

Knife Sharpening: Hints, Tips, and Tricks

Making your tools

Now, if you have £30-£40 to invest in a set of water stones, plus £20 for a razor strop and £20 for a great chef steel, you can get a razor edge on your knife. I do mean shaving sharp. But what if you haven't? Well a friend of mine challenged me to get a beaten up Mora to shave for under five pounds. I do love a challenge !

I openly acknowledge that all the ideas shown here have been robbed from a variety of sources - not least Mors Kochanski, however a personal experience may be interesting (and the techniques do work) so heres how I went about it. Total cost to me? About £4 max.

You will need.....

Three FLAT pieces of wood – around 9" by 4". Actually anything very flat that you can cut to about that size is great – tiles work well, thick glass is fantastic, sheet metal, whatever)

A pack of mixed grade wet & dry paper from the local DIY store (240, 400 & 600 grit or close)

A pair of scissors

A piece of old inner tube from your firelighting kit (or a bit of old leather or cork or anything non slip)

Some glue

Some double sided tape (carpet laying tape from the same DIY store is great)



Step 1

Cut your boards to size. They need to be the as long as the width of your wet&dry and about 4" wide. You will need 3 of them

Step 2

Cut a piece of your first wet&dry to fit your board



Step 3

Cover the flattest side of the board in double-sided tape



Step 4
Stick the wet&dry onto the tape. Turn over and press flat



Step 5
Cut up a bit of inner tube to make non slip feet for your board. Glue into place. Using a permanent marker, write the grit size on your board



Step 6

Repeat for the other grit sizes

You now have a matched set of 3 sharpening boards!

Basic Honing

Now, looking at the knife I'm teaching you to sharpen (A Frost Mora), you will notice that it only has a primary grind, and no secondary bevel. This makes it a great bush knife as sharpening is relatively simple even in the field.

So, lets get a working edge.

Step 1

Examine the cutting edge. Are there any "nicks" or "dings" in the edge? If so, we need to get rid of them. We do this by placing a metal file flat to the bevel and filing the bevel, for the full length of the blade. Use five strokes on one side followed by five on the other. As the ding disappears, reduce the number until you are alternating sides. As soon as you have a nice straight edge, stop.

Step 2

Take your 240 grit sharpening board. You don't need to wet it. Lay the flat side of the knife flat on the board. Hold the handle of the knife in your right hand and push the hilt up to the board. Using your left hand, spread your fingers and brace the blade evenly across the board.

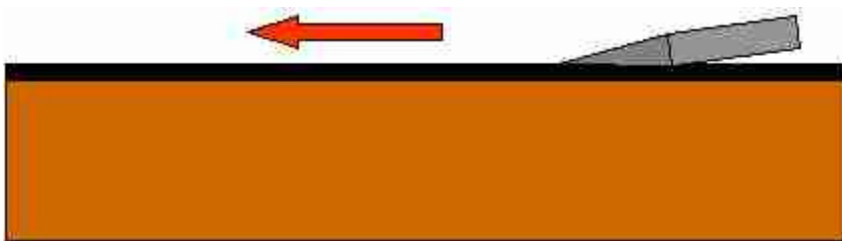
Here is the angle



Step 3

Rock the knife blade towards the cutting edge so the bevel is flat to the board.

