

THE ONE AND ONLY MONTHLY NEWSLETTER OF THE
EUGENE 5160 CLUB – DECEMBER 2011



The December Meeting will be Thursday the 1st at 6pm at the Woodcraft store in Sheldon Plaza on Coburg Road, Eugene. Informal get-together at McDonald's at the North end of Sheldon Plaza around 5pm.



October – Jess Horn shared the folder-making techniques that gained him global recognition.
November – Ted Fitzwater took us to the far side of the world for an educational meeting on Kukris.



MARK YOUR CALENDAR

The December 1st meeting will feature contestants for Wayne Goddard's

GREAT MAKESHIFT KNIFEMAKING CONTEST!

Wayne will be judging the knives, sheaths, and stories – declaring winner(s) and handing out awards.

That's December 1st – just a few days away.

Be there or be square – it will be an entertaining evening!



DOUBLE HEADER NEWSLEDDER

Below you will find my notes and photos from the October and November meetings. Both of these great guests brought handouts.

I have included excerpts from Jess's handouts in this newsletter with (hopefully accurate) notes that I took while he explained his techniques.

I hope you will enjoy my notes and photos of Ted's pass-around Kukris.

Here's the double header newsledder!



JESS HORN is known for his elegant folder design and his outstanding fit-and-finish. He was very generous to share his designs and techniques of folder construction with the 5160 Club.

Wayne Goddard introduced Jess Horn, stating that Jess was to folders in the '70s what Loveless was to fixed blades: He set the standards that others tried to match. Wayne passed around an article from 1971 featuring both himself and Jess Horn.

Jess noted that he had *never* given a class on folding knife construction before, and passed out a handout that he had prepared for the occasion. (I have scanned it in, added a few notes, and put it on the 5160 page: <http://www.elementalforge.com/5160Club/20111028JESSHornHandout.pdf>).

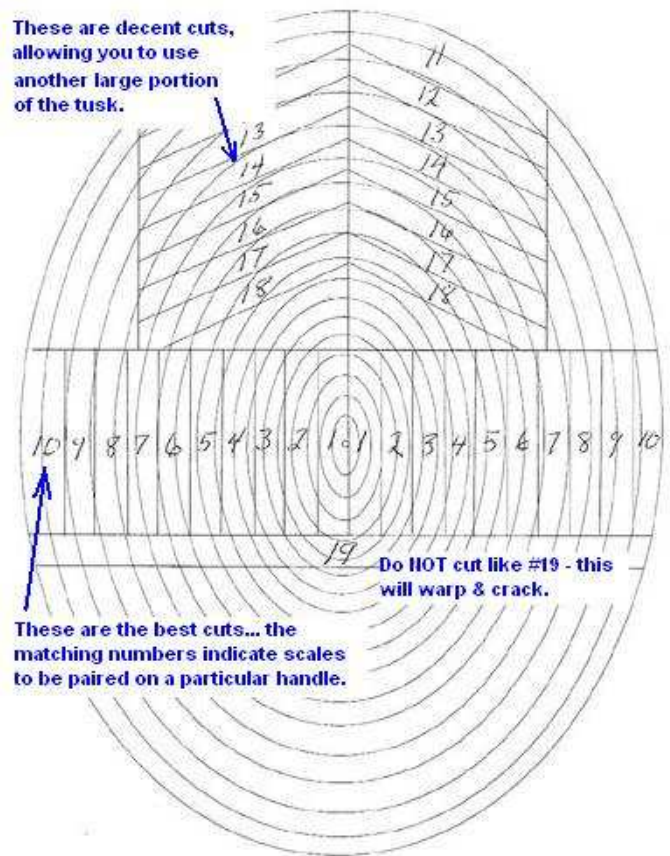
To start with, Jess told us he got his big boost from Bob Loveless back when Loveless and A.G. Russel were working on a catalog idea. This was about 1972. Horn flew up to go over the idea, sketched some lockback and slip-joint designs, and basically got on the radar. A “top knife” award on page 2 of Knives magazine started the flow of orders coming in. In 1973 Jess made 40 or 50 knives and sold them through Lovelace. The catalog thing never worked out, but Jess sold a lot of knives through Loveless!

Jess likes to use ATS34 and 154CM for his blades. And he likes working with natural materials in his handles... ivory, mother of pearl, etc.

