

Hand-tool Tuning & Maintenance

- FWW references
- 7 Habits of highly effective woodworkers
- Workshop tune-up/makeover
- Workbench tune-up
- Storage of tools
- Tune-up of squares
- Handplane tune-up
- Sharpening- bevel angles
- Cabinet scrapers
- Some demonstrations



FWW References

- Numerous articles on tune-up
- 20 selected for downloading

fundamentals

7 habits of highly effective woodworkers

POWERFUL LESSONS FOR PART-TIME FURNITURE MAKING

BY MATT KENNEY

Making furniture isn't easy, especially if you do it in your spare time. When it comes to complicated tasks like dovetailing a carcass or sanding a big piece, it's challenging to get consistent results when working in short bursts.

I've long thought that if I could make better use of my limited shop time, I'd make fewer mistakes, get more done, and build better furniture. To that end, I recently asked our contributing editors for suggestions, tapping their combined

decades of experience. Surprisingly, none of them focused on technical skills. I guess these just come naturally over time. Instead, their advice dealt with things like project planning, tool maintenance, and basic milling operations. And there was a surprising amount of agreement among them.

In all, their tips boiled down to a set of good bedrock habits that will enhance anyone's work and enjoyment in the shop. With apologies to Dr. Stephen R. Covey (author of *The 7 Habits of Highly Effective People*), here they are.

1 Plan your work

Begin each project by drafting an over-

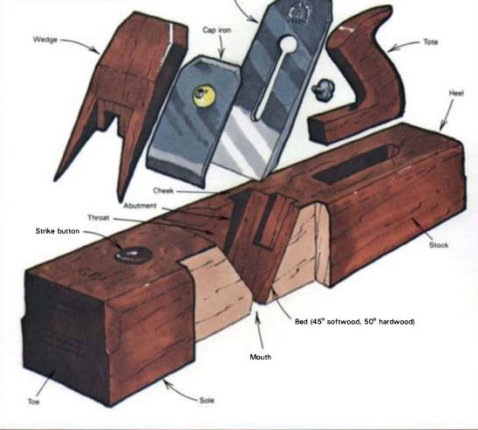


Old Wooden Planes

Reworking brings rewards

by Graham Blackburn

Fig. 1: Parts of a bench plane



Fine WoodWorking

Handplane Tune-up

Step-by-step instructions to get maximum performance from any plane

BY DAVID CHARLESWORTH

There is a well-kept secret in fine cabinetmaking. Most new planes should be treated as a kit of parts, not as a tool ready for fine work. Recently, while reviewing a new jack plane, I set the plane to take a 0.001-in.- or 0.002-in.-thick shaving—a setting not unassailable for planing figured hardwood—but it was impossible to plane a straight edge.

The cause of the problem, I discovered, was the plane's sole, which was 0.003 in. hollow in its length.

Unaware of these flaws, many woodworkers are frustrated by the performance of their shiny new planes. I certainly was when I started out, and my new students have the same problem.

In the heyday of English plane making, a plane made by Norris or Splyers cost a cabinetmaker one to three weeks' wages, so perhaps we should not expect too much from that new Stanley or Anzani costing the equivalent of a few hours' wages. The good news is that spending a few hours tuning up these planes will result in an



THE PARTS OF A PLANE

For a handplane to cut closely and without chatter, the parts must be machined to high tolerances and fit together perfectly. You are unlikely to find this precision on a mass-produced plane. However, refining the fit of the parts and replacing the blade will soon have your \$80 plane cutting like a \$300 model.

PLANE BODY
The sole must be perfectly flat to cut shavings thin enough to read newprint through. The contact points with the frog must be flat.

Drawings: Jim Fisher



7 Habits of highly effective woodworkers

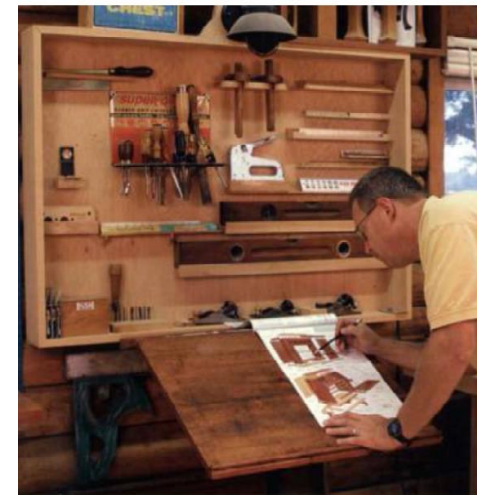
1. Plan your work
2. Take your time
3. Prepare for mistakes (test pieces)
4. **Keep tools where they belong**
5. **Tap the power of handtools**
6. Document your progress
7. **Sharpen and tune tools regularly**



Workshop tune-up/makeover

FWW#170

- Wall panels for tools
- Group tools for use-measuring, layout, cutting



WALL PANELS ORGANIZE HAND TOOLS

Like many woodworkers, I have lots of hand tools, and I want to be able to find a tool when I need it. I would rather spend my time working than looking. To organize my hand-tool collection, I built four tool panels near my workbenches. Each tool, regardless of its size, fits into its own space within one of these panels. The panel backs are made of $\frac{3}{4}$ -in.-thick seven-ply oak plywood. The edging is solid oak rabbeted to receive the plywood and mitered at the corners.