The angle should now be like this

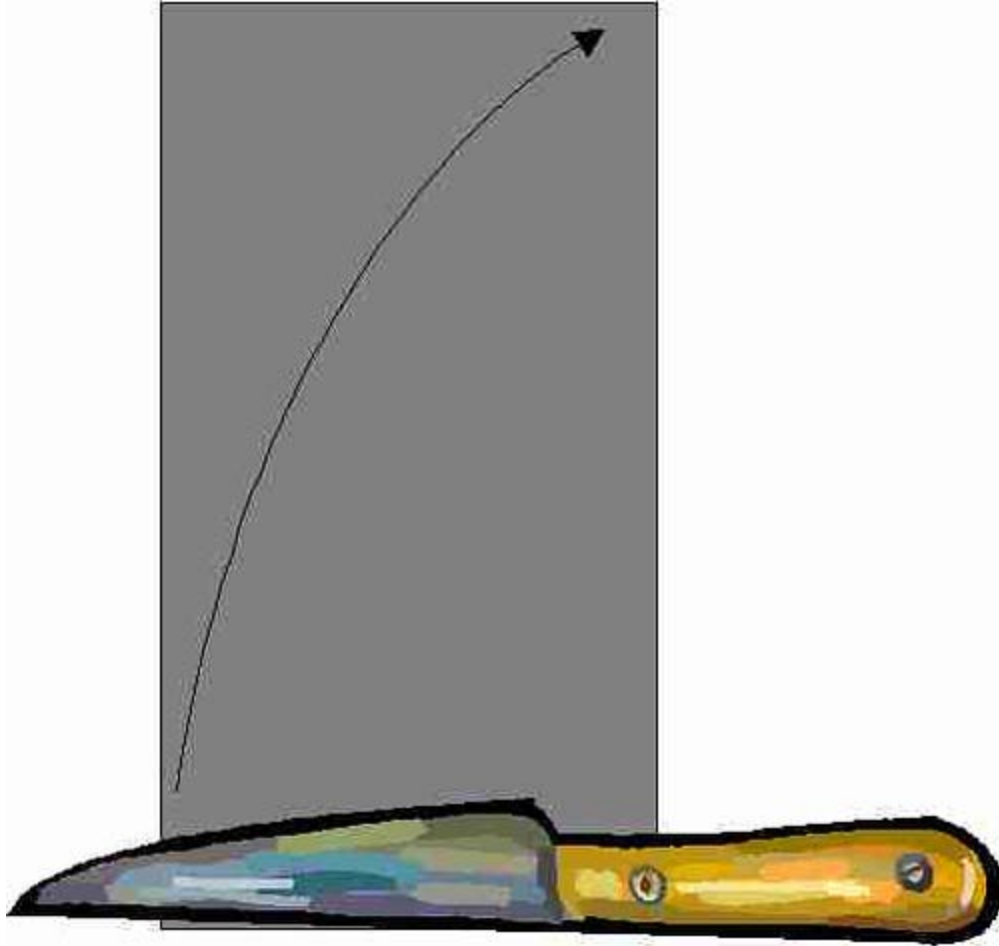


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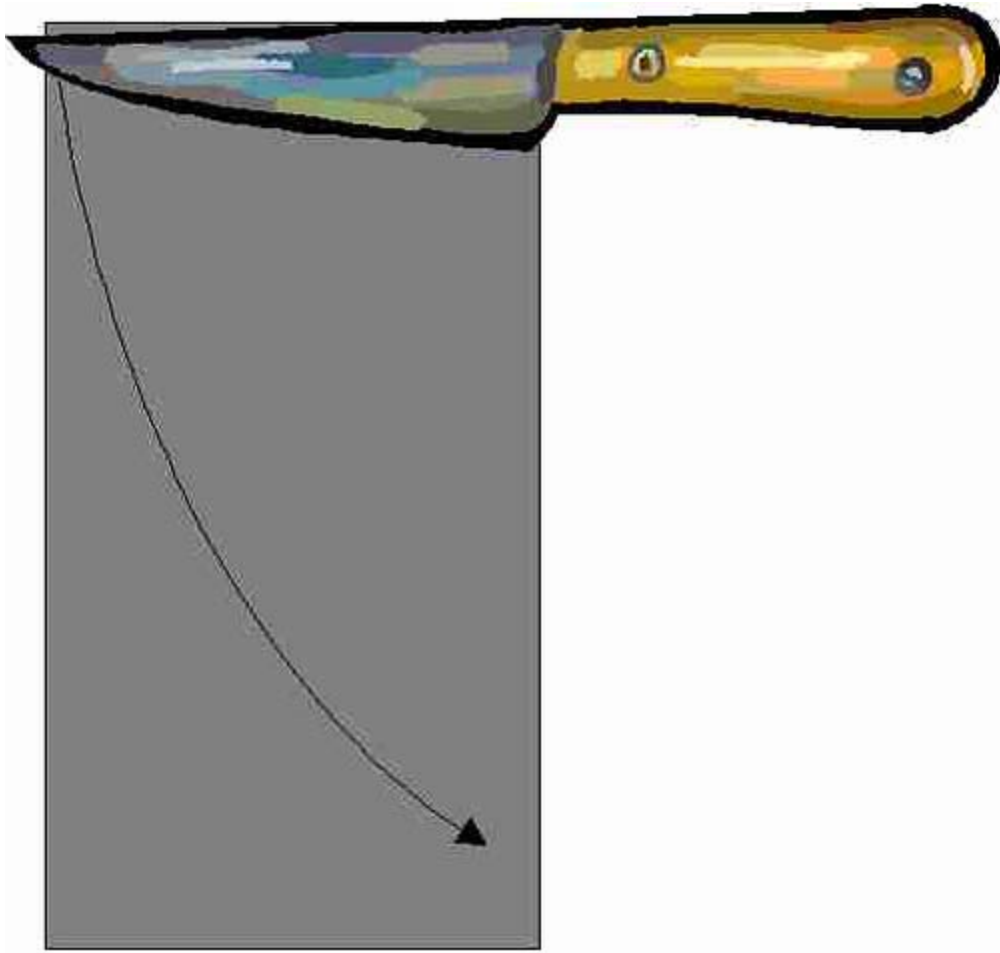
Step 4

Pushing the bevel flat to the board, push the knife away from you as though trying to shave off the top atom of the paper.

