

Dear Mom,

I've recently been experimenting with using sandpaper for honing. I had been getting tired out with the oilstones getting unflat and glazed and needing to be lapped all the time, tired of oil all over the place and on my hands so I couldn't even scratch, tired of having to clean the stones after each use, tired of having to keep a conscious effort going to distribute wear on the stones evenly. So tired of all of this.

So I started thinking about abrasives and abrasive action in general, and read up a bit, and asked around, and found out that there's nothing different, in principle, between sandpaper and an oilstone. Silicon carbide sandpaper (i.e., wet-or-dry) goes up to 600 grit in the hardware and woodworking stores, but up to 2000 grit in the automotive finishing stores, as I learned from David Opincarne, a local rec.woodworker and admitted metalhead who works right here at the school and who sent me some 1200-and 2000-grit samples and who's recently been helping me greatly to understand the secrets of metal. For example, did you know that to produce high-carbon steel, crushed bone from the skull of an infidel is an excellent carburizing agent? Me, neither. Or that hardening the steel in cutting blades is achieved by the sudden and even cooling of the blade, and that the best known way to achieve these dual goals is to quench the blade in the still-living body of an enemy warrior? Same here; I had no idea. David's been teaching me a lot.

Me and him and some other wreck.the.woodwork folks had been talking lately about this abrasive business, and it got onto sandpaper somehow, and so I decided to test something out. For the sharpening-with-sandpaper experiment, I used a slightly-pitted 2" wide jack plane blade that came with an old beat-up Stanley Bedrock #605 I bought last year at a tool swap. The bevel on the plane iron had been somehow ground *concave* by the previous owner (or else it just wore that way), so I first straightened the edge out on the grinding wheel, grinding in straight at first so as not to create a thin edge that would burn, and then grinding in a bevel but stopping a bit short of a real edge, again to prevent burning. Because of this care not to burn the steel, this grinding goes slow and light, but it's time well spent.

Time now to lap the back behind the cutting bevel. I took a page out of the plane-sole lapping book -- figuratively speaking of course, you should never tear pages out of a book -- and used very light coatings of 3M "77" spray adhesive to temporarily glue small 1-1/2" x 3-1/2" rectangular pieces of sandpaper along the edge of a sheet of 1/4" plate-glass. The paper I used was Aluminum Oxide in grits 50, 80, and 100, and Silicon Carbide (wet-or-dry to you laypeople) in grits of 150, 180, 220, 320, 400, 600, 1200, and 2000. The plate glass was placed with its edge flush to the edge of the workbench.

I lapped the end one inch of the back of the iron on each grit in turn. I didn't use any water; I just went at it dry. So as I

lapped -- can you call it lapping if it's dry? -- anyway, about every ten seconds or so I'd stop and brush off the sandpaper with a whisk broom and wipe the blade off on my shirt. (On the coarser grits, I found that a dustbuster vacuum actually cleaned up the paper quite thoroughly, much better than sweeping it off, but this sucking advantage disappeared at around 220 grit.) Since I progressed through the grits so gradually, I found I had to spend only about a minute or so on each grit, including the suck-down and sweep-off and shirt-wipe time.

One trick to efficiency is knowing when you've lapped the back sufficiently on each progressive grit. I had previously had trouble gauging this, and didn't know how to tell when enough is enough. Thanks to a clever suggestion from Jeff Gorman, I tried a trick that seemed to work wonderfully. I have a cheapie Radio Shack 30-power hand microscope -- "microscope" sounds impressive, but it's only \$10, although I forget where I got it from -- and used that to tell when the striations from the new grit had replaced all the striations from the previous grit, and when they had, I stopped there and moved on to the next grit.

About ten minutes after starting, I had gone from 50 grit on up to 2000, and there was a mirror finish on the back of that iron the likes of which must be seen. The back of the iron became so shiny I could count my nose hairs in it; 98 on the left, 79 on the right, but 109 and 85 if you count the white ones.

I then jiggled the blade in a Veritas honing jig -- which, by the way, Mr. Lee, should be called a honing fixture, not a jig, since a jig's for holding a tool and a fixture's for holding a workpiece and in the sharpening operation the plane iron, while usually thought of as a tool, or as a part of one, is actually in this instance the workpiece -- man, near-terminal digression there, almost lost it for good; Boy, snap out of it! -- I clamped the blade down in the Veritas blade-holder device, taking care to have the hollow-ground bevel resting on the glass perfectly along both edges of the hollow grind. I then adjusted the microbevel cam on the jig up to its full two-degree microbevel setting -- Robin, tell your uncle that Steve said "way to go, old dude" -- and honed away on the 2000-grit. Even though I had not ground a **sharp** edge on the primary bevel with the bench grinder, even on that little slip of fine 2000 grit it still took only about another couple of minutes before I had a nice **sharp** little 1/64" microbevel gleaming back at me.

I flipped the blade over on the sandpaper several times, hone and lap, hone and lap, each time gentler and gentler, to remove the little bit of wire edge. (Which, by the way, as a result of using such a fine grit must have been so tiny that it was very hard to see or feel, so pretty much just from my awareness of the process I assumed it was there.)

The resulting little thin secondary bevel was shiny. I mean *clean* shiny, like nothing I'd ever seen before. Unlike the secondary bevels I'd previously coaxed out of my hard white

Arkansas stone, this one was unbelievably Shiny with a capital S. I mean *clean* shiny, like nothing I'd ever seen before. Oh, I said that already. Okay, it's hard to describe; about the best I can do is to say that it looked almost *liquid* when you catch the light on it just right. I mean, it was so darn clean and shiny that it takes ten lines just to say it was so shiny it's hard to describe.