To accommodate the needs of several students at once, all panels include common tools such as handsaws and planes. Whenever possible, I grouped tools—such as those for measuring, layout, and cutting—according to use.

I used a bandsaw, handplanes, and sanders to shape and mold each tool holder's unique configuration. I glued the tool holders in place and used screws and dowels for reinforcement.

Designs on display. Lyons finds it helpful to keep plans for his current project displayed so that he can reference them easily but not get them damaged.



Tools are grouped according to use. Layout tools and clamps are gathered on this tool panel.



A place for everything. Wall panels display hand tools, making them easy to find and access.

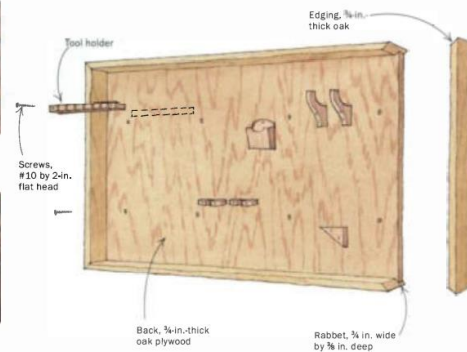


Photo: Mark Schofield

MAY/JUNE 2004 43



Workbench tune-up

- **FWW#203**
- **You can't do good work on a worn out bench. So:**
- **Flatten the top**
- **Tighten the base**
- **Adjust the vises**



Storage of tools

- **FWW#181, 223**
- **Drawers**
- **Wall mounted**

Tool Cabinet for a Workbench



Keep hand tools close at hand
but out of harm's way



Storage of tools

- Drawers with subdivisions FWW#223
- Rubber mesh prevents tools from sliding

Divide and Conquer

Easy-to-make drawer dividers keep tools safe and secure



BY MICHAEL PEKOVICH

The set of drawers in my workbench holds the tools I use most often, but until recently it didn't hold them very well.

I've always liked having the tools within reach, but I wasn't fond of the way they rattled and rolled around, threatening to damage one another. And I didn't enjoy having to rummage through a dusty jumble of stuff to find the tool I wanted.

I finally got tired of it and installed dividers. They are easy to cut and install, and they're adjustable. I didn't want to be locked into a layout that I might outgrow, so I used dividers that are dry-fit into dislodged end pieces. They fit securely, but can easily be removed and relocated as needed.

Now, all my tools rest easy—and in plain sight. No more rattling, rolling, or rummaging. □

Michael Pekovich is Fine Woodworking's art director.



