# RawHide Gazette



"Without question, the RawHide Gazette is by far the best and most informative and comprehensive Guild publications of all of them! You are to be commended for your very fine and professional efforts. Keep up the good work. With admiration"
/signed/
**Al & Ann Stohlman,** December 1997

**Volume 5, Issue 12**

**Puget Sound Leather Artisans Co-Op** **February 2000**

## Hide Highlights



## Two New PSLAC Lifetime Members

**PK Dan** and **Dale Buckenberger** both received Life membership in PSLAC at the January Meeting. As you all know, you cannot buy a Life Membership, it has to be earned and both of these beautiful people earned theirs.


PK is into Scouting right up to her eyes. She recently was awarded the VIZIL for her work in the Order of the Arrow. She is the guiding force in our "Start a Child in Leather-craft". She not only has designed the program and finding the Children that want to do Leathercraft, she has also recruited **Woody Collins**, **Jeff Bement**, and **Harry Smith** to run some of the Scout Leader Training programs, and Demonstrations at the Puyallup Fair that now include ***"Only For Children Demonstrations"***. She has spent many hours helping children at City Festivals get a small taste of Leathercraft. The Program will surely keep PK earning her Life Membership, and we are very appreciative .

Dale, has quietly been working behind the scenes for almost three years now. Without Dale and his knowledge of a computer and his willingness to share, The RawHide Gazette would not be where it is now. Dale has been instrumental in sending Bob Stelmack (Gazette Editor) all printed stuff and all pictures to Bob who has been working in Japan for almost two years. Now that Bob has transferred to England for two or three years. Dale will continue to pass all pertinent information and pictures to Bob.


Thank goodness for "Computer Nerds", and Dale, we all thank you.

**Bill Churchill**
**Federal Way. WA**

**Meeting Announcement**

Mark your calendar!

The next meeting will be
**Sunday, February 27th**
**2:00-4:00pm**

**Location: MacPhersons Leather, 519 12th Ave S., Seattle**

# Hot Flash...

*(...I'm sorry, I mean..)*

# News Flash....

**Ann Stohlman** called me and said: "All of the Items that Peter Main packed and put in storage in B.C. for the NEW Wing of the King Museum which will be called the **Ann and Al Stohlman Museum** is leaving B.C. this week to be checked by Customs and then on it's way to Sheridan. **Peter Main** is to leave Australia the 31st of January for Sheridan to receive the shipment and start setting up the Museum". Let's all wish **THEM**, **HIM** and **IT** the very best. **Bill Churchill**

# Are Your Dues Due?

Don't miss a single issue of the RawHide Gazette or the special membership issues. Check your last RawHide Gazette mailing label for your membership expiration date. Be sure to contact Linda for your renewal:

Linda Stockhausen
12614 142nd. Ave. Ct. E.
Puyallup, WA 98374, U.S.A.
phone: 253-770-875
email:
bingbudz@postalzone.com

The RawHide Gazette is $24 per year for the US Postal mailed issue and to those in the PSLAC area and the Internet RawHide Gazette is $10 per year.

You can check the dues date on the Internet by going to the Members email section where all members can find others email addresses and communicate with other members.

Support PSLAC and don't miss a single future issues.


**RawHide Gazette**

**Editor / Publisher:** Bob Stelmack
**Co-Founders:** Bill Churchill & General Seymour
**Treasurer/Secretarty:** Linda Stockhausen





The RawHide Gazeete is published monthly (12 times a year). Address for information and correspondence: PSLAC, c/o Linda Stockhausen, 12614 142nd. Ave. Ct. E., Puyallup, WA 98374, U.S.A., (ph. 253-770-8751,
email: bingbudz@postalzone.com
The RawHide Gazette is provided to the Puget Sound Leather Artisians Co-Op as a part of their membership benefits. Annual dues are $24.00 USD per year.

All submissions are subject to editing for clarity and length. All articles submitted must be accompanied by name, address and permission of writer.

**POSTMASTER**: Send addresss changes to PSLAC, c/o Linda Stockhausen, 12614 142nd. Ave. Ct. E., Puyallup, WA 98374, U.S.A.





# Next PSLAC Meeting at MacPherson's

The February meeting will be held at MacPherson's. Located at:

519 12th Ave. S.
Seattle, WA 98144
phone (206) 328-0855

Terry Durbin will have some update on the changes that have taken since the closings of the Tandy Retail Stores. Some of the most recent changes are:

- Stocking many more kits
- 4,000 lbs of scrap, including deer and rawhide
- 3,000 additional sq. ft. of leather, with a much better selection of tooling leather
- Much greater selection of carving and stamping tools
- Greater selection of tools by Osborne
- NEW-Kangaroo hide, 1.5 oz. (approximately 13 sq. ft./hide)
- Kangaroo lace in black and brown
- Stohlman books and Hurst videos
- New stock of real coins w/ Chicago screw backs
- ***...and remember PSLAC members save 30-40% over retail at MacPherson's!!!***

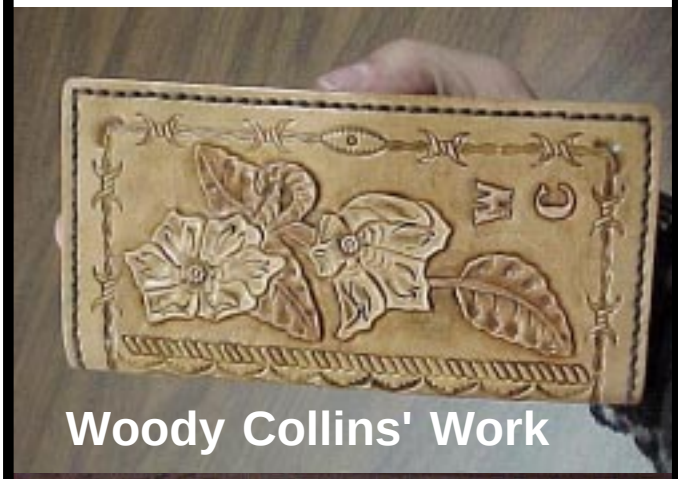

***Terry will also have a <u>very special</u> announcement that will be of special interest to all the Puget Sound members. DON'T MISS THIS ANNOUNCEMENT.***

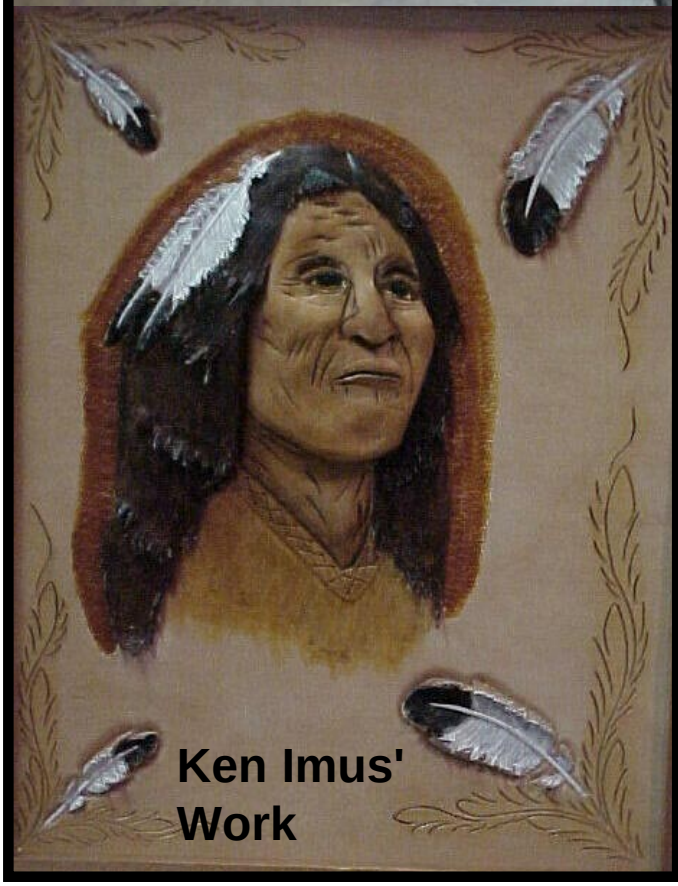
# January PSLAC Meeting

This editor has not had all the access required to get information from Seattle. The UK is a little behind the times for Internet access. I did get some pictures here for some of the projects brought to share.

This problem was anticipated, so we have included a special article on sharpening that can be used on many leather tools.

