Handling and working with knives, big blades, axes and hatchets.

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- Skills and guides - Safety and health -

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Description:
Basic precautions to handle and work with blades in order to avoid accidents.

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Type of blades

The same considerations practically apply to axes, hatchets and big blades, parangs khukuris, goloks, klewangs, machetes...

Profiles of wood chopping blades of any kings vary from convex (goloks, felling axes) to flat V (axes, parangs), saber grinds (leukkos, parangs, khukuris) to hollow grinds (limbing axes, some big knives, khukuris), with all kind of mixes between the genres (generally with a convex edge), depending on the specific purpose of the tool and the culture that resolved the problem.

While it seems that convexes are good for shaping and control, Vs for going straight, and hollows for limbing and penetration, things differ in dense or soft woods, and thick or thin saplings.

And I have not taken into account weight, length, geometry and balance!

Basically, I am telling you that it is worth trying your blades carefully, as you cannot know how they will behave by just looking at them.

Big blades, general considerations

Type of sheath

Some sheaths are more secure than others. Sheaths can be made from all sorts of material, including wood, leather, plastic (Kydex, Concealex), cordura, etc. Most will be easily cut or split by the edge, should an impact occur, or just when sheathing or unsheathing. 17” of razor blade can cut a wooden sheath easily if it is not properly done. Some sheaths do not have a retention system of the blade, invent one! I hate being tied all the time to a big blade, because there are time I need to be free from it. Climbing a tree is an example. So the system could be disposable. A baldric is fine by me.

Sheathing and unsheathing

A general principle, while holding a sheath with a big blade, and drawing the blade from or into the sheath, is to hold the sheath firmly, the hand well away from the mouth (so that the edge cannot cut you), in a vertical position (if there is no retention strap, or if it has been released). The fingers should not at any time be on the sheath part that is under the cutting edge (you hold the sheath using a U of your hand, palm on the side of the sheath that holds the spine of the blade — an alternative is to hold the sheath in a way the edge is up, and unsheathe the blade, letting the spine rest and slide against the sheath, like you’d do for a katana). The main principle is to never trust the sheath.

Secure sheathing / unsheathing, note the open hand over the sheath and distance of the holding hand from the mouth. The main disadvantage is an unsecure grip, and that the edge may cut through the sheath with gravity and time. But anyway it is worth describing, as at least it saves your fingers.
The katana way, sheath and blade up-side down, edge up, you let the spine rest on the wood/material of the sheath. You do not change your grip on the handle, just flick the wrist up. Same thing for unsheathing, you hold the handle in the right position from the start by flicking the wrist. Again, note the distance of the holding hand from the mouth. This is probably the best method ever, it saves the scabbard, the edge, and the fingers.
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Chopping, axe and machete work

My preferred position: hitting away from me, with a movement from the left to my right side (the wall in this case !) [1]. This has the advantage that the arm cannot close around me like in an embrace, and therefore, in case of deflection, the blade is less likely to come back towards me, my legs or bust [2]. Also it allows me to hit with the arm in extension, therefore the blade is at the maximal distance I can get from me when it impacts. It also allows getting more speed, as the position is safer. If you need to angle the blow at say some 45 degrees from vertical, you'll need to take more care again, as bouncing back due to a glance or a deflection is always possible. It is advisable to lower oneself as much as possible in order to use ground protection. Ground protection happens when in case of a miss, the blade will hit the ground (or a trunk, or a stone) before being able to hit any part of yourself.
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These blades were sunk in the banana trunk using the exact movement I just described.
There was a glance on this one. I did hit at 30-45 degrees, but giving a lot of energy, and the blade ended vertically stuck. The tree is soft and large, so it stayed there, but it could have been bad on different wood, as it could have bounced back, after taking a chip...
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Length of blade or handle

Shorter blades if they get deflected are more likely to come back to you.

If a felling axe gets deflected or glances, it will not cause a problem to your safety, because the head will hit the ground. If a hatchet gets deflected and comes back to you, it will hit you at knee level, as the handle is not long enough to allow the ground to protect you.

The same considerations apply for longer and shorter machete type blades.

Sharpness

It is obvious that for any wood cutting or chopping task, any tree felling or limbing, a well sharpened blade will work better. Not only it will make a better job, but it will be much less tiring, and more easily controllable, as it requires less energy to perform the same tasks. So my advice is to keep the edges well sharpened and polished. It is always a good idea to carry a burnisher steel and some sharpening tools with you.

The downside of this is that a well sharpened tool will also cut you just as well, so it deserves even greater respect.