You will find that the tip of the knife overhangs your board, and if you sharpen in a straight line, the tip gets no attention, so sharpen on a curve so that the tip is sharpened in the same stroke

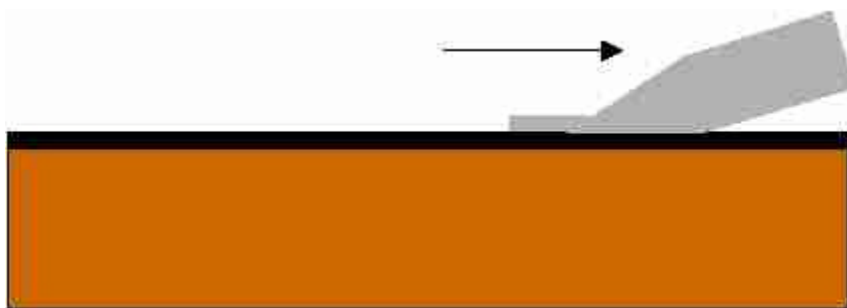


Lift the knife off the board, turn it over and, with the bevel facing towards you, "shave" in the opposite direction. Here's a picture



Note.

Never pull the knife towards you. In honing a knife, you are pulling the metal around. If you pull the knife, you built a soft burr or wire in front of the cutting edge. Magnified, it would look like this:



Step 5

How many passes (a pass is one "shave" each way) you will need depends on the steel of your knife and its condition. Try 50 passes to start with.

Step 6

Repeat steps 2 to 4 with your 400 grit board. This time you need 100 passes

Step 7

Repeat steps 2 to 4 with your 600 grit board. This time 150 passes.

Note

The exact number of passes will vary as stated – a light re-touch can be achieved with just a few passes of your 600 grit.

Conclusion

By now, the bevel of your knife should look clean, unscratched and quite shiny. The purpose of the different grades is to create a smoother and smoother finish to the blade edge. With the coarse stone, you get the right angle, but the cutting edge is almost like a saw blade under a microscope. Each successive stone smooths out the size of the teeth. We now have a knife that is sharp to a working edge. Holding a piece of paper in one hand, you should be able to slice it cleanly with the knife.

The blade is still not surgically sharp, and we'll look how to achieve that next.

Strop and steel

Now in the first stage of this process we have sharpened up a working edge. In this step we will polish it to shaving sharpness! This needs a strop and a steel.

Step 1

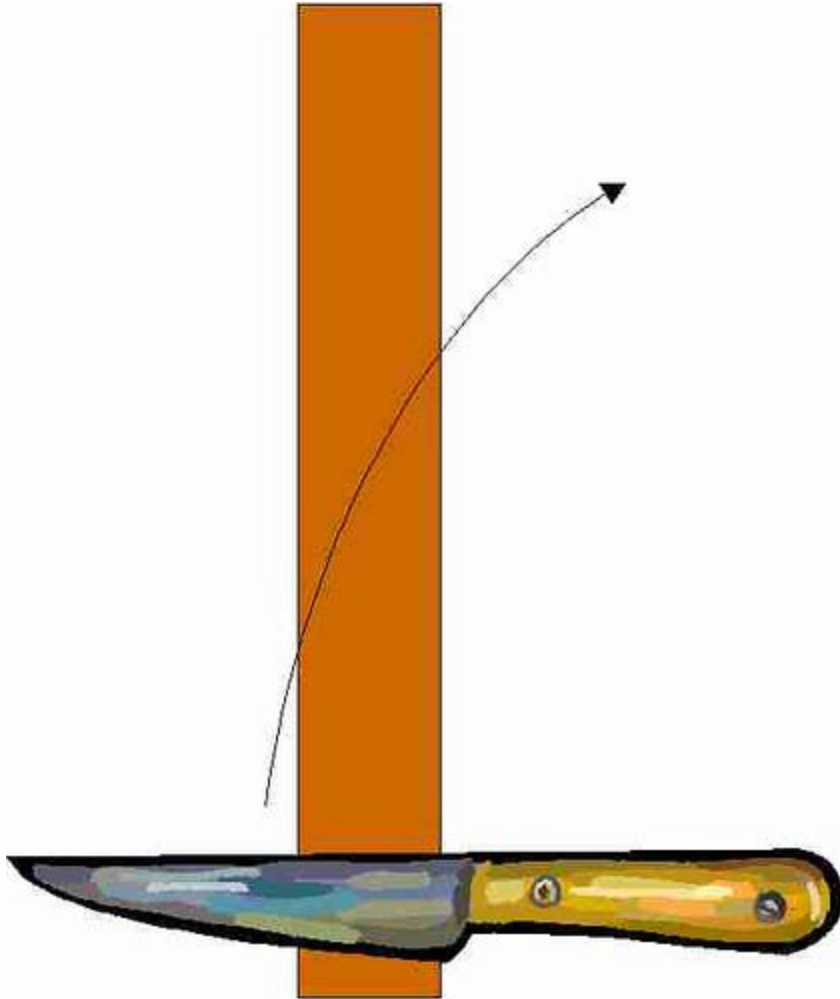
To strop a blade you need a soft and finely abrasive surface – one of the best is a leather belt (use an old one). The leather belt works well because you can make a loop with the buckle and fasten it round a door handle, your foot, a branch etc. I tend to use rough side then smooth side.

