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From the pages of [Fine Woodworking Magazine](#)

Getting an Edge with Waterstones, Oilstones, and Sandpaper

Different woodworkers use different sharpening methods

by Jefferson Kolle

Many years ago, as the new, inexperienced guy on the carpentry crew, I was in charge of lugging giant piles of plywood from one side of the job site to the other. "I went to college for this?" I used to ask myself. There was a guy on the crew, Mark Fortenberry, who had the sharpest tools. He made finish work look effortless -- smooth, fluid, precise. Every morning he'd pour coffee from his stainless-steel thermos and sharpen the tools he needed for the day.

Different-colored stones were unwrapped from an oily towel; a little can of three-in-one oil appeared; and Mark would sharpen.

Knowing I would need to acquire tools and skills if I ever wanted to do anything other than get intimate with sheet after sheet of rough plywood, I bought a block plane and a roll of chisels, the same plane and chisels that Mark had. But there was something wrong with my tools -- maybe they were defective. The problem was they were dull. "Dull as a hoe," Mark said.

Eventually I got lots of tools: tools I used everyday, tools I didn't really need, tools I never used. And I got my grandfather's two sharpening stones -- oily, black things, one with a big chip out of the corner. Often when I tried to sharpen something, I think I made it duller. (What's duller than a hoe? A hoe handle, maybe.) The whole process mystified me. I decided that electricity would remove the mystery of sharpening, so I bought a powered waterstone made by Makita (www.makita.com).

It's a great tool: The platterlike, 7-in., 1,000-grit stone moves at fewer than 600 rpm, and water drips onto its surface from a plastic reservoir. The tool comes with a honing guide and an attachment for holding planer or jointer blades. It couldn't be more jerk-proof. Fill the reservoir with water, turn on the tool and hold the blade against the stone. The motor thrums along quietly, reassuringly, telling you that now, finally, you are going to get truly sharp tools. And I did. For the first time since Mark sharpened some of my stuff, my plane irons and chisel blades would shave hair off my forearm.

Eventually I went into business for myself, restoring houses, building an occasional piece of furniture, and the Makita never failed me. I got to the point where I stopped using the honing guide. Instead, I held blades freehand against the turning stone, and after a while I wore a trough in the stone, which made it harder and harder to get a flat edge. If the machine has a fault, it is that it is messy. Water gets flung around, especially when you're trying to true the back of a

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In this video, Michael Dunbar demonstrates sandpaper sharpening. Sharpening a blade takes only minutes, and it all happens without special gauges or messy lubricants.

blade. Every time I sharpened, my shirt would get soaked right at my belt line, and I would have to mop water off the workbench when I was through.

I got a catalog recently that devoted seven pages to sharpening stuff. Waterstones, oilstones, synthetic stones, diamond stones, electric-powered stones, jigs for this, jigs for that, rouges, powders, potions. I'm sure they all work. There are a zillion ways to sharpen steel -- I know a woman who sharpens her kitchen knives on the unglazed bottom rim of a dinner plate -- but what works for one person might not work for another. For two days, I drove around New England, visiting three woodworkers, talking to them about their methods of getting an edge.

Waterstones and the art of sharpening
Scott Schmidt has a shop in The Button Factory, a warehouse of artists and craftsmen in Portsmouth, N.H. Schmidt was schooled at North Bennet Street, and he uses Japanese waterstones. "The way I was taught," he said.