In fact – the first page of his handout is a diagram of how to cut scales from ivory. He launched into some details about the material. As most are aware, ivory grows in a tree-ring type pattern. At the base of the tusk, the center is a hollow “nerve hole” that tapers to

nothing about 1/3 of the way into the tusk. You don't want any of the material next to the nerve hole in your scales.

Here's that cutting chart with my notes in blue:



Wayne noted that this pattern of cuts is good for wood scales also.

Regarding cracking: Jess says never try to hide a crack – it will come back later and cause you grief.

For stabilizing horn Jess uses Loctite 990, but this is

no longer produced. He uses a combination of pressure and vacuum to draw the stabilizer into the material being treated: A vacuum of 26" followed by a pressure of 80 pounds – and repeat the cycle several times, followed by a longer vacuum cycle of 2 or 3 hours. Jess then applies final finish of Renaissance Wax.

Here are photos of his pressure vessel:



To keep the material off the bottom of the chamber - a hair brush has been "appropriated."

Here's a closeup of the fittings: the bottom line gets hooked to vacuum or pressure. The top two are pressure and vacuum gages. All three have shutoff valves so that the appropriate gage can be "on" and to hook up to pressure or vacuum.

There was a question from the floor about which handle materials to treat this way. What I got from the exchange was that Jess uses this process for ivory, sheep horn, and buffalo horn – but he warned not to use this procedure with antlers/stag horn as it makes the material translucent.

From there we went back to his handout of folder construction drawings. Jess got hooked on a Computer Aided Design (CAD) program. He likes the ability to see the layers of the knife overlaid on each other so you can see if you are building in a conflict between the layers of your knife design. The folder design diagram (next page) shows the knife design both open and closed. The first drawing has the rotation circle drawn in so you can see the relation between the tang and the spring lock – and

the tang and the bolster.

The CAD program allows you to "rotate" the blade in the drawing to make sure you have shaped the blade and tang to close properly without being stopped by the spring lock.

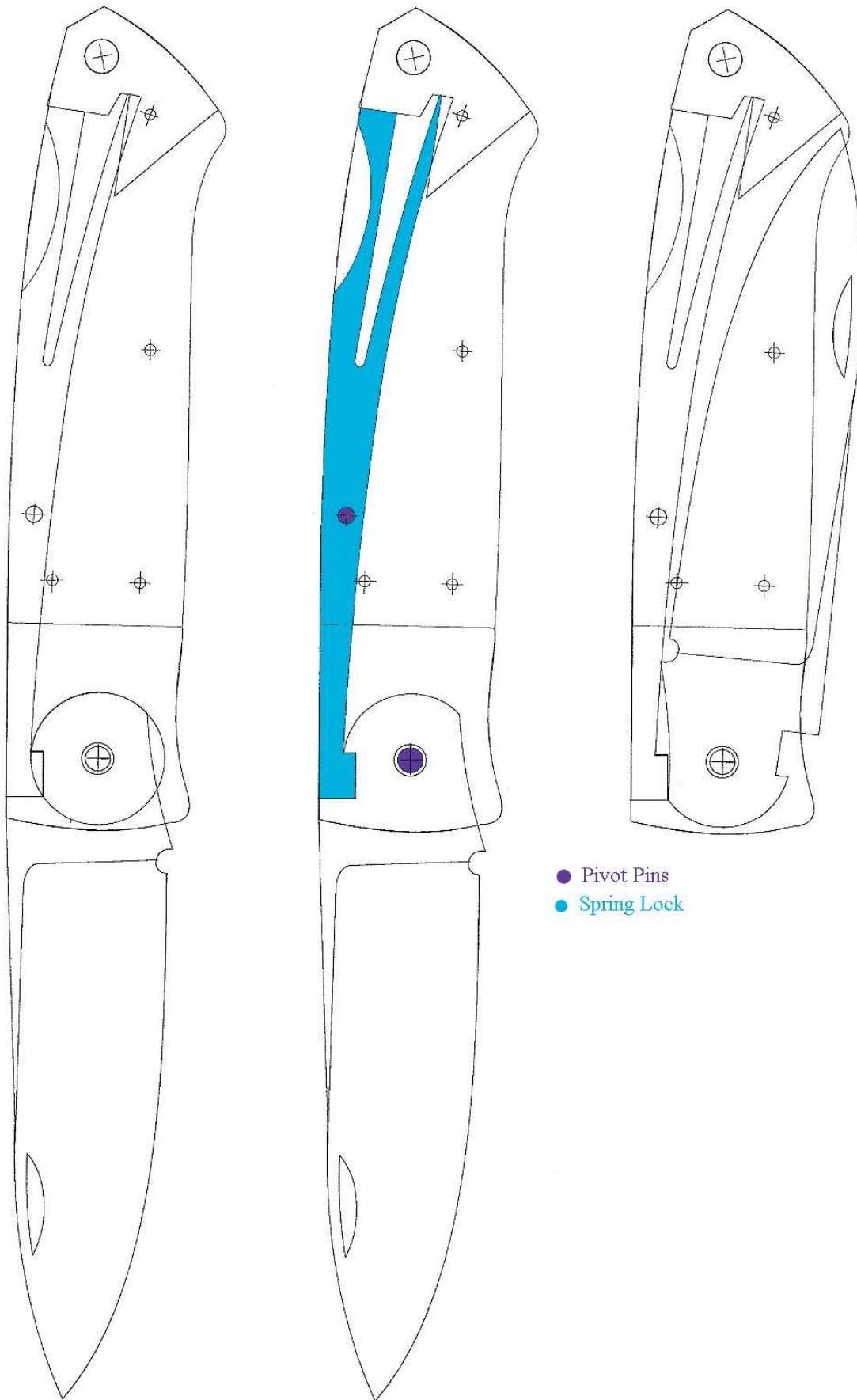
When you cut the liner, bolster and even the spring lock, that you leave yourself an extra 1/32" on top that will be ground off in the final shaping.