**Bob Stelmack,**
Wellingore, UK


Woody Collins' Work

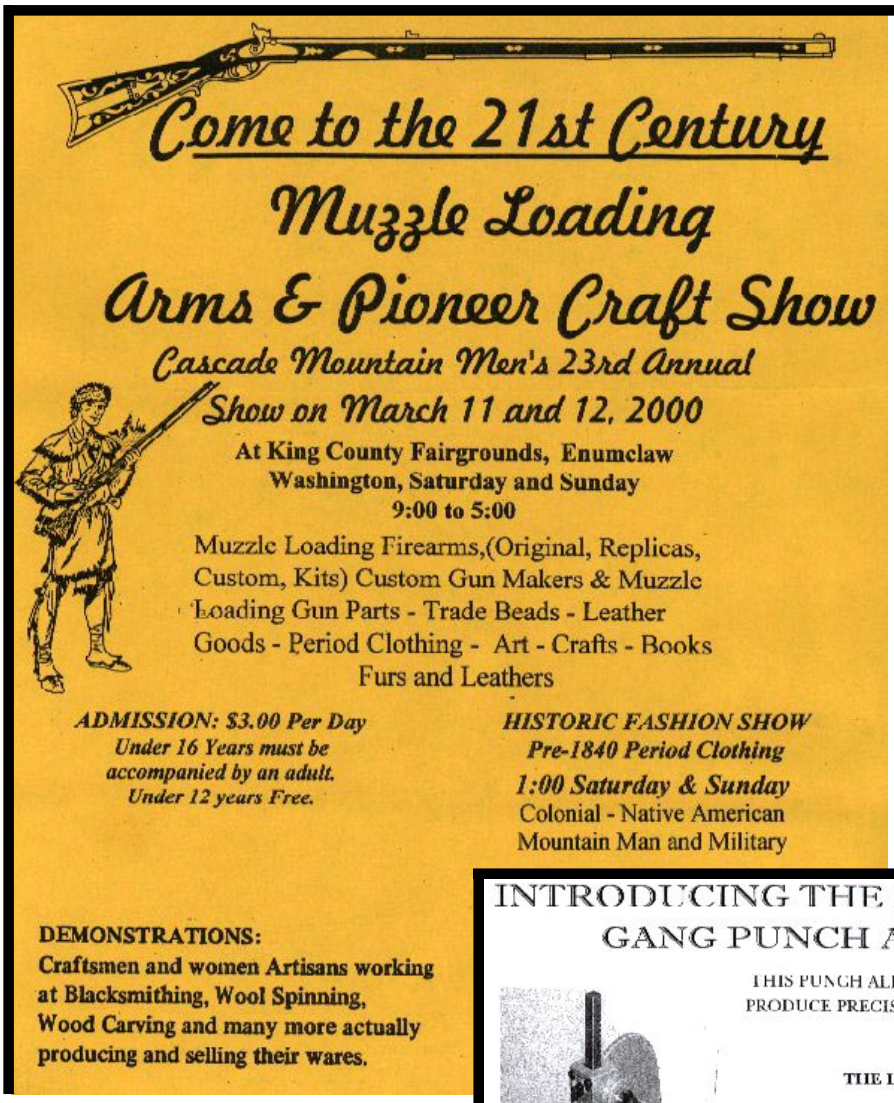

Ken Imus' Work


Holsters by Terry Bruce


MacPherson's Newest Staff Member -- Angela


Butterfly Barrette by Ken Imus


Bill's Beveling Seminar




**For more Craft Show information contact:**
**Cascade Mountain Men**
**25825 – 104th Ave S.E.**
**PMB 301**
**Kent, WA 98031**

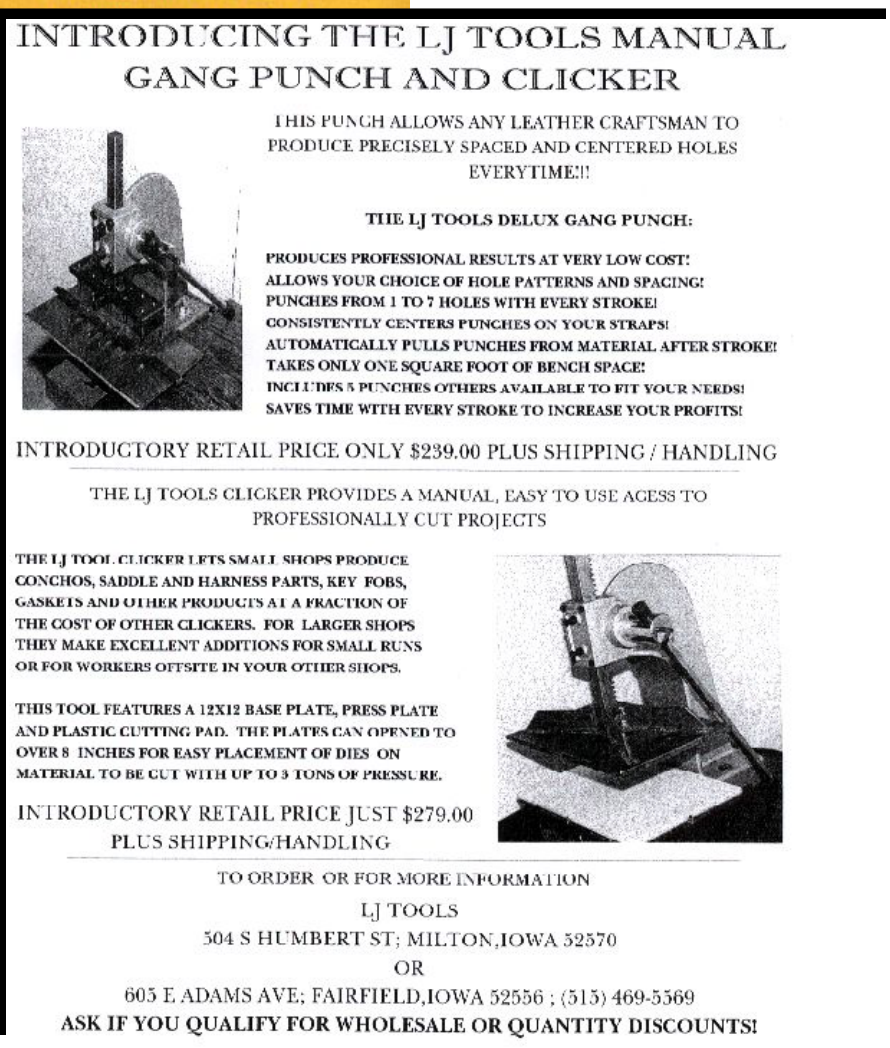
*Dear PSLAC,*

*LJ Tools consists of two small leather shops one an Amish harness shop and the other an "English" leather shop making belts, key fobs, pouches etc. Being small neither of us can afford the wonderful large commercial machines many of us drool over in the catalogs. We started brainstorming and came up with a low cost manual gang punch and clicker that most shops can afford, to make the work easier, more profitable and more professional.*

*These are not highly chromed trophies, they are working tools that have done a beautiful job for us in the other shops they are in. The Gang Punch has done even better that we had hoped it would and really is a versitile help for any craftsman punching or extending and rows of holes. In looking at what a few gang punches I could find, this one costs half the price of the cheapest and from what I hear works better. As far as the clicker is concerned, I plan to buy a bigger hydraulic one some day, but this one seems to do most of what those big ones do.*

*If any PSLAC members would like either of these tools, please mention this letter and say you are a member of PSLAC and you will get $20.00 of the price shown on the flyer.*

*/s/* ***Jerry Calnon***
*Phone (515) 469-5569*



# An Edge to Die For (Sharpening)

*(ed. note: The following article by **Dee Griffin,** DVM University of Nebraska, Great Plains Veterinary Educational Center discusses the shapening of knives for necropsy (postmortem examination) equipment, but the same techniques and procedures apply to the sharpening of leather tools: the swivel knife, the head knife, the utility knife, and many of the punches and thonging tools. **Dee Griffin** was kind enough to allow the reprint of his article for the RawHide Gazette.)*

## Sharpening a Knife — Emphasis on Necropsy Equipment

*Tips & information from a veterinarian who's wife and meat cutting put him through college, now a "Cow Doctor". When my son was young he told folks I doctored dead cows. If you are as busy as most people, you might find everything you need to know in the SUMMARY. A sharp knife is a wonderful tool and a point of pride. However, sharpening a knife can be a tough skill for many to learn. In this article I will share with you keys to having a sharp necropsy knife.*

**Subjects covered:**



## SELECTING A SHARPENING SYSTEM

***Sharpening Abrasives***: Course (100-grit) useful for axes, Medium (300-grit), Fine (600-grit), and Ex-Fine (1200-grit). Most necropsy knives can be sharpened nicely with any abrasive finer than 300-grit (medium or fine). Some grits and texture (coarseness) labels listed on stones/hones will seem to contradict each other. I have seen stones labeled 180-fine that seemed to me to be very smooth, much smoother than I would expect from 180-grit. If in doubt, buy the hone with the texture label (not the grit) that matches your needs.

Arkansas (hard black) and Ceramic hones usually fall in the Fine and Ex-fine categories. Diamond embedded abrasives are excellent (expensive and worth every penny) and come in all grits (Available from EZE-LAP, 800-843-4815) or Diamond Machining Technology (DMT) from Marlborough, MA.

