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# ColdSteel LTC Kukri

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- Gear reviews and tests - Edged tools - Long blades -



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## **Description :**

Testing and modifying the ColdSteel LTC kukri. Draw cut and shearing effect explanation.

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The [Khukuri](#) or [Kukri](#) is the traditional knife of [Nepal](#).

Disclaimer: The LTC set up as I describe is capable of a great deal more cutting potential than expected from the stock version. Please read and think carefully about the warnings, in order to avoid injury. I regularly work with everything from tiny wood carving blades to 100cc chainsaws, so obviously if I see a huge potential for injury, with a blade, it's something I take seriously. The same sort of warning will apply in another page relating to the Valiant parang. With the LTC, you might actually lose grip when it sails through something, and if you are using a lanyard connected to the hole at the end of the handle, that blade is going to come home to really injure you. You won't achieve the sabering cut unless the blade is very sharp, so accidents won't be trivial.

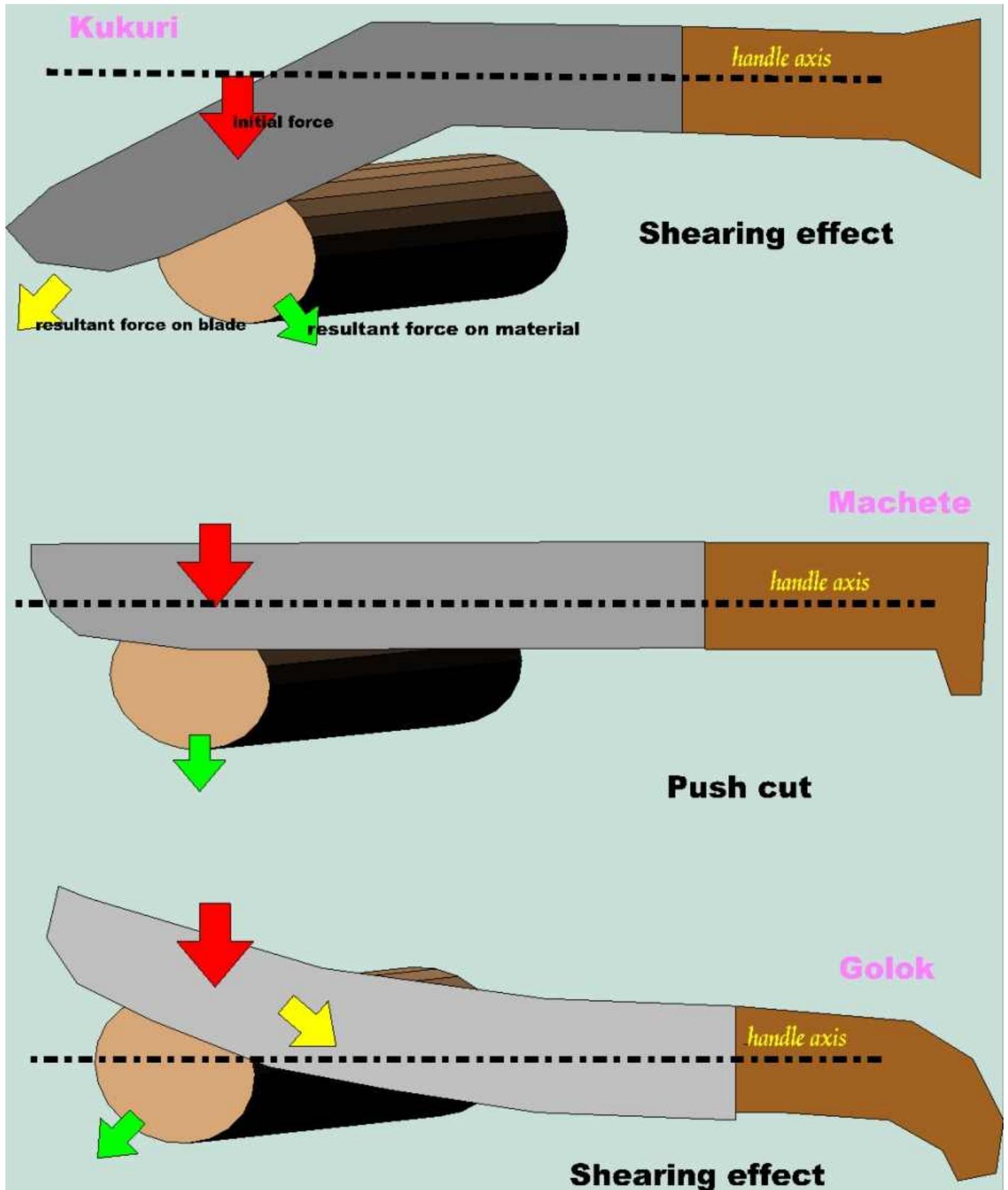
After waiting for some considerable time to find a used one - I eventually got a nice used one from Mead Hall on Plainsman's forum. There were several reasons I'd been really anxious to do some testing on one:

1. Anyone who has tried machetes on hardwood is left wondering what the effect of using good steel would be. I already knew some answers to this after using the Valiant blades. What I was left wondering was how well my favorite Carbon V steel would fare against the forged and differentially hardened Valiant steel.
2. I wanted to see how a thin bladed survival blade would work out compared to thicker blades.
3. Like many large blades, this one has a bevel that's coated - and then a tertiary bevel that does the cutting. I was curious as to how much the coating would affect binding in wood.
4. Eventually I'll be getting some real kukuries, and I wanted to test this blade against them. Going along with this, Jean-Marc has an LTC and some kuks - and I wanted to see some of his ideas in action. He put a very well thought out post on the forums to describe various cutting effects.

Let's start with the last one first since it's eventually going to be what influences you to get a golok or kukri style of blade. You are going to be reading about shearing effects, and might as well get the picture straight in your mind from the beginning. I'm very indebted to Jean-Marc (singularity) for helping me understand some of the incredible chopping effects that I've seen - first with goloks and now with a kukri profile of blade.

## Reflection on big blades geometry

**As a result of my tests on big blades here and chopping, here is some reflection:**

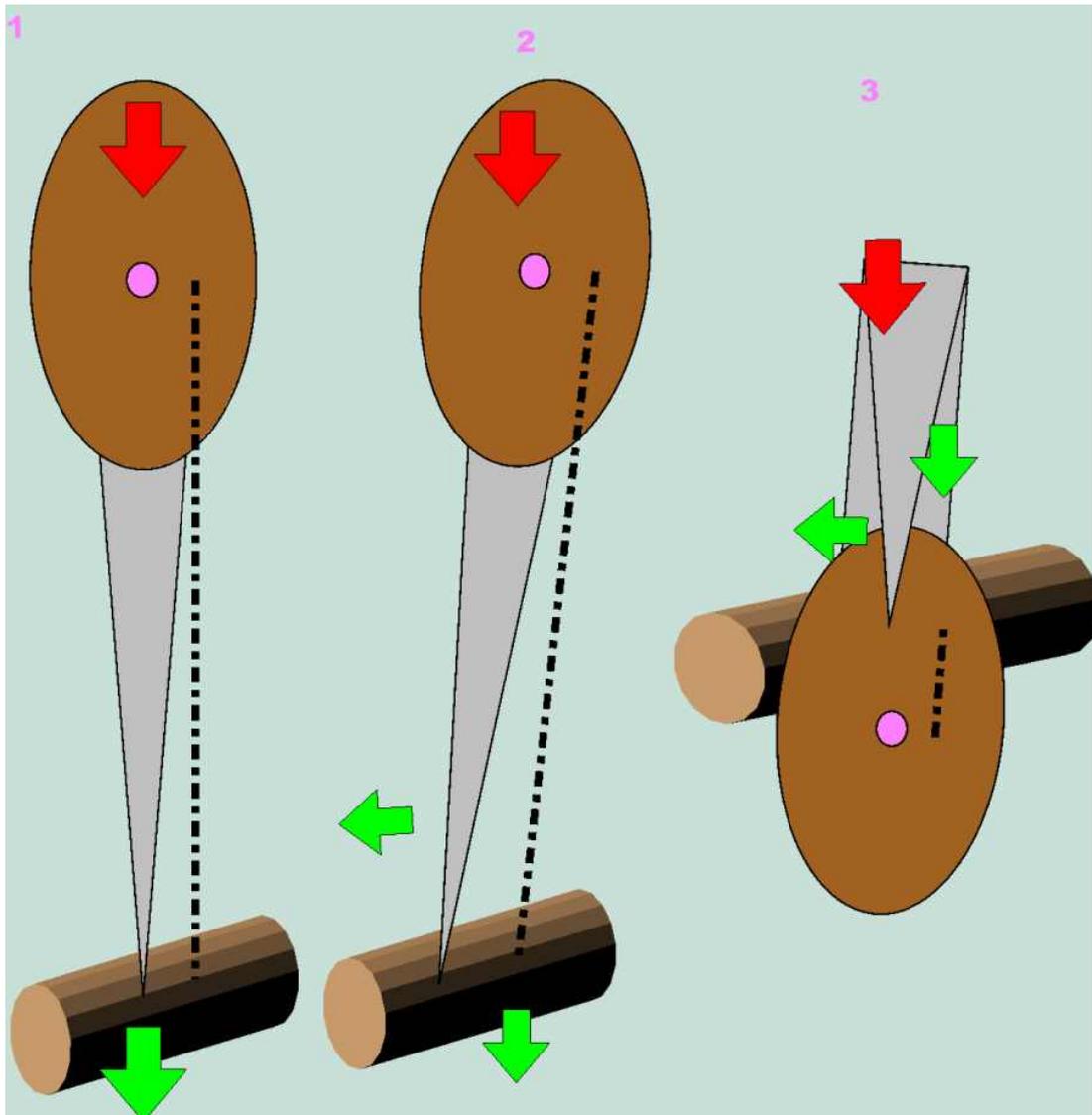


This explains why a khuk or a golok is vastly superior to a straight blade when chopping. This does not take in account the convex edge which makes it even better. Of course an experienced user will know how to saber, even with a straight blade. But the golok does it by design. But for a lazy blow, or when you are tired, this is what happens. You also see what I called "handle axis" and edge over handle axis or edge under

handle axis.

You can notice: there is much less length of blade that is (very) efficient on a khuk than on the golok, Therefore the precision with a golok is not that important.

You also understand why the blade on the infamous French Guillotine is actually angled a 45 degrees, while it only does a push-cut. Right the shearing effect! 45 degrees angle on a blade can bring as much as 40 % better performance. These at least are the numbers for the Guillotine.



## The Shearing Effect and the Drawing (Saber) Cut

Basically as you'll see from the discussion on the forums, the theory applies in practise. I was very shocked by the cutting potential of the golok when used with a saber cut. As you'll see later I ended up being pretty shocked at the cutting potential of the kuk blade shape too... If you haven't used one of these blade designs, with a correctly applied

convex edge bevel, then you simply will not believe the claims. After you've successfully made quite a few of the cuts, you'll still have trouble believing what you are seeing! I'll be the first to admit that I was at first totally bewildered by what I was seeing.

