

Is This Sharp (with Japanese Waterstones)?

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By edstreet

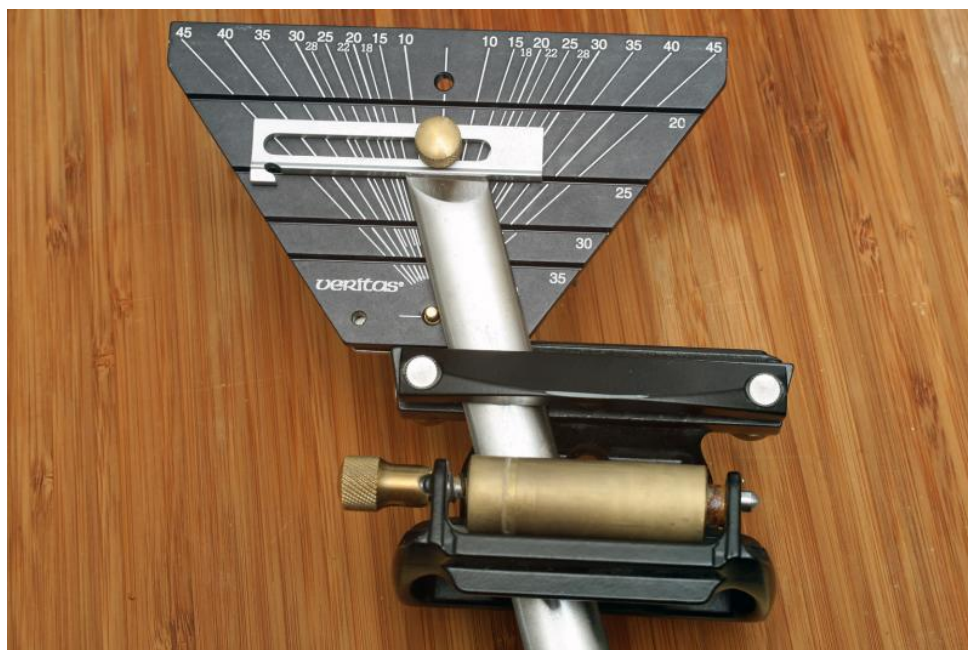
Hello my name is Ed and I have an addiction to Japanese waterstones!
Ok got that out of the way, now down to business.

First this chisel is a new skew in HSS steel that I recently bought in a set.



This is how they come from the factory. Yes it can cut but it's like most things, some assembly required.
The secret to sharp is consistency. So do yourself a favor and buy, or make, a jig of some form.

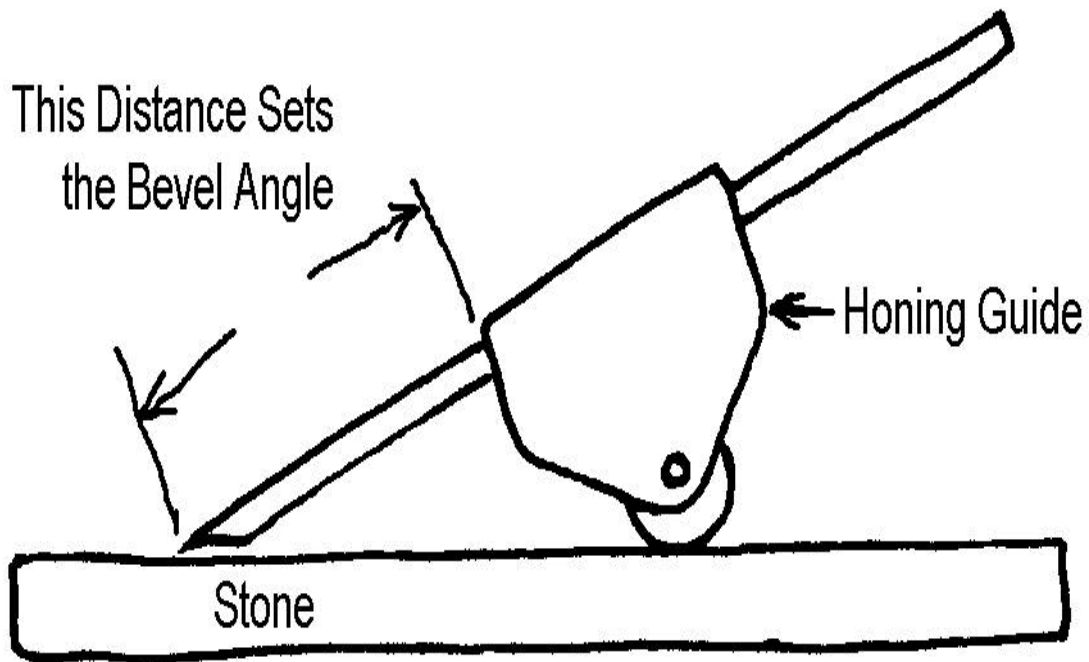
Here we have my Lee Valley MKII hone guide with skew registration jig in place.





This is the side view showing good front to back on the stone placement. If there are any high spots they will show up very quickly. This stone is Kongo-Do.





Jigs need not be complicated or expensive. They serve one purpose, hold at a consistent angle.

Some low-tech solutions are just as viable as very costly solutions so don't overlook those options.

Here we have a 'low budget' jig that I made for a bench grinder. I used scrap 2x4 and 4x4 of pine. The 4x4 was turned round and sliced into 3 wedges, then one section sliced off into a D shape then glued to the flat 2x4 for the top and bottom. The angle is adjusted by a lag screw.