The best manual abrasives are flat, wide (greater than 2") and long (greater than 8"). These combined with an angle guide will give you a great edge. The disadvantage is the time it takes to sharpen a knife. I think it makes little difference whether you use a straightforward stroke against the abrasive or a circular motion against the abrasive. The surface area of the abrasive in relationship to the blade will influence this more than whether one motion is better than the other is. Angle consistency (achieved when using an angle guide) is much more important.

There are a number of round rod sharpeners available. The Ultimate Edge is the best and Gerber's Pocket Sharpener is the worst round rod sharpeners I have found. Three problems exist with round rod sharpeners: 1st, the grit is typically too course (best if the grit is finer than 600 grit); and 2nd, the angle used is tends to be inconsistent between and within strokes; 3rd, obtuse stroke angles. Course grit and obtuse angle will chip you cutting edge and wreck your blade. I love ceramic rods (Alumina in a ceramic-bonding agent kilned to 3,000 degrees F for 72 hours) for fine tuning a good edge. They are more like steels than abrasives. Most are very fine textured. Even though veterinarians don't have the time to devote to properly using a manual abrasive for sharpening their necropsy knives, they should always have a ceramic rod close by for keeping an edge tuned up.

There are a few excellent manual knife-sharpening systems (system equals abrasive plus angle guide). These include Diamond Machining Technologies (DMT), LS Lansky and Blademaster Sharpening Systems. All of these systems have a clamp to hold your knife and a series of abrasive grits. The blade clamp on both units has a series of guide holes on either side of the clamp. These holes serve as angle guides (10 to 30 degrees) for a rod attached to the abrasive. These systems are available with diamond abrasive. The

cost will vary from $25 (stone) to $65 (diamond) and are available at most sporting good stores such as Cabela's. If you have invested in good hone, you can purchase an excellent angle guide, the "Edge Guide", from Razor Edge Systems (218-365-6419), the "Hone Master" from Buck, or the "Roledge" from Benchmark (Cabela's #61260-900). A quarter inch spring clip also works.

My favorite is to use my thumb and or finger resting against the back of the knife blade and the hone. More details later . . .

ALL MANUAL SYSTEMS ARE SLOW. This is especially true if the reflection (relief) angle is thick (see: Sharpening Angles). Unless sharpening a knife is a hobby, find an abrasive with a motor.

I would avoid "magic" sharpening devices. Most of these will give the illusion of sharpness by breaking out microscopic pieces in the blade edge. These nicks in the knife blade's cutting edge give the edge a serrated pattern ... the knife seem sharper for a few cutting stokes, but repeated use will wreck a blade.

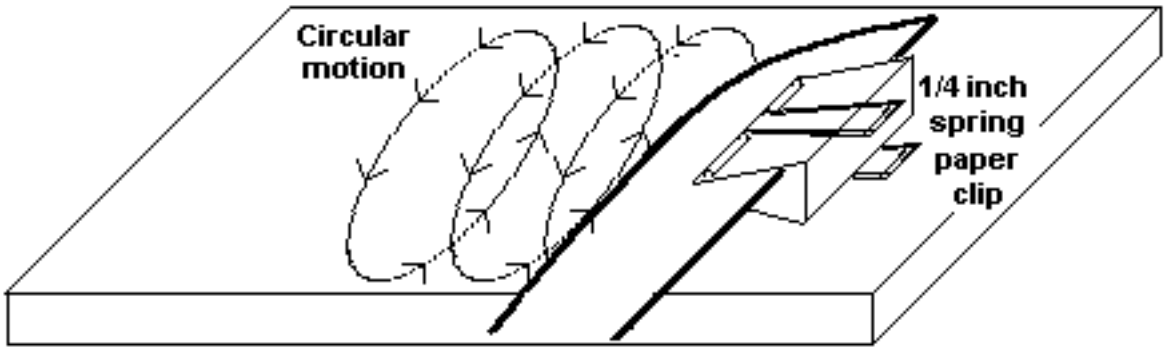
Most abrasives don't need lubrication. If you use one, I think water is best. I avoid using oil; it adds nothing to sharpening and may speed edge deterioration. Oil on a stone will prevent "slick spots" from developing. Slick spots are caused by grit building up on the stone. Modern abrasives don't need oil. Abrasives need to be cleaned after each use. Water is the best cleaner I have found.

My favorite abrasives: I love a mechanical (low RPM, half speed motorized) means of sharpening knives. THEY SAVES TIME AND MOST HAVE ANGLE GUIDES. I have been ask about how fast a mechanical system will "use up" a blade, grinding it down to nothing. I don't believe you will "USE UP" a blade any faster than a manual system unless you are over grinding the blade, but even if motorized sharpeners did grind blade down fast I WOULD NOT CARE. Necropsy knives are too cheap, and necropsies are too much work for me to worry about spending $50 on a new set of knives (I buy 6 at a time) every few years.

I get along well with "flap sanders" (flap sanders do not require an edge guide, an excellent durable rounded edge is produced, and most have a pumice-felt buffing wheel) such as the Hantover Knife Sharpener (H=#47090) or the triple grinding wheel (variable angle guide is build in, dial control, only produces the TA and CA) Tru-Hone Knife Sharpener (H=#47075). A third option is the cutlery belt sharpener. These units sell for $250 to $600. It may sound like a lot of money, but if you will buy something useful, it will save you spending the same amount on the next ten "magic" sharpeners. Both of these units or units similar to them can be found through your local meat cutter. Hantover (H)=(1-800-821-2227), Koch (K)=(1-800-456-5624), or Packer (P)=(1-800-279-7326).

Building a Knife Sharpener: I have seen a Black and Decker (#9704) bench grinder fitted with a 6x1 inch flap sanding wheel (Superior Abrasives 513-278-9123) and a 6x1 inch buffing compound coated felt wheel (Yerges Mft 419-332-9905) It works great as a knife sharpener, but has two problems. Its 3600 RPMs will heat the blade rapidly and the direction of the spin requires working the blade from the backside of the bench grinder or reversing the base of the grinder. Building this conversion is described at the end of this article.
Adapting a Bench Grinder for Knives

There is a 12-volt sharpening unit that is almost "magic". It is the Sportsman's Edge (#2910) from WEN Products of Chicago, IL. (Wen Products of Chicago — 1-800-736-4936). It sells for $40. The unit will put a sharp cutting edge on a blade quicker than any unit if have tested. It will only put one angle on the edge (the principle Cutting Angle), and that angle will not be as smooth as some would like, but your knife will cut. The unit will also grind away your blade. The biggest problem is the loss of the reflection (relief) angle (see: Sharpening Angles). As the blade is worn off the cutting edge gets thicker, and a thicker cutting edge is harder to sharpen, plus it requires more force to be applied to the cutting target.




Another option is "Abrasive (Silicon Carbide) Coated Cardboard Sharpening Wheels" attached to a bench grinder. They work well, but the high RPM's can over heat blades causing loss of "temper". I only know of one supplier, Knives-Plus (806-359-6202). The system cost about $25. It works well, but doesn't seem to last very long, in fact they need to be re-coated (a pain) after about 10 blades.

As an interlude (sharpening trivia); A pinch of Silicon Carbide or Aluminum Oxide also works great as a loose dressing for a rigid (glued to a piece of wood) oiled heavy (9 to 12 oz) leather strop. Strops

provide more fine tuning than most veterinarians are wanting for their necropsy knives.

The best inexpensive motorized sharpener I have found also comes from WEN, and can be found at Sears or True-Value Hardware. It is the electric WEN "Wet Stone Sharpener" (#2908). It also sells for $40. The unit is a real wet stone, that turns just over 1,000 RPMs. It unit has a variable angle guide that will let you work all three angles of a blades cutting edge.

The WEN wet stone sharpener will work in your truck on a 12-volt inverter. You can find an inverter that plugs into your cigarette lighter. I recommend an inverter that produces at least 200 watts.

The WEN wet stone sharpener works well with axes, knives and shears. It does take a little practice to learn to use it, and it does take more time to put an edge on a knife than the WEN Sportsman's Edge. But it works great if you will follow the Sharpening Angles discussed later on. One note: The angle guide for this unit is not as steep as I believe it should be (lowest setting is 15 degrees). I tape a 1/8-inch metal strip on the angle guide for the Reflection (Relief) Angle (RA) and a 1/16-inch metal strip on the angle guide for the Transition Angle (TA). I use the lowest setting (15 degrees) for the Cutting Angle (CA) ... (the first 1/16" of the edge).

Don't forget the value of a flat mill or bastard file for soft metal cutting tools like axes. Mill files will produce an edge that shaves, but the file will fill up with metal. A bastard file will last forever, but does not produce as fine of an edge. A "NEW" six-inch flat file will fix most axes (make them ready for necropsies). And certainly need to be used before you try to sharpen them with any other device. Keep your files clean and dry.