The pivot pin has a thicker center and a shoulder on each side where it fits into the bolster. Make that central area that goes through the tang just a hair wider than the blade itself. Well, less than a hair – Jess recommends 0.0005" (half a thousandth).

And while we are splitting hairs – start the spring lock a little thicker than needed and gradually hone it down (being careful to maintain right angles) until it just fits into the slot allowed for it.

I've taken the liberty of coloring the lock spring and pivot pins in the central drawing.

Jess notes that you should put the lock bar under stress and clamp it before drilling it's pivot pin hole – to ensure a secure lock on the blade.



In honing down the lock bar, use 600 grit paper and only take a lick or two between tests so you don't get the bar too thin.

Jess uses a belt grinder to freehand the bottom profile of the lock bar using a belt grinder and vice grips.

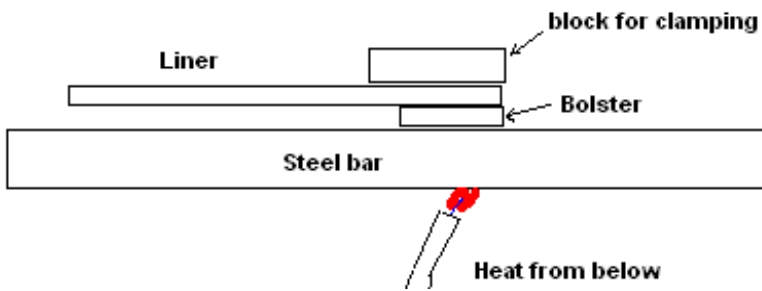
The circular grind on the tang can be achieved with a grinding table jig with a pin that you place through the pivot hole.

On the tang, you want a lock notch that is 45 or 46 thousandths deep for a medium sized folder.

