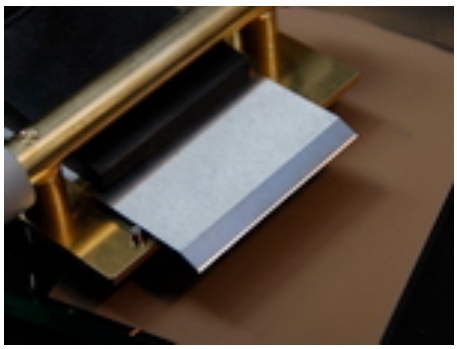
W O R K S H O P H E A V E N

Fine Tools

Scary Sharp!!!



People have been sharpening tools using sheet abrasives for many years, but the practice is currently enjoying something of a renaissance, in part due to word spreading via the internet and also to significant technological advances in sheet abrasives. I'm not sure who first coined the phrase 'scary sharpening' to describe the technique, or indeed what it was that scared them, but the name certainly seems to have stuck.

It is important to note from the beginning that this method will not suit everyone; if you are a professional woodworker, sharpening tools every day, a set of bench stones is likely to work out cheaper in the long term. For the hobbyist or novice woodworker however, scary sharpening offers a fast, easy way to maintain superb cutting edges on all of your tools, for a comparatively modest initial outlay. The methods and materials used in scary sharpening can also be adapted to sharpen almost any edge tool, including gouges and profiled cutters and even lap the bodies of small planes.

A sharp edge is the line of intersection between two smooth surfaces: how sharp the edge will be is determined by the angle of intersection and the smoothness of the surfaces. As the honing angle also affects edge durability, an effective sharpening system must get the surfaces as smooth as possible and give the user control of the honing angle.

The Workshop Heaven Scary Sharp System uses imperial lapping film; a product originally developed by the 3M Corporation for polishing fibre optics in industrial applications, but rapidly gaining popularity with woodworkers in the United States as a sharpening medium. Although a

little more expensive than wet and dry, the use of micron-graded, electrostatically oriented abrasive particles bonded into a resin layer means that it cuts faster, produces an extremely close tolerance finish and lasts many times longer than traditional sheet abrasives. The kit comes with fifteen sheets of lapping film in three grades, 40 micron (blue) for primary bevels, 30 micron (green) for establishing secondary bevels and 5 micron (brown) for polishing to a mirror finish. The grades go all the way down to 0.5 micron, but for day to day sharpening 5 micron is perfectly adequate.

The lapping film is stuck onto a 2 kilo sheet of 10mm thick non-toughened float glass. We had originally intended to use 6mm toughened glass but then discovered that the toughening process involves passing the glass through heated rollers, and as a result it is not quite as flat as the standard product. The extra thickness greatly improves strength as well as making the lapping plate heavier and more rigid.

The abrasive sheets are secured to the glass using very powerful self adhedsive backing, any residueleft after removing the sheets cleans up easily with a dab of meths. It is very important to avoid getting any air bubbles trapped under the surface, sticking one end down and then carefully rolling the sheet down bit by bit seems to work best.

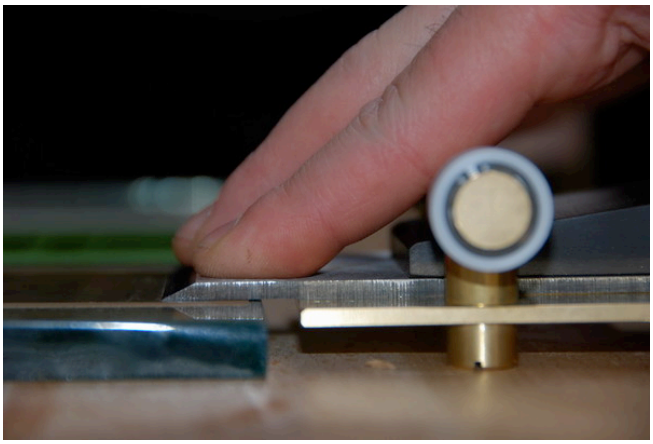
A lubricant such as oil, water or paraffin should be used to float away the swarf; the kit comes with a bottle of Camellia Oil which works very well and can also be wiped over the tools after sharpening to protect them from corrosion. If you are going to use this system in conjunction with waterstones though, I would favour using water as a lubricant to avoid the possibility of contaminating your waterstones with oil.