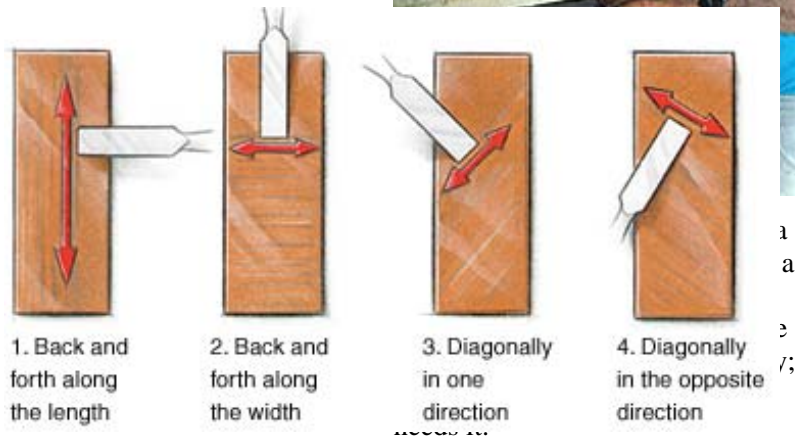
At the end of his shop, there is a bench dedicated to sharpening. In more than 20 years of woodworking, Schmidt has used up one waterstone, and he is halfway through another. All sharpening stones are sacrificial -- they wear away as steel is rubbed over them -- but waterstones are softer than most, and it is the gritty slurry that's created as the stone erodes that works with the stone itself to provide the sharpening medium.

Schmidt soaks his stones in a grungy, water-filled plastic basin -- the type of container a deli might use to store coleslaw or potato salad. The basin lives under his bench, and he pawed through it, pulled out a dripping stone and set it on the benchtop, wiping off the water with his hand. On top of his bench is a piece of rubber rug padding that keeps the stone from moving. He set the stone on the pad, and before touching steel to stone, he spritzed the stone with a water bottle. "I think of sharpening as a process of constantly flattening the stone, keeping it flat by using its whole surface," he said. "You can't make a blade flat with an unflat stone."

The natural tendency, one that Schmidt takes pains to avoid, is to work a blade onto one spot in the center of the waterstone, creating a declivity -- in effect, unflattening the stone. When a stone's surface needs redoing, he flattens it on a concrete block.

Schmidt sharpened one of his favorite chisels while I was at his shop. For a new tool or one with a badly damaged edge, he'll first work the blade on an electric grinder before going to his waterstones. For a long time he used a magnifying glass to inspect the edges he'd honed, but familiarity with his tools has enabled him to forego this practice. He told me that it's easier to sharpen a tool he uses a lot. "If you know the way a certain tool cuts, you know the way that tool will

take an edge. A large part of both processes, cutting and cutting an edge, is done by feel." He does not use a protractor or angle gauge; rather, it's a matter of touch and sight.



Scott Schmidt works a blade across a waterstone in four directions. He repeats the process with stones of 1,200, 2,400 and 6,000 grit.

He started on the back of the chisel using a 1,200-grit waterstone, working the steel back and forth along the length of the stone and mixing up a slurry of water and abraded stone particles. He often stopped and checked the chisel's surface, tilting the tool to look at the shiny areas and the dull spots. "I can feel that this stone has a little high spot on this end," he said, concentrating his efforts in that area. "When the stone is perfectly flat, you can feel sort of an even suction between the wide surface of the chisel's back and the stone. If there's a high spot on the stone, the steel grates a little bit, sounds rougher."

When the chisel's back had a uniform shininess -- no dull spots to be seen in the steel -- Schmidt turned to the bevel. As he did on the back of the chisel, he started the bevel by working it back and forth along the length of the stone for several minutes. Then Schmidt changed tack. Another spritz or two with the water bottle, and he was working again, this time pushing the blade back and forth along the width of the stone. And then he switched again, running the blade in a series of diagonal strokes, crisscrossing the stone from one corner to the other. The slurry built up in little waves. He spritzed again and changed his stance so that he could work the steel from the opposite corner, this time making Xs of slurry. By the time he was finished, the bevel had been worked across the stone in four directions: back and forth along the length; back and forth across the width; and diagonally across the stone in two directions.

He felt the edge with his fingernail. A thin, wire edge had developed, which he removed with several strokes on the chisel's back. When Schmidt was finished, he repeated the process on both the back and bevel, using a finer, 2,400-grit stone and then, finally, a 6,000-grit stone. After five minutes on each stone, the chisel was razor sharp. The back and bevel shone like mirrors.