I find that this action is improved by the application of a finely abrasive paste. I have heard of people using scouring cream, but I use....toothpaste! Weird, but it works. You may want to skip this if wearing the belt later!

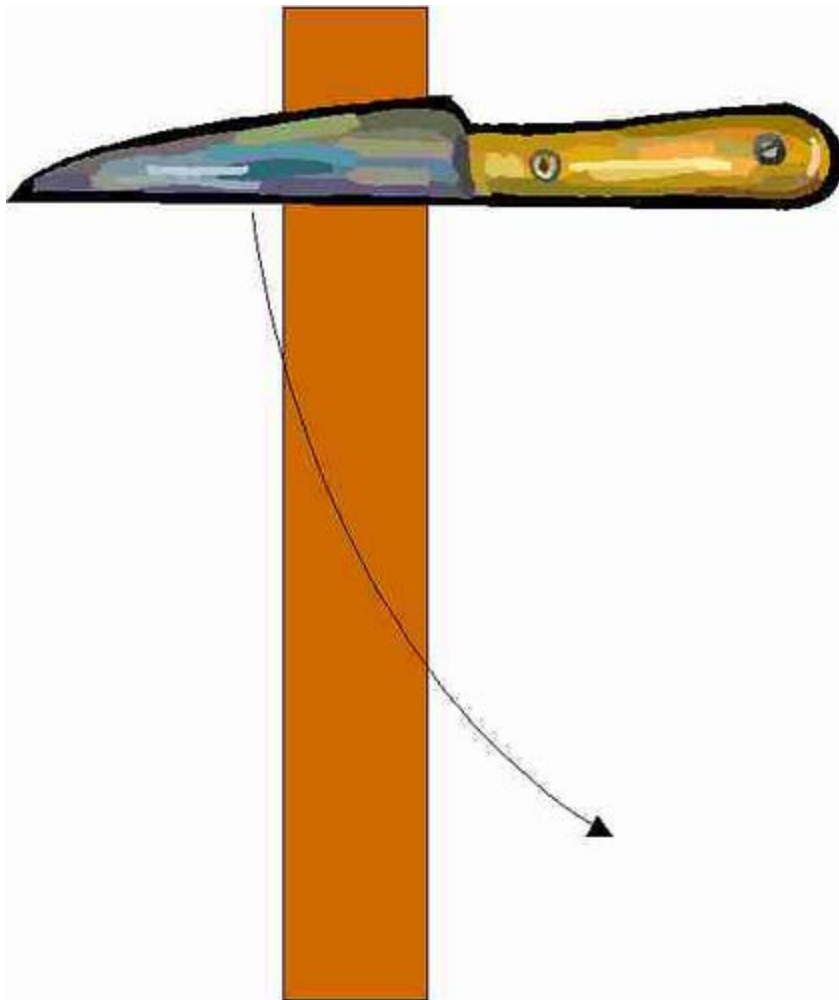
So, form a loop and secure your strop. Pull tight with your left hand.



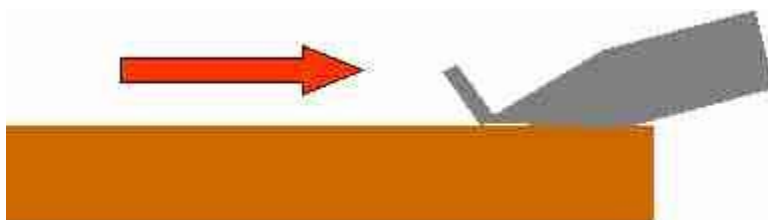
Now this time, you want to push the spine away from you with the bevel toward you and resting firmly on the leather (the other direction). It should go like this:



Then turn the knife over and drag the other side of the bevel towards you spine first – like this



The purpose of this is to give the bevel the finest of polishes and to move the burr and possibly break it off – the effect is shown below



cont....