60 FINE WOODWORKING

Photo: Steve Scott



Addition of tool storage cabinets

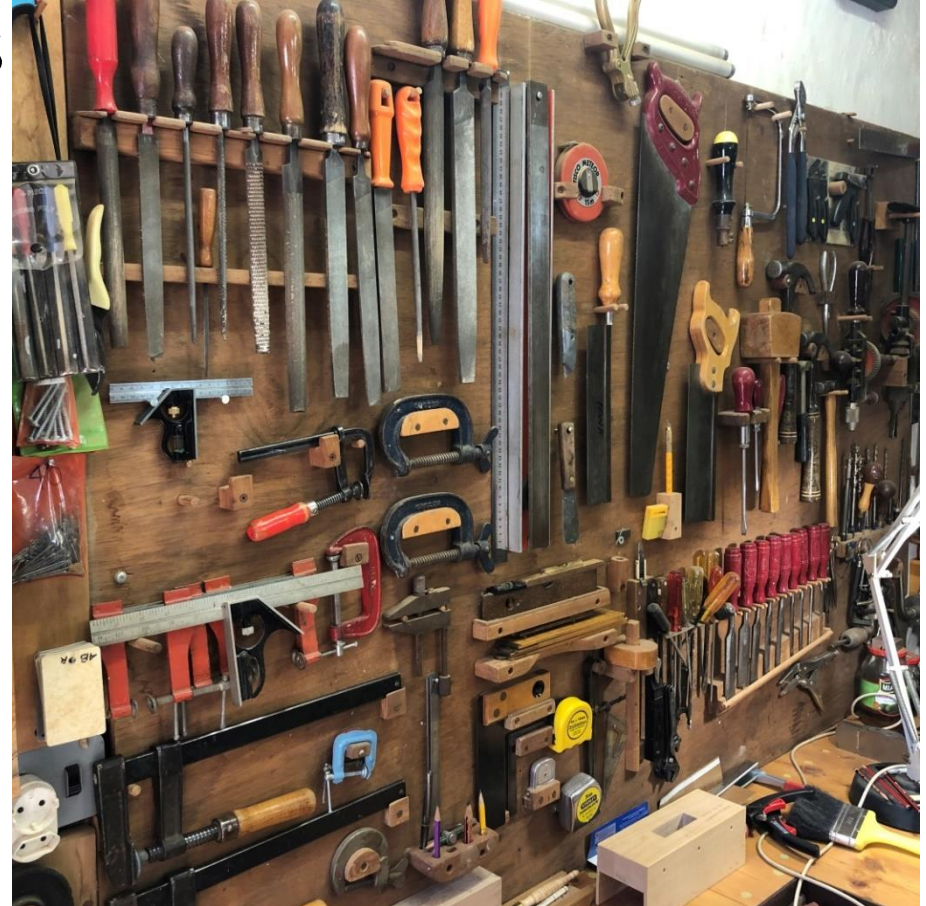


Tools are safe and available at the bench



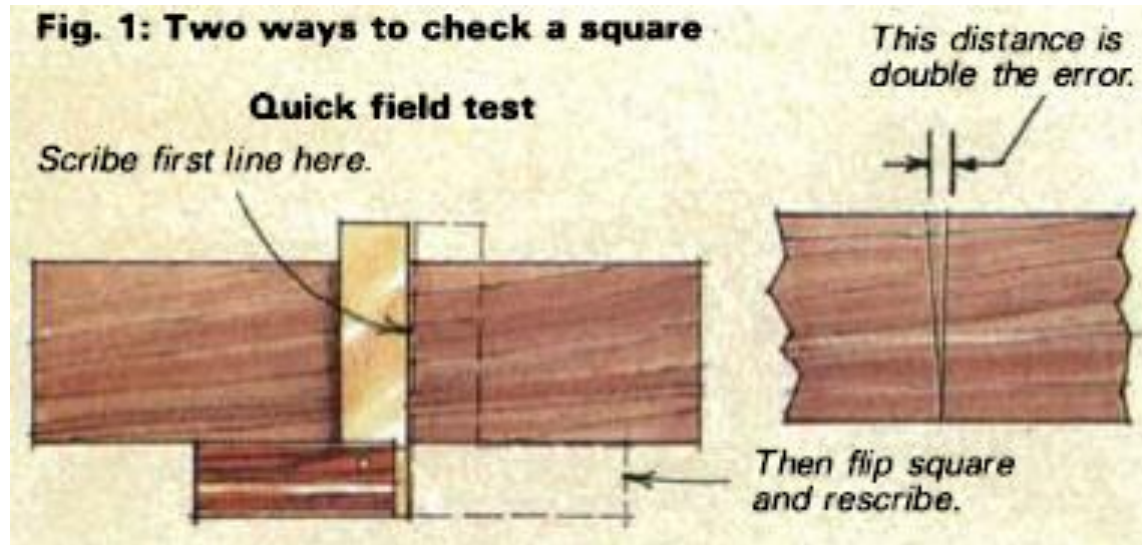
Wall mounts

- Evolved over 50 yrs

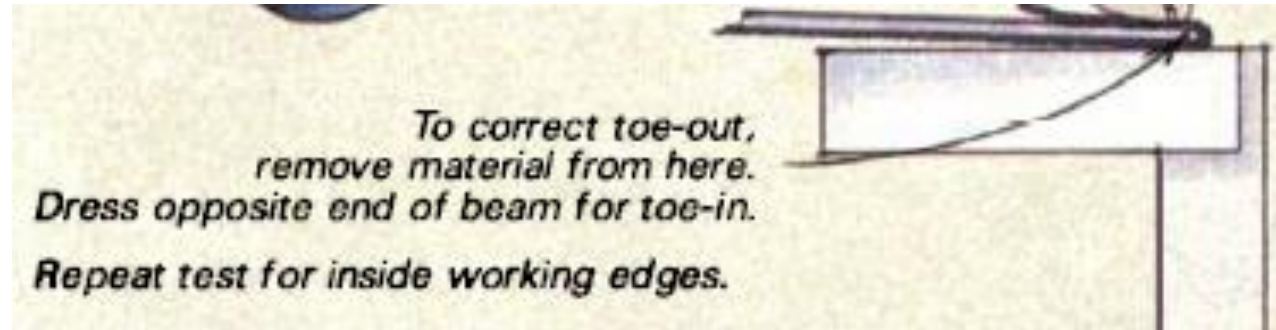


Tune-up of squares

- FWW#59, 148



- Correcting



Shopmade Squares

- **FWW#148**

Shopmade Squares



Four precision tools
from a quarter
sheet of plastic

BY GARY WILLIAMS



A good square is an indispensable tool in the shop. So it makes sense to have several of them within easy reach of your workbench. For checking small parts, a 2-in. machinist's square is a good choice. As parts get bigger, a 6-in. try square or 12-in. combination square is nice to have. And for larger parts, a framing square comes in handy.

But there can be a need for a shop square that's sized somewhere between a combination square and a framing square. For an especially big project, like a cupboard, it would be handy to have a shop square that's even bigger than a framing square.

Unfortunately, you can't run to the hardware store to get such odd-sized shop squares. And you won't find them in a mail-order catalog or at any nearby wood-working store. So I decided to make my own. That way I could size the shop squares to suit my needs to a tee.

Just one word: plastics

To be of any real value, a shop square needs to be dead accurate. So when making one, it's best to use a stable material that won't warp when the relative humidity starts changing. I ended up choosing acrylic plastic sheet, a product sold under trade names such as Plexiglas and Lucite.

Don't worry if you haven't cut acrylic sheet before. A sharp, 60-tooth, carbide-tipped combination blade does a nice job. The acrylic colors you're most likely to find locally are white or clear.