When you pull toward you slightly in chopping, the blade shearing effect is increased dramatically. I would be chopping with a golok for a while, then I would use the drawing cut by accident. Instead of chopping INTO a sapling, ready to take a few more chops to get through it - the blade would sail through with almost no shock back to the handle to show that the blade had met resistance - and with the blade hardly slowing. Sometimes this was accomplished with a loud cracking noise as if the blade had snapped, and sometimes silently. The bottom line is that anyone using these blades really better be prepared for cuts to go sailing through wood rather than just chopping into it. Without that a very bad accident is likely.

## My First Impressions of the LTC:

When the blades arrived (I got a master Hunter too), I immediately set off into the bush for a little experimental chopping. I saw a lot of potential - but I'd taken along a golok and to say that the golok outclassed the LTC is a study in understatement. The important part to remember here is that the LTC was sharp - but had the original bevels. That evening the experiments with convexing new bevels began....

One of the first things you will hear in discussions on kuks is that the LTC has better steel than traditional blades. Initially, that makes a lot of sense to those of us who have used Carbon V steel extensively. After the first few reprofiles of the edge, though, the edge still wasn't holding up anywhere near close to the edge on my Valiant golok - which has been extensively re-worked. The temptation while sitting by a fire drinking coffee, is to start looking for complicated answers such as the fact that a differentially tempered blade might give some shock resistance to the edge. I felt the truth is far simpler though, and that I hadn't gotten the edge on the LTC back into good steel. I was pretty careful in reprofiling to leave most of the original edge intact for just such tests, despite being very careful with the profile and polishing of the bevels. All that I'm bringing up at this point is that I could have taken you out with a golok and the LTC and you could have done some whittling of fuzzy sticks, arm hair shaving and chopping - and come away with the wrong idea. I could have too! It's a lot of work and a time consuming process to get to the bottom of things with blades.

All I'm saying here is that if you get an LTC with the original steep bevels and polish them a little, the blade edge will hold up better, just because of the steep bevels. Edge holding and cutting still won't be great. The blade will chop soft stuff well enough, but won't do at all well on harder wood or with shaving good curly fuzzy sticks. If you then reprofile, part of the original edge might remain that is less well supported, decarburized, etc - and the edge holding still won't match a well set up edge despite the still steeper bevels. Often the situation will look great to the naked eye, but a 16X lens will show a real mess at the extreme edge. Deep scratches from the factory grinding will still be left, and because of the decreased support to the edge, can cause real havoc - when the profile is changed. Maybe it's as simple as this physical stuff that you can see with a lens, but maybe there is some substance to getting back into good decarburized steel too. Lots of people do report though, going out with some new or (to them) highly resharpened blade and finding dulling or chipping. They then go on to look for another blade rather than a cheap belt grinder to solve their problems.