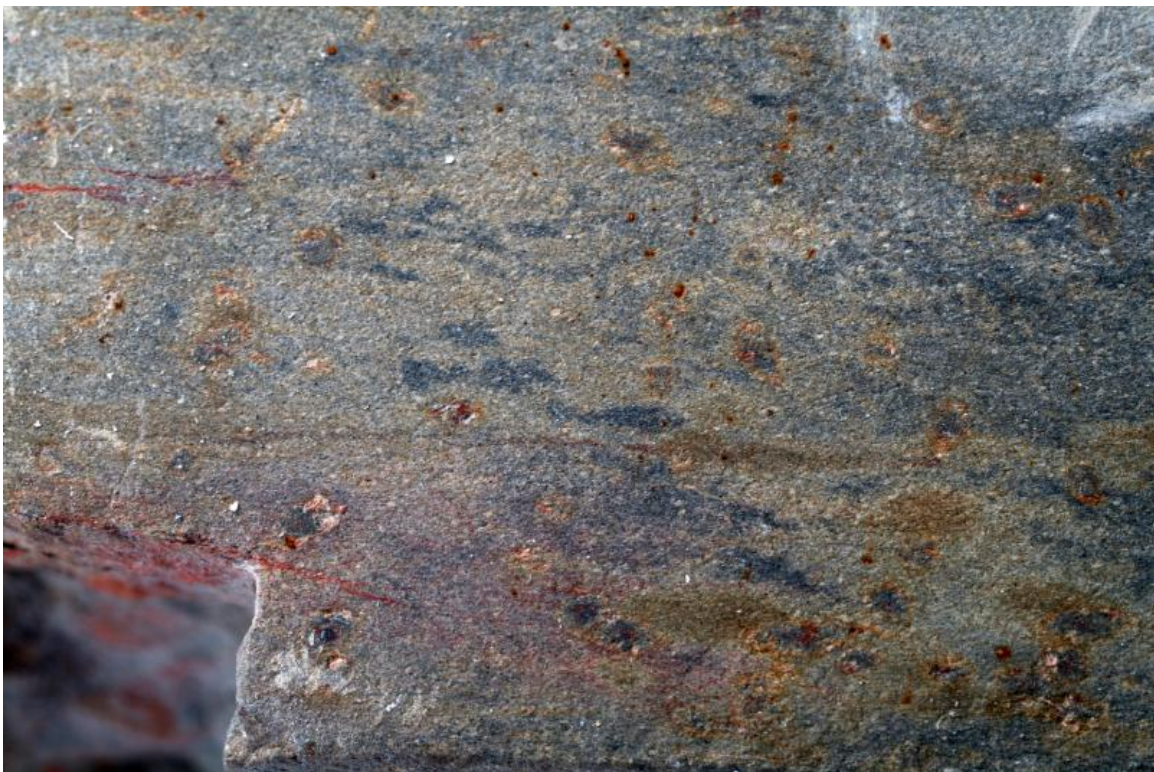


Oh yea this is Aoto, Blue Mountain natural Japanese stone. Approx 2,000 to 3,000 grit range, 5-10 microns. Or so they say. This is a very very fine sedimentary stone and the slurry from this feels like a film. Using this stone literally feels like washing a chalk board, it is smooth and silky. Stones like this are what give Japanese waterstones that sexy appeal and that calm serene flair.



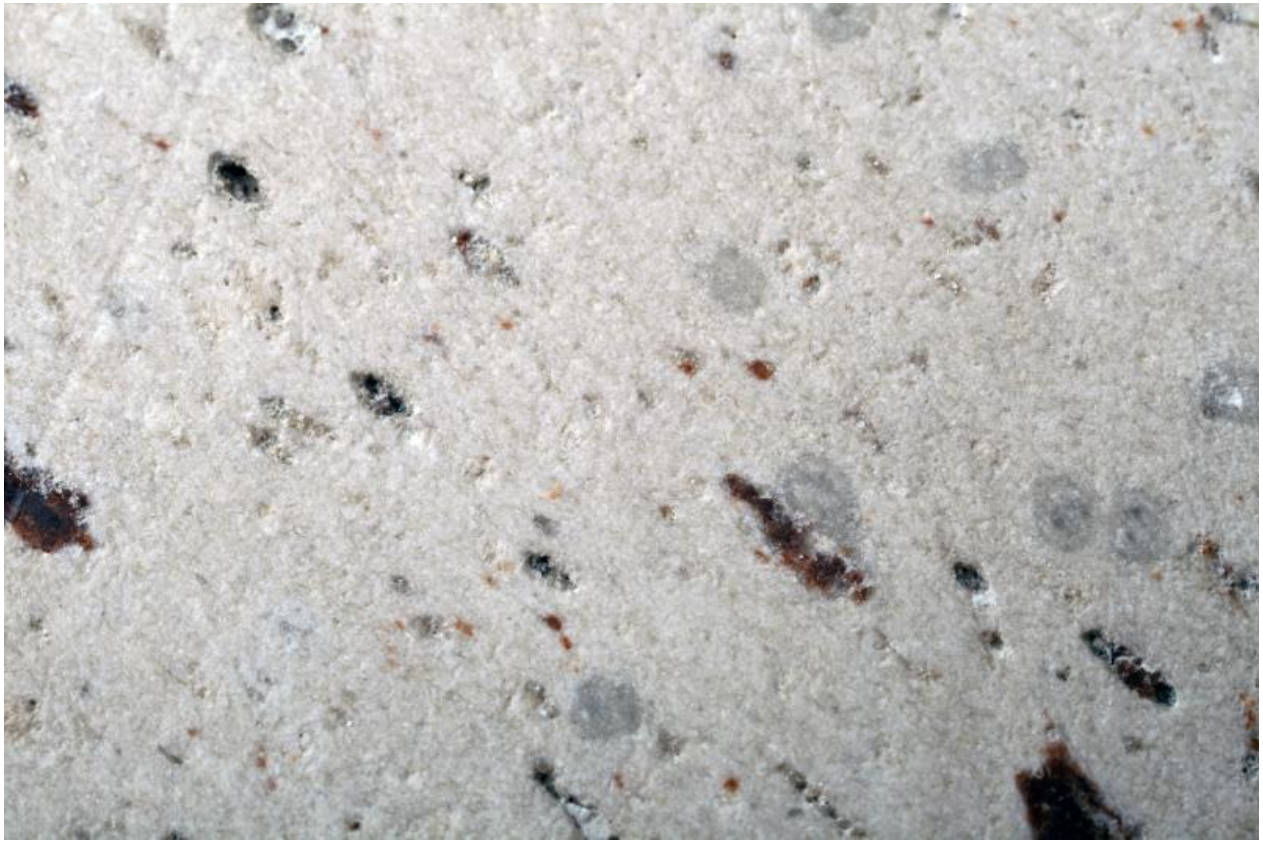
Slurry is made by rubbing another stone on top of the big one. In the above 2 photo's I used 2 types of stones, Omura and Nagura. The white color one (top) is the Nagura, that is around 6,000 to 8,000 grit there about. It helps to remove the finer sediment in the stone. The Omura (bottom) is more of a grinding stone, it is a more coarse grit stone around 150 grit, it brings out the larger grit so you can get a good range of grit from the same stone, try that one with sandpaper! It also flattens the stone. The color here you can clear see why it is a blue stone.

Notice the Su holes or voids, the pockmarks in the stone face, this is gas bubbles that was trapped when the stone was forming however many years ago (read million/billion). They serve several purposes, it traps and holds water and sediment that has broken loose. It can also trap and hold metal shavings from the tool so that must be cleaned off from time to time.



This is a natural Japanese Binsui Stone, approx 300 grit, 60 micron. The slurry from this feels like sandpaper, this particular stone is one of the more advanced stones and not beginner friendly by no means. This is a somewhat coarse grade sandstone.