## BLADE SHAPES AND ANGLES OF A SHARP CUTTING EDGE

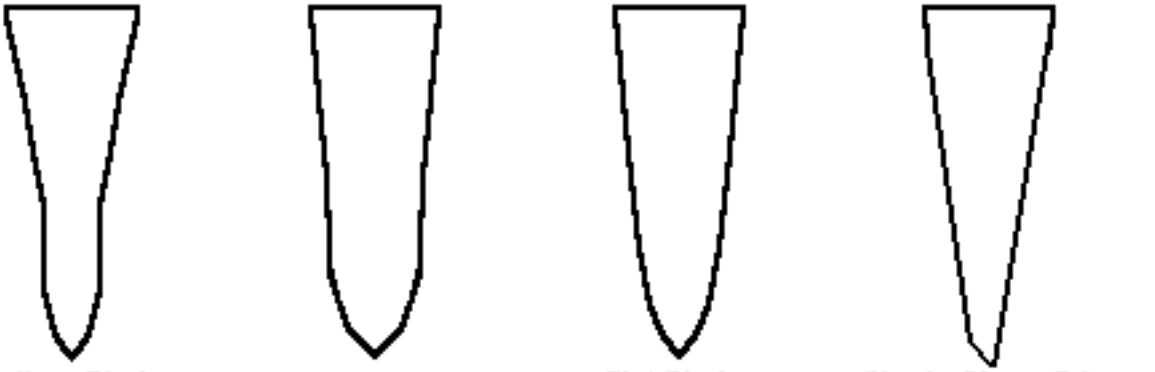
***Blade and Edge Shapes:***

Basic blade shapes: Most boning knives (commonly used as necropsy knives) have "FLAT" ground blades. Some "Flat" ground blades are advertised as "High Relief", meaning the blade has been ground thinner from the cutting edge to the top of the blade. A few have Hollow ground/Concave blades. Hollow/Concave blades are easy to sharpen, but the cutting edge is very fragile. Double Angle/Modified "V" provide very durable blade support and are great for tough cutting. This is the type of edge typically the kind of edge produced by motorized sharpeners. Convex edges seem as durable as double angle, and if not abused seem to hold a fine cutting edge longer than double angle. A flap sander sharpener produces this is the kind of edge.

The single sharp edge is the best edge for hard-coated blades (titanium carbonitride). Hard coating blades will increase the hardness by 30 to 50 (50-100 claimed) percent. To take advantage of the coating hardness only one edge should be sharpened and the coating must extend to the cutting edge.

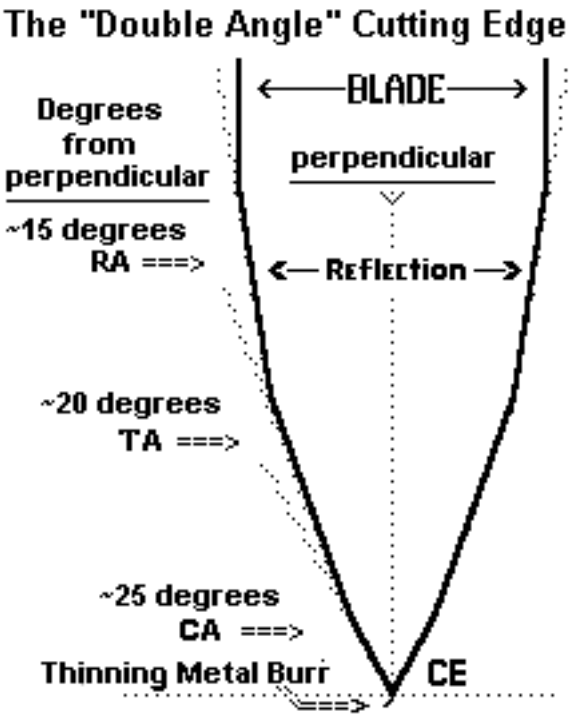
Quick note on sharpening a serrated edge: Sharpening only one edge can also be used on serrated edges. You can use a flap sander ONLY on one edge and a felt hone on both edges. Eventually you will loose the serrations --so what. DMT also make a "fine", cone shaped diamond file for serrated edges, "use it (their file) or loose it". It costs about $20. Like all manual systems it takes too long PLUS I haven't figured out how to rig up an angle guide — BIG PROBLEM. Presently I use my thumb resting against the knife blade back and slide it up or down the coned file.

The "Double Angle" Cutting Edge: This is the cutting edge produced by systems, which use edge guides. There are three important angles. The Reflection (Relief) Angle (RA) begins at the junction between the blade and the first part of the sharpened portion, generally it is considered the thickness of the first 1/4" to 1/2" of the blade. The RA thickness at the blade junction is about 10 t0 20% the length of the remaining sharpened surface (SS). This is the RA:SS ratio, (1:5 to 1:10) the Transition Angle (the transition between the reflection and the cutting edge, about 1/16" from cutting edge) and the Cutting Angle (the cutting edge). Hollow Ground blades have the RA curved



inward.

Work the following angles in order: 1st the Reflection (Relief) Angle (RA) is about 10 to 15 degrees from the perpendicular (if the RA is correct the next two angles are much easier to work), 2nd the Transition Angle (TA) is about 15 to 20 degrees from the perpendicular, and last the Cutting Angle (CA) is about 20 to 25 degrees from the perpendicular. These angle values are only guidelines.

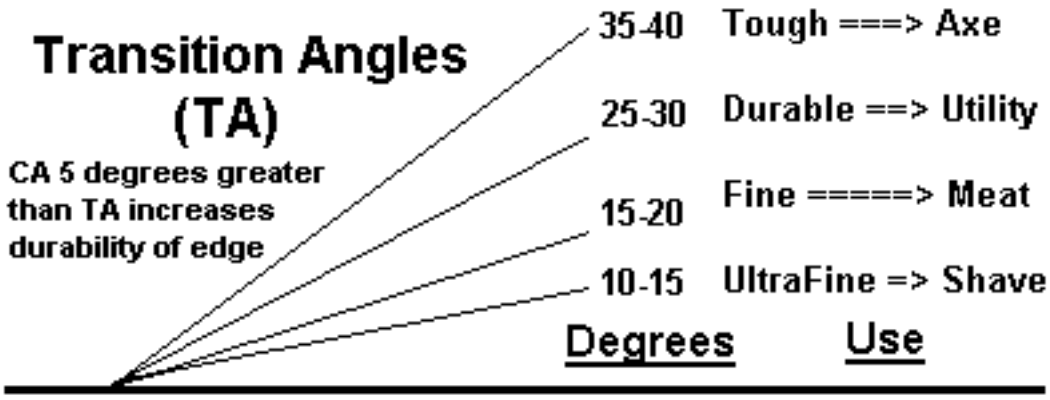



Which Edge Shape Do You Need? A very fine, smooth as silk, cutting edge can be produced if you decrease the angles by an additional 5 to 10 degrees, (hollow ground blades often have very acute angles) but durability is lost. Convex edges blend the junction between all three angles in a smooth curved surface. Necropsies require the blade to be exposed to cartilage, bone and mud balls. The "Double Angle" edge described above is the most durable of the three blade shapes. When an edge is damaged (bent) it can often be fixed, but only with a light touch on a smooth steel. Severely damaged edges require re-working on an abrasive.

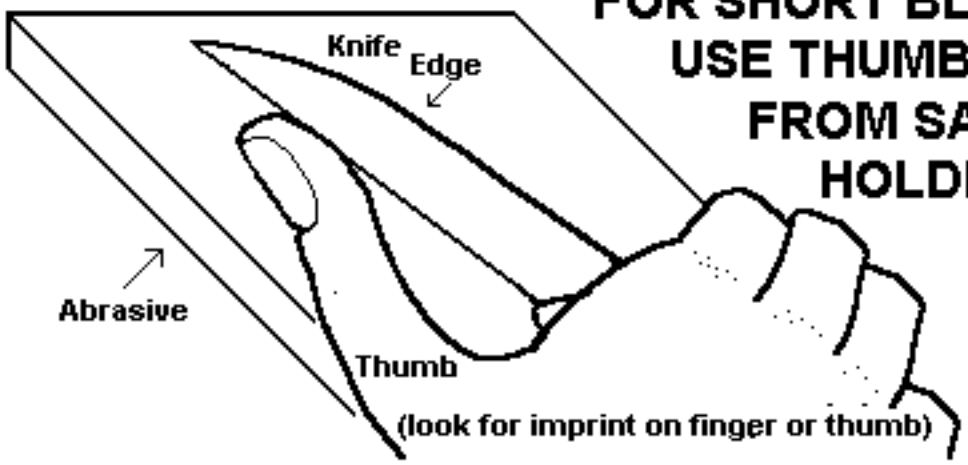
There is not a perfect angle for a cutting edge — only knives with a cutting edge angle not suitable for the job you are wanting to do. Remember, always work the TA to the angle you want and set the CA about 5 degrees greater (improves durability) than TA. The steeper the angles the easier it is for the edge to be damaged. Fine cutting may require a thinner (steep) RA and TA (10 to 15 degrees). Hollow ground blades seem fragile, but they are easy to sharpen. A general purpose TA for meat would be 15 to 20 degrees. Tough use knifes need a TA of 25 to 30 degrees. I like my axe set with a thick TA (35 to 40 degrees) and TA (30 degrees). The TA on my axe is very short (the opposite of hollow ground). I think (not sure, just think) this improves the durability of the cutting edge ... It needs to be tough, I cut a lot of bone with my axe. These thicker angles does not effect the sharpness. My axe will shave ... in fact I use my 40 oz, 17 inch "boys" axe for almost all my initial skin cuts. If you decide to use an axe think about buying an Eswing Camper's Axe. The Eswing Camper's axe is a little light but will last forever.

