THE ANARCHIST'S TOOL CHEST
For Roy Underhill.
Without him, my ideas about woodworking
would never have taken root.

And for John Brown,
the genius who first put together the words
“woodworking” and “anarchism.”
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10-ESSENTIAL
SHARPENING
KIT
The simplest thing in woodworking – getting a keen edge – has been made impossibly complex by the crazy number of sharpening stones and guides in catalogs and stores. Anyone can learn to sharpen a passable edge with about 30 minutes of personal instruction. But after that incredible experience, you are then set on a never-ending road of making your next edge better than your last.

Thanks to my job at the magazine, I have set up and sharpened more tools than anyone I know. I personally have taught a few hundred people how to sharpen. I sharpen every single day. Yet, my edges still improve every year.

When you pick a sharpening system, think of it as an old-fashioned wedding. You should devote yourself to one system. Spurn all others. Try to explore the system you picked in immense detail. Take good care of your sharpening medium. Keep it clean. Keep things true. Keep everything ready to go at all times. Do these things, and the rewards will be immense.

Jumping from system to system, jig to jig, is the road to ruin. Every sharpening medium (waterstone, oilstone, ceramic, sandpaper, diamonds) is different, and each reveals its secrets over time.

So here’s the big question: Which system should you choose?

Answer: It doesn’t matter.

Every system works. I’ve used them all and each is a trade-off between sharpening speed, maintenance and expense. There is not one system that is fast, easy to maintain and cheap. People will tell you that there is (because they are married to their system), but they are blinded by devotion. And I’m OK with that.

Though the sharpening systems might seem wildly different, they all have three functions in common. They are used to grind, hone and polish your tools. Grinding is when you remove a lot of metal quickly to fix an edge that needs repair or needs to be taken back to a factory state after lots of sharpening jobs. It is infrequent and generally avoided.
Honing is where you usually begin your sharpening job. Honing removes the old worn edge and starts a new edge. Honing also is the stage where you typically change the shape of an edge. You might add a slight curve to your block plane blade. Or you might straighten out the edge of a chisel that was a little crooked from your last honing.

Polishing is where you refine the honed edge until you get to whatever insane grit level you desire. The more polish you impart, the more durable the edge – but there is a definite point of diminishing returns. For some woodworkers, one polish stone is all they will ever need their entire lives. For others, they will need five or six polish stones to be truly happy.

So let’s discuss the trade-offs for the common systems. There are lots of other systems out there, but for the last 100 years or so, these are the ones that most people have used.


**Oilstones: Slow, Steady & Durable**

For the last century or so, most Western woodworkers have used oilstones. These stones occur naturally, though most oilstones these days are manufactured using a process that bonds the grit together like making a brick.

Oilstones are lubricated with oil. And almost any oil will do, from WD-40 to mineral oil to 3-in-1 light machine oil. The oil is a plus because it won’t rust your tools and it (usually) evaporates slowly. So you can squirt and go and not have to constantly re-apply oil.

Oilstones cut slowly compared to most other sharpening systems, so you are going to need to use more strokes to hone and polish your edge. But the upside to the slow cutting action is that the oilstones also wear slowly, so you don’t need to flatten the stones very often. In fact, some woodworkers report that they have never flattened their oilstones.

That has not been my experience. Oilstones work better if they are flat. They cut faster because flattening them exposes fresh abrasive and prevents them from glazing. And flat stones are predictable. You’ll never have to remember where a low spot is that could ruin an edge. I flatten my oilstones with a diamond plate, which is fast and efficient.

If you adopt an oilstone system you will need to purchase a way to grind your tools (such as a high-speed electric dry grinder), plus one stone for honing and at least one stone for polishing. The coarsest oilstone typically is the “Washita” stone. It’s not quite coarse enough for grinding. Most users choose a Washita or the next finer stone, the “soft Arkansas,” stone for initial honing. The “hard Arkansas,” “hard black” and “translucent” stones are used for polishing.

If you find natural stones, which are nice and made from novaculite, you will find some variation in the stones. I’ve owned hard black stones and translucent stones that were similar.

Or perhaps I just wasn’t prepared to see their differences at the time I had them.
I love oilstones and used them for many years. They require no setup. You just squirt them and go. The oil helps you fight rust. They don’t ask for as much constant maintenance. Price-wise, they are the cheapest of all sharpening systems. You will be hard-pressed to wear out a set of oilstones in a lifetime. Most people can pass them on to their children. So buy the best stones you can find and spread their cost out over your lifetime. A $50 stone is $2.50 a year over 20 years. A $100 stone is $5 a year over the same period. The difference is one cup of fancy coffee a year.