Of course, shine is not the ultimate goal. But sharpness *is*. Still, they equate. The more shiny, the more uniform the surface is microscopically, and the closer to the geometric ideal of a *line* is the edge, and hence the sharper it is. Cool. I mean *COOL*!!! I was trembling in my Mickey Mouse boots in anticipation.

Hell, this cutting edge looked downright *dangerous*! I didn't dare touch it. But yet, there was still something I just *had* to try.

I removed the blade from the jig, and anxiously tried the old cliché "cut a finger off before you can notice and bleed all over your screaming wife in the car on the way to the hospital" test. Oops; no, wait. Sorry, that's the wrong test, for those other kinds of tools. Sorry. For the Neanderthals, it's the "shave some arm hairs off" test. Now I've done this test before, on other blades sharpened up on white Arkansas, and while these other blades would pop *some* hairs off the back of my wrist, many other hairs would just bend on over down under the blade's edge (probably from the sheer weight of four prepositions in a row), and those hairs that *did* pop off would do so quite painfully, as though the blade was more grabbing the hairs and *ripping* them out, and I could feel every one of them offering their stubborn and vengeful resistance. Not much fun, and nothing to be doing voluntarily in front of others.

But the edge on this blade was something else! Not only did it cut off every little hair in its path with total ease, but it didn't hurt at all. In fact, I couldn't feel a thing; for all I could tell, there were no hairs there in its path to begin with. But of course there were many, since I'm Italian and also since I could see the fallen hairs all over the back of the blade. And my arm where I had shaved it was as smooth as a non-Italian baby's butt. Again, man, this had gotten downright *frightening*.

But of course, the ultimate test of a plane iron's sharpness is what it does on wood. So I put the blade back into the plane, that old early-model Bedrock jack, which I've not yet tuned in any way. I tried it on the edge of a piece of pine, and as I adjusted the blade for the finest cut possible, it glided through the wood with no effort. None whatsoever. In fact, it almost seemed like the plane was pulling itself along, or that the wood was *wanting* to be planed and was throwing itself into the blade -- no, I've not read Krenov -- it took that little effort.

I ended up getting a shaving that was so darn thin I could read newsprint through it easily. Unbelievably easily. So easily, in

fact, that I thought for a moment about taking the iron back on out of the plane and putting the shaving over the shiny part of its back and counting my nose hairs again, but by this time I had grown weary of counting nose hairs, and of my concerned wife repeatedly asking me why I was doing that.

I thought, no way, this can't be! So skeptic that I am -- I'm so skeptical, that I can't be fully sure that I'm really that much of a skeptic -- I put a micrometer to the shaving, and get this: it measured .0004 thick! Four ten-thousandths of an inch! (Or, as my eternally-pestered but forever-patient metalmentor David Opincarne showed me, "four-tenths" in machinist talk.) No, I read the mike right. Less than one half way to the very first line after zero. Man! That's a cubic hair less than one-half of a thousandth of an inch! Incredible! Amazing!

And it just gets better. For a while there, I actually thought I had taken off another shaving that was even thinner, one so thin in fact that it was invisible and of no measurable mass. I'm pretty sure I did, actually, but I'm having a hard time trying to think of a way to check this out, or even to find the spot on the ceiling that it floated up to.

And what about the planed wood itself? Well, the surface the plane iron left on the wood is indescribable! It's like glass! No, it's like glass wet down with water and a tad of liquid soap added and then some Slick-50 and then frozen and polished. And this is on pine, a softwood! Not only that, but I then gave it the torture test: end grain. I put the same piece of wood in my shooting board, and had a go at the endgrain. Man oh man, I've never seen such a smooth surface on *endgrain* in my life. And again, this is on *pine*! The endgrain was almost as smooth as the edgegrain! This has gotten good!

Still, having exclaimed all this, I'm making no claims to the throne of King of the Neanderthals. I'm the first to admit that this was kind of like when I was a kid and one year I batted a thousand in the Kiwanis Grasshoppers when I was really four years too young to actually play in the league but it was the last game of the year and Dad the team manager put me up in a losing game as the last batter just for the novelty of it and to stop my pestering -- he figured I'd get beamed and would shut up for a while -- and the opposing pitcher Terry Crowley the hotshot star started laughing at me because I was so scrawny and tiny and he taunted me who's this, Mickey Mantle or something, and he threw a pitch at my crutch and I just shut my eyes and said a curse and swung and slammed a hard grounder right down the line and under the legs of the first baseman 20 some odd years before Bill Buckner got his chance and I got a hit. I know it was kind of like that, because this shaving wasn't the minimum three feet long as per the Rules for the Contest to Become the King of the Neanderthals, so it shouldn't qualify. But it still feels just as nice.

One more good thing is that in the process of taking this plane iron from misshapen funkiness to terrifying sharpness I used up all

of about 25 cents worth of sandpaper, and probably about 3 cents worth of spray glue, and about fifteen or so minutes of my time, twenty if you stop for a nosehair count. When it was all done, I peeled the sandpaper from the glass and threw it away -- well, actually I could have but in truth I stick them together back-to-back and save them in a "used-sandpaper" box for odd tasks that never come up. I then scraped the little bit of residual adhesive from the glass with a razor blade, a quick wipedown with acetone on a piece of paper towel, and the cleanup was done in a minute. No oil, no water, no mess, no glaze or flatness problems to worry about, and a cutting edge that is **Scary-Sharp (tm)**.

I think I'll still keep my stones, though; they can sit atop the packets of sandpaper to help keep them flat.

-- Steve LaMantia
Seattle, WA

[I'm talking about my oilstones.]