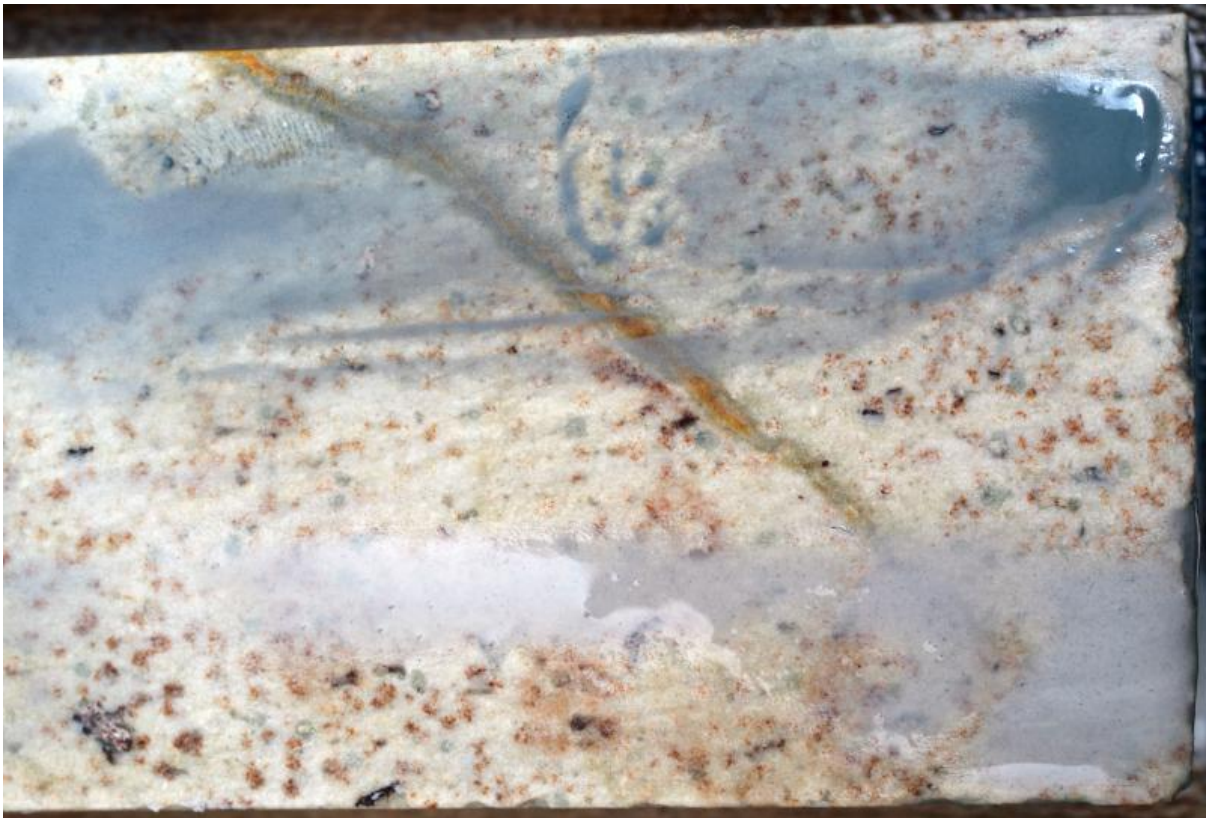


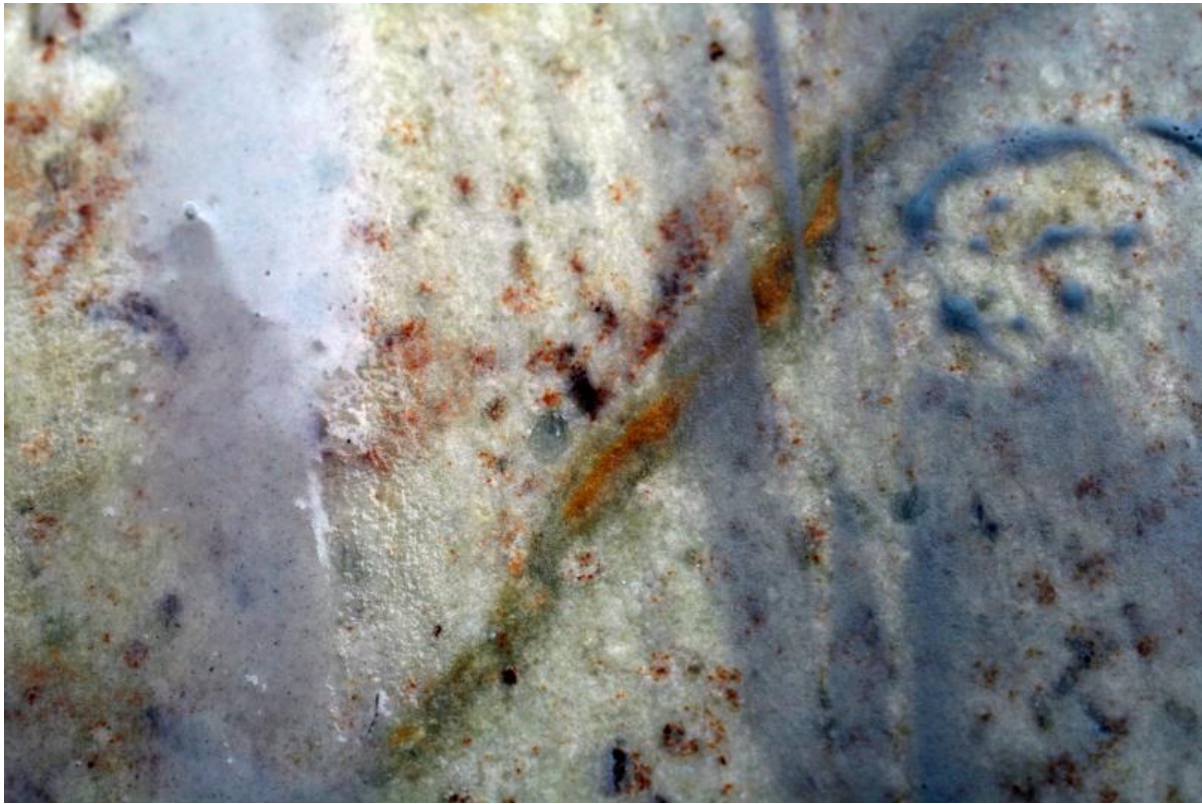


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Here we see what the old vs. new slurry looks like. The dark is filled with metal shavings from the chisel, some stones like kitayama they leave it on the stone face, others in the slurry like this Binsui.





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These two are a natural Japanese Kaisei Stone, approx 500 grit, 35 micron. This is a very fine grit sandstone. This stone is a VERY stupidly fast cutting stone. It is over very quickly and you can do some serious metal sculpting with the right work flow. This is like Ao-to (blue mountain) but cuts much faster. Both of these are a dream and a pleasure to work with.





This is a small sample of stones that I have so far. In the back is my MKII hone, a knife hone and the spyderco sharpmaker. The bottom row is Binsui, Kaisei, Aoto blue mountain, Uchigumori and kitayama.



Now let's look at the results they do on the chisel.

Above I posted the starting look of the chisel. Here we have after using the stones.