When I used oilstones, I had a soft India stone that was man-made for honing and a hard black Arkansas that was a natural stone for polishing. After polishing on the hard black stone, I would apply one final and traditional touch: I would strop the edge on a piece of hard leather charged with a green polishing compound.

**Stropping**

Stropping and oilstones go hand in hand. The reason for that is that the finest oilstone (the translucent) is still a little coarse for some tools. So to get the keenest edge, you have to strop. Stropping isn’t some weird magical process.
It’s just a fine polishing process. The strop itself is like the stone. The polishing compound is a waxy abrasive with very small abrasive particles, as small as 1 micron, that impart a nice polish on the cutting edge.

When you strop, you work the tool in only one direction: pulling the tool toward you. If you push the tool forward, the sharp edge will likely dig into the leather, damaging your strop.

**Waterstones**

Woodworkers have lubricated some stones with water for centuries – sandstone grinding wheels have always been lubricated with water in every corner of the world. But the Japanese had quarries of stones that could impart an insane polish when lubricated with water. So that country has become the center of the universe for natural and man-made waterstones.

Like the tapped-out veins of oilstones, natural waterstones are fairly rare these days. So most woodworkers buy manufactured waterstones.

The chief advantage of waterstones is that they cut faster than oilstones and practically every other abrasive I’ve used. How fast? The honing process on a waterstone can be as brief as three or four strokes. On an oilstone, I would expect to make 20 or 30 strokes to cut a fresh edge. For a hobbyist woodworker this difference isn’t all that big a deal. But for a person who sharpens as much as I do, the cutting speed is noticeable.

The chief disadvantage of waterstones is they dish out quickly. I flatten
my waterstones after every use to ensure they are always flat (I use a coarse diamond plate). If you let your stones get out of flat you are asking to really botch an edge. And because waterstones cut so quickly they will mung your edge with amazing speed.

Waterstones use a cheap and common lubricant – water. And that would seem to be an advantage. But water is the compound that encourages iron and steel to become rust. So you have to keep an eye on the water and wipe down every tool with oil after sharpening. Any slip of vigilance can have nasty brown and crusty consequences.

Waterstones also have a wide range of abrasives, from the very coarse to the insanely fine. If you want only one sharpening system in your shop, waterstones are the way to go.

**Soak or No?**

In the world of waterstones, there are two broad categories: those that have to be soaked for 10 minutes before use and those that don’t. Some brands of waterstones don’t ever need to be soaked. You just squirt some water on and go. But with many common brands of honing stones, you need to soak the stones for 10 minutes to saturate them so they won’t immediately absorb all the water. And a dry waterstone will quickly become choked by the steel filings.

The honing stones that don’t need to be soaked are significantly more expensive, but they are convenient.

Polishing stones of any brand can be soaked if you like, but many do not need it. You can just squirt some water on them and get down to it.

**The Waterstones You Need**

If you want to grind your tools with waterstones, you’ll need a #200-grit stone, which will chew up your steel and go out of flat when you look at it cross-eyed. This stone is usually as thick as a house brick because you’ll tear
through it when grinding. I’m not fond of grinding on waterstones and am married to a grinding wheel, but some people are frightened by grinders.

For honing, you need one waterstone that is between #800 and #1,200 grit. Most people get a #1,000-grit stone. Some people add a #2,000-grit stone to their sharpening regimen, but I think that’s a waste of money and steel. Remember: The more you stroke, the more steel you remove. My goal is always to remove the least amount of material. This also reduces the wear on my stones, which means less flattening chores for me and that means my stones will last longer.

For polishing, you need at least one stone that is #4,000 grit or finer. If you have one polishing stone, you’ll pick something between a #4,000 and #8,000 grit.

If you decide you can afford two polishing stones, the typical pick is to get a #4,000 and an #8,000- or #10,000-grit stone. And if you want three polishing stones, you’ll go all the way to something like a #30,000-grit stone, which can cost as much as a monthly car payment.

My system has #1,000-, #4,000- and #8,000-grit stones. I think that above #8,000 is a waste of time and money. The fine polishing grits seem to take a lot of time and effort to produce results. I’d rather spend that time banging out a mortise.

**The Cost of Waterstones**

Waterstones are a mid-range sharpening system. Though each stone costs about the same as an oilstone, the waterstones wear out fairly fast. I’ve burned through three #1,000-grit stones in the last 15 years, and I’m on my second #4,000-grit stone. The finer polishing stones last a lifetime.