Keeping the Angles Constant: It is very important that each of the sharpening angles (RA, TA and CA) be kept constant while working on the edge associated with the angle (RA, TA, or CA). To accomplish this, an angle guide is a great aid. Most mechanical sharpeners have angle guides built into their design. USE THEM. It is very difficult to achieve the proper angles on blade longer than 4 inches with out using an angle guide.

For blades shorter than 4 inches your thumb can serve as an angle guide. For longer blades add a finger to the project. Depending on the side of the blade you are working, place the finger or thumb on the back of the blade and KEEP IT THERE. Let the finger or thumb rest on the abrasive. This will form the "Angle Guide". Just replace the knife in the imprint formed on the finger print side of your finger or thumb. It works better if you count strokes or motions and use the same stroke count on each side of the blade. You will have to adjust the direction of your motion to work the entire length of the blade. I usually will work each side 100 strokes before turning the blade over. I assure you if you keep your finger or thumb in a knife blade back for 100 strokes you will be able to see and feel where the blade back was located.



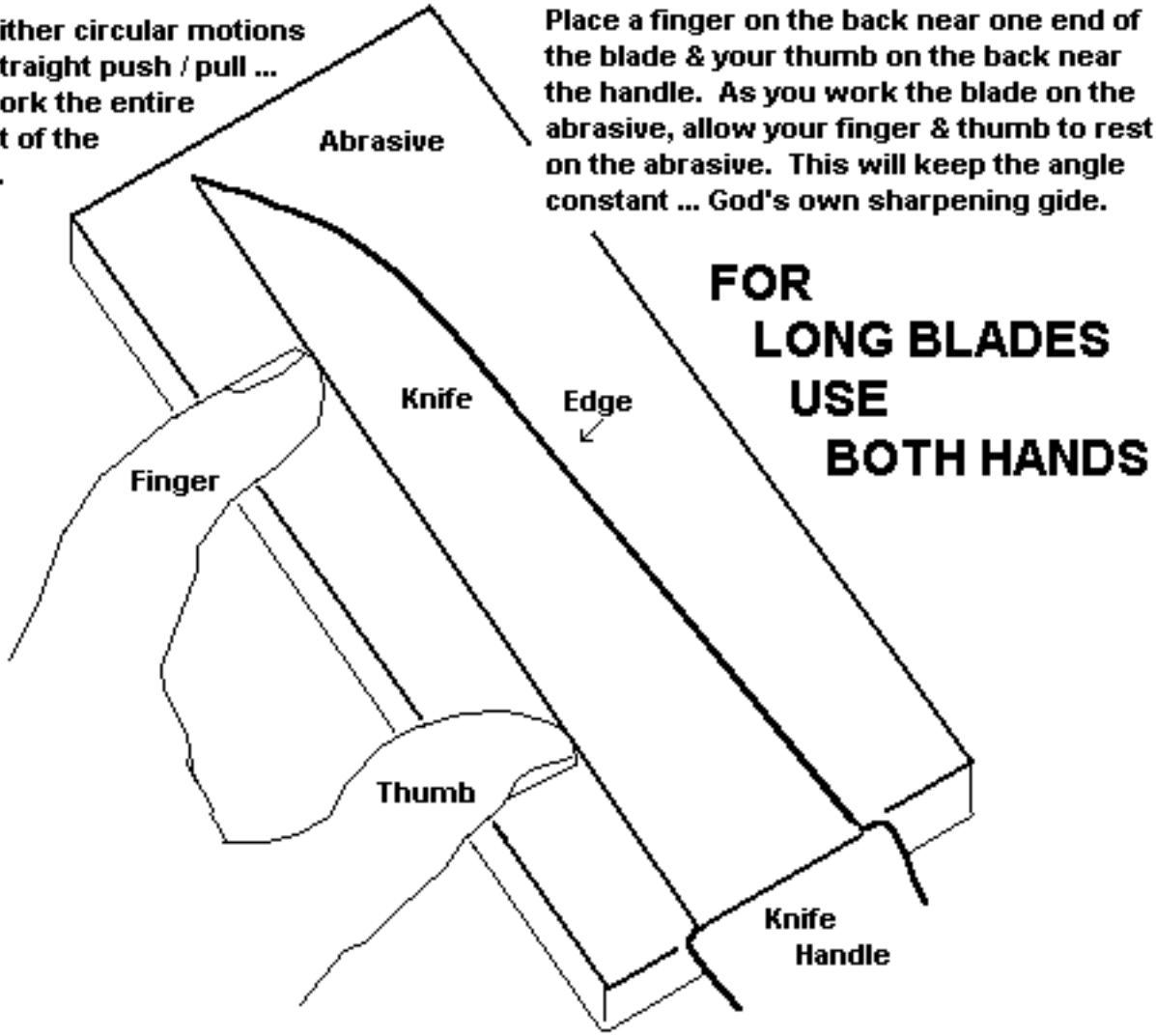
To maintain the correct sharpening angle let your finger or thumb be your guide




TO MAINTAIN THE CORRECT SHARPENING ANGLE LET YOUR FINGER & THUMB BE YOUR GUIDE

Use either circular motions or a straight push / pull ... but work the entire lenght of the blade.

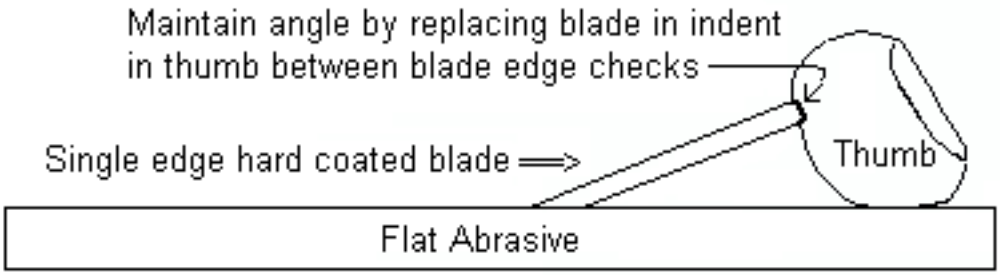
Place a finger on the back near one end of the blade & your thumb on the back near the handle. As you work the blade on the abrasive, allow your finger & thumb to rest on the abrasive. This will keep the angle constant ... God's own sharpening gide.




Work the blade along it's entire length, periodicly checking the blade for the thinning metal burr. Replacing the back of the knife blade in the imprint left by the knife in your finger and thumb will maintain a constant sharpening angle.

## SHARPENING SPECIAL EDGES

Single angle cutting edges such as those found on hard coated (titanium carbonitride) blades found on some Buck knifes and all serrated edged present a special problem. In both situations only one edge should be sharpened. The angle for single edge sharpened blades should be the same as for the combined angles of blades honed on both sides of the blade (see "Double Angle Cutting Edge diagram). For example, a "fine" or "slicing" edge TA for a single angle cutting edge should be 30 to 40 degrees (see "Transition Angle" diagram).