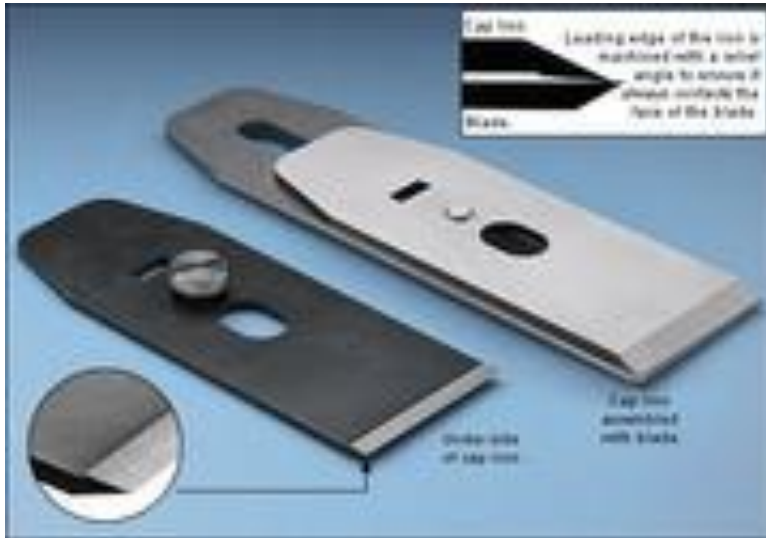
Photo: the author; Derek Mitchell/istockphoto

MARCH/APRIL 2001 69



Handplane tune-up

- Metal handplanes
- FWW#148
- New blade & chipbreaker



Fine WoodWorking

Handplane Tune-up

Step-by-step instructions to get maximum performance from any plane

BY DAVID CHARLESWORTH

There is a well-kept secret in fine cabinetmaking. Most new planes should be treated as a kit of parts, not as a tool ready for fine work. Recently, while reviewing a new jack plane, I set the plane to take a 0.001-in.- or 0.002-in.-thick shaving—a setting not unreasonable for planing figured hardwood—but it was impossible to plane a straight edge. The cause of the problem, I discovered, was the plane's sole, which was 0.003 in. hollow in its length. Unaware of these flaws, many woodworkers are frustrated by the performance of their shiny new planes, I certainly was when I started out, and my new students have the same problem. In the heyday of English plane making, a plane made by Norris or Spiers cost a cabinetmaker one to three weeks' wages, so perhaps we should not expect too much from that new Stanley or Anant costing the equivalent of a few hours' wages. The good news is that spending a few hours tuning up these planes will result in an

LEVER CAP
Smoothering the underside allows for easier depth adjustment.

CHIPBREAKER
Reshaping the top and the bottom allows shavings to slide up and over the chipbreaker instead of getting stuck.

BLADE
A replacement blade made from A2 cryo steel will keep an edge longer than the original blade.

FROG
The frog connects the blade to the body. Poor contact with either will result in vibration and chatter.

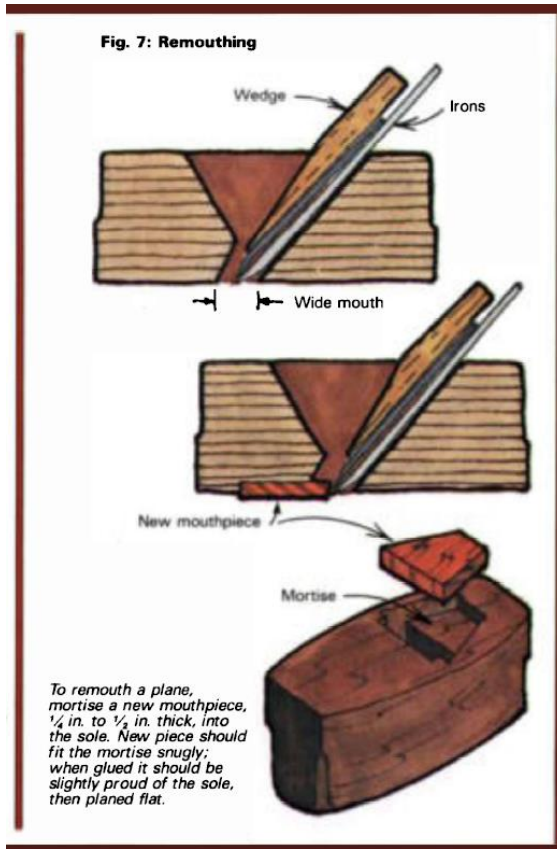
THE PARTS OF A PLANE
For a handplane to cut cleanly and without chatter, the parts must be machined to high tolerances and fit together perfectly. You are unlikely to find this precision on a mass-produced plane. However, refining the fit of the parts and replacing the blade will soon have your \$80 plane cutting like a \$300 model.

PLANE BODY
The sole must be perfectly flat to cut shavings thin enough to read newsprint through. The contact points with the frog must be flat.