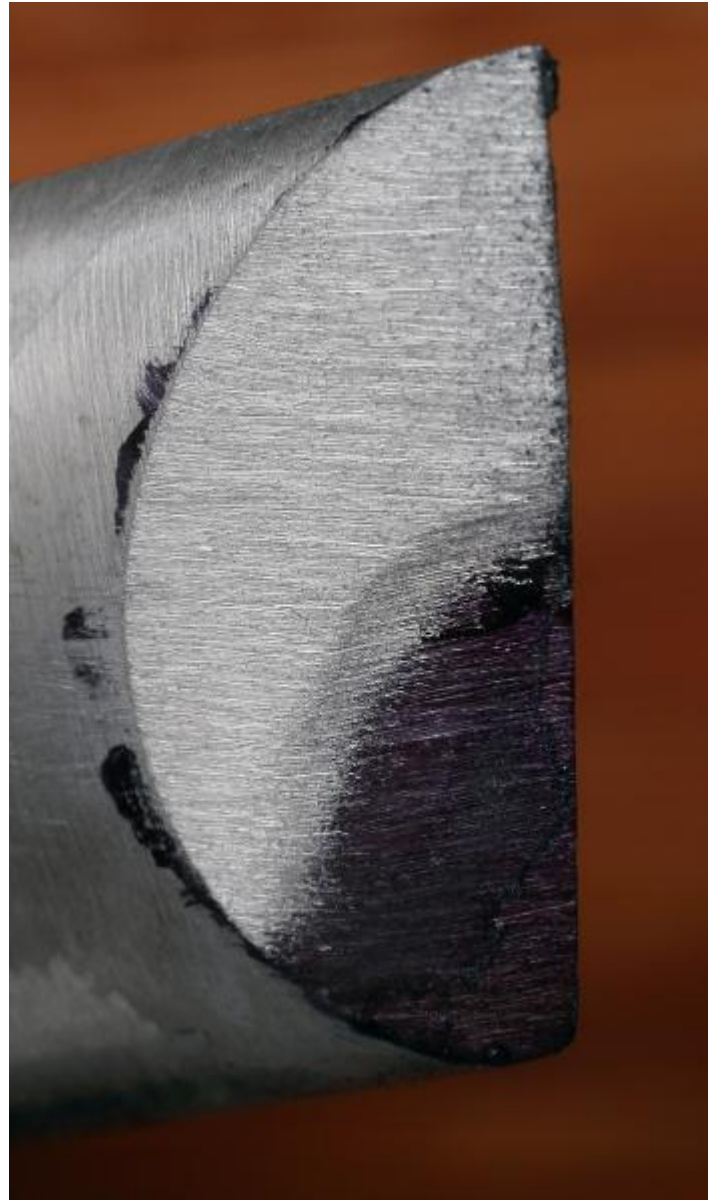
Image is slightly on the small side but enough to barely make out some problems that I encountered along the way.

The most notable is Kaisei and Ao-to needed more truing work, need some more Binsui work as well as there are a few scratch marks still that could be removed. However after using Kaisei there is a very sharp edge, after using Ao-to you can shave with the edge.

One final thing I wanted to mention. The #1 problem with sharpening on any stone is consistency. This is where a jig comes in handy. This is also where a sharpie marker is very valuable as well. Just mark the edge where you are sharpening.



Then start sharpening, look after 1-3 cuts



Then adjust as needed and do a few more cuts



Then before long you will be done, then move to the next stone. (trash left to show the bur)

I have purposefully left out the final polishing work that is mostly needed on knife and sword surfaces for visual effects. I have added some aspects in but I wanted this to be mostly about sharpening.

As for the type of stone and the type of steel is a very great important factor to consider when you pick which stones to use. Same holds true for manmade synthetic stones, if they do not match the progress will be very slow going.

Also all stones require some type of soak, some just need to wipe water on it with your hand and others need to soak in water. This helps soften them up. What you are looking for is water retention, soak the stone long enough that water will stay on the surface. Synthetic stones with bonding agents need no soak time and wiping them with water will do. Remember each stone has its own personality and you have to listen and read the stone to see what it needs.

The biggest question that most will likely ask is 'why sharpen this way when 10 seconds on a grinder will work' The answer lies in the fact that; a) this is a HUGE stress relief, b) it is soothing, c) it allows you to sharpen in ways you have never seen before, d) you really get to know your tool and, e) it is fun and enjoyable.

Here are some additional comments.

The problem of 'how sharp' is a tricky question to be honest. The answer lies somewhere with 'what will you be cutting'. Say you are working with something super delicate, soft and very prone to exploding. Obviously in that case a super sharp chisel is going to net you more favor. The other trade off factor is speed you want something that will do the job fast and not have to spend eternity sharpening chisels. We see post on IAP here all the time where the person has dull chisels and they cause more problems than not. So far I have not seen a post where the problem was the chisels was TO sharp :)

For some things this chisel would be to sharp, for other materials it would be close to right.

The other thing I wanted to point out here is a good amount of the sharpening area that I did in this article is cleanup work from manufacturing, it has very little to do with cutting itself and more like the spine of a knife rather than the cutting edge. Once this initial cleanup polish is done a micro bevel is all that is needed. This is mostly 'pretty work'. I do have another 5-6 stones that I could have used to make it even sharper; I actually just stopped when I felt it was becoming scary sharp.

I was looking for something hard and difficult to cut. The best thing I could find was a strip of cocobolo. The big ultimate goal was take some of the mystery out of sharpening and show how to get scary sharp and show the stones. Tormek is also a very good setup and I am eventually going to be buying the grizzly T10010 model (same as the Tormek T7 but 10 pounds heavier) and some Tormek jig's plus the big waterstone they have.

The final thing I wanted to mention, there was a few somewhat 'problem' areas on the chisel face as seen in some of the photos. They were able to be addressed and removed. Plus I now know some very good details about this specific chisel as like hard spots/ soft spots in the metal and with heat treatment itself.

What makes a stone 'not beginner friendly' is when you have to do advanced techniques to bring out the abrasives inside the stone, i.e. use both soft and hard grinding stone, use many degree's of dampness on the stone and so forth.

You can actually bring up 1,000 grit particles then break them down into finer particles, say 4,000 or 8,000 grit. Think of it as how flour is milled. There was some serious technical article about producing 25,000 grit particles on a stone and it was some serious work and even then it is not a science. In those ranges the stone is very very hard, very expensive and loads of work. My Binsui stone I said was not beginner friendly in the fact that it does take some advanced work to produce swarf. Once things are set up correctly it is fairly easy to work from that point forwards. Also many strokes may not even cut the steel so you are doing work for nothing which defeats the purpose.

My blue mountain stone I would tell anyone who is starting off to get one and use it as that stone is a dream to work with. Also if you are doing any reshaping of the steel then you want something coarser. Other stones that are easy to work are Kaisei and most Nagura (there are a good number of different types).

This is a gent on my Blue mountain stone.



I also have to mention Kitayama, this is a man made 8,000 grit final stone, but it is to be used after all the others, even the 12,000 grit stones. It WILL produce a mirror finish in nothing flat and scary sharp is grossly underrated. Here is a pen that I used Kitayama as a backdrop for. I also did not clean it up either and it is all nasty in the photo.