The stones of hobbyist woodworkers could last a lot longer, unless they sharpen every day like I do.

Though I’m not happy about blazing through my waterstones, I do like how fast they cut. I can correct edges, establish cambers and polish an edge
to perfection in three minutes flat. Then I am back at the bench.

I bought a nice set of waterstones that didn’t need to be soaked – ever. I did this because I travel with my stones and don’t want them leaking their water all over my tools. And sometimes I need to pull the stones out and begin sharpening immediately. There’s no time to soak.

Hobbyist woodworkers don’t have those constraints. So consider this as you choose your system. If you are willing to take a little more time, then waterstones that require soaking are a perfectly good choice.

**Flattening Oilstones & Waterstones**

To keep your stones flat you can go one of three routes. You can use your stones to flatten your stones. This works, but it does wear your stones more quickly and can be slow. Plus you really have to clean your fine stones so you don’t get coarse abrasive embedded in them.

The next option I mention only so you’ll know to avoid it. Some woodworkers flatten their stones using wet/dry sandpaper stuck to a flat surface. This is ghastly expensive. You might get only two flattenings on a sheet of paper before it’s trashed. Unless you own a sandpaper factory, burn your money on something else.

The third option is to have a dedicated stone for flattening. I prefer a diamond stone (use the coarse or extra-coarse variety). You can get decades of use out of one of these diamond stones if you take care of it.

Note that you’ll also see dedicated flattening stones, which usually are made using a brick-like abrasive. I’ve tested three or four of these during the last 15 years and have yet to find one that was flat or stayed reasonably flat. They seem like a good cheap option. I agree that they are cheap.

**Grinding**

Grinding is a dirty and necessary business. Most beginners don’t want to think about grinding until they need to tackle it. But my advice is to get com-
comfortable with the process. Buy a 25-cent chisel at a garage sale and practice grinding it. You might ruin the tool. But you will learn to grind.

The most common way of grinding tools is to use an electric dry grinder with 6"- or 8"-diameter wheels. The salesman will try to talk you into a more expensive slow-speed grinder (“They won’t cook your tools!”). That’s crap. Any grinder can cook your tools. I’d rather have a fast grinder (3,450 rpm) and a wheel that breaks down quickly. This creates a fairly low-temperature grinding environment.

So pass on the slow-speed grinder. In fact, your best bet is to buy a used fast-speed grinder made in the United States before 1980. These old cast iron behemoths are cheap ($20 is a fair price), have lots of iron so they don’t vibrate, and they run so smoothly that it can be difficult to tell that they are spinning.

My grinder is a 1970s 6" Craftsman model that probably has another 50 years of life left in it.

So buy an inexpensive old grinder (make sure the shaft runs true before you hand over your money) and take the money you saved and blow it on some primo grinding wheels. I use #80-grit wheels that are highly friable, meaning they break down quickly. Wheels that are friable also run cool.

Easier than it looks. A hand-cranked grinder takes a little skill to use, but you’ll be an expert after a few edges. The vintage grinders accept modern wheels and can go anywhere.
Too-hard wheels will cook a tool in an instant. And they will glaze over, too.

Don’t forget to get a tool to flatten the wheel, which is excellent routine maintenance. This tool can also shape a wheel into a thumbnail profile so you can grind moulding planes with hollow irons.

I also have a hand-cranked grinder that I adore. It takes a little more skill to learn to use. I crank with my dominant hand and grind with my off-hand. But it’s not all that hard to learn. And it is dang fast. I can cook a tool with a hand-cranked grinder.

I don’t know of any modern hand-cranked grinders being made, but they are plentiful on the vintage market.

**Still Not Grinding?**

Try as I might, it’s hard to convince some people to get an electric or hand-cranked grinder. They live in fear of this spinning demon. It will eat their
tools or worse. If you simply are horrified by the thought of a spinning grinder, allow me to offer up this alternative: a flat granite floor tile topped by blue belt-sander paper.

This grinder has a cheap initial cost. I paid $7 for a piece of 12" x 12" granite flooring. Add to that about $15 for the #80-grit alumina zirconia belt-sander paper, which is usually used for shaping nasty stainless steel. I cut up the belts and stuck them to the granite using a spray adhesive.

This gives you a low-cost and safe entry into the world of grinding. But the long-term cost is insane. Even good paper loads with filings (waterstones, on the other hand, break down under pressure, which exposes new abrasive particles). So you might need to replace the paper once or twice a year, which makes the 20-year cost somewhere between $300 and $600. A used grinder and wheels will have a much lower 20-year cost.