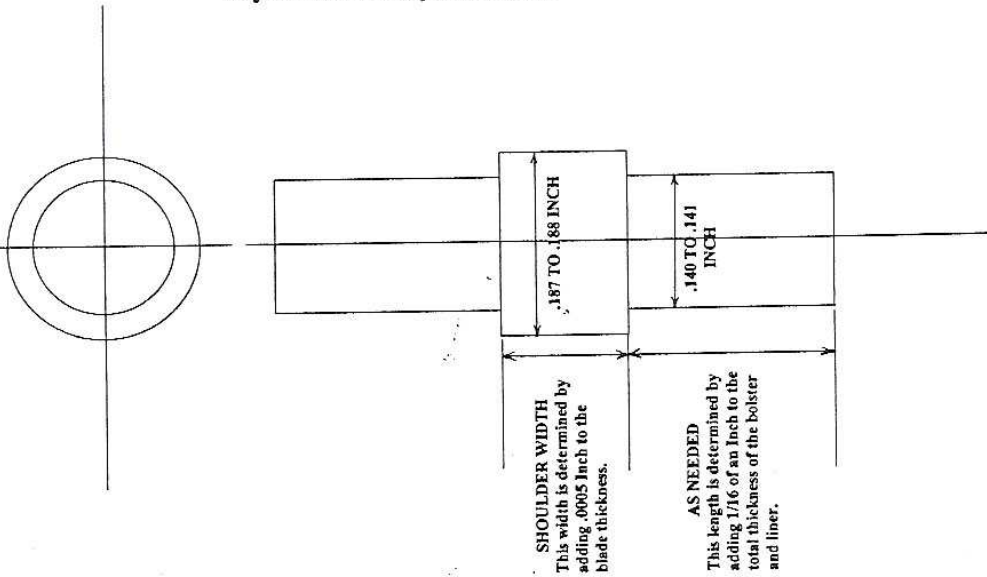
There was some discussion of soldering and spot welding bolsters to the liner. Spot welding may discolor the metal.

Jess tins both the inside of a stainless steel bolster, and the liner itself with a heavy duty soldering gun, then sets the alignment pins into the bolster. He recommends

the setup I've drawn below for the actual soldering.



Blowup of Blade Pivot Pin
 Not To Scale
 Made from 303 Stainless Steel
 All pin diameters must be concentric so
 they do not have any cam action.



HORN DESKTOP PUBLISHING

You apply some flux, clamp it all up, and heat from below until the sweated solder melts. Jess uses 460 Stay-Brite lead free solder. Have a steel rod handy to burnish the solder while it is still molten.

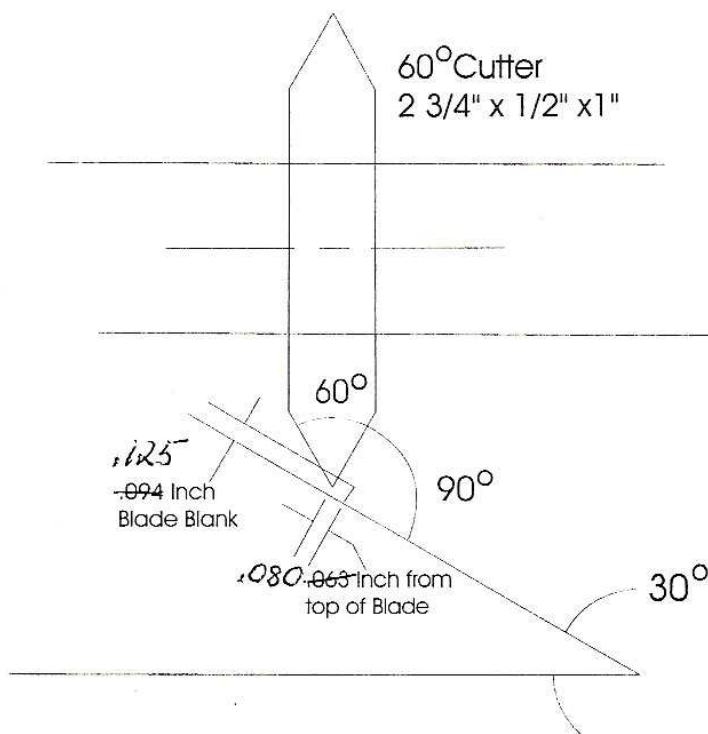
If I understood right, Jess was recommending making the liner recessed (one and a half thousandths) to avoid having it scratch the blade when the blade is opened and closed.

To the left is another page from the handout – the top drawings are of the blade pivot pin, noting dimensions. Jess emphasized the importance of having a common center for the center and shoulder sections of the pivot pin.

Below is a diagram of cutting the nail nick in a blade.

Jess strongly advises against peening your pivot pins. Doing so tends to expand the center of the pivot pin. Instead he uses an Oregon Chain Saw rivet spinner. Using this on alternating sides, stopping occasionally to grind off the “dome”, keeps the center of the pivot pin from expanding.

Placing a micarta shim in the blade slot will also take pressure off the center of the pivot pin and keep it from expanding while this is being done.