You will need to strop 200 times in each direction (more if you can – this is hardly abrasive at all). You would of course do this with a razor strop if you had one, in the same way as you would use a water stone instead of the honing block.

Step 2

Finally we need to remove any remaining burr. This is achieved by Lightly running the bevel along a slightly rough surface. If you have a chefs steel in your carving set, that's fine. If not, use the edge of an old ceramic tile or even the lowered window of your car. Do it very lightly, no more than 6 times in each direction.

Now, you should be able to shave with your knife – with a kit that cost a few quid!



Hope thats interesting to someone!

Red
(Taken from the Bushcraft UK forum)

PART 2

was asked to write an article some time ago for someone. I've been tidying it up a little and hope that it will help some people. A fair chunk of it will be a repeat of what others have said but there are some tricks that I haven't come across on the net.

Sharpening by Andrew Longden

Sharpening goes in hand with owning a quality knife, after all there's no point in owning a really good knife if you can't keep it sharp. It's a much talked about topic and people have different opinions on how it is best done. I do not claim to be the best at this but my results are very good. I do not have a lot of money either so have limited knowledge on some sharpening systems.

Firstly when sharpening a knife you have to look at the knife and how you want to use it,

the steel it's made from and the material you are wanting to cut most will affect the angle of the edge and the finish you wish to achieve. By finish I mean the size of the micro serrations left by the abrasive (I will go into detail later). The grind on your knife may affect how it is best for you to maintain the edge. Though not impossible it's difficult to sharpen a convex knife on a flat stone so I'm covering that in it's own section.

Benchstones

The most common form of sharpening system is a bench stone of some sort, these are either Japanese water stones, Oil stones, ceramic and diamond. I have not used Japanese water stones and they require more care and preparation than others. Please seek advice about how to prepare them and care for them. For the sharpening the technique is the same as the others. Some People use oil stones dry and report very good results, however if you use oil once you must carry on using oil or the stone will clog, since all the stones I have were my grandfathers they have all had oil used on them at some point so I can't comment on the pros and cons of either practice. Bench stones are ideal for flat or hollow ground knives with a secondary bevel forming the edge and knives that use a single bevel per side to form the edge (often referred to as a Scandinavian style grind). Chisel ground knives are sharpened in the same way as the above but you only grind from the side with the bevel. Press the knife onto the stone so that it forms the angle you want (this can be worked out using trigonometry if your changing bevels). When starting out it's best to stick to the same angle as the knife already has. This is much easier with knives that only have one bevel per side as you just lay the whole of that bevel onto the stone. Press down with a small amount of force and push the knife along the stone. Many people suggest you imagine that you are taking a very thin slice of the top of the stone. I dislike using this analogy because when you slice something you increase the angle the edge forms with the material being cut which would result in a thicker more obtuse angle being formed. I find it best on concentrating on the distance between the spine of the blade and the stone. I often press a thumb against the spine of the blade and have the thumb just touching the stone as I push the knife forwards. This allows you to feel the angle changing with your thumb. It becomes much more difficult to keep the angle constant when doing the curve (or belly) which forms the tip of the knife as you have to raise the handle slightly. For very small stone (such as the Fallkniven DC03) you can use the same principle but use a circular motion decreasing pressure on the backwards movement. You may also wish to move the stone and hold the knife still. With softer stones it is often beneficial to wear the stone more evenly so when sharpening tips of knives where there is a high pressure on a small area of the stone you may find it best to use a figure of eight type motion. I just move the stone around to try and use all of it at some point. Sharpen one side of the knife until you have a burr along the whole edge and then sharpen the other side until the burr feels to have gone or in some cases moves from side to side with a single stroke on the stone. When you get to this stage I find it best to increase the angle slightly and use a couple of light strokes to make sure all the burr is removed.

If the edge needs major work then a range of grits will be needed. In this case start with a more course grit and form a burr on that side and then a few light strokes using the same grit on the other side. Then use the next grit to more the burr onto the other side until you have a even burr along the edge. This burr should be smaller than the one you had with the courser grit., again push the burr back into line using the finer grit. Depending on the state

of the edge (or when your changing the edge angle) you may find that a wide range of grits will make life easier. I tend to use wet & dry abrasive paper for the more course grits as I seldom need them. When using abrasive paper to sharpen a flat bevel I like to use a sheet of glass (such as the flat side of a glass board).