Dangers There are a few things that can be dangerous when using a big blade:

1. **Glances:**
   
   A Glance is when the handle tries to turn in your hand while hitting the material. It often shows that you were probably applying too much force to the blow, but can also come from the design of the knife. The blade can turn in the material, and the trajectory be modified to a point it comes out of the material, and back to you or another person at the same speed it came in. Beware of khukuri (kukri) regarding this aspect. Geometries and the way of using the tool make such and such tool more or less prone to glances. Tools where the cutting edge is at impact time pushed in the material, being under the dynamic axe of the arm will (hatchets and kukri, bolos, when the
handle is held parallel to the harm) have a tendency to glance more easily than when the cutting edge is dragged behind the same axe (goloks, sabres, kurki and hatchets when the handle is held at 10 to 45 degrees up from of the arm)...Generally, blades with a lot of forward curve are prone to glances if not used properly and carefully, the same way hatchets are, for the reason that the cutting edge may be used under the dynamic ax created by the arm, thus in an unstable dynamic balance, hand and handle. 8 stitches in my big toe, down to the bone, and 10 on my shoes[:] can attest of this. A good way to avoid that is to use the khukuri dragging the edge flat behind the hand level.

2. **Shearing effects: draw cut and "inversed" draw-cut:** The shearing effect is encountered when while chopping, the blade is either pulled toward you, or pushed away, or rotated tip down, or rotated tip up, or angled (like a guillotine) or a combination of these. The efficiency lays in the fact that is edge while being pushed in by the inertia of the movement also saws through the material, therefore improving the cutting power far beyond usual expectations of inexperienced people. No blade geometry imposes one type rather than the other, but just makes it easier to perform one or the other type of cut inadvertently.

1. **Draw cut or sabre effect:**
   - This is encountered on backward curved blades that look like sabres (golok, parangs, sabres, but also kukri...). When you hit the material, it tends to push in your hand towards you. If you pull the blade, at that moment, thus taking advantage of the natural tendency, the blades goes slicing the material, as well as push cutting. All users of goloks have noticed this, the problem is that when you think the blade will get stacked in thick material, suddenly, you perform a perfect draw cut, and it sails through, as if nothing was there. It could be very dangerous if a part of you, or another person is in the way. Goloks and any thin edged convex and polished blade are likely to do this. Do it once, and you will quickly understand why the saber was a so feared cavalry weapon ! This is why being right handed, I hit from left to right, away from me, and not the opposite.

2. **"Inversed" draw cut or kukri effect**
   - This is encountered more easily on forward curved blades that look like a kukri (bolos ...). The blade having forward curve allows you to use it both in a draw cut effect, dragging the edge behind the handle, or as a push cut effect, rotating the blade forward and pushing forward. When you hit the material, it tends to pull from your hand. If you take advantage of the natural tendency, by giving a small rotation forward, the blades goes slicing the material, as well as push cutting. It is like the draw cut, but the blade going away from you. The effect is the same, result in a cutting power that is easily under evaluated.

3. **Deflections:**
   - The blade hits something unexpected, or something expected at a wrong angle, and is deflected from its expected trajectory. It could be messy if you, or anybody, are in the trajectory. Try to avoid movements that would cause the blade to pass too near or too parallel to your body.

4. **Loose blades in sheath:**
   - The blade is loose in the sheath, meaning it does not stay in the sheath when the horizontal level is passed, this is a danger, you go with a huge blade in it's sheath on your belt, securely, then bend to pick something on the floor, and ZZZZZZip you get 17 inches of razor sliding out, and getting in an unknown direction just near you, because you passed the horizontal level. Avoid the reflex to grab the thing!. I always secure my big blades, by adjusting a piece of leather in the mouth of the sheath, which holds the blade by friction. When you do this, you must take care to adjust the leather thickness, in order to avoid splitting the scabbard. It does not need to hold in an up-side down position, but a good 30 degrees is a lot of safety added.

5. **Energy from the material cut:**
   - Bouncing saplings. Branch falling towards you. Bent sapling releasing it's energy in your guts or face. Tree falling an unexpected direction. Fruits falling on your head. Dead branches suddenly deciding to fall. Base of the tree kicking terrain hump, or bouncing because of the trunk curvature. Barber chair tree because of bad undercut... These things arrive, learn about proper axemanship and related safety before felling and limbing a tree.

6. **Unsafe tool:**
   - The handle is cracked, or is becoming loose. For axes and hatchets this can sometimes be fixed by soaking the head in linseed or tung oil. For knives, machetes, kukri, goloks, parangs, it needs a repair adapted to the
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7. **Impaling**:  
   - Impaling one self on his own cut branches. Sharpened sticks of wood that stand on while they were cut at 45 degrees are pals waiting for you.