Starting with the white 40 micron film and the blade projection set so that the primary bevel lies flat on the surface, work the blade back and forth until any existing microbevel is reduced to a hairline along the leading edge of the blade. I like to use a fairly short stroke of about 2-3 inches as it gives more control and there is no need to worry about evening out the wear as you would with bench stones.

After shortening the projection slightly so that I am now working just on the front edge of the blade I move on to the green 30 micron film and establish a microbevel; five or six strokes should be plenty. Your grip should apply firm, even pressure just behind the cutting edge, not through the wheels of the guide; it's a bit like leaning over the handlebars of a tricycle until the back wheels are only just touching the ground.

For the microbevel stages I only use a pull stroke, lifting the blade slightly to return it to the start position, this minimises the chances of accidentally allowing the cutting edge to dig in and tear the lapping film.

After honing the microbevel I turn the blade over, guide and all, and draw it towards me to polish away the burr or 'wire edge' that has formed on the back. By happy coincidence the two brass screws on the front of my honing guide are just a fraction longer than the thickness of the float glass, so I can register them against the bench top to keep things square whilst I remove the wire edge and just polish the very end of the back; rather like David Charlesworth's inspired invention - the ruler trick.



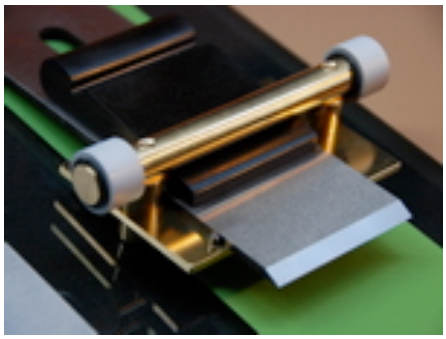
Moving onto the brown 5 micron film I leave the projection unchanged, the brown film is very slightly thinner than the green, not much, but it's enough to ensure that I sharpen through the edge. After another five or six strokes and again a couple on the back to polish away the burr, the blade is ready to go. The results speak for themselves; after reinstalling the blade in my plane I took this test shaving, it is just over one hundredth of a millimetre thick.

It may sound obvious, but a common mistake is to lavish attention on the bevel and forget that the back of the blade needs to be polished to the same degree as the microbevel. For plane irons, only the last couple of millimetres need be polished, which can be achieved by raising the blade by a degree or two to create a very slight back bevel. Steeper back bevels can be used on planes where the iron is installed bevel down, to increase the effective pitch of the blade. For example, a 5 degree back bevel plus the 45 degree bed angle gives an effective angle of 50 degrees (york pitch) for reduced tearout in highly figured timber. This is very easy to do but quite difficult to undo, so it's a good idea to use a second blade for steeper pitches.

It is also worth mentioning at this stage, that chisel backs must always be polished flat because they function as a registration surface to guide the cutting edge of the tool.

In addition to sharpening plane irons and chisels, full sheets of lapping film can be stuck to the glass plate to true waterstones or lap the soles of small planes, up to perhaps a No. 4 smoother. Small pieces of film can also be glued onto dowels, strips of timber or sections of moulding for sharpening gouges, router bits and multi-plane cutters.

Having tried several alternatives, I wholeheartedly recommend Richard Kell's honing guides as the perfect partner for use with this system. Not just because they are beautifully engineered and mouthwateringly accurate, but the widely spaced rollers allow them to straddle the strips of abrasive and run directly on the glass, which makes for a very smooth ride and keeps the rollers nice and clean. My favourite is the No.3 MkII (Similar to the No.3 but without the spring loaded locating pin) which will handle blades, including skewed and cambered ones, up to 2 5/8" wide. This elegant design correctly references the flat back of the tool against a very accurate brass plate, with two steel pins providing the datum for squareness. The tool is secured into the guide with a simple shop-made wooden wedge and the honing angle is established by measuring the projection from the leading edge of the brass plate. The guide comes with a set of beautifully handwritten instructions, complete with neatly drawn diagrams and directions for making the wedge – which is about fifteen minutes work and an ideal project for one of those nice hardwood offcuts that we all have a tendency to save.



The main advantage of scary sharpening over other sharpening systems is its versatility. With a little imagination you can apply the same principles and materials in different ways to sharpen just about anything. It is also compatible with other techniques, so you can develop your sharpening and lapping arsenal with more specialised equipment as and when the need arises, all the while maintaining the capacity to put a smooth edge on every blade in the shop.

The components of the Workshop Heaven Scary Sharpening System are available individually or as a complete kit from www.workshopheaven.com.