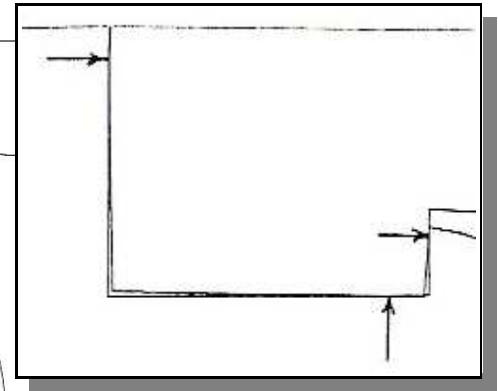
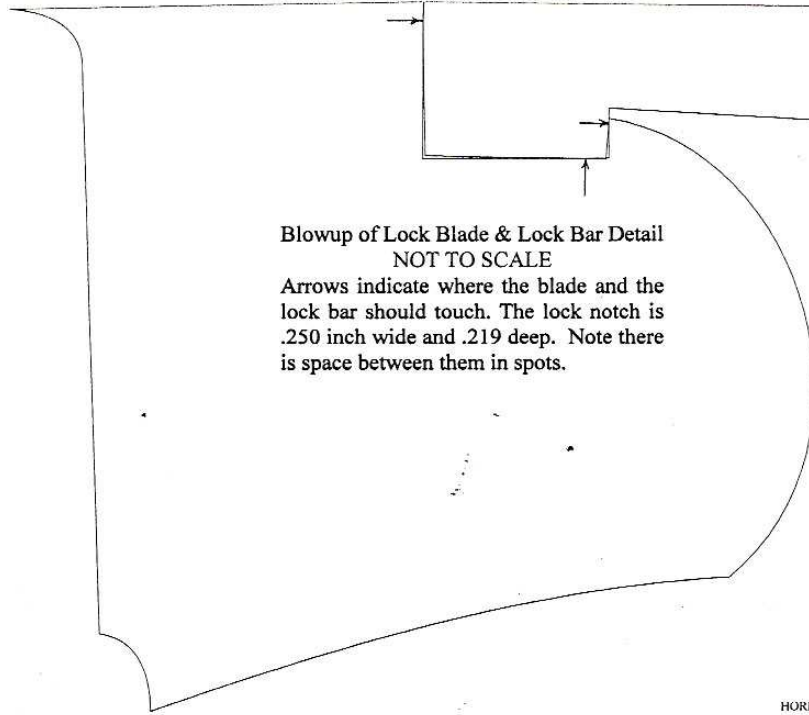


Also, a slight chamfer to the bolster hole for the pivot pin aids in seating the pivot pin.

method of setting up the lock parts (top) and the back spacer (bottom).

Here's the next page of Jess's handout showing his

And here's a closeup of that lock area:

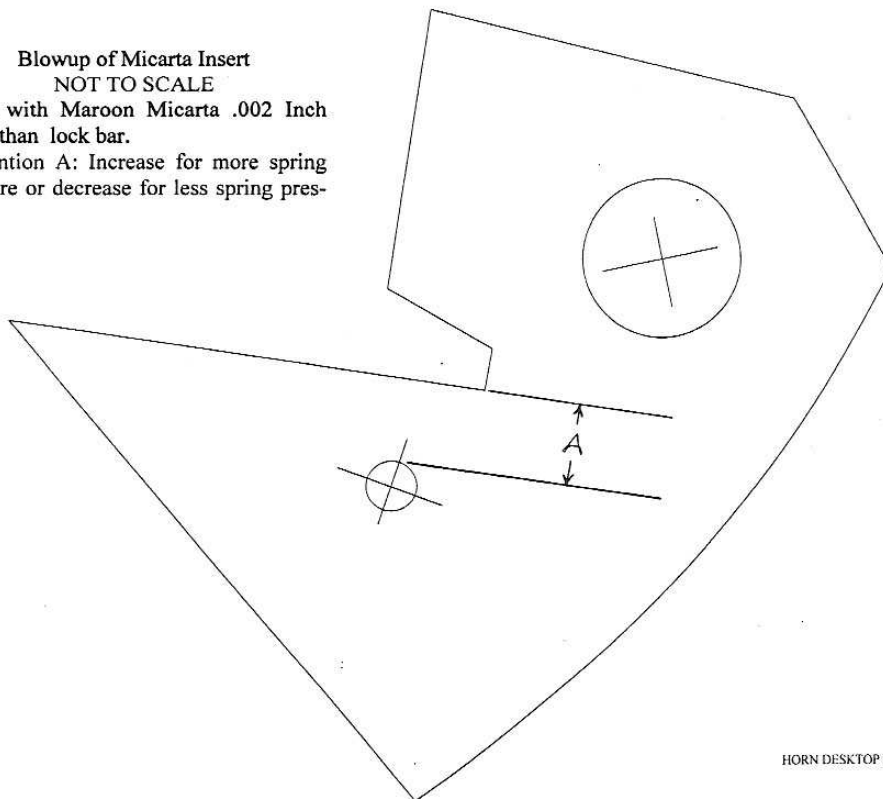


As you can see, Jess makes three points of contact (where the arrows are), and leaves a slight gap the rest of the way around the locking area to give a crisp but secure lock.

HORN DESKTOP PUBLISHING

MODELS SHLM, DHL, SHLB

Blowup of Micarta Insert
NOT TO SCALE
Made with Maroon Micarta .002 Inch wider than lock bar.
Dimension A: Increase for more spring pressure or decrease for less spring pressure.



There was quite a discussion about natural handle material shrinking and expanding with changes in humidity.

Moose antler was singled out for the worst performance, while Elk was reported to be less affected by changes between wet and dry air.

There were stories of ivory and sheep horn shrinkage – and modest success in sealing with various treatments.

HORN DESKTOP PUBLISHING

Jess related that a batch of 25 pairs of amber stag just about drove him crazy. They were beautiful, but finding the right ones for handle material was a challenge. Wayne agreed – saying that he figures that 2 or 3 in 100 will “work out.”

Jess got good ivory in the round from the Tuscon gem show... and strongly recommends buying ivory in the round and cutting it yourself.

And circling back to his learning experiences through the years, Jess related that at one show in Kansas City – when he'd gotten something of a reputation – he had people crowding the table before he was set up. He told everyone to hold off until he got all the knives laid out. And then when he said “OK” it was bedlam – everyone grabbing knives off the table! “PUT THEM DOWN” he yelled “Just put your hand on the knife and we'll get to you.” So he tried other approaches – like having the knives behind glass and hanging tags out for each knife: mayhem. The best solution he came up with was a lottery type drawing: put your tag into a Hills Bros. Coffee can... the tags drawn at random until all the knives were gone.

It was great to get tips straight from a first-class maker... ***Thank you Jess Horn!***

At the end of our evening, we all crowded around the table where Jess had laid out some of his tools, knife parts, jigs, and photos.



Here's that Oregon Chain Saw Rivet Spinner:



And one of the templates Jess showed us... along with the stainless steel bag he uses for heat treatment.



And here's the way the blade, spring lock, and back spacer fit onto the liner:



SEEKIFICATION SHEET FOR MODELS SHLM, DHL, & SHLB

MATERIALS:

BLADE STEEL: .125 Inch ATS- 34 S. S.

SPRING & LOCK BAR STEEL: .125 Inch ATS-34 S. S.

BOLSTER STEEL: .125 Inch 416 S. S.

LINER: .032 Inch 410 S. S.

BLADE PIVOT PIN: 303 S. S. (see attached Detail)

SPRING PIN: 3/32 Inch Nickle Silver

HANDLE PINS: 1/16 Inch Nickle Silver

THONG TUBE: 3/16 Inch Thin Wall Aluminum

INSERT & BLADE STOP: Maroon Micarta (see attached detail)

NOTES:

BLADE PIVOT PIN: Not drawn to scale. (see attached detail)

1. Shoulder width: .0005 inch wider than blade thickness. Blade tang sides should be near absolute parallel.

2. Diameter of blade hole pin is .1875 inch.

3. Diameter of pin through bolster and liners is .140 to .141 inch.

4. Both diameters must be concentric (no cam action).

LOCKING BAR & SPRING: In the drawing the spring is not under tension. Grind and taper inside of the forked spring to make it flex evenly and have the desired strength. See note on the micarta insert blowup regarding spring tension. The thickness of the lock bar & spring should be the same as the blade tang.