Handplane tune-up-wooden planes

- FWW#57



Old Wooden Planes

Reworking brings rewards

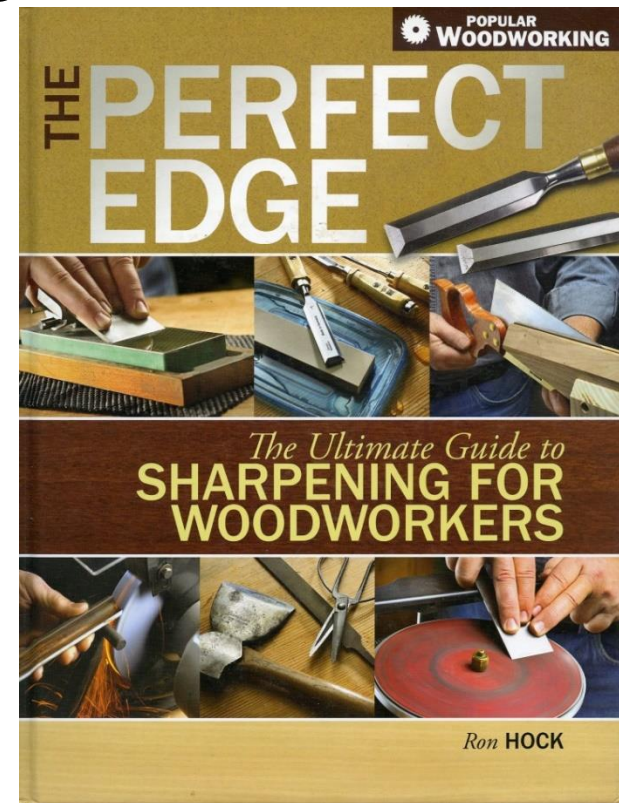
by Graham Blackburn

Fig. 1: Parts of a bench plane

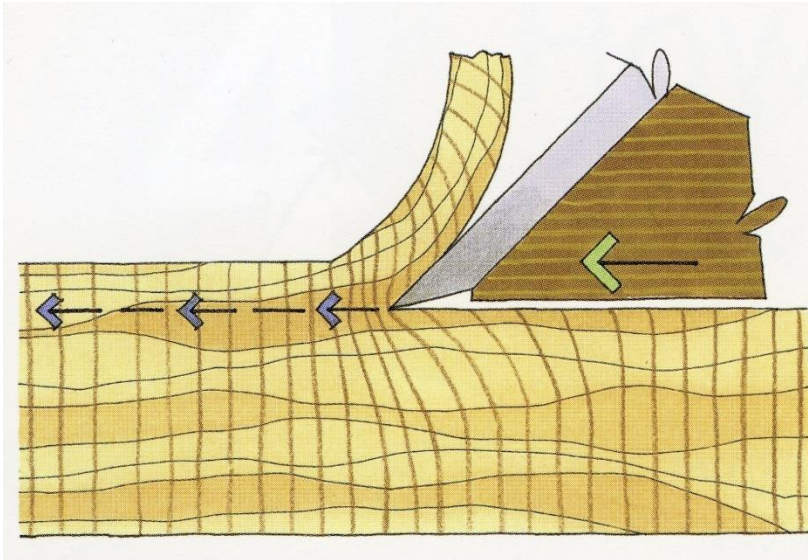


Sharpening Fundamentals

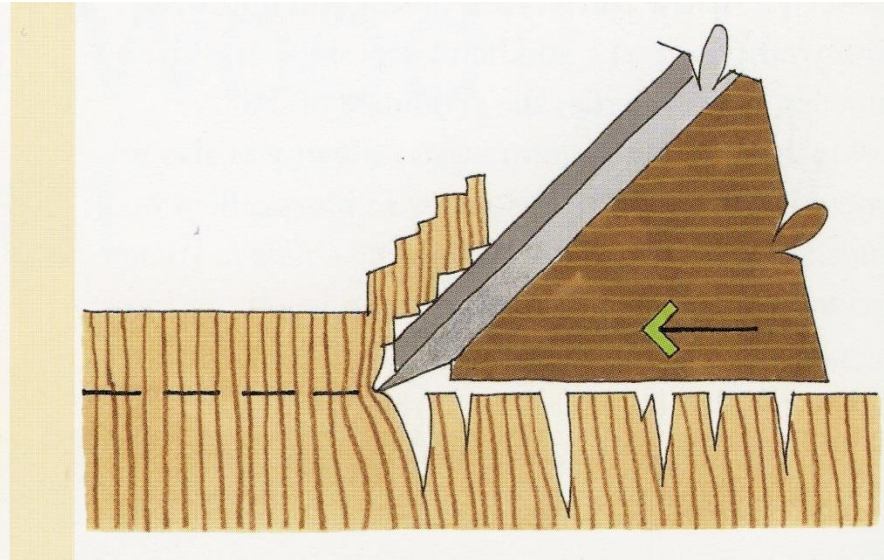
- Consult reliable references
- Sharpening equipment
- Techniques



Sharpening-How wood is cut



Cutting action compresses fibres before they fail. A sharp blade gives a smoother surface.



End grain with a blade at too steep an angle or dull blade. The force compresses the fibres until they are torn rather than cut.