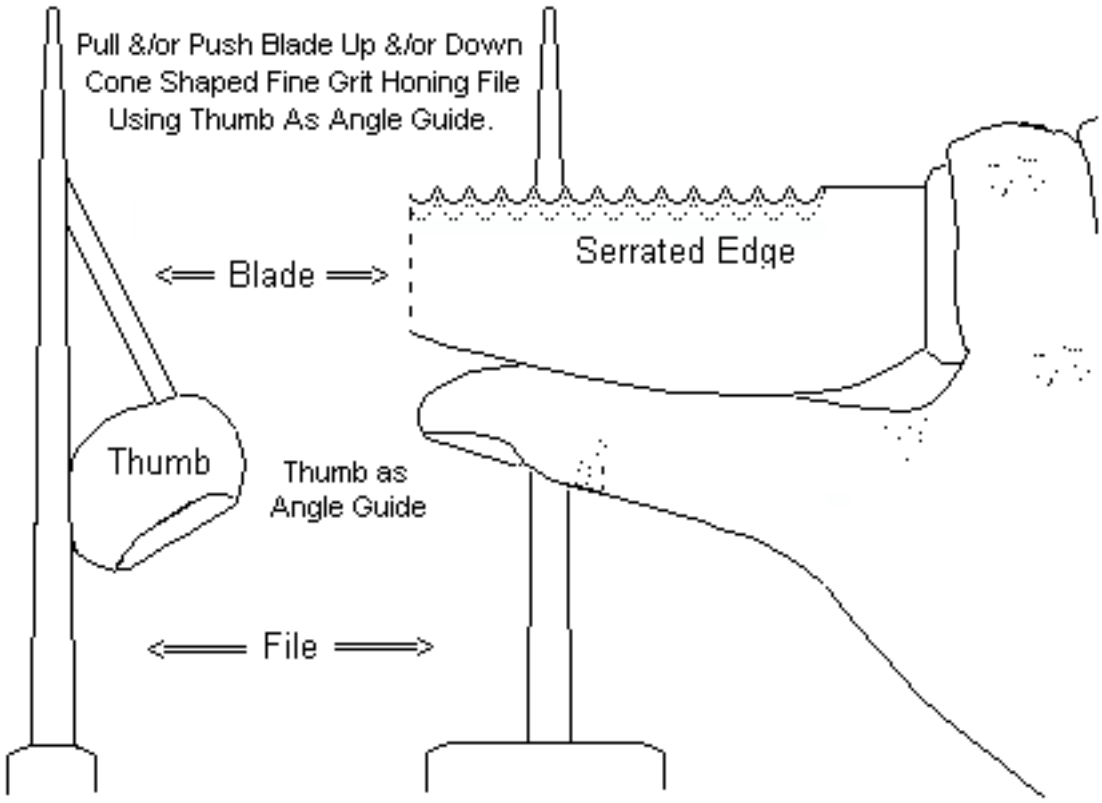



HARD COATED BLADES: On a hard coated, straight edge knife work the cutting edge on the abrasive as you would other straight edge blades, BUT JUST SHARPEN ONE EDGE. This will leave the hard coating from the non-honed side as the cutting edge. The toughness of the hard coating should allow the cutting edge to last longer.

SERRATED BLADES: A note about the physics of how a serrated blade cuts. Serrations do two things. First, they increase the cutting or slicing angle of the portion of the cutting edge in contact with the cutting target as the blade is drawn across a surface. Second, less cutting edge is in contact with the cutting target for the pressure applied. Combined these two physical changes in the cutting motion are similar to creating lots of "stabbing" cuts applied uniformly across a cutting target.

Serrated edges should be sharpened with a fine to extra fine grit (600 to 1200) abrasive file. DMT makes a slightly cone shaped honing file for serrated edges that cost approximately $20. Maintaining the desired angle may seem tough, BUT is no different than any other blade. I have found the easiest technique to place your thumb on the back side of the blade and rest the edge of your thumb on the file. Next evaluate the section of the file that fits the serration to be sharpened. Rest your thumb and the blade on the file so that the deepest part of the serration touches the file. Pulling the blade back up the file toward the handle will produce a consistent convex edge on the individual scalloped cutting surface. This technique is repeated on each major scallop. Many serrated edges have "V" shaped serrations between the major scalloped serrations. I generally ignore these or reshape them into rounded scallops.

A second, less desired technique for sharpening a serrated edge is to hone the single sharpened edge on a flat abrasive just like the hard coated blades described above. Only a small part of the cutting edge will contact the abrasive — changes will occur rapidly so check the edge often. This technique will cause the loss of the two physical advantages of serrations. The loss will be slight at first, but you will eventually lose the serration. If you are like me and don't like serrated edges, it is



no big deal. But if you like your serrated edge buy a fine grit file made for sharpening them — use it or lose it. By the way, the biggest reason I dislike a serrated edge is they take too much time to keep sharp. I have not found a way to sharpen them on a motorized sharpener.

The thinning metal burr that develops on the non-honed side of the edge should be removed with light strokes on a ceramic rod or medium to fine cut steel. These strokes should be pulling strokes — pulling the cutting edge across the rod instead of slicing or pushing the edge across the rod. The scallops on serrated edges dictate the steeling angle for removing the thinning metal burr or normal steeling can be very acute (shallow) — approximately 5 to 10 degrees. Steeling on one side of an edge will not completely remove the thinning metal burr, therefore the edge will remain slightly rough (grab the end of a BIC pen as it is pulled down the edge).

## DETERMINING WHEN THE EDGE IS SHARP

Look for the "Thinning Metal Burr" ("Feather" or "Wire") on the sharpening edge: When the edge metal becomes very thin as it is being ground on an abrasive, it will turn up away from the abrasive. This "turned up" edge is called a "thinning metal burr" (TMB). The burr is the final key to knowing you have approached a sharp edge. You can see the TMB as you rotate the blade in the light or you can just feel for it. It is easier to feel the TMB than to see it. The safest way to feel for the TMB is to use a "steel". I use the palm side of my fingers to feel for the TMB. I pull down across the blade (across the edge, not down the edge. If you pull down the edge you can cut yourself). The edge will feel rough.

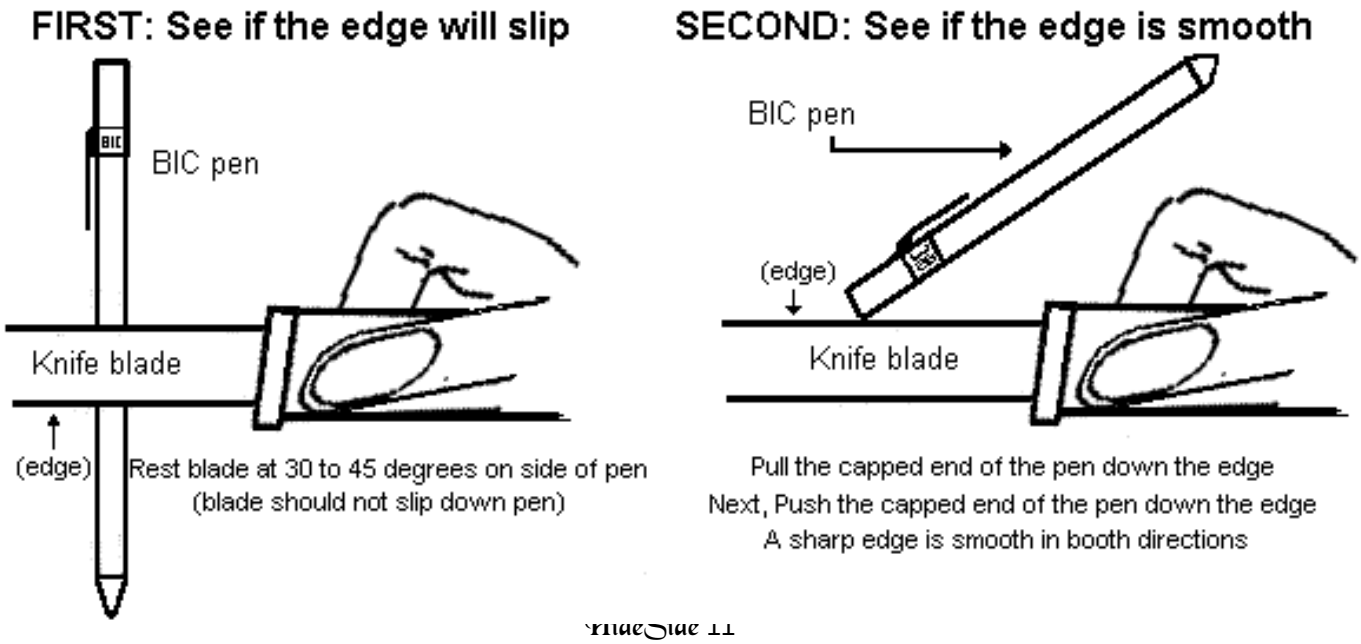
If you use a flap sanding wheel (>100 grit) you can see, if you look closely, the TMB turn up as the knife is passed buy the spinning abrasive wheel.

***NOTE: ALWAYS HOLD THE EDGE OF KNIFE AWAY FROM THE DIRECTION OF THE SPIN IF USING A WHEEL GRINDER or FLAP SANDER. REMEMBER TO WEAR SAFETY GLASSES WHEN WORKING WITH A GRINDER.***

## FINISHING AND TESTING THE EDGE

The Final Step — Remove the Thinning Metal Burr: Using a very light touch , stroke the burr on a very fine (greater than 300 grit) abrasive. For this step, I personally like to use a light touch on a ceramic hone or smooth brass rod. On a flap sander motorized sharpener, a felt wheel impregnated with pumice or buffing compound works great to remove the thinning metal burr. Polishing the edge with a pumice coated felt wheel attached to bench grinder will give you a GREAT edge ... and a polished blade always cuts better. Many of our disinfectants will stick to the blade and these deposits will cause additional cutting resistance.