Oilstones, kerosene and a little diamond paste

After a hard right turn at the end of a Vermont dirt road, I arrived at

the shop of Garrett Hack. Hack is a father, a farmer and a woodworker, in no particular order. He is somewhat of a traditionalist, and it shows in the architecture of his slate-roofed brick shop and in the furniture he makes. But there's also a contemporary side to Hack. A Federal-style chest he made has an outrageous band of checkerboard inlay, and the bright-green trim and certain interior details of his shop belie a man who is not a slave to history. Hack's sharpening methods parallel his architecture; he favors traditional oilstones, but he occasionally uses a new product -- diamond paste -- to get a keen edge in hard steel.



Spread on his benchtop was an array of planes, ready to be sharpened. Hack removed the iron from an old Stanley No. 3. "I just got this," he said, giving the plane a critical eye. "The back of the iron has probably never been flattened. It needs to be lapped." For the quick removal of steel, Hack will use a diamond stone with an aggressive grit. Because it is messy -- he uses a lot of water with the diamond stone, constantly dousing the surface -- he usually works outside on the shop's granite steps. The diamond stone is also good for removing small nicks in a blade's bevel.

Hack dipped the diamond stone into a water bucket and worked the back of the plane bade against the stone in slow figure eights. After a while, he held the steel up to the light. The shine on the blade was uneven, meaning the back of the blade still needed work. "Lapping the back of a blade takes some time, but once it's lapped flat, you should never have to do it again."



Hack stores his sharpening paraphernalia in a drawer built into the underside of his workbench. The drawer is full of oilstones, each in its own wood box. And there are tiny plastic jars of diamond paste in different grits and an oil can filled with kerosene. He reached in the drawer and removed a small, trapezoid-shaped wooden frame. The frame, spotted and stained with oil, had a cleat on the bottom. When Hack rested the cleat against the edge of his bench, it was apparent that it was made to hold his sharpening stones at about 30°. "It's a comfortable work angle," he said.

Any oil will do, but Garrett Hack likes kerosene for his oilstones. A quick drizzle of kerosene keeps the stones from clogging with abraded metal. When sharpening, Hack's stones are held stationary in a cleated wooden frame.



Hack uses the whole stone by working tools in a figure-eight pattern.



Exerting firm, even pressure on the blade, Hack moves the steel in a figure-eight pattern around the surface of the stone. A good grip on the blade allows him to move the steel off the edge of the stone without tipping, and thus he can use the whole stone.

After the blade had been lapped, Hack, like Schmidt, started his sharpening on the back of the plane's iron. He squirted a few drops of kerosene on the stone, telling me that there are all sorts of honing oils available. "But anything will work," he said. "I heard of a guy who uses olive oil." He hunched over the first stone -- a manmade India oilstone -- again working the steel in slow, lazy figure eights, moving around the whole surface of the stone. After some time, the back of the blade had an even, slightly dull shine. Hack then turned his attention to the bevel. He held the front of the blade flat on the stone and rocked the blade up onto the bevel, starting again with the figure-eight pattern. When the bevel had an even shine, just like the blade's back, he switched to a finer-grit stone -- a hard, black Arkansas stone -- and repeated the entire process.

Hack's secret weapon is 4-micron diamond paste (which is the abrasive equivalent of a 4,000-grit waterstone). He picked up a sliver of wood from the shop floor and scooped out a half pea of paste. "It doesn't take a lot," he said. "Even this is probably too much." He wiped the paste onto the fine stone, smearing it around with the wood sliver, mixing it in with the kerosene. And again he started on the back of the iron, working the steel, checking it in the light, until he was sure of the evenness of the shine. Same thing for the bevel.



A dab of 4-micron diamond paste is Hack's secret weapon for getting a good edge. He mixes the paste with a little kerosene and smears it around on his hard, black Arkansas stone.

When he was finished he checked the sharpness of the blade by using it to pare the end grain of a scrap of soft pine. "Why not hardwood?" I asked.

