diamond vs naniwa super vs ceramic vs shapton etc

Posted by KenBuzbee - 31 Aug 2012 16:24

Okay, I know this has been discussed in bits here and there but can anyone generalize the differences in the edge obtained from the various materials? For this discussion, I'm talking about at the same basic grit. Say, all at 1000...

I know (well, I think I know;)) some of this but a general comparison would be helpful, both in what the edge looks like and how it performs in various scenarios.

Like you can get an 800 grit diamond plate and an 800 grit Naniwa Super, why would you choose one over the other?

Now I "think" the 800 grit diamond plate will cut faster but leave deeper scratch lines for the next progression to deal with (true or not true?)

Related to this, I've frequently read that if you plan to use a Naniwa for your finishing stone you should use it for the 2-3 prior grits too so you have fewer deeper scratches to deal with (true or not true?) If true, same for Chosera/Shaptons etc?

And where do the ceramic stones fit into all this? Scratches deeper than a Naniwa Super but shallower than a diamond plate?

Now I know the final results are what YOU want in your edge and ultimately only you can find the progression that works for you but some theory on what should be expected is a good thing to have.

Lastly, if ALL this has been beat to death in a thread I've missed, please post a link!

Thanks to all!

Ken

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Re: diamond vs naniwa super vs ceramic vs shapton etc
Posted by PhilipPasteur - 01 Sep 2012 11:42

Hi CBWX..

It is all good. You mentioned a few things that made me feel like I needed to clarify what I had said previously. The idea being to no mislead Ken.

Interesting thing about the Internet. You get one person that is respected say something, then everybody starts saying the same thing over and over. Yes the common wisdom seems to be that you "NEED" an entire set of stones from the same brand/line or no one can get good results. Logic says otherwise...

Just a pet peeve of mine... nothing personal.

Phil

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Re: diamond vs naniwa super vs ceramic vs shapton etc
Posted by KenBuzbee - 01 Sep 2012 12:16

Thanks guys. Great discussion!

PhilipPasteur wrote:

Just a clarification, and probably an important one...

But in your progression I see "consistency" Diamonds leaving deep scratches->coarse Choseras (removing those scratches) to fine Shaptons (adding uniform micro scratches) -> strops (removing even those) True?

PhilipPasteur wrote:

BTW, if you strop, the final refinement and character of the edge end up being a result of the stopping

process. This can be seen under the microscope and felt in use.

Check out this thread:...

Yeah, I tried to follow that thread before but there are so many sequences in there I kinda got lost. My take away from it was strops do a good job removing scratches, if you do enough passes.... I should go read the whole thing again...

PhilipPasteur wrote:

The original question was whether ..if one was to use a Naniwa for finishing, then was it required to use the Naniwas for the previous several grits. I have read many people's opinions that state that you need to stay withing a specific brand, or type of stone for a progression, to get good results. I just don't happen to agree. Lots of the razor guys go from Kings or Nortons at 8K to the 12K SS and then the 15K and 30K Shaptons, and love the results.

True, I've seen that too. I used to get nice shaving edges from .5 micron lapping film, followed by stropping....

PhilipPasteur wrote:

Of course, they also always strop. But what better way to rate an edge than to scrape your face with it

True, but as you say, they strop... Every time. Isn't your point above that the stropping makes the rest more or less irrelevant?

PhilipPasteur wrote:

Japanese sword polishers mix natural stones mined in different place all over Japan, They don't have a brand, nor are they of a fixed grit. If you look at their work, it is had to agrue that their method does not work.

I'll have to take your word there. I've never seen a well done sword by a master, though I'd love to.

PhilipPasteur wrote:

In a bit I will try to tackle the part of the OP question about the differences in different types of stones/plates rated with the same grit number

Thank you!

Ken

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Re: diamond vs naniwa super vs ceramic vs shapton etc
Posted by KenBuzbee - 01 Sep 2012 12:21

PhilipPasteur wrote:

Hi CBWX..The idea being to not mislead Ken.

...and Ken appreciates that
He's confused enough, already

Ken

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Re: diamond vs naniwa super vs ceramic vs shapton etc
Posted by PhilipPasteur - 01 Sep 2012 13:13

Ken,

first take a look at the info at these links:

Grand unified grit chart, scroll down to get there:

www.bladeforums.com/forums/showthread.ph...ied-Grit-Chart/page3

This one is the WEPS grit chart, with pictures:

www.wickededgeusa.com/index.php?option=c...eneral&Itemid=46

If you look close you will see that all stones/plates rated at, say, 800 grit (as in your original question) do not have abrasives that are the same size. This is partially the result of several different stnadards that are in use to define grit sizes (Japanese, European, American) and the different methods used to measure the grits. If you check the hedings on the grand unified grit chart and you will see the names of the different standards. You will also see the various items rated at 800 grit can run from 22 down to 12 microns in real abrasive size. On the WEPS grit chart you will notice that the 800 dimond plates use 12 micron grit while the 800 Chosera stone have 14 micron grit size. Look at the 3000 Shapton with a 5 micron grit compared to the Chosera with a 4 micorn grit size. At this level the difference equates to 20%.