A "STROPPING" Fine Finish: Strops provide more fine tuning than most veterinarians are wanting for their necropsy knives. But if you are interested in a little strop trivia, read on. As mentioned earlier, a pinch of Silicon Carbide, Aluminum Oxide or a dry buffing compound works great as a loose dressing for strops. When using a strop never let the blade "bite" into the leather. Biting occurs when the back of the blade is lifted too high and the cutting edge of the blade scrapes along the strop. Keep the blade almost flat against the strop. As the edge passes the soft surface of the strop will curl up against the edge producing a convex edge. If you allow the edge to bite
the strop the strop surface will actually curl up over the edge and cause dulling of the cutting edge. It is easier to use a strop if it is attached to a rigid surface. I glue thick leather (10 to 12 oz.), slick side up, to



a piece of wood. A thick woven cotton strap also works well, but holds more abrasive compound and does not produce the fine edge produced by heavy leather. Strop leather should be oiled before used the first time, there after no more oil is needed. Strops should be at least two inches wide and twice the length of the knife blade you need to work. I mentioned cleaning abrasives with water — DO NOT CLEAN A STROP WITH WATER.

Testing the Edge: Shaving your arm is impressive. The preferred way is to rest the blade's cutting edge (at a 45-degree angle) on something smooth, like your fingernail or BIC pen. If the knife does not slip down the smooth surface, it is sharp. Sharp blades should be smooth. Smoothness can be tested by lightly sliding your fingernail or a BIC pen across and down the blade.

A perfect edge will not reflect light (candle). Look for reflections from the edge.

## "THE STEEL"

Using a "Steel": As many blade edges are damaged by steels as are improved. USE A SMOOTH STEEL, WITH A CAREFULLY DIRECTED LIGHT TOUCH.

A steel has aligning groves designed to straighten an edge. I think it is better to lightly pull the defects back into proper alignment than to push them into alignment. This is accomplished by using a pulling stroke (pulling up from the handle away from the cutting edge). After the edge has been re-aligned, a light down stroke (pushing the edge into the steel) will firm the cutting edge. Be gentle, a hard whipping stroke can wreck an edge as fast as any thing I know.

Steel come in four cutting types: Course Cut, Regular Cut, Fine Cut and Polished - No Cut. Course and Regular Cut Steels seem to be everyone's favorite ... everyone except those who make a living with a knife. Packing house workers use a very smooth (polished - no cut) steel for most of their knife blade's cutting edge maintenance. You will notice them polishing their steel frequently with an emery cloth (180 grit or finer). The emery cloth helps keep the steel smooth and the small groves in the steel aligned. A course steel has very distinct aligning groves. When a blade's cutting edge is used harshly against the deep groves in a course steel it can cause the cutting edge to chip. The little nicks left in the edge will make the blade seem sharper for a few cutting strokes. The nicks soon wear down and repeated attempts to "steel the knife sharp will be futile.

THE CERAMIC ROD AS A STEEL: I love ceramic rods to touch up cutting edges. I use them like a steal using a soft light touch. Note: Ceramic rods are very fine (>1200 grit) abrasives therefore do more than straighten edges.

THE GRIP: Hold the steel as if it were an extension of your arm (stiff but don't over grip). If held to tightly the reflex action of the opposite stroking hand if often too firm against the steel, causing blade damage.

THE STROKE: When stroking a steel, avoid twisting your wrist or elbow ... keep them stiff. Learn to use the motion of your upper arm and shoulder, rotating your knife hand as you stroke each side of the blade. Keep Your Eye On Your Thumb! Watching the thumbnail of the stroking hand will allow you to develop a consistent angle on each side of the blade as you rotate your wrist.

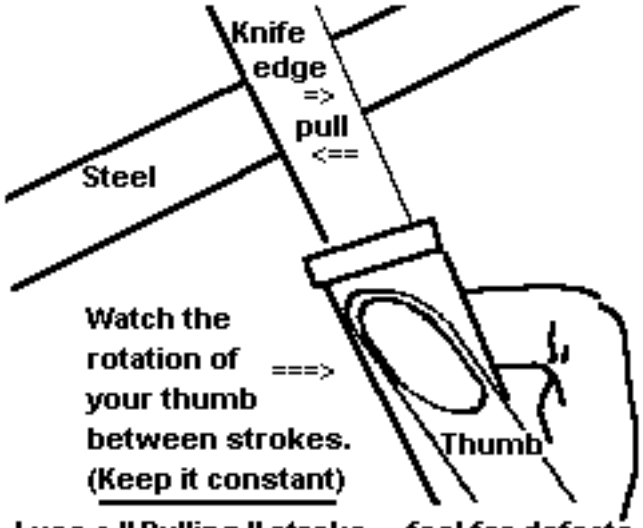
The angle of the steeling stroke is just slightly greater than the CA you set on the knife (approximately 30 degrees for a 25 degree CA).

Learn to "feel" for defects in the blade's cutting edge. You can feel the small bent or damaged areas in a blade edge. A "pulling stroke" or "back stroke" against the steel is the gentlest approach to a steel. Use the steel to straighten the small bent areas in the blade, not break them. A "course" steel will straighten severely bent areas on an edge. If you abuse these areas with the course steel, the blade will require re-working.

Care of a steel: Most "Steels" have no chromium. Therefore they will rust. I clean, dry and oil my steels after use. NaOCl (bleach) will pit low or no chromium metals such as steels and some knives

## HAVE ENOUGH TOOLS

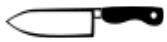
Buy lots of knives: If you make part of your living with a knife, get plenty. Buy knives by the "6 pack". A great knife costs less than $12 per unit when purchased in six unit orders (See Hantover, Koch or Packer). The knives I use cost about $7.50 each. I like a "stiff" (thick backed) sheep skinning knife for my feedlot necropsies. Stiff boners with flat blades also work well. I only




I use a " Pulling " stroke ... feel for defects after the defects are "pulled" into place then use a forward stroke against the edge

buy knives with stainless steel blades and synthetic handles. And never leave home without at least three sharp knives in by necropsy case. Eicker or Forschner "INOX" (inox=inoxidable=added chromium=stainless steel) stainless steel knives have worked well for me. Both of these knives hold a great edge and are not too hard to sharpen. Both are available from all major knife suppliers such as Hantover, Koch or Packer. Another great metal is "440" stainless steel. I believe it is a little harder to sharpen than INOX, but it is a great metal and holds an edge well. I have used lots of brands of knifes and my favorite are (in order): Eicker, Forschner, or F-Dick "INOX" stainless steel knives. Swibo and Kai-cut knives aren't bad. I would not buy most of the other brands I have tried again. Suppliers such as Hantover, Koch or Packer handle the good knifes. My all time favorite knife is the Russell Green River Sheep Skinner ... it is easy to sharpen and holds a great edge. This knife has too problems; its wonderful high (>1.2%) carbon blade is not stainless steel (no chromium) and it has a wooden handle. The blade will rust, so you need to keep them dry (a light coating of oil will also help). The wooden handle can be a real problem working around the pathogens we deal with.

IT IS ALL ABOUT METAL: Hard metal, Rockwell C scale (RC) greater than 58, will generally be harder to sharpen but will hold an edge. Titanium coatings are becoming popular blade hardeners. Hard coatings will increase the hardness 30 to 50% (70RC to 83RC) but are only effective if a single side edge sharpening technique is used. The hardest blade is zircon oxide, "ceramic". It holds an edge, but can't be sharpened by hand and is very expensive. Many of the really great knives have RC 60 to 62 blades. If you find you can not keep an edge on your knife the metal maybe either soft or poorly tempered. If the metal is soft (RC <56) it will be easy to sharpen, it just won't hold an edge. Poor tempering (crystallization) will cause the metal's grain to be course. Course grained metal will flake or chip easier than fine-grained metal. If it is hard to sharpen (RC >59) and will not hold an edge it has course grain. Take it to the processing barn and let the crew use it as a tail knife. I have repeatedly tried to win the sharpening war with several of these and have never won.



## SAFETY

Final Note: There is an old saying about a "dull" knife being more dangerous than a "sharp" knife. I'm not sure that is true, but a dull knife often does require more force to be applied to the cutting surface. Slips under pressure are hard to control, therefore could be more dangerous. It is important to control the direction of the cut, and to use a slicing motion (not a straight push or pull against the blade).

For safety consider using a "cut resistant" glove. You can get one from your knife supplier. They only cost about $12 per glove. They are not stab proof, only cut resistant. The most common injury is the "stubbing" injury which happens when the knife hand slides from the handle onto the blade. A "cut resistant" glove will help protect you against this injury.

## SUMMARY

MOST IMPORTANT TIP: Delegate — have someone else sharpen your necropsy knives. Get a good motorized sharpener and ask someone in you clinic to learn how to use the machine and keep your knives sharp.