"Almost anything will cut hardwood," he said. "But only a truly sharp blade will cleanly cut the end grain of pine without tearing

some of the fibers and leaving a ragged edge. If it's really sharp, the blade will sever all of the wood fibers evenly, leaving a cut on the end grain that looks almost burnished."

Hack flattens his stones with gritty silicon-carbide powder, water and a scrap of plate glass. "It's pretty messy," he said. "Sometimes I do it outside." It's also pretty simple: Hack sprinkled some powder on the glass, added a little water and worked the face of the stone in big circles. When he thought the stone was flat, he held it up to the light and checked it with a straightedge. "Needs a little more right here in the center."

Again he worked the stone against the paste-smearred glass. He checked it one more time and could see no light coming through between the stone and the straightedge.

Satisfied, he wiped off the stones and the little can of kerosene, and everything went back into the drawer, except for the oily rag, which he hung off the corner of the bench to dry.



To true his oilstones, Hack uses gritty silicon-carbide powder mixed with a little water. Hack mixes the paste on plate glass and works a stone in a circle. Later, he checks the flatness of the stone with a straightedge.

Plate glass and sandpaper
Even before Mike Dunbar opened The [Windsor Institute](#) where he instructs 600 students a year in the craft of making Windsor chairs, he was a teacher, albeit an itinerant one. He traveled all over the country, going to woodworking shows and giving demonstrations at woodworking stores. He packed a lot of stuff for his trips: chair parts and tools.

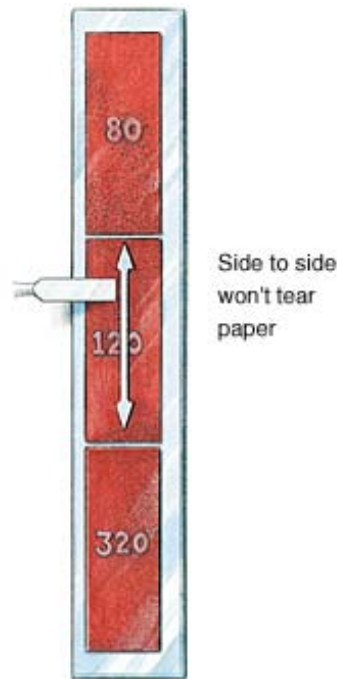
It was a hassle to find a way to sharpen tools on the road; either he had to bring all of his oils and stones or rely on the store to provide them. Most good inventions are born of necessity; Dunbar's so-called scary-sharp method of getting an edge with plate glass and sandpaper is no exception.



"Sharpening tools doesn't earn any money for a woodworker," Dunbar said. "I like to get my tools sharp and then get to work. Using glass and sandpaper is an extremely fast way to get an excellent edge." Along the back wall of Dunbar's shop is a dark-green, built-in cabinet, and right on the edge of the cabinet's countertop sat a dirty piece of 3/8-in.-thick plate glass about 8 in. by 40 in. Next to the glass were three rolls of adhesive-backed sandpaper.

Dunbar grabbed a razor-blade window scraper and gouged off the three strips of spent paper from the plate glass (the glass is held on the bench with a couple of wood strips). "We sharpen a lot of tools here, and we go through a lot of sandpaper." He went over to a wall-mounted rack of the school's tools -- planes, chisels, gouges and drawknives -- and grabbed an almost-new, 1-1/2-in. chisel. All of the school's shop tools are spray-painted bright green. "If they're painted, they don't walk," he said. He looked at the edge of the chisel and noticed two big nicks in the blade. I asked him if he would not ordinarily grind out the nicks from the student-abused blade. "I'm telling you," he said, "this method is really fast."

He cut three strips of sandpaper from the 4-in.-wide rolls, one each of 80 grit, 120 grit and 320 grit, and adhered them to the glass. Holding the chisel handle in one hand and using the palm of his other hand on the top side of the chisel, he started to rub the tool back and forth along the length of paper, checking occasionally the evenness of the shine on the back of the blade.



