher will successfully remove the wayward wood fibers and the newly sanded surface will then remain smooth when water is again introduced with the dye, stain, or finish. The theory that the loosened fibers will have all been cut away by following this procedure, so there will be no wayward grain to raise with the second wetting.

This is certainly an interesting theory and one that has attracted a large group of believers. *If* all of the steps can be executed properly, it may have some merit. However, in practical terms, execution is quite difficult. Further, in my view, even if execution is perfect and the desired result is achieved, it is largely irrelevant. In reality, a "smooth surface" following the dye or stain coat, or even the first coat of a water-borne finish is not all that important. After all, at this point the finishing process has just begun. How the surface feels or appears after only the first step, in view of all the refining that is still to come, is more than a bit irrelevant. But I'm getting ahead of myself. Let's rewind to the start and take the process one step at a time.

My view of the whole issue of "raising the grain" is contrary to the "conventional wisdom"—I see is as largely a wasted step in most finishing schedules. The whole point in raising the grain focuses on the observation that water causes wood fibers loosened by milling and sanding to swell and stand up—sort of wood's counterpart to a bad hair day. Therefore, so the logic goes, if you intend to use a finish that contains water you need to eliminate these wayward wood fibers first or the surface will be rough after the water evaporates. The solution to the problem goes like this. After sanding, lightly wet the wood to cause the fibers to swell. Then, when the wood is dry, very lightly sand to cut away or level these fibers. In this way, it is reasoned, when the dye or stain is applied the grain will already have been raised so no further raising will take place and the surface of the wood will remain as smooth as it would have been if you used an oil-based colorant or finish.

The problem is that most sanding done to cut away the raised fibers goes too far—not only are the raised fibers removed, but sanding proceeds to the point of exposing new, un-raised fibers that will still manifest themselves when the water-soluble dye or water-borne stain is applied. Wood fibers are exceedingly small. It is difficult to the point of impossible to sand so precisely that you only remove those fibers damaged by previous milling and sanding. In other words, you've done precisely what you were supposed to do to solve the problem, but you are still exactly (or nearly) in the same place you would have been had you not bothered with the step in the first place.

Beyond that, there is a flaw in the original premise. Yes, water does indeed raise the grain. So? Is that *really* an important issue in the finishing process? Is it valid to compare the outcome of raising the grain with applying an oil-based finish? Not at all. *All* liquids "raise the grain". Certainly, water is the most aggressive since water and wood have a natural affinity. But the reality is that all liquids commonly encountered in finishing will raise the grain. You can easily demonstrate this for yourself. Sand a test board as you would when preparing to finish. Next, separate the board into three sections. Apply a liberal amount of lacquer thinner to one section of the board and a similar volume of paint thinner/mineral spirits to another section. Leave the third section as is after sanding. Allow them to dry. Now, lightly run your fingers over the surface. Any roughness on the two sections to which you applied the lacquer thinner and paint thinner? Compared to the section to which no liquid was applied is there any roughness? Given that there was no roughness before but there is now, the only possible explanation is raised grain. Hum…raised grain without the addition of water?

The point I am trying to make is that the *first finishing step* after sanding, the application of dye or stain, is just that. It is the first step. As such, the liquid involved will raise the grain. Certainly, water more than lacquer thinner or paint thinner. But liquid, whatever its chemical composition, will raise the grain. So, accept that reality, set it aside and move on. Your just getting started. There are many more steps in the process before your finish is fully applied. The only purpose of this step is to color the wood. I presume that you intend to sand between coats of whatever film forming finish you intend to apply. I also assume that you intend to apply more than one coat of your intended finish, whether water-borne, oil-based, or lacquer. Therefore, let those little (now colored) raised fibers stand there in all their rough glory. The first coat of any film forming finish that you apply will:

1) Seal the surface of the wood so that all subsequently applied finish will build on the surface, and
2) Will lock the raised fibers in place so that they will easily be cut away by your first light sanding after the first coat of finish is dry/cured.

Therefore, by the time you have applied and lightly sanded one or two coats (depending on the type of finish you use) all evidence of the raised grain will have disappeared.

Let me return to water-borne stain or dye, which was the focus of this article in the first place. Here is another test that you can perform in your shop. Take two wood samples and sand both as you would when preparing for your finish. Raise the grain on only one of the samples. Then, apply a water-soluble dye or water-borne stain to both samples. At this point the only difference is that you raised the grain on one sample but not on the other. When the dye or stain (which ever you applied) is dry, apply your first coat of finish (no sanding) to both samples. Note the "feel" of the surface when the first coat of finish has dried and then sand both lightly with P320 sandpaper. Sand just enough to smooth the surface, and conduct the feel test again—any detectable difference? Now, apply your second coat of finish. Again, give the surface the feel test when the finish is dry. After two coats I submit that you will be unable to detect any difference between the two samples. I also submit that there will be no visible difference either. Sand lightly again with P320-P380 in preparation for the third coat, apply that coat, and conduct the feel test again. Any noticeable difference at all? None, right! Then what benefit was there in your effort to raise the grain in the first place? If the finish you applied was oil-based, you were probably unable to make any distinction between the two samples after the first coat. If water-borne, any differences most likely disappeared after the second.

The bottom line, in my view, is that raising the grain is one of those must do steps that has crept into finishing schedules for no good reason. It has remained there because it has become *tradition*. A favorable argument for raising the grain *might* be made if the intend finish was to be oil or an oil/varnish blend in which the finish film is weak. But, even then, if you allow the finish film to properly cure between applications and you vigorously buff the final finish there will be no issue from raised grain. After all, oil and oil-varnish blend finishes are intended to be an in-the-wood look and feel as opposed to a more formal finish film. There is enough of a finish film in even straight BLO, and certainly in oil/varnish blends, to lock the raised fibers in place and hold them there so that they can be successfully buffed away or leveled without resorting to the grain raising step.

Either way, raising the grain (in my view) is totally unnecessary. It is certainly unnecessary when finishing coarser textured woods such as oak, ash, hickory, etc. It is equally dubious when working with very dense, fine textured woods such as maple, birch, cherry, and similar diffuse porous hardwoods.