Crock Sticks (sharpmaker)

Crock sticks (where the abrasive stones are held in a base at a fixed angle) are good for sharpening knives where the edge is formed by a secondary bevel, however due to them been fixed at certain angles you are more limited then with a bench stone,. People find it easier to hold the knife vertical then at 20degrees to horizontal though so they have the benefit of ease of use. The best set around that I've come across is the spyderco sharp maker which has two angles, 20degrees per side (marked 40 as the sharp maker states total angle) and 15degerees per side (marked 30). It also has a slot in the end which is for scissors but I don't think it's any use for sharpening knives.

These are very simple to use as you just hold the knife vertical and pull the knife down the sticks as if you were slicing bread. It's best to stand up with the base on a table so that you can see the angle the knife is making with the sticks. Don't apply to much force but concentrate on keeping the angle constant. The advice given with the sharp maker is to do one stroke on one side of the knife and then one stroke on the other side repeating until the knife is sharp. The spyderco sharp maker has two angles and you can also use the corners of the stones. Using the corners increases the force on the edge so will remove more metal but behave like a slightly coarser stone. I find that this makes it more difficult to tell when you should change from the medium grit stones to the fine (or if you buy them the ultra fine) so use a slightly different method.

Assuming I'm bringing dull knife back to a really sharp edge I will use the corners of the medium stones to start with and sharpen one side until there is a burr along the whole length of the other side of the knife. I will then move the burr to the other side. Once that is done I use the flat side of the medium stone to move try and get the burr more even from both sides. This would if left leave you with a wire edge but it gets sorted out in the final step. If a polished edge is desired then I will repeat the process using the finer white stones but I will start from the other side from the use of the medium grit stones to try and keep the cutting edge as central as possible. Once the burr is not at any side you will likely be left with a edge that feels very sharp but wouldn't last. To remove this a slight increase in angle and the flats of the fine stones will remove the weak metal leaving you with a strong edge. When doing this I alternate between each side of the knife. If the 30degree angle has been used then simply place the stones in the 40degree slots for these last few strokes. If the 40degree angle has been used then something can be placed under the base of the sharp maker to create a slightly less acute angle (a CD case for example).

When touching up the edge I just use the flats of the stones and do one stroke and alternate sides.

Some people find that sharpening the point of a knife on a sharp maker difficult so use it like a bench stone. (This means you can sharpen your other knives on it if this is your sole means of sharpening). If a really polished edge is wanted then it may be easiest to just use the ultra fine rods when your doing the final stage of sharpening at the slightly increased angle.

Convex sharpening

The convex edge has pros and cons which may or may not suit you. If you decide to use a convex edge you may need to relearn sharpening. It can be done on a normal bench stone by pulling the knife spine first along the stone and rocking it so that you remove steel from the whole of the convex edge. If you only remove steel from near the edge over time the edge will be thicker.

The preferred method of sharpening a convex edge is to use abrasive paper on top of something which will form around the convex edge. A mouse mat is ideal, depending on how curved the edge is will determine which side of the mouse mat is best to use. A Fallkniven F1 for example has quite a steep curve so the softer backing side forms around it better than the hard side. For a Global kitchen knife the harder side is best.

Many people use what is known as a hoodoo hone (named after the internet alias of the inventor). This comprises on a block of wood with a deforming substance (I.e. mouse mat) glued to one side and a method of fixing various grades of wet&dry abrasive paper over the top. I use drawing pins stuck into the ends of the block of wood.

Use a stropping action to sharpen the knife (i.e. the edge is trailing rather than leading). Because the backing deforms under pressure the angle the blade is held at relative to the "stone" is less than with other methods. 13degrees seems to be a commonly given angle. The final cutting edge will be more than this and the difference between the two is affected by the density of the backing. This means the global knife using the hard side of the mouse mat will have a cutting edge closer to 13degrees per side than a Fallkniven F1 would have using the softer side.

This method doesn't seem to form burrs in quite the same way as other methods, I think this is why some people say it's more difficult to master. I tend to find it harder to know when to change to finer grits so with this more than other grinds I find it essential that you don't let it get too dull before you sharpen it. Since stropping a knife convexes the edge slightly you can maintain this grind fairly well just with that. I've also taken to just touching up the edge using a sharp maker (flat sides of the white rods) or freehand sharpen using hard backed wet & dry paper. I only do this a couple of times before getting out the mouse mat though.

This grind to me seems the ideal one for a kitchen knife as it excels in slicing. With a kitchen knife the edge tends to be thin enough that you can just sharpen it like it already is convex and soon enough it will become convex. If you want it convex straight away then 320 or even 240 wet & dry will sort this very quickly.

