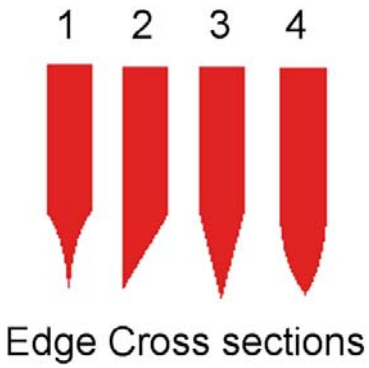
Knife sharpening, pt.1

Edge Geometry

First off id like to start with saying there is always more then one way to skin a cat and that cat is going to need a keen edge to be skinned. There are thousands of variations on sharpening, I likely have seen or used in reality variations in the dozens, From Lansky style tools to $1000 sharpening machines, diamond hones to Japanese water stones that cost more then you're a wives anniversary present after a 7 year lapse of anniversary presents.

First thing is first, to completely understand what it is that makes a keen edge holding blade there are many factors involved some I will go over here others not necessary to know for sharpening purposes. Some of those factors are the type of steel, the heat treat of same steel and edge geometry.
Edge Geometry, a somewhat fancy term for the type of edge one has. There are 4 main types of edges with several variations and combinations of such. Each with a specific type of cutting action and use. Starting with the thinnest to thickest cut is..

1. Hollow grind:
2. Chisel grind
3. Flat grind
4.Convex, Also known as Saber and Apple seed grind.



Edge Cross sections

Why is edge geometry so important? Because the geometry defines how a blade will cut, is a factor in how easy it will be to sharpen and how well it will hold an edge.

The Hollow grind

This type of edge is likely to produce the keenest edge of all. It's what is most common on straight razors for shaving. Little more then a swipe on pants leg is needed to bring this edge back to life. It dulls just as fast and more importantly it can chip very easily at the edge which of course means it would need reground or at the least rehoned.

The Chisel Grind

This edge is a one sided edge and has steel behind it on one side for strength yet a very fine flat zero grind on the other for intricate shaving. Woodworker's especially good ones will have variations of this grind for specific tasks and interestingly enough I found they have a high amount of sharpening knowledge due to varying styles of chisels and hardness of woods. Many times their chisels are most guarded tools.

The Flat grind

This edge is probably the most common edge on any type of blade. It has steel behind the edge to maintain a high degree of strength and depending on the angle of the edge can be almost as sharp then a hollow grind yet due to having more steel in it doesn't wear the edge back as quickly or as much. Most

of these edges are between 20 and 17 degree set

The Convex grind

The old saber grind, although an axe grind should be a better description of this as it's a more common tool to have around the house. The reason is although it can be a very sharp blade its main intention is chopping. There is a lot of steel behind this edge and hence it holds a edge the longest of all the edges, the drawback of this is it also makes the widest roughest slice due that it pushes the cutting material apart as much as slices. It also is one of the harder edges to sharpen correctly. (A side note is that wives who haven't had an anniversary acknowledged in 7 years tend to have a special talent for this grind as they have hatchet in hand mulling this fact over the day after her husband forgot the date again.)

Obviously although for the average person maybe not so obvious is the thinner the edge and the steel supporting that edge the finer the cut that can be made and following along with that is the thinner the edge the faster it will lose that keen edge. Also it stands to reason that the thinner the edge the less it takes to hone back to a keen edge. Most people including folks who use blades a lot believe they really know how to sharpen one up and I have seen many fine blade edges destroyed because they didn't understand really what was going on. A common issue is they tend to believe that a honing or "sharpening stone is needed to sharpen when in fact that's the last thing most knife need. The main reason I say this is this, most folks don't consider the edge geometry and intended purpose and tend to not have the skill needed to follow the geometry. I have seen untold folks impressed that they can hone an edge to shave arm hair and then watched it dull sometimes immediately as they used their fresh edge. Ill say this several times in my writing probably so I may as well start here, SHAVING ARM HAIR IS NOT A INDICATION THAT A EDGE IS SHARP. Ill explain why later on in another part of the article.

As I said before there can be a combination of bevels (side of blade) and edge on a blade. For instance a flat ground bevel with convex or hollow grind edge, a hollow ground bevel with flat ground so on and so forth. I believe in the K.I.S.S method of bladesmithing in that I believe it's better to make one or two styles very well then a wide array of styles mediocre. As with everything mediocre skills produces mediocre products and when income can be hindered or worse someone's life is on the line and that person has something I made in their hand, Id rather be good then lucky.

Part 2

Sharpening

Coming soon to a lap top near you