Probably at this point it's best to just say that properly finished up, a CS LTC will hold an edge through a bunch of chopping - and what it loses can quickly be put back in a few minutes with simple stropping on leather with abrasives, use of a fine crock stick, etc. A traditionally zone hardened golok will do about as well with the same amount of finishing work done on it. I attribute all "steel characteristics differences" of the quality carbon steel blades we're talking about - to sharpening. Sorry but that's the way I see it.

## The Edge Profile:

What we have is a 1/8" flat blade with a bevel covered in rust preventing coating. A second steep bevel is ground on. It doesn't take too long to realize that the coating on the secondary bevel has to go. In fact you will soon see that what is required is one large convex bevel right to the edge. Without this, binding is a huge problem with harder wood and the slicing characteristics when the blade is used as a simple knife are just not sufficient. If you can't slice fuzzy sticks that curl well, they're not thin enough, and you could be in trouble if that is your main blade.

As you work on the secondary bevel, you soon notice that it's concave ground. This might be great if it were ground deep enough (as with an axe head), but it isn't. The initial feeling was that this contributes a great deal to the binding problems encountered with the blade. It was removed progressively by grinding, and my feeling at the end of everything was that the main culprits behind the binding were the coating and a slight lip where the concave grind met the primary bevel. It would be interesting to grind out the concave properly, on a second blade, with a disc sanding pad in an angle grinder, and see how that blade performs as opposed to an LTC with a proper convex grind.

***Here's part of a picture shamelessly stolen from Plainsman since I had already ground on my LTC. Notice the rough coating, but that even after resharpening, there's no irregular scratching of the coating at the edge - because of the concave bevel and slight lip. With luck you can see or imagine the concave behind the real edge..***



I hadn't realized that some of the information I'd put on the outdoor survival forum at knifeforums, hadn't been put on this page! Lets' fix that problem..

*Here's the honed edge showing some of the concave by virtue of the coating still in it.*



The main body of the blade - flat portion with coating is on the bottom left. There should be enough definition to show the coating as rough enough when it gets wedged in something.

I've shown a portion of the blade where I've actually removed the hollow grind (or mostly) behind the edge bevel - at the top right part. There's also a section on the bottom right where the bottom of the concavity is still left - and so is still coated.

I'm guessing since most readers use axes, that everyone is familiar with the fact that they have a convex grind with a concave or hollow in the face of the blade - so that the edge bevel is the only part that touches wood. Sometimes though you get even a good axe like a Gransfors that is determined to wedge on every chop. If you lay a ruler along the blade at 90 degrees to the edge, you see that the concave is really there - and should provide enough clearance. So things get puzzling - or they did for me at first. The culprit is a sharp lip at the top of the edge bevel, where it meets the concave grind. Polish that back at a decent angle and everything becomes fine.

Being less than smart much of the time, when I began reprofiling the LTC, I didn't think of this, and so began the long task of putting on a wide convex to completely remove the hollow and its coating. Luckily I left some parts of the blade still with a concave behind the new convex - to see how this works when properly polished, and coating removed.

To cut a long story short, the LTC is famed for wedging in wood -as stock. That's not surprising if you have a look at the "new" pic on the LTC page. As soon as you chop deeper than the cutting edge, you are into coating. When you grind back, you find that there's quite a lip where the cutting bevel meets the concave. That's been acting like a barbed arrow on the wood too. Unfortunately when you really grind back - unless you are making a complete convex, you leave a lip too, and that still works toward wedging.

## The blade Profile:

With a thin blade, you have to make it wider to add weight - and I can see a lot of merit to using the traditional kuk shape. The edge is at the axis of grip close to the handle for levering, and the front part of the blade is bulged down for splitting branches using a log as an anvil, and perhaps a baton. Not owning a traditional kuk, perhaps my notions don't add up to much - but I see no comparison with the traditional model - and no real need to compare. They're different blades due to thickness, and so are best used differently. I don't see how having a leaf shaped blade on my CS twistmaster would make that a borong either... What I do see with the kuk shape of the LTC is that I certainly can't think of a better shape for a thin bladed chopper, that would add any advantages for all around use. The one HUGE caveat here, is that I'm soon going to be writing about the LTC in reprofiled form. With that degree of sharpness and cutting potential, it ranks right up with the parang as the blade most likely to permanently wound you. Due to the shearing factor in cutting, and possible deflections, it's one of the most deadly blades I have ever used.