One problem with this grind (for me anyway) is that it seems to be very difficult to change the original grind angles unless you have a belt sander. One method I have tried with fair results was to use a bench stone and grind metal away from behind the edge at a few different angles and then blend them together using coarse wet & dry. It's a lot of work though and I'd rather just find a maker who could do it for a small payment and a lot less effort (on my part).

Sharpening recurves

There are a few knives about with recurve blades and most people seem to get a bit concerned about sharpening them. These methods will also work for spoon knives which would work best with a highly polished edge

To sharpen them you can get away with using the corner of a bench stone but I don't like

doing this. Once again the sharp maker can be handy but for a kukri it's rather difficult to use the base (it's fine for little Kershaw knives though). A ceramic or diamond steel will be much better to hold but it's something extra to buy if you don't already have one

I use either the sharp maker rods or some wet & dry paper wrapped around something round. The sharp maker rods are fine but aren't very good for holding if your doing any more then touching up the edge. Also since you can only use the corners there is a tendency to put more force on the edge then there it with the wet & dry.

The radius of the curve your sharpening will to an extent determine what the best thing is to wrap the abrasive paper round. For a tight curve a piece of 20mm dowel can be used. In this case it's best to have enough dowel for you to have a handle on the end of the abrasive section. I don't use this all that often as I've found that I need to glue the paper to the dowel and normally I can get away with a bigger diameter cylinder. If I can't I'll just use a ceramic rod.

At home you can use a glass jar with a smooth side. This gives a very good hard backing for the paper if your wanting to keep a flat secondary bevel and will also give you enough to hold onto and you can normally hold the paper against the jar without having to glue it. If you want a small bit of tape should hold it in place and can be easily removed once your done. Normally I use a plastic spice pot. This will give a little so will result in a slight convex edge. This is ideal for the kukri that I sharpen with this method but if your careful you can just use the part closest to the ends where the pot wont deform so much. What I like about the spice pot is that it gives you a water tight place to keep a range of wet & dry paper in as well as other bits and pieces for knife (and sheath) care.

With any of these devices I find that it's best to keep the knife still and move the sharpening device (of course if it's a small blade then use the sharp maker as normal). I tend to use a circular motion but apply force on the backwards stroke with the glass pot or ceramic rod while I use more force on the forwards stroke with the plastic pot. This gives the same effect as edge leading on a bench stone and edge trailing when using a mouse pad to sharpen a convex edge.

You can if you want wrap a piece of leather round a pot and use as a strop but I normally find the ultra fine abrasive paper enough.

Sharpening serrations

Most serrated knives now come with a chisel ground edge, i.e. one that is only ground from one side. This means that you normally only sharpen them from one side as well so all you have to do is sharpen the side that is ground and the strop from the other side.

Most serrated knives have a regular semi circle type pattern to them (e.g. a victorinox Swiss tool) while some brands use patterns of different shaped grooves e.g. spyderco has a pattern with one large and then two small serrations. Both of them can be done with a spyderco sharp maker but most can also be done with a small round hone (normally diamond).

You can just run the knife down the hone in the same way as you would with a plain edge but there is a tendency to remove metal unevenly and not sharpen the insides of the serrations as much as you could. Use slow gently strokes and maker pen to make sure that you're not just grinding away the ridges of the serrations. With major sharpening of a blade like on a Swiss tool I use a small stone and do each serration on its own and then finish off using a normal stroke. I haven't found anything other then a spyderco stone that gets into

the small serrations of the spyderco knives and as these aren't that aggressive I'd be careful not to let them get dull before sharpening.

When stropping the other side I lay the knife on the strop so that the entire primary grind is in contact so that I don't round off the points of the serrations. Some people like to use a leather shoe lace or the corner of a piece of leather to strop the ground side of a serrated blade. I've tried wrapping a shoelace round a block of wood to do a large number at one time but haven't had much success doing that.

Stropping

This is the final part of sharpening which is sometimes left out if you want a more toothy edge (larger micro serrations). Some people feel that to ensure you have the best edge possible you should take all edges to the highly polished stropped finish and then go back to a stone for a few strokes if your doing something like cutting rope. I don't bother but if people have trouble completely getting rid of the burr then it may come in handy. Stropping is normally done using a piece of leather (such as a belt) with some mild abrasive rubbed into it but is sometimes do with paper or cardboard.

There are two basic methods of stropping. One is to secure the strop at one end and hold the other tight (such as holding one end of the strop on the floor with your foot and the other end in you hand), the other is to lay the strop on a hard surface. I prefer the second method as I find that people often end up rounding the edge too much if using the first method and then you have to start sharpening again.