MICARTA INSERT & BLADE STOP: Thickness should be .002 inch more than the lock bar thickness.

As the meeting broke up there were a couple of pass-arounds.

Eric Ochs brought one of his "Grand Gyrfalcon" folders:



And Lynn Moore passed around a folder that he made that sees regular use in his business:



And off we went into the night...





Alexander the Great's invasion. The Greek Kopis has a very similar look – similar but not equal. I believe that is a Kopis that he has in his left hand in this photo.

There is a Mongolian blade that resembles the Kukri.

The Turkish Yatagan is also similar to an elongated Kopis or Kukri.

Traditional Celtic harvest blades are also similar in design to the Kukri.

TED FITZWATER is a man who knows the Kukri. When he first caught the Kukri (aka Gurkha knife) bug he was surprised at how little information was available. After some messages back and forth on eBay purchases, he was introduced to the International Kukri Research and Historical Society (<http://www.ikrhs.com/>) where he finally found a place where knowledge about the Himalayan blade was freely shared.

Ted was going to shows looking for Kukris too – and purchased one (many moons ago) from John Priest at an Albany show!

Ted started passing blades through the crowd as he went into the history of the blade. But before he handed any out he emphasized the importance of drawing the blade with light pressure along the spine to avoid cutting the sheath - - - and likewise keeping your hand off the blade side of the sheath as some sheaths become cut open along that side.

When Ted asked Nepali smiths where the design for the blade originated the answer was that it came from the gods. Not quite satisfied with this, he dug deeper. But from what I could tell, he still thinks the true origin is something of an enigma.

The inspiration for the blade could have come from

The Egyptian Kopesch has been cited as a possible ancestor (though I really don't see the similarity myself).

Ted cited ancient temple drawings from India where a Kukri style blade is depicted. However, the oldest well established dating of a Kukri only goes back to 1559. These are hard use blades in a harsh environment – so the absence of older specimens may have more to do with rust than proving a recent creation of the design.

I got the feeling that Ted feels it is a fairly home-grown design. But maybe that's just my prejudice, since I see all these similar blades from Spain to Mongolia – but nothing precisely like the Kukri combination of blade and handle shape.

Here's a Kopis and a Kukri... you decide:



Many traditional Kukris feature one or two thin fullers parallel and close to the spine. While there has been speculation about these having a functional use, Ted felt that other than slightly lessening the weight of the blade they are primarily decorative.



Then there is that famous double notch near the handle. The cho. While any Kukri worth its salt has one, there are variations in the design. Ted passed around examples, prompting that some look more like a cow's foot. Some are reminiscent of a stupa. Some are said to resemble a peacock head. The three points created by the notches represent the Hindu trinity of Brahma the creator, Vishnu the preserver, and Shiva the destroyer.

Like the fuller – the cho seems to be more of a symbolic, traditional, decoration than a functional part of the knife.

Some of the Kukris that were passed around had quite fine detail in etching or engraving and inlay:



Ted noted that Kukris can have a hidden tang or a full tang. And while they have been an icon of Nepal into the distant past, the Kukris that are available these days tend to have been manufactured in the 1800's and primarily in the 1900's.

If you see an old Kukri with a hidden tang and a butt bolt, it's likely from the 1850s time frame. A brass bolster would indicate 1930's era.

Another thing I had not realized is that the Kukri sheath has pouches for two other small knives, one sharp and one dull and sometimes a pouch for tweezers. One of the sheaths that Ted passed around even had hidden chambers (For coins? Or tinder?). Ted had a whole display board filled with these "Chakmaks":



Ted said that Atlanta Cutlery still has some of these small knives available.

A "medicine man" Kukri sheath can have up to eight pouches for various tools of the trade.

Here is a particularly ornate sheath – with one of the Chakmaks beside it:



Ted launched into the types and styles of Kukris. There are a lot of intermediate forms, so classifying Kukris is more an art than a science.

A Borjapor (sp?) style has a bigger belly on the blade. The Sirupate style has a leaner blade. The longleaf and broad-leaf Kukris are traditional forms of the blade that were known from the 1700s up to World War I.