***Again, a pic shamelessly stolen from Plainsman - here's the whole blade profile :***



## The Sheath:

I'm generally quite happy with the sheath. About the only concern I'd have is that the blade can move a little way out of the sheath, and that might result in a nasty cut. People have commented on the fact that the blade rusts in the sheath. Around here though, everything leather that doesn't have wax melted into it isn't long for this world, so I'm not expecting any rusting problems. Whatever you use on the leather should help make it more rigid, not soften it.

## Cutting to the Chase:

I was very busy for a long time and perhaps this was lucky in that I'd do slight convexing experiments and go chop/cut while out in the bush for coffee. The blade was Ok compared to most large knives, but pathetic in all regards compared to a golok. That sounds harsh, but from edge holding through cutting/chopping to comfort, it just couldn't come close to the golok. Even the great steel wasn't living up to what I expected. All the time though I was thinking what enormous potential lay in the blade.

The first fun thing on my list for my holiday was to completely reprofile the edge. I felt that if I could reshape the secondary bevel into a convex profile, and get the edge back into good steel I'd really have something. For most people, the idea of thinning an edge that was not holding up well, would seem ludicrous, but I hope I've explained some things. The fact is that it took quite a few hours of work with a 1" belt grinder to get things ground into shape. There's still part of the concavity of the secondary bevel left - to illustrate what I've been saying about it - but that will be going too. I finished when flakes of steel from the factory edge started coming off. I then polished the edge bevel.

The transformation was incredible. On green saplings, the chopping potential now matches or exceeds the goloks, due to the thin blade of the LTC. The LTC also went through a bunch of seasoned birch as well as the golok. Comfort and safety aside for now - it exceeded all of my expectations by a wide margin. Edge holding was excellent and you'll be chopping a lot of hard wood before retouching the edge by simple stropping. The one problem still remaining is slight binding due to the depth of chops with the thinner 1/8" blade on harder wood. Whether I am able to correct this by further convexing is yet to be seen - but I'm sure hoping!

In short, the LTC is capable with quite a bit of work, of being a superior chopping blade.

The positive attributes of the blade are that it functions very well as a knife. The narrow part of the blade close to the handle is at full hardness, and works very well to cut fuzzy sticks. The shape of the blade lends itself to splitting dead conifer branches, using a log as an anvil. The blade is also suitable for baton work, though this probably won't be needed except for precision work - it chops well enough. If you needed to split bowstaves, this would be a great blade. I see myself carrying this blade a great deal as a large general purpose knife, and learning far more about it.

The negative attributes of the blade are also many. Despite its performance I wouldn't carry this blade when clearing trails. It deflects too easily, and since clearing is hard work, it'll deflect one time when you are tired. Any body hit with this blade properly sharpened will result in major damage. **The lanyard hole in the back of the handle should also be discarded - filled if necessary to prevent a lanyard being used from that position. Careful tests show that severe body damage is definitely going to occur if the machete is dropped and swings around that point. The proper place for a lanyard (if used at all) is at the handle/blade junction.** The Kraton handle is OK if your hands

are toughened - but given use even for a short time, clearly it's not long for this world, when the blade is used for real work. Extended chopping will show that poor hits lead to a lot of vibration back through the handle, and that leads to fatigue or poor grip making an accident likely. I would imagine that poor hits leading to binding and then twisting the blade out will soon lead to a pretzel blade shape. Despite the wide blade, any idea of digging with it when properly set up should be forgotten - that'll wreck the edge, and would be dangerous.

## Conclusions:

This is a great blade for experimentation, and specialized use, if you are able to get it sharpened properly. You'd certainly need to have had a lot of experience with it, before using it in a situation where you needed to use in a tired/cold state - if really sharp. As with hatchets, I'd see the most danger when it is used with great force. For real work on clearing a mixture of hard and soft vegetation, it is a poor choice compared to a real golok. The latter's better handle and balance configuration will allow a lot more SAFE work, and a person will see the advantages well within an hour of beginning work. For careful use in a variety of situations to make things out of wood, and for general purpose tasks, this could be a great knife for many people.

*Please read this [safety warning](#) if you intend to use big blades.*

*Post-scriptum :Original article at [OldJimbo's site](#).*