This is a rhodium euro in grape fury that I made.

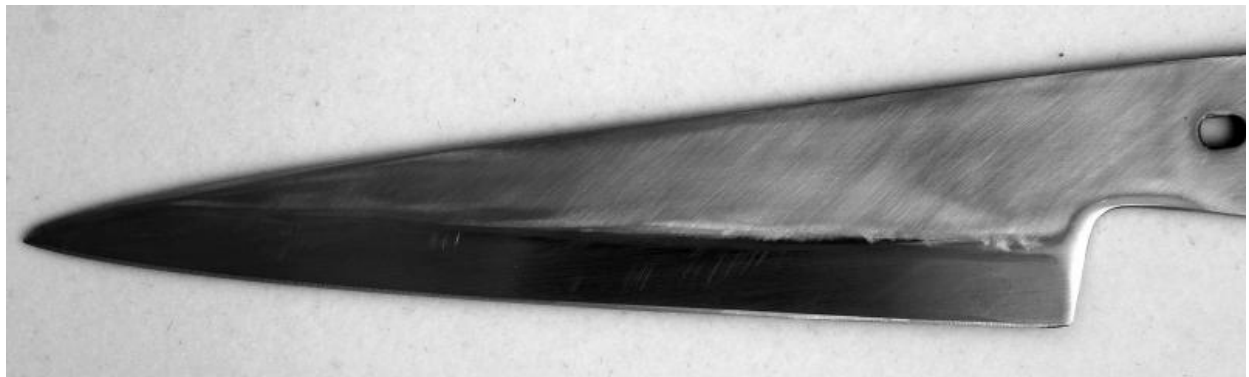
Knives

Here are 3 images from a knife that I made. The blade is one that I bought from a knife supply company. The blade also is flat with no contour and I wanted one on there. Here I used Kaisei, chu-nagura and koma-nagura then bead blasted it.

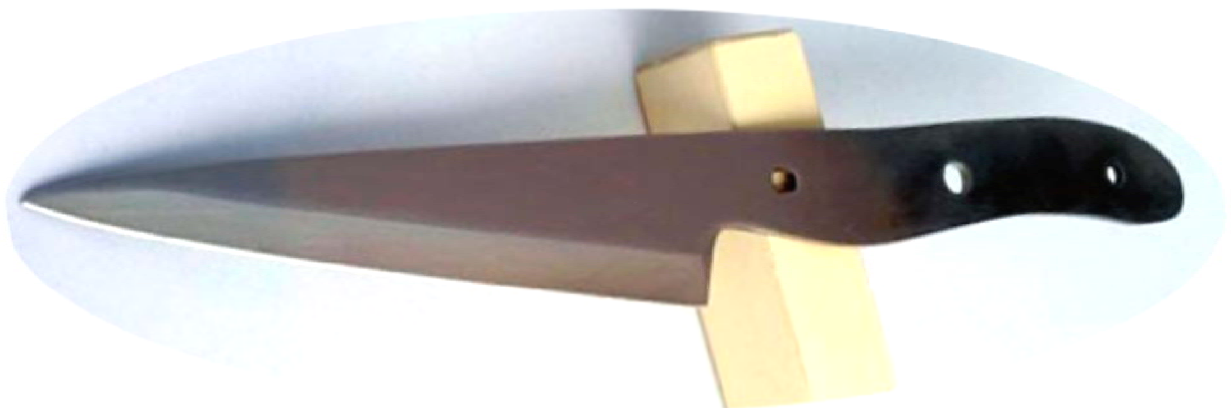
This is the blade at the start.



This is the blade after the Kaisei stone.



This is the final blade structure after nagura. The stone it is resting on is a nagura stone.



Oh and final finish.



The steel you are cutting is the key question, HSS steel is abrasions resistant (read tungsten and vanadium content) so that will cause some problems. This is where the particle hardness comes into play. To rapidly CUT something you need harder; to POLISH something you need equal to or less in hardness and lots of it. You can use softer particles to erode harder materials but it must be in volume

I don't have DMT stones but essentially these are diamond stones on a plate of some form. The pattern they make up on the plate determines a good amount on the effectiveness. Since they use man made diamonds they should effectively cut HSS steel. The only question that does come up is how sharp is the structure and how many strokes will it take. DMT plates will also true waterstones.

The magic piece of the puzzle in all sharpening is this: The angle of the abrasive material MUST be equal to angle you desire on the blade at all times.

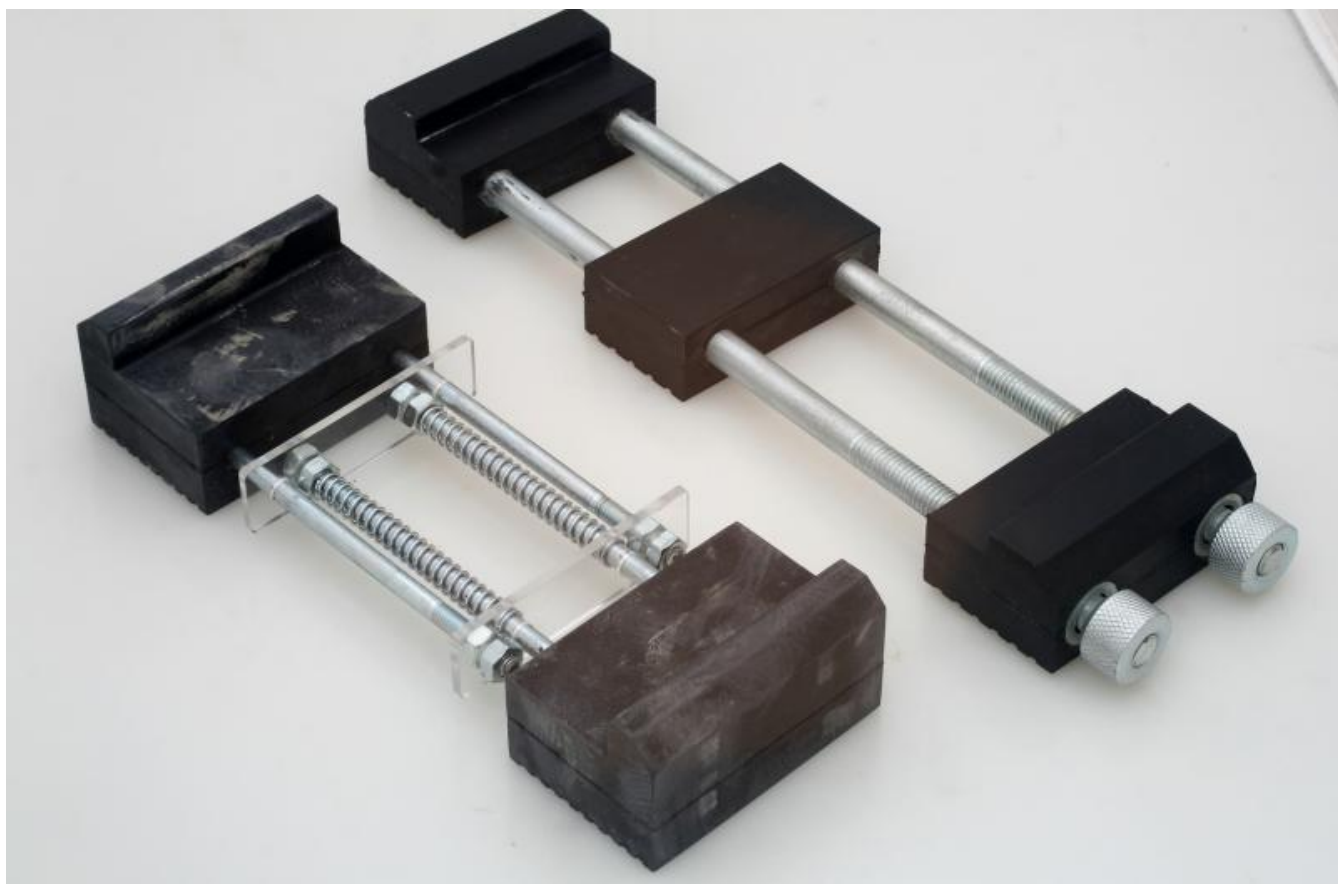
Bottom line is not so much what stone or plate or paper etc you have but how consistent you hold the object to sharpen. Remember this: Consistency is the key. This is where a jig comes in very handy, it honestly does not matter if you put \$5 into a jig or \$5,000 into a jig as long as you are consistent in the strokes you are good to go.