And a more modest wooden sheath:

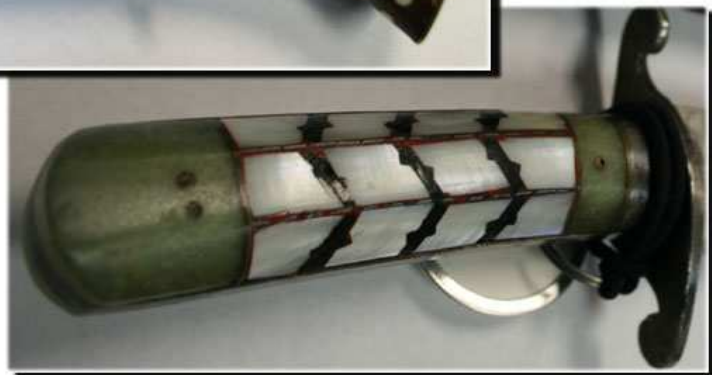


From the time of WWI forward, the bulk of Kukris were mass produced for the army. The Mark 1 – made up until 1915 – had a lot of variations. The Mark 2 was produced from 1915 to about 1943. After 1942, these Kukris lost the raised ring in the center of the handle. The Mark 3 was produced from 1943 through 1963 – these are cheaper, stamped out blades. Mark 4 Kukris produced by Wilkinson Swords are a prized find for the collector. Although 1400 were manufactured, they are now rare. The Mark 5 is produced up to today.

The handle of the Kukri flares at the butt – which is excellent for keeping a grip in slashing or chopping strokes. Traditionally there is also a raised ring in the center of the handle that aids in “keeping a grip.” Ted noted that some Kukris have several such rings built into the handle.



To the right you see several handles exhibiting an array of artistic embellishment:



There some other interesting blades passed around – such as this Nepalese Kora:



And then of course there were some pass-arounds from within the club.

Here's a beautiful Goddard fighter (cough cough – I mean Chef's Knife):



And Mighty Mike brought in this wee cleaver based on the pattern of an old family knife:



Plus three knives that were a collaboration with his brother-in-law – he's infected a relative with the blade bug!



And once more – off into the night – *Thank you Ted Fitzwater for a great evening!!!*



DE-CLASSIFIEDS

Buy/sell/trade/etc. notices received by the editor. I'll repeat notes a few times then drop them unless I hear that the deal is still on. Postings are not backed by anyone other than the person who sent in the notice. We're an honorable group of people but still, misunderstandings can occur and it's up to the folks making a deal to check it out first.

Larry "Bear" Criteser has a commercially made oxy/acetl. cart with an 80 or 100 cubic ft. oxy bottle (not sure which) with unknown amount of gas in it, for sale. No acetl. bottle, sorry. He'd like to get \$75 for the cart and bottle. He also has an extra oxy bottle the same size as the one with the cart, with some gas in it for \$40. Home phone is 541-689-5680, or email at [<bearsgunnery@criteser.com>](mailto:bearsgunnery@criteser.com)

Marty has a 6" jaw width post vise for sale. Also 1050 and 5160 steels, old files to make knives out of, and anhydrous borax. Martin Brandt 541 954-2168

Wayne's totally revised **Wonder of Knifemaking** is now available. And I believe he still has an active free steel pile beside his driveway, and an ongoing tool sale. Call for an appointment: 541 689-8098.

Mighty Mike has access to a steady supply of used LARGE brake drums that can be welded up as bases for post vices, grinders, propane forges or whatever. Let him know if you are interested: Mike Johnston 503 351-3104.



MISC. NOTES

Remember the Keith Johnson set us up with a public page in Facebook – which can serve as our meeting place in the virtual world:

<https://www.facebook.com/pages/5160-Club/193010470733488>

As always – old newsletters can be found at:
<http://www.elementalforge.com/5160Club/>



And thanks to everyone for your patience with the editor. He's been run ragged for the last few months and it doesn't look like it will let up any time soon!

Since I've got almost half a page to fill I'll paste in a shot of a pattern welded sword recently completed by Jake Powning who I believe lives in Eastern Canada:



Take a closer look here:

http://www.powning.com/jake/home/j_homepg.shtml

And some "making of" shots in a forum thread here:

<http://forums.dfoggknives.com/index.php?showtopic=21538>

And with that - "It's a wrap" - I hope to see you at the December 1 meeting for the results of the "Great Makeshift Knifemaking Contest" - it will be a hoot!

Michael Kemp