Of course this is just the beginning. Besides the grit size you have the material that the grit is made from. Then there is the shape and hardness of the grit material, how does it abrade. Typically the diamonds are sharper and harder the the AL Oxide in many synthetic stones. They will cause a very different scratch pattern in use even if the actual grit size is the same.

Then you get into the thing that would take a book to cover, the binder and brasive concentration of any given synthetic stone. We have already talked about the differences between Shaptons which release abrasives very slowly and the SS or Chosera stones that shed more and make a nice mud. This reflects the philophy behind the stones deigners. As Tom points out, the Choseras aim to polish as well as abrade. The Shaptons to make a perfect scratch pattern with polishing being much less important.

So what does this mean? Well, just because the grit of a plate or stone is listed as, say 800 grit (from your original question) you can't make any assumptins about what it does at the edge. You need to know the actual grit size and type, the binder and design philosphy befor making any decisions about equivalency in your progression. Beyond that, try the stones, use magnification to see what is going on, then test the edge. Just keep in mind, 800 is not always 800 when rating abrasives...

Phil

Here is another really great thread to check out:

www.wickededgeusa.com/index.php?option=c...d=2399&Itemid=63

Great photos and lots of progressions.

Here is another

www.wickededgeusa.com/index.php?option=c...d=1824&Itemid=63

A picture is worht 1000 words... at least!!

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Re: diamond vs naniwa super vs ceramic vs shapton etc

Posted by PhilipPasteur - 01 Sep 2012 13:35

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Yes, coarse to fine. The coarser Choseras remove the diamond scratches more quickly, saves time. I have gone from the 1000 grit diamonds to the 2000K Chosera and stropped. I get a very serviceable edge that it better for utility use. It is only when I have lots of tiem on my hands and am just trying to see how perfect I can make the edge that I go through the full progression to 15K and then use 8 different levels of stops down to 0.025 on nano cloth. What do you want your knife to do and how much time do you have???

Don't get me wrong, I am not saying that nothing you do before stropping makes a difference. Getting the edge refined to the point that you can strop in a reasonable amount of time is important, unless you want to stop for 8 hours..

Clay did a study with different stops and abrasives. He listed the cutting ability of the edges, only a couple of combinations would pass the hanging hair test. This is what I meant, the way you leave the dege of the edge ends with the strops. You still want to get the bevel set correctly and smoothed out well. You want a refined edge before you start to strop. You may be able to do this with strops only, but you don't have enough time. So don't take what I said too far. If I thought that nothing made a difference until stropping, I could get rid of lots of my stones...most of them. Maybe just keep the diamonds... That is not happening!!

For instance, I just reprofiled a Spyderco Caly 3.5 from around 20 degrees to 16. It is ZDP 189 at something at or above 62 RC hardness. It took forever with the 100 grit diamonds, I would have hated to try it with 14 micron paste on leather.

Phil

KenBuzbee wrote:

Thanks guys. Great discussion!

But in your progression I see "consistency" Diamonds leaving deep scratches->coarse Choseras (removing those scratches) to fine Shaptons (adding uniform micro scratches) -> strops (removing even those) True?

PhilipPasteur wrote:

Of course, they also always strop. But what better way to rate an edge than to scrape your face with it

True, but as you say, they strop... Every time. Isn't your point above that the stropping makes the rest more or less irrelevant?

Thank you!

Ken[/quote]

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Re: diamond vs naniwa super vs ceramic vs shapton etc

Posted by cbwx34 - 01 Sep 2012 14:18

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PhilipPasteur wrote:

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micron grit while the 800 Chosera stone have 14 micron grit size. Look at the 3000 Shapton with a 5 micron grit compared to the Chosera with a 4 micorn grit size. At this level the difference equates to 20%.

Of course this is just the beginning. Besides the grit size you have the material that the grit is made from. Then there is the shape and hardness of the grit material, how does it abrade. Typically the diamonds are sharper and harder the the AL Oxide in many synthetic stones. They will cause a very different scratch pattern in use even if the actual grit size is the same.

Then you get into the thing that would take a book to cover, the binder and brasive concentration of any given synthetic stone. We have already talked about the differences between Shaptons which release abrasives very slowly and the SS or Chosera stones that shed more and make a nice mud. This reflects the philophy behind the stones deigners. As Tom points out, the Choseras aim to polish as well as abrade. The Shaptons to make a perfect scratch pattern with polishing being much less important.