There is a very good book on sharpening that I have, it covers just about every media and object to sharpen with. Title is "The complete guide to sharpening", the author is Leonard Lee, hard cover and soft cover. He has dedicated chapters on turning tools and another on scrappers.

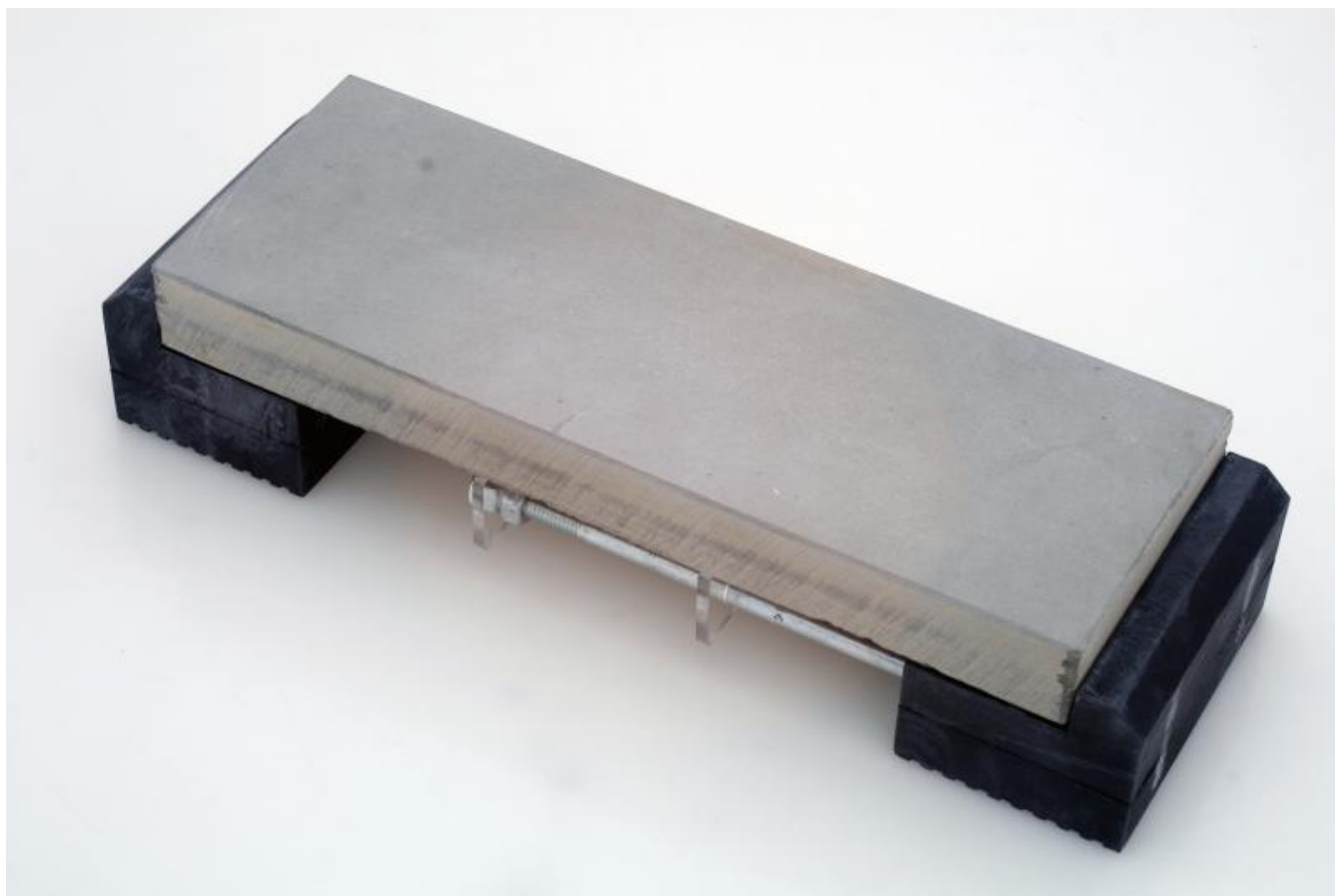
I originally steered away from polishing for this but this is very similar to that but more geared towards the razor market.

The three brackets are knife, tool and razor. The difference is hardness, not to be confused with grit size. Stones that are suitable to yield you very fine grit being Awashi, Karasu and Hon-yama. There are synthetic stones that are in this range but they don't come close to the real thing. Kitayama is an 8,000 grit finishing stone, meaning it is the LAST stone you use even if it's 20k grit.

Before I start one thing that I did neglect earlier was some stones benefit from a stone holder. There are various styles available. Many stones will already have a wood base they sit on and the rest you are likely to need a holder not only for movement but support of the stone to prevent breaking, cracking and the like.



Ok. Say hello to Hon-yama Awase Toshi (Hon's mountain finishing stone) This stone is approx 0.5 to 0.75 micron, 10,000 grit size, somewhere there about. But for the most part that does not really matter, it's more about what it can do for us. Long story short this stone is very aggressive. This particular stone is also softer which means more knife and tools rather than razors. Working on this stone is pure amazing. Think of this stone as a block of hardened chromium oxide, Linde C compound, Moor white ceramic or similar buffing compound, except this stone does not wear much at all but does a hellacious job on sharpening and yields a pleasant patina. This is also in the buffing region.