***What You Really Need to Know***

BUY A MOTORIZED SHARPENER: A flap sander (Hantover Knife Sharpener — #47090) with a felt buffing wheel coated with pumice or buffing compound produces an excellent durable convex (rounded) edge. The entire system will cost about $250 — about the same as the last edition of Jubb and Kennedy. Think of it, sharp knives may inspire you to look at what you have been reading about. A similar sharpener can be made, but it spins too fast and can over heat the blades. I have described how it is done. Remember it is just a poor substitute and can over heat your blade but it will sharpen a knife fast. A Belt Cutlery Sharpener sells (approximately $400), or the Tru-Hone Triple Wheel Sharpener (approximately $600) will also do a great job of sharpening your knives. Hantover (1-800-821-2227), Koch (1-800-456-5624), or Packer (1-800-279-7326). The WEN Sportsman's Edge (#2910) or the WEN Wet Stone Sharpener (#2908) is the best inexpensive motorized alternatives to a good professional system. WEN Products (1-800-736-4936) distributes their sharpeners through hardware and sporting goods stores. These two units sell for approximately $50. 3-M makes several great abrasives (Scotch-Brite laminated to sand paper) that can be attached to a bench grinder and used to sharpen or hone a fine edge on a knife.

IF YOU LOVE TO SHARPEN BY HAND buy the largest flat abrasive you can afford. A 2 inch by 10 inch EZE or DMT fine (600 grit) or very fine (1200) grit diamond hone. They are very expensive (over $75) but worth every penny. I get along with smaller flat abrasives, but I rest my thumb on the edge of the abrasive and move the abrasive across the edge of the blade.

KEEP A CONSTANT ANGLE: THE MOST IMPORTANT THING TO REMEMBER IS TO KEEP A CONSTANT ANGLE BETWEEN THE BLADE AND THE ABRASIVE. You can use your thumb (short blades), thumb and finger (long blades) or a 1/4" spring paper clip for an edge guide. To maintain a constant angle, replace the blade "back" back in the indent in your thumb between checking the progress of the sharpening.

BUY LOTS OF GOOD KNIVES (at least one box of 6): Eicker or Forschner flat bladed, stiff backed six inch boning or sheep skinning knives work great for feedlot necropsies. These are also available from Hantover (1-800-821-2227), Koch (1-800-456-5624), or Packer (1-800-279-7326). A box of 6 good knives sell for approximately $60 ($10 each). I keep two "Rubber-Made" boxes, one for dull/used knives and one for sharp knives. When the "sharp" box gets low I have a knife sharpening party and transfer my used knives from the "dull" knives box past the motorized sharpener back to the "sharp" box. Note: I keep a phenol derivative disinfec-

tant (works in the presents of organic matter) such as diluted Rocal in the dull box ... keeps the nasty stuff from growing.

BUY A SMOOTH (polished - no cut) or FINE CUT STEEL, LEARN HOW TO USE IT . . and . . please, . . please . . . BE GENTLE: More cutting edges are wrecked by the harsh use of a steel than are improved. If you read nothing else from above please read the part about using a steel. Smooth and fine cut steels are available from Hantover, Koch or Packer. A smooth or fine cut steel will cost approximately $15. Forschner makes a combination steel that includes both a polished and fine cut side and cost about the same as a single surface steel. Avoid a "regular" or "course" cut steel.

BUY A CERAMIC STICK (round) HONE: Good for finishing or touching up a cutting edge. Available from Hantover, Koch or Packer. A ceramic stick will cost approximately $15.

BUY SAFETY "cut resistant" GLOVES: Available from Hantover, Koch or Packer. A cut resistant glove will cost approximately $12.

A PARTING NOTE: If you have a knife you can't keep sharp, promote it to a tail knife, box knife, or give it to your worst customer. Don't fight it ... get rid of it.

## ADAPTING A BENCH GRINDER FOR KNIFES

For the Sharpening fanatic: ADAPT A BENCH GRINDER TO "FLAP SANDER" AND "BUFFING" WHEEL knife sharpener. A Black and Decker small motor housing bench grinder (model # 9407) can be fitted with a 6x1 inch 100 to 180 grit sanding flap wheel (Superior Abrasives) using an arbor bushing (ACE #20003209) and a 6x1 inch laminated buffing wheel or felt wheel (Yergers Mft, 3M ) coated with buffing compound or pumice. 3M Inc. makes a number of soft abrasives that work great for sharpening knives. For reference: Superior Abrasives (513-278-9123), Yerges Mft (419-332-9905), or 3M (800-364-3577 or 800-742-9546). Most hardware stores can supply 6x1 abrasive flap sanding wheels and buffing wheels.

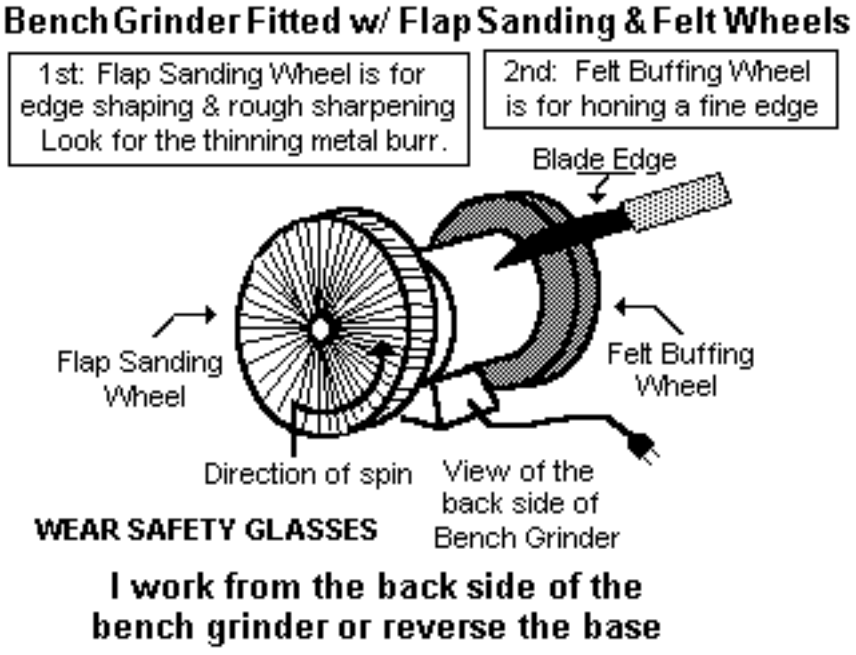
ASSEMBLY: Remove the grinding wheel protective covers and stone grinding wheels from the bench grinder. Slip spacers (« inch to1 inch arbor bushing) over the arbors of the bench grinder. Mount the flap sanding and felt wheels. Apply a light coat of oil on the felt wheel then apply the dry buffing compound by spinning the wheel and holding the buffing compound against the felt wheel.

NOTE: The normal direction of the wheel spin on a bench grinder is from the top forward to the bottom. I find it hard to seethe thinning metal burr develop on the blade with this direction of spin. I leave the wheel covers off the bench grinder and work from the backside of the grinder. When facing the backside of the grinder the wheels spin from the bottom toward the back and up to the top. I find this upward spin easier to use. Reversing the base of the grinder will also change the direction of the spin. A 3600 RPM bench grinder spins three times faster than is appropriate. The rapid spin will rapidly over heat a blade and cause temper loss. Work in very short time intervals.

***NOTE: WHEN USING A WHEEL GRINDER or FLAP SANDER, ALWAYS HOLD THE EDGE OF KNIFE AWAY FROM THE DIRECTION OF THE SPIN and WEAR SAFETY GLASSES.***

I hope you enjoy reading this article as much as I have enjoyed writing it. A special thanks to everyone who as contributed ideas, information, tips and tricks for this article. If you have a special tip or information on knives, knife sharpening or knife sharpening products please send me a note at (gvec002@unlvm.unl.edu).

**Dee Griffin, DVM**
University of Nebraska,
Great Plains Veterinary Educational Center

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## Editor's Comment

I just noticed that this is issue Volume 5, Issue 12. That means that the RawHide Gazette has been around almost six years.

Its gone through a few name changes and a few editors. Today, I'd had a chance to sit in my hotel room while I wait for my house hold effects to make their way from Japan. During this time I thought about the previous issues and would like all the readers and consumers of the RawHide Gazette to take a minute and see if there are any tips, hints, or projects that you would like to share with others in **PSLAC**. We have had many articles from many people over the pass years with very good content and we would like to continue this in the future.

Dig deep in your **bag-o'-tricks** and look over your old patterns and see what you have to offer to the other members in PSLAC.

Your differing inputs help keep the RG fresh and alive.

Thanks for your pass, present and hopefully future articles.

**Bob Stelmack**
Editor, RawHide Gazette

...and many thanks to those **PSLAC** members that were able visit with **Karen** and I on Saturday the 29th at the Homestead Breakfast meeting. I am again reminded just how special this **PSLAC** group is.

**PSLAC**
c/o Linda Stockhausen
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Puyallup WA 98374
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