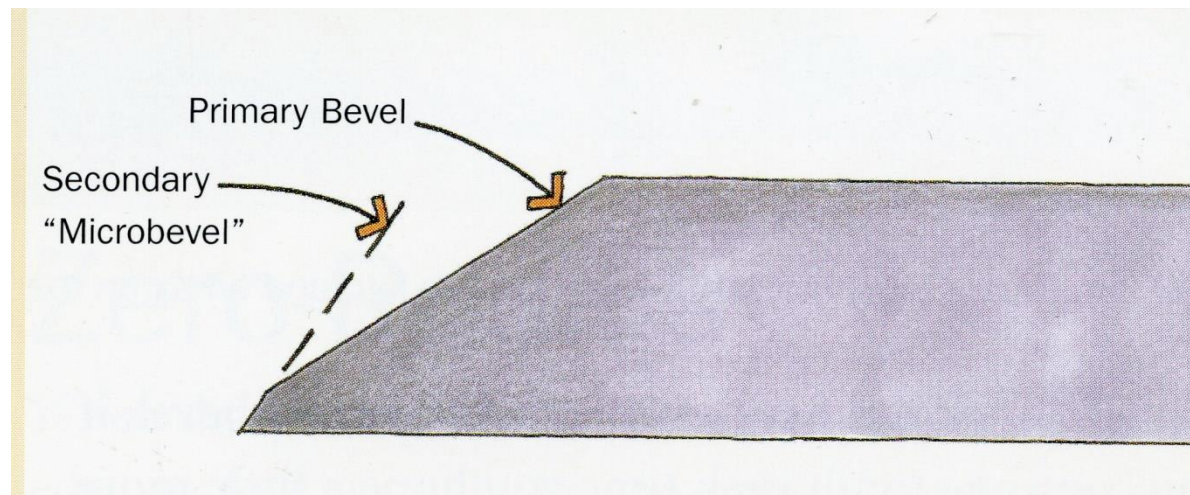
Sharpening-Primary Bevel

- Grindstone/Tormek
- Need to ensure that the metal is not overheated (water-cooled)
- Once the primary bevel has been formed, it needs honing.



Sharpening-Microbevel

- Microbevel (Secondary bevel) has certain advantages
- Microbevel a few degrees larger than main bevel
- They add strength to the cutting edge & require less time and effort to hone



Sharpening-Flat & Polished Back

- FWW#232
- Plane blades & chisels need a flat & polished back
- A sharp cutting edge is the junction of two flat (or curved) & polished surfaces.



Sharpening-Stones

- FWW#169, 224
- **Waterstones**
- **Diamond stones**
- **Oil stones**
- **Flatten with a diamond stone**

Waterstones

They're the best choice
for honing sharp edges

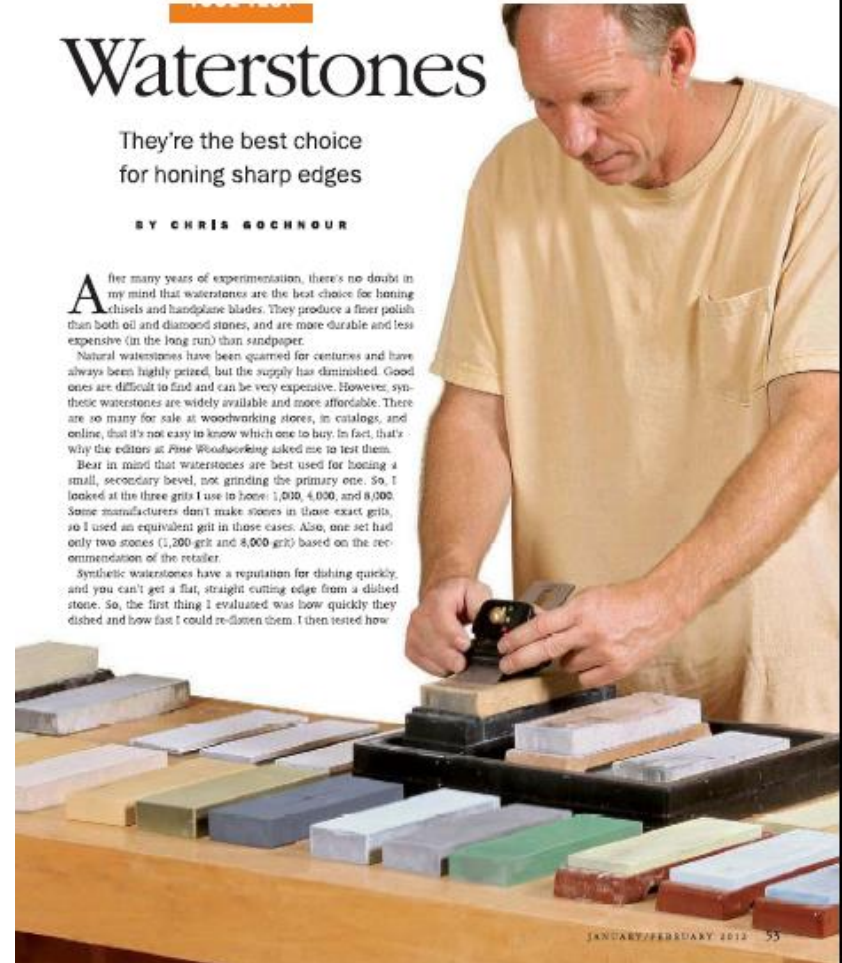
BY CHRIS ROCHNOUR

After many years of experimentation, there's no doubt in my mind that waterstones are the best choice for honing chisels and handplane blades. They produce a finer polish than both oil and diamond stones, and are more durable and less expensive (in the long run) than sandpaper.