Earlier I posted Uchigumori which is remarkably similar in layout to this one. While Uchigumori is 4,000 grit this one is around 10,000 grit.



1:1 macro shot, the width here is not quite 1/2" wide.



Note the inclusions on the bottom.

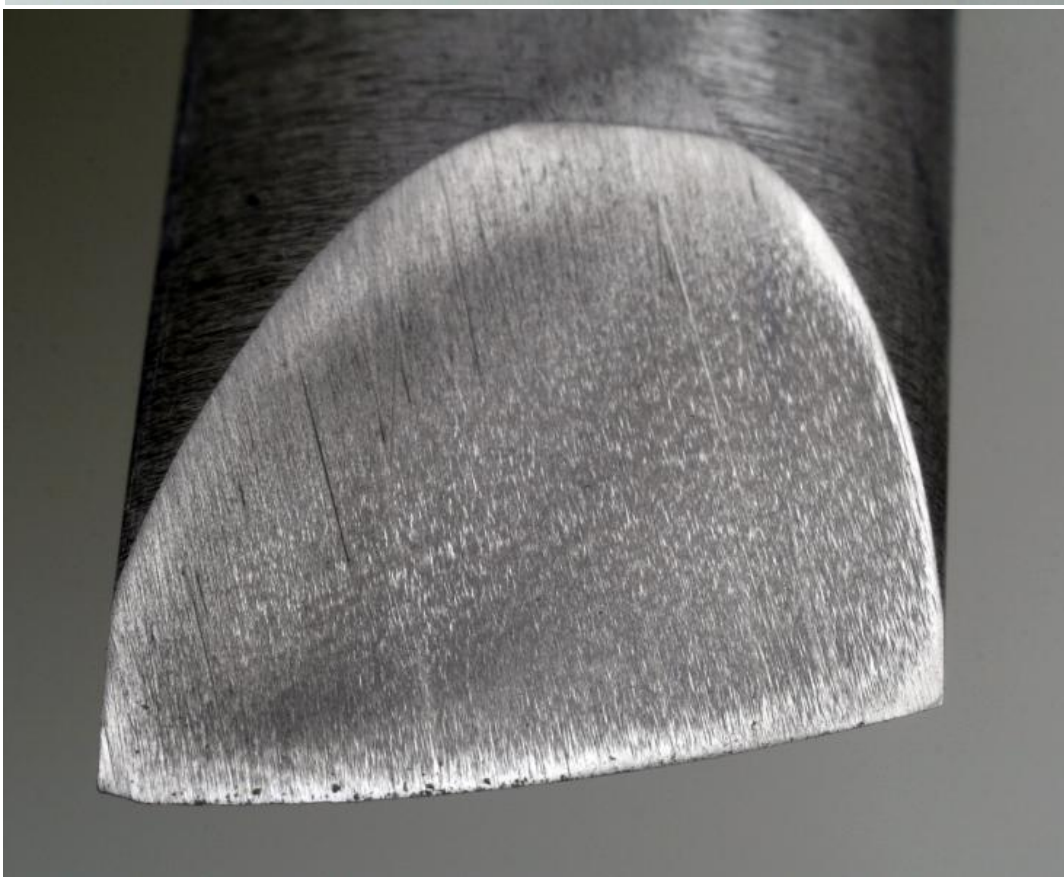


Here is both Hon-yama and Uchigumori stones.

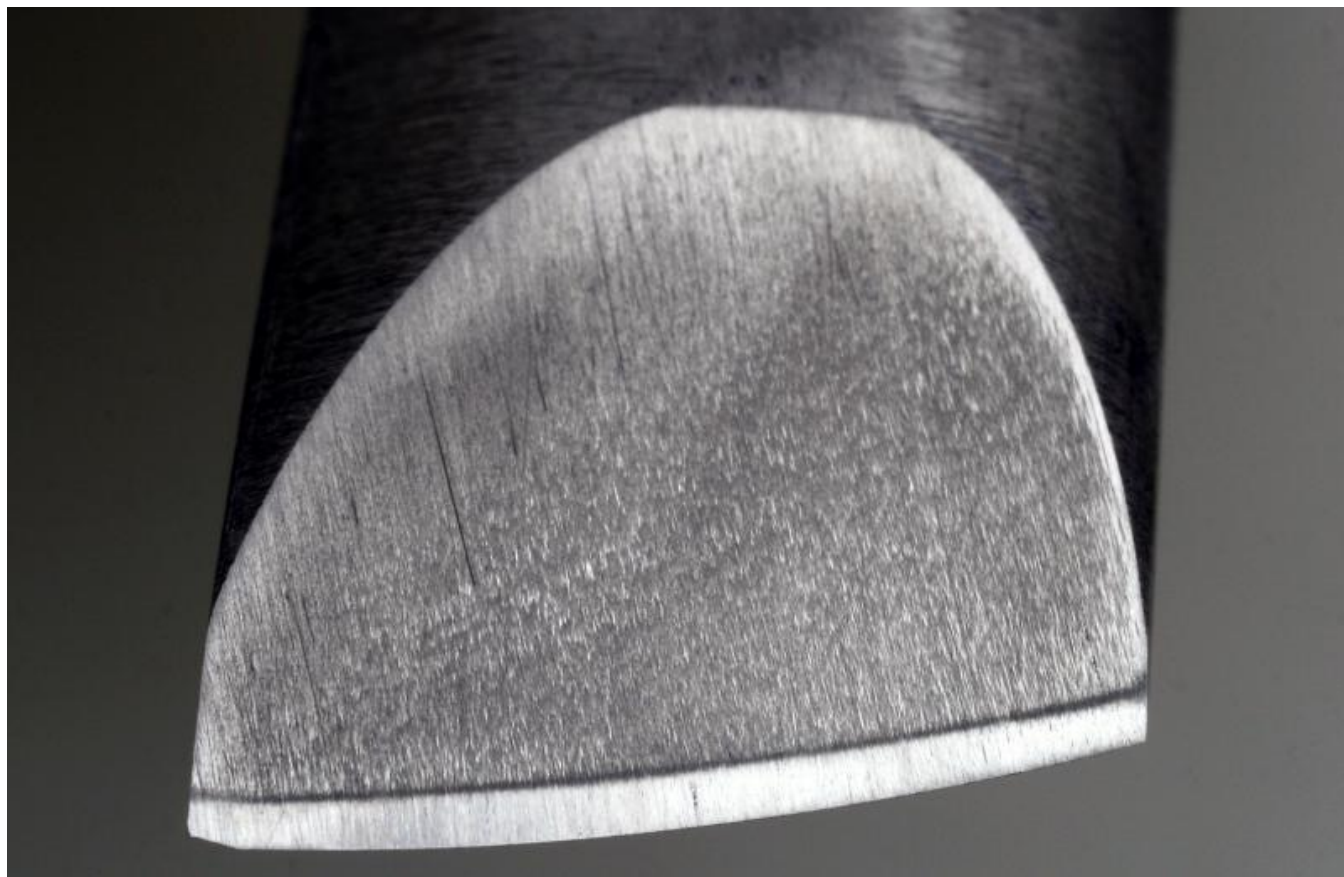


Now, after sharpening a 1/2" oval skew that I have (this is from the Benjamin's Best Midi set) I was able to shave with the chisel. Not just any shave but hair popping sharp.