Mike Dunbar sharpens his tools with sandpaper stuck to 3/8-in.-thick plate glass. Working steel across three grits of paper, 80, 120 and 320, cuts an edge in no time. Another plus: plate glass never needs flattening. When the sandpaper gets dull, scrape it off the glass with a razor blade and stick on a new piece.



Felt-tipped marker shows a blade's low spots. When lapping, Dunbar colors the back of a blade. After working the blade across the sandpaper, the ink is removed from all but the low spots on the blade.

When the back was even with scratches from the 80-grit paper, he colored the back of the chisel with a red, felt-tipped marker. "The marker works like machinist's chalk," he said. "If there are any low spots on the blade, the marker won't get removed when I rub the blade on the sandpaper." He worked the blade against the paper

again, and when he held it up to the light, only a faint trace of red showed in the center. Dunbar decided the back was flat enough and told me that future sharpening will make the blade truly flat. Then he switched to the bevel, or bezel, as Dunbar calls it. "Check your dictionary," he told me. I made a mental note.

Dunbar held the front of the chisel on the sheet of 80-grit paper and rocked the blade forward until it rested on the bevel. "Simple," he said. "You don't need a honing guide or anything like that. Just rock the blade until you can feel the beveled surface resting on the paper." With one hand on the handle and the other putting pressure on the back of the chisel, he worked the blade side to side along the length of the 80-grit sheet. A forward-and-back motion or a figure-eight pattern would tear the sandpaper.

He worked the blade for a minute or two and then asked me if I wanted to try it. I told him that I felt like Huck Finn being fooled by Tom Sawyer when Tom convinced Huck that it was fun to paint a fence. "No one believes how easy and fast this is," Dunbar said, "until they try it." I looked at the blade and saw the nicks. I worked the bevel against the sandpaper the way he showed me. After a minute I looked at the blade again; the nicks were almost gone. He looked at me looking at the blade. I smiled, and he raised an eyebrow, knowing he'd won another convert.

After a little more work, Dunbar had removed the rest of the nicks. Total time to remove the nicks in the blade was about five minutes. Then he switched to the 120-grit paper but not before sweeping away the filings with a mason's brush. "Keeps the paper from clogging, and you don't want to get coarser grit on the finer-grit paper." When all of the scratches from the 80-grit paper had been supplanted by the 120-grit scratches, he swept the filings and moved onto the 320-grit sheet.

The sequence was the same: He worked the chisel on the 320-grit paper until there was an evenness of scratches, brushed off the paper and moved to the next-finer grit. After working the chisel, Dunbar placed a piece of 600-grit wet-or-dry paper right on top of the 320-grit sheet. The roughness of one paper holds the finer-grit paper in place. For most tools he feels that 600 grit gives a sharp enough edge; for the keenest edges he will go from 600 grit to 1,000 grit and sometimes all the way up to 2,000-grit paper. A blade honed on 2,000 grit shines like chromium.

Unlike using oilstones, waterstones or powered stones, with Dunbar's method you don't have to worry about flattening the stones. The plate glass is always flat, and when the sandpaper gets dull, you scrape it off and



Rougher grit holds finer-grit paper in place. For the keenest edges, Dunbar uses fine-grit sandpaper without adhesive backing. Tools sharpened with 2,000-grit paper are truly scary sharp.

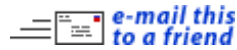
stick on another piece.

As I drove home, I thought of my Makita electric sharpening stone lost in the garage of my ex-wife's house. I thought of Schmidt and Hack and how well their sharpening methods worked for them. (Different strokes for different folks?) And then I thought of the glass store near work, and I decided to stop in and get myself a piece of 3/8-in.-thick plate glass. Tom Sawyer wins again.

Jefferson Kolle, former managing editor of *Fine Woodworking*, is now a freelance writer.

Photos: Jefferson Kolle; drawings: Bob La Pointe

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56-61



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