With either method you pull the knife along the leather with the edge trailing. I do a few strokes per side and then swap, at the end I'll only do one stroke per side before swapping over. Be careful not to raise the spine too much, I like to start off with the knife at the same angle as it was when sharpening but may raise it slightly depending on how much the strop deforms. A common mistake made when stropping is to raise the spine at the end of a stroke, it's really important that you don't do this as it will dull the edge rather than make it sharper.

Steeling

Normally only used on kitchen knife blade but is suited to all knives depending on what you want them to do. Steeling a knife is in a way the alternative to stropping a knife in that it is the final stage of sharpening and something which should be done between proper sharpening. The effect of steeling is that it relines the edge like stropping but while stropping will also polish the edge and slightly convex it steeling wont. This makes it the finish of choice for knives where micro serrations are wanted (cutting meat for example). There are two main groups of steels, finishing steels which are smooth and sharpening steels which remove a small amount of metal. The popular steels seem to be diamond or ceramic. Of the two I prefer the ceramic steels but I find most people can do a better job with crock sticks. If you only have a steel then you may find it easier to hold the steel at an angle and keep the knife straight up or down (or depending on what you rest the tip of the steel on you could hold the knife horizontal). For example a right handed person would hold the steel in their left hand. If you hold the steel with the tip pointing down on a chopping board at 20degrees from vertical you can sharpen the left side of the knife. If your sitting down you can then support the steel against a table and sharpen the other side, If your standing up you can hold the tip against a wall. When doing this it's best to have a steel

with a guard.

A smooth steel is just that. I tend to just use a glass rod (though it's more difficult to hold and has no guard so isn't the best thing for beginner). I'll use this in the same way as described for the sharpening steel but may hold it at a slightly greater angle than the edge bevel is at (only a couple of degrees though).

Some people feel that when steeling (or at least when using the smooth finishing steels) it's best to have the edge trailing. This is meant to reduce the risk of dulling the edge against the steel by trying to make it bite into the "steel". I haven't found it to be any trouble but if you want to steel your knife with the edge trailing then I find it's best to learn by sitting at a table and holding the steel with the tip slightly up when working on the left side of the knife and the handle slightly up when working the right (if your left handed reverse).

Tips:

checking edge angle

To make sure that your getting the right angle you can put some lines of felt tip perpendicular to the edge. If the felt tip is not removed evenly along the length of the blade then your not keeping a constant angle. This can be difficult when using a wet stone as the oil or water will wash the pen marks off so when first sharpening a knife I like to use some fine (1500grit) wet & dry paper on a hard surface and then once I know that I'm removing the felt pen in the right places I'll use the courser oil stone. If you have ceramic bench stones or a sharp maker then you can just use the white stones. Some people like to put felt pen along the whole edge but I prefer to just do a few lines as it means my sharp maker doesn't need cleaning so often.

If your wanting to make sure the angle your sharpening at on a bench stone is the same as your sharp maker (handy when removing a lot of metal without the diamond rods) then you can put a line of felt tip every inch or so (I put a line every inch and a half along the straight edge and closer along the belly of the knife). Remove a little bit of this lines using the sharp maker and then put a new line next to each one. If the new lines get removed in the same places then the angles are the same.

inspecting the edge

A small magnifying glass can be useful for inspecting the edge of a knife. If the edge feels sharp but behaves differently in one place then you may have micro chipping in the edge. It's easy to seem if you have a ten times magnification. The best thing I have found for this is a special one designed for people with poor sight which has a light built into it. You can check for dull spots in a knife edge by holing it in the light. If there is a point on the edge where light gets reflected then in that place you either have a fault in the edge.

checking for burrs

If the final sharpening edge is at a constant angle then it's possible to get a small amount of light reflecting from the edge bevel and as you move the knife this light will appear to move along the knife. If there is a gap where it doesn't then inspect it with the magnifying glass. On occasions there appears to be a tiny chip out of the blade but one which doesn't go through the whole cutting edge. This will leave the edge weaker and prone to chipping so it's worth keeping an eye on. I don't normally bother sharpening them out unless it does chip though.

Sharpening the tip

You should have to raise the handle from the stone to match the curve of the blade but if you look carefully at the handle you should notice that in one plain the angle doesn't change. I'm not sure I'm about to explain it very well but I'll try

If you look at a cross section of the handle (assume you have a flat handle for this) then when the straight edge of the knife is in contact with the stone the top of the handle will be elevated. If the handle and the blade have the same depth then this difference would be the same as the distance between the centre of the blade thickness and the stone. (if the handle was 30mm from the top to bottom and your sharpening at 20degrees then the spine side would be 10mm higher the side by the cutting edge.

When you're sharpening the belly the handle gets raised but if you were to draw a line from the top to bottom the top of that line should still be 10mm higher then the bottom.

Again, taken from the Bushcraft UK forum.