**Basic precautions of use**

- **Your first aid kit**, where is it, can it treat efficiently an hemorragy, and provide with first cleaning and disinfection?
- **Think in arcs**, the trajectory of a chopping tool is generally an ellipsoidal or circular arc, take care that it does not close on you, and that the path is clear.
- **Your limbs must be out of reach from the intended move** and it's proximity.
- **Other people must be outside the reach of your tool when the arm is extended** (and event further in case you lose grip), in front, on the side and behind you. 3 meters is a minimum, 5 is recommended. Be aware of their position (so it is better if you can have them in your field of vision), they may come closer to see what the hell you are doing with this HUGE blade. Warn them not to approach. Tell them to warn you if they come.
- **Cut away from you**, using an arm extending movement, not an arm closure movement. This also mean extending the arms, if needed. Be yourself as much as possible out of reach of the tool in case of bouncing or miss. Be aware of your own positions.
- **Take the time to learn the blade** first using moderate blows.
- **Do not rush, do not run** with an unsheathed big blade, axe or hatchet, think your movements carefully.
- **Be stable** on your feet, or put the blade back in the sheath if not.
- When carrying, remember to keep it straight in the sheath, or put a friction pad. Sliding blades are a danger to you and others.
- **Do not handle the bare blade to someone else**, sheathe the blade first, handle the whole lot.
- **Avoid if possible full force blows**, let gravity work for you. This is not always possible, but avoids glances and tiredness. Working at a steady precise medium pace is often as efficient, and allows to work for a longer time safely than whacking crazy. Keep blade well sharpened.
- **Try to make the trajectory of the blade as straight as possible**.
- **Avoid the edge entering the material at an angle different from the angle of the blow**. This avoids glances.
- **When tired, stop, breathe, rest.** Most accidents happen when tired. Recently a friend cut his knee (just 2 stitches, he was lucky), because he was tired, and did not control the blade well enough anymore.
- **Observe, think and choose**. Carefully select the place where you intend to work, clear it, check the possible dangers of the work you want to do (inspect the tree's high branches, possible felling direction, safe use of under and over cut ...).
- **Protect yourself**. Gloves, glasses, steel toes shoes, thick pants are not that stupid. Kevlar gloves and pants exist for gardeners and workers, and are not that expensive. If you are not protected, act accordingly, being really much more careful and much less precipitated. Being wounded in the wild by your own blade is not something you want.
- **Loose or cracked handles** must be repaired prior to use.
- **Be conscious**. Just never do it when tired, drunk or under the influence of a psycho-active or consciousness altering substance.
- **Use a protective baton**, for machete work, a protective baton of an appropriate size in the other hand, will give you balance, and can protect against blade come backs, if used appropriately, it can also protect lower limbs. It also allows to hold or push the material to cut. Professional macheteros use a baton with a hook.
- **cut low on ground**, and do not let sharpened sticks at head or body level, always take care when bending down to what sticks out.
- **Use protective positions**, with axes lower yourself until the axe can only hit the ground if it misses, do the same with big blades.
- **Never trust anybody else**, never trust anybody else to be safe in his movements.
- **Use a saw**. Remember a saw is a very efficient and often safer tool.
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Smaller and folding knives

Dangers

1. **Locking folder:**
   - The lock fails, nearly cutting off one or more fingers..

2. **Push cutting past the material:**
   - You are forcing on some piece of wood, and it suddenly releases, and the knife hits whatever is behind. A good way to make a nice zip in one's leg, chest of face.

Basic precautions of use

- **Do not trust folders** Never ever trust a folder's lock to be 100% safe, whatever the marketing tells about it. Never work against the lock.
- **Cut away from you**, be yourself as much as possible out of reach of the tool in case of ripping. Be aware of your own positions.
- **Use protective positions**, use the chest cut, by tuning the handle in the hand, edge up, bringing the knife to the chest, elbow out, edge leading away, and holding the material to cut in force with the other hand, pull it toward you. This way, when the knife flies, it flies away from you. This is also a very precise and powerful position. The knee cut is similar, using a knee behind the blade to push with force. You could use a blocker behind the blade, like a plank of wood, when none of these is practical.

Conclusion

*Using an edged tool* is using a weapon, while it cuts wood well, it is good, if not more efficient at your own flesh!

Post-scriptum:

I hope this will be useful.

More excellent writing on this can be found at: [Himalayan Imports FAQ, safety section](#)

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[1] I am right handed

[2] I cannot hit my side with this movement when on a movement from the right to the left, I could hit my left side if my arm folds, or the blade is deflected