Natural waterstones have been quarried for centuries and have always been highly prized, but the supply has diminished. Good ones are difficult to find and can be very expensive. However, synthetic waterstones are widely available and more affordable. There are so many for sale at woodworking stores, in catalogs, and online, that it's not easy to know which one to buy. In fact, that's why the editors at *Fine Woodworking* asked me to test them.

Bear in mind that waterstones are best used for honing a small, secondary bevel, not grinding the primary one. So, I looked at the three grits I use in home: 1,000, 4,000, and 8,000. Some manufacturers don't make stones in these exact grits, so I used an equivalent grit in those cases. Also, one set had only two stones (1,200 grit and 8,000 grit) based on the recommendation of the retailer.

Synthetic waterstones have a reputation for dishing quickly, and you can't get a flat, straight cutting edge from a dished stone. So, the first thing I evaluated was how quickly they dished and how fast I could re-dishen them. I then tested how



JANUARY/FEBRUARY 2012 53



Sharpening-Honing Guides

- FWW#179
- Various guides/jigs
- A good sharpening jig makes it easy to get an edge on chisels & irons.
- Easy to replicate angle
- Microbevel?

Single-roller guide

Price: \$9-\$15, depending on source

Sources: www.garrettwade.com, www.grizzly.com, www.leevalley.com, www.ockler.com, www.woodworker.com

Comments: The low price is a big plus with this generic honing guide. Sold under different brand names and from a variety of sources, the guide is easy to use. It allows you to lap the back of a blade easily. The horizontal clamping mechanism sets most wide blades perpendicular to the stone. However, one jaw of the clamping mechanism is slightly convex, which caused my 1/4-in. stubby chisel to twist in the jaws and my 1/4-in. chisel to pop out repeatedly.



Stanley

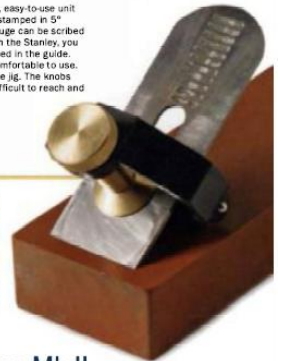
Price: \$20 Source: www.garrettwade.com

Comments: The Stanley is a smooth-rolling, easy-to-use unit with a built-in bevel-setting gauge. Though stamped in 5° increments, from 25° to 35°, the plastic gauge can be scribed to mark at your preferred bevel setting. With the Stanley, you can lap the back of a blade while it's clamped in the guide. With plane irons, the guide is stable and comfortable to use. But chisels are more difficult to clamp in the jig. The knobs that adjust the clamping mechanism are difficult to reach and roughly milled.

Veritas

Price: \$36.50 Source: www.leevalley.com

Comments: The Veritas is a well-made, versatile tool at a reasonable price. The package includes a jig that helps set the blade for one of five common bevel angles: 15°, 20°, 25°, 30°, and 35°. You also can add a secondary bevel simply by turning a knob on the side of the guide. Unfortunately, I was unable to tighten the clamp enough to prevent chisel blades under 3/4 in. wide from pivoting during honing; the problem was solved simply by holding the tool with both hands.



BEST OVERALL

Veritas Mk. II

Price: \$46.50 Source: www.leevalley.com

Comments: The Veritas Mk. II is an impressive tool. With its smooth, rounded edges and strategically placed indents for fingers, the jig is comfortable to use and is very stable because of its 2-in.-long single roller. You can achieve a secondary bevel with the turn of a knob on the side of the jig. The revolutionary color-coded blade-registration jig engages a slot on the front of the jig body and makes it easy to set a blade not only to the desired honing angle (from 10° to 54°) but also square to the stone. The instructions are well written and easy to comprehend.



Handplane blade angles

Low angles



BEST SUITED FOR

Softwoods, poorly supported end grain, and areas of rot and spalting.

Medium angles

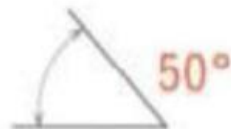


BEST SUITED FOR

Easily worked hardwoods like poplar and mahogany.

PERSONAL OBSERVATIONS

This versatile angle is easy to obtain, gives decent edge life, and requires little effort to push. It is used for other planing tasks besides smoothing, such as flattening rough boards.



BEST SUITED FOR

Straight-grained boards of moderate-density hardwoods such as walnut, cherry, and ebony.

PERSONAL OBSERVATIONS

Little added resistance to cutting from 45° and a good alternative standard angle for those who favor these woods.

High angles

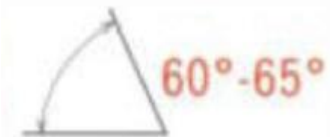


BEST SUITED FOR

Denser figured hardwoods, and most hard maple and white oak.