So what does this mean? Well, just because the grit of a plate or stone is listed as, say 800 grit (from your original question) you can't make any assumptins about what it does at the edge. You need to know the actual grit size and type, the binder and design philosphy befor making any decisions about equivalency in your progression. Beyond that, try the stones, use magnification to see what is going on, then test the edge. Just keep in mind, 800 is not always 800 when rating abrasives...

You probably hit upon one of the reasons many say just stick with one set or type of stones... it's easier than trying to figure out what works with what.

I actually started a comparison chart a few years ago that tried to address this... I found that nobody compared different stones or "systems" to each other. The comparisons being made now though, are more detailed. That's what I like about the WE and the studies that Clay is doing, as well as the information you're sharing... it presents a better understanding of how things work... and can work together.

Edit: Here's one old picture I did... a kid's microscope (literally) compared to what's being done now...

PhilipPasteur wrote:

You want a refined edge before you start to strop.

This is a good point. I read a comment once... stropping is done to refine the edge you already have... not to create the one that you want.

A bit of a side note... I found the book "The Art of Japanese Sword Polishing" a very interesting read... it goes into a lot of detail about the different types of stones used, how they're used, and the type of finish and results you get. (Just thought I'd mention it, since the subject came up).

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Re: diamond vs naniwa super vs ceramic vs shapton etc

Posted by PhilipPasteur - 01 Sep 2012 15:21

CBWX,

Darn nice work on those pictures of the different scratch patterns...

A budding sharpener with an iquisitive mind...

Yes, I can see where it is sasier to stay wih on line of stones in a progression.

My problem is the folks out there that try to tell people that it is the only way to go.

I may just try to find that book... sounds like a good read!

Phil

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Re: diamond vs naniwa super vs ceramic vs shapton etc

Posted by StevenPinson - 01 Sep 2012 21:18

PhilipPasteur wrote:

Interesting thing about the Internet. You get one person that is respected say something, then everybody

starts saying the same thing over and over. Yes the common wisdom seems to be that you "NEED" an entire set of stones from the same brand/line or no one can get good results.

Phil you are all over it.
The "ART" of sharpening.

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Re: diamond vs naniwa super vs ceramic vs shapton etc
Posted by jendeindustries - 02 Sep 2012 05:14

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PhilipPasteur wrote:

So what does this mean? Well, just because the grit of a plate or stone is listed as, say 800 grit (from your original question) you can't make any assumptins about what it does at the edge. You need to know the actual grit size and type, the binder and design philosphy befor making any decisions about equivalency in your progression. Beyond that, try the stones, use magnification to see what is going on, then test the edge. Just keep in mind, 800 is not always 800 when rating abrasives...

Phil

That pretty much sums this whole thing up!

The key word here, in my mind, is PHILOSOPHY. All stones arguably work, but it depends on what you want to achieve. Mixing and matching synthetics is generally not done/promoted because you can now get entire progressions within a single series that have a "philosophy" already built in. (we could argue some of them, though!) It makes things easier, which is perhaps the best thing for beginner sharpeners. Of course you can mix and match, but that opens up the door to possibilities, which means "potential for failure" to beginners.

However, given the obvious company of more experienced sharpeners on this thread, the growing market of accessory stones gives us many more flavors to choose from. As we're finding out, "grit" is relative, and much like a new cook who follows the recipe precisely vs. an experienced one that alters the recipe to taste, the grit numbers serve as absolutes to newer sharpeners but only as general references to more experienced ones.

Knowing the specific characteristics of a given stone through use and experimentation is the only way to truly find out for yourself. Technique plays a huge role in those results as well. As CBWX pointed out, I like to step backwards on my transitions from the diamonds to the synthetics because I approach sharpening with perfection in mind. However, if you were looking for more robustness, you could simply get a knife plenty sharp by making large jumps that "polish the grooves", and so on and on

That is the fun of this journey, and it's great to see more people taking this journey!

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Re: diamond vs naniwa super vs ceramic vs shapton etc

Posted by cbwx34 - 02 Sep 2012 09:31

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StevenPinson wrote:

PhilipPasteur wrote:

Interesting thing about the Internet. You get one person that is respected say something, then everybody starts saying the same thing over and over. Yes the common wisdom seems to be that you "NEED" an entire set of stones from the same brand/line or no one can get good results.

Phil you are all over it.
The "ART" of sharpening.

The opposite is also true... where that same "expert" will start saying a particular stone (usually a finish stone) is the "must have" stone to get your knife truly sharp.

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