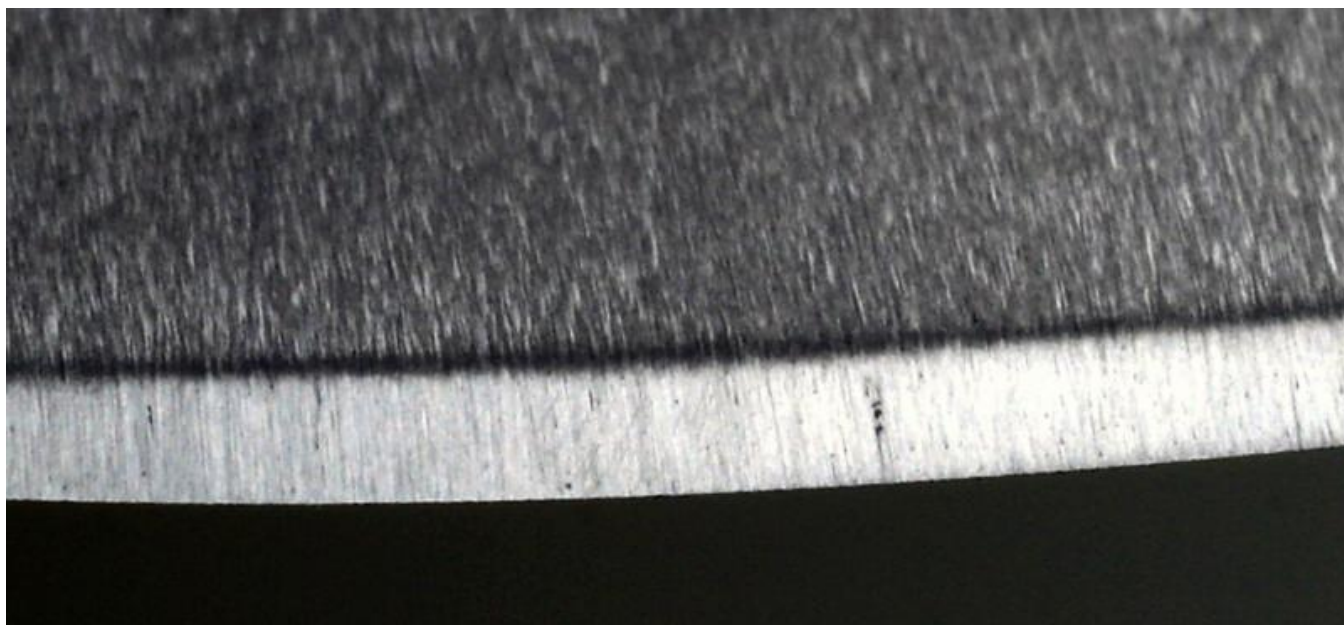
This first one is after Hon-yama. There is a unique patina to the metal. Also worthy of note is the deep scratches going top left to bottom right. Since this is more of a false edge I left it, besides you would really have to look for it to stand out. Second note is the cutting edge itself. That part needs some attention.



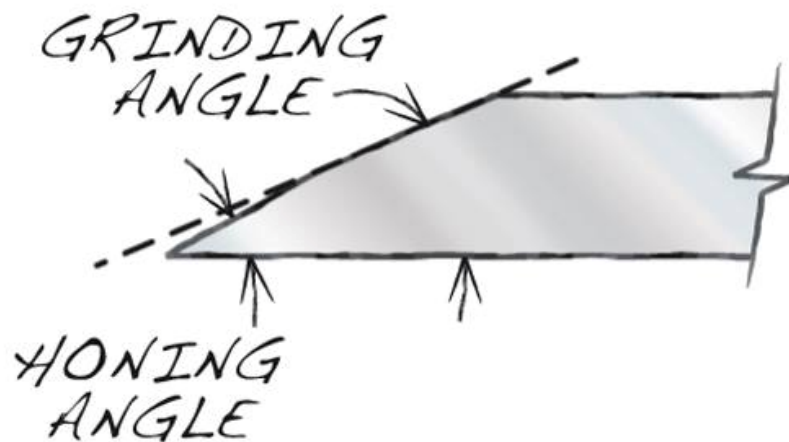
After a micro adjustment on the jig to form the cutting edge this is the results. This is also hom-yana still.



Zoom in shot, this is around 0.16" wide.



Essentially this is what we are doing.



Keep in mind the back slope is useful in chip clearing as well as eye candy/visual appearance. On this project the chisel is 1/2" wide and 1/2" slope which had to be changed. I used a 25 degree bevel and an 18 degree skew. This chisel has never been this clean and was one of the first chisels I started out on several years ago.

Wet grinding

This is not a modern approach, been around several hundred years and not much different except there is a motor, maller wheel and package. No heat buildup and not labor intensive makes for a good setup.



Before and after sharpening on the wet grinder.



One key part of sharpening is cleaning the chisel, BEFORE it comes in contact with the stone. You want it as clean as possible, no oil at all.

Other things to consider are slate. Some slate makes excellent stones. These are Welsh.



Some additional stones



Tsushima Natural (top left 2) 6k-8k grit, rest is Omura, bottom front is manmade Omura, 150 grit.

Tsushima is more of a slurry stone. Omura is mostly used to grind other stones and more used in sword polishing. There are several grades of Omura in the photo, each has different hardness but the same grit size.

A recommendation for buying

Ao-to here, also have other things like holders, etc.

[The Epicurean Edge: Japanese and European professional chefs knives](#)

Many good things here.

[Sigma Power Select II Ceramic Water Stones - Lee Valley Tools](#)

[Sharpening Stones Toishi](#)

This guy sells Welsh slate. I have some of these stone and don't let the ebay thing fool you, this man takes his stones very seriously. He also tests every stones before they are shipped, some very fine work put into these.

[NEW SHARPENING HONES, VINTAGE UK HONES items in GREEN SHARPENING STONE SHOP store on eBay!](#)

good site for razor stones.

[Japanese Natural Stones Toishi](#)

Have done several orders from this place, shipping can eat you up as EMS bills by weight.

https://www.namikawa-ltd.co.jp/cgi/list_e.cgi

Some other sources of stone, both natural and man made that is not commonly sold in the US.

[Japan Tool](#)

[Tools from Japan, Japanese woodworking tools direct from Japan.](#)

This one is mostly razors but some others as well.

[stone enter](#)

He also has a youtube channel

<https://www.youtube.com/user/japanblades>

I am also trying to nail down some Belgium blue waterstones as well :)