PERSONAL OBSERVATIONS

Noticeable but still moderate increase in resistance, but with a clearly improved surface finish on these dense or figured woods.



BEST SUITED FOR

Highly figured woods such as cocobolo and many Australian woods.

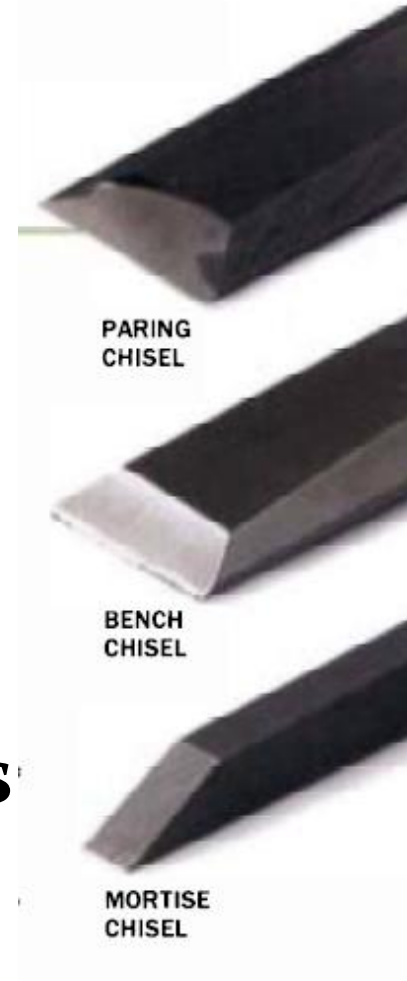
PERSONAL OBSERVATIONS

Clearly greater resistance, particularly if the blade is wide. The cut must be very light to avoid strain on the operator or on the body of the plane.



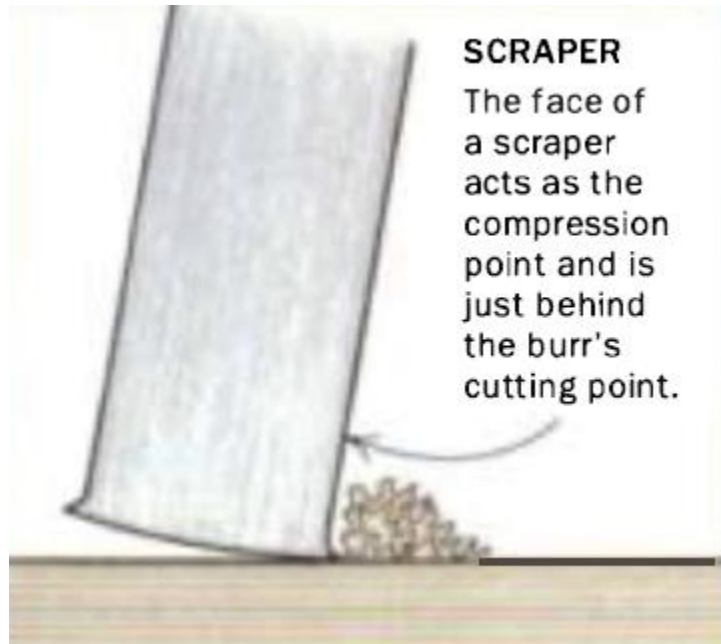
Sharpening-Chisels

- FWW#181
- Task determines the bevel angle
- Mortise 30° - 40°
- General use 20° - 30°
- Paring 15° - 20°
- Keep a record of your bevel angles & mark them on chisels/irons



Sharpening-Cabinet Scrapers

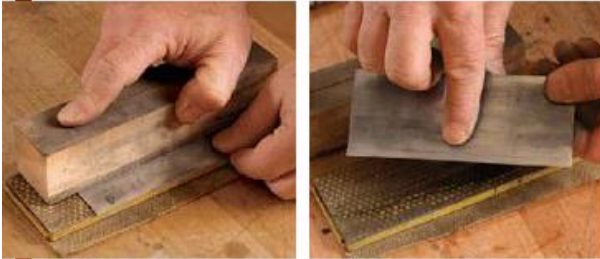
- **FWW#172, 227**



Sharpening-Scrapers

Hone the surfaces first

You won't get a clean, sharp hook unless you start with perfectly flat, smooth, 90° angles on all four corners.



Polish the faces. Apply pressure with the honing block. Hold the scraper with your other hand (left). Force is distributed over the length of the scraper, polishing the edge evenly and completely (right).



File the edges. Put the scraper in the kerf (left). That makes it easier to clamp in a vise and because the edge barely sticks above the block, it's impossible to file it out of square to the faces (right). Take long, smooth strokes with a single-cut mill file to expose fresh steel.



Polish the edges. The block supports the scraper and keeps it square to the diamond stone. Last, re-hone the faces to remove the slight burr there.

Turn the hook in two steps

A light touch is better than a heavy hand. You don't want a big hook with a heavy angle that makes the scraper harder to use.



1. Draw the edge. Keep the burnisher flat, so that the edge extends straight out from the scraper, making it easier to turn it into a hook. Take two light passes on each edge.



2. Turn the hook. The goal is a small hook with a shallow angle. So, keep the burnisher nearly perpendicular and take a couple of passes using moderate pressure.