When the sandpaper clogs, it creates areas that are sharper than other areas. As a result, it's easy to ruin an edge by not paying attention to where you are sharpening on your plate of sandpaper. When the sandpaper loads, it creates areas that don't cut fast. As a result, you can get some weird and inconsistent results when your paper is loaded.

But sandpaper is a decent way to sharpen tools. In fact, some people swear by it.

**Sandpaper Sharpening**

Sandpaper sharpening has strong appeal for some woodworkers, so I’m not going to knock it. OK, I lied. Sandpaper sharpening works, but it is crazy expensive over the long run. Good sandpaper costs money. There also are powered sandpaper systems where the motor turns a sanding disc or belt. These are also more expensive in use than a grinder and stones.

The only time I recommend sandpaper sharpening is for people who aren’t even sure if they want to learn to sharpen their tools. Or for people who are afraid of an electric dry grinder and won’t buy a hand-cranked one.
The chief advantage of sharpening with sandpaper is the low up-front cost. You can get started with just a few sheets of adhesive-backed sandpaper and a flat surface. But you need to change your sandpaper regularly. How often depends on the type of tools you own and how much you sharpen. If you sharpen only a couple chisels, you’ll get a lot of use out of a sheet. But if you sharpen plane irons, chisels, knives and carving tools, you are going to be lucky to get through a project without trashing a sheet of abrasive.

Aside from the long-term cost, my chief beef with sandpaper as a sharpening medium is that it clogs easily with filings and the paper wears in spots. When stones wear, you will end up exposing fresh abrasive. With sandpaper, the abrasive gets worn down or away.

So you need to replace your paper often to get consistent results.

If you’ve read through all my warnings above and the system still appeals to you, then by all means use it. It is your money and your craft. If that’s the case, here are my recommendations for the grits that are useful.

For grinding, some #80-grit alumina zirconia sandpaper is the way to go. See the earlier section on grinding for a brief discussion of this. For honing an initial edge, look for paper that is about #600 to #800 grit if you buy paper graded under the CAMI system. If you buy sandpaper graded under the European FEPA system, that’s P1,200 to P1,500 grit. If you buy it graded by micron, that’s somewhere between 20 and 7 microns.

For polishing, choose a grit or two on up to #2,000 grit (CAMI), P2,500 (FEPA) or .3 to 6 micron. Some woodworkers will choose to use a lot of small steps up in grit with sandpaper, but I don’t see the use.

I mention this to caution you when mixing systems. If you mix different brand names of paper or waterstones, you could hone yourself in circles. One brand’s #800-grit stone might not be the same as another brand’s. I’ve had #800-grit stones from one brand that were finer than the #1,200-grit stone from another.
**Oil Can or Plant Mister**

To lubricate your stones, I recommend buying a pressurized plant mister for waterstones or a pump-activated oil can for oilstones.

The plant mister (available for cheap in the garden section) pressurizes with a dozen pumps then you can spray a fine mist for a long time. It’s much nicer than using an old Windex bottle.

And old oil cans are just awesome. I pick them up at tool meets and on the Internet for little money. These are vastly superior to the plastic pump bottles that some rust-preventative oils come in.

**Burnisher**

If you are going to sharpen your card scraper you need a burnisher. Some old texts will pooh-pooh this notion and tell you to turn the burr on you scraper with the shank of a screwdriver or the back of a gouge or chisel.

This was great advice back when scrapers were made from softer steel. Nowadays scrapers are harder stuff. So while you might be able to turn a burr using a hard and polished gouge, you will find it vastly easier with a dedicated burnisher.

Burnishers need to be much harder than the scraper, smooth and polished. These three characteristics allow you to morph the metal corner of your card scraper into a perfect little hook that is smooth, not jagged and broken.

When I buy a burnisher I really want just one thing: A money-back guarantee. The quality of these tools is all over the place. Some are soft. Some are
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Deeply scratched. But you won’t know from a catalog description or photo. So make sure you can return it.

Some people are going to get their panties in twist about the profile of the burnisher. There are round ones and oval ones, football and triangular profiles. Honestly, I couldn’t care less about the profile. A tight curve will turn a hook with less pressure. A flat curve will turn a hook with more pressure. You can get the same results by varying the pressure.

Up-cycled Burnishers

One final word on burnishers made from discarded carbide rods from industry. These can be awesome – carbide can easily test out at 90 on the Rockwell “C” scale. And they can be crap because they are pitted or scratched.

If you find burnishers for sale that are made from recycled medical equip-
ment or whatnot, don’t dismiss them. But do ensure you can get your money back if they aren’t smooth or polished enough to do the job.