

∞ EUGENE 5160 CLUB ~ JANUARY 2014 ∞



JANUARY MEETING

The 5160 Club will meet at Woodcraft of Eugene (Delta Oaks – Beltline & Delta Hwy) January 2nd at 6:00 pm. There'll be show & tell & pass-arounds. I'll bring in the results of my latest testing of 20 different wood treatments. And I'll pass the hat to collect for the April OKCA table fee for a 5160 Club table.



DECEMBER MEETING

The December meeting was just a couple of days before the OKCA mini-show, and Grand Poobah Goddard was busy in his shop with last minute work. Notwithstanding – there was plenty of show-and-tell to make it another great meeting of the 5160 Club!

ERIK LAND was first up - “to gloat” as he put it. He had entered one of those on-line forum raffles (on knifedogs.com) that HHH Custom Knives puts on to give away some Damascus billets. “500 people always enter and you never win.” Erik said. “BUT I DID!”

Erik passed around the billet he won plus another billet of feather Damascus that he purchased.

In answer to a question Erik said he paid \$250 for the feather billet. There was discussion about the process of making the feather pattern. *My understanding is that it involves making a billet of crushed Ws, stacked tall, hot cutting with a blunt cutter to create the stretched lines of the feather, forge weld the cut back together, and then shape and slice the billet.* Here's a tutorial by Bruce Bump:

<http://knifedogs.com/showthread.php?5603-quot-W-quot-s-from-Walla-Walla> (use the “Display” selector to go to “Linear Mode” for easier reading) With all the steps involved, the price is a bargain!

Here's the winnings:



CRAIG MORGAN stepped to the front with a box of mysteries. Since we were on Damascus, Craig first passed around a bar of Ed Schempp Damascus that I believe is called “Explosion” pattern - plus a mosaic tile Ed made with yin/yang symbols and Chinese characters embedded in it. Here are Erik's feather and Craig's explosion patterns:



... and the mosaic tile with tiny, precise patterning:



(those sausages on the left are my fingers, for scale)

Then Craig passed around a cutler's anvil that Jim Jordan made years ago. It's a light weight anvil with lots of holes and slots for doing finer work – such as final assembly (with a quarter on top for scale):



Craig praised and passed around a “Kant Twist” clamp that pinches down without the inevitable twisting you get with a C clamp:



And a set of parallels and a set of 1-2-3 blocks – useful in securing even odd shaped pieces (like antler) for working or drilling.



And an adjustable tool handle. They're handy for holding any small hand tool – files, gravers, drill bits, abrasive rods, etc.



Craig swears by the adjustable handle and various clamps and chucks when working on projects like this miniature Bowie Craig made:



(quarter for scale)

This is a phosphor-bronze scraper – square on one end and beveled on the other – for use in cleaning up partly cured epoxy before it fully hardens without scratching the steel blade. *I've used a sharpened brass rod for this purpose – I'll have to make myself a scraper like this one for better flat contact with the blade.*



And to end with, Craig shared a story about “stabilized” wood – where a knife he'd made had the handle shrink over a period of months. So even with a “stabilized” piece of wood: put it under a drop light or in a drying box before you fit it to a blade. I believe this cable Damascus blade is the one he was talking about – with died/stabilized birch wood handle:



MICHAEL KEMP (that would be me) took the front and shared what little I've learned so far about forge welding. I've done welds both with and without borax and had success (and failure) both ways – so when I can get away with it I'll skip the borax and the mess it makes in the forge.

Martin Brandt noted that he made a castable refractory “tray” in the bottom of his forge and it holds its own against the ravages of molten borax and just slowly fills up. In my forge the bottom is also tray shaped, but I fill it with clay-based kitty litter. The molten borax solidifies in the cat litter and you pick out the chunks and toss them (and add fresh kitty litter) before you heat up the forge for the next session.

Larry Criteser wondered about burning up your steel if you don't have borax on it. I have to admit, that has been an issue for me. Even when you have a few inches of yellow flame coming out of your forge door (meaning you do not have an oxidizing atmosphere in the forge) – as soon as you pull the billet out into the free air, scale forms.

I've seen photos and videos of other smiths working without borax and apparently not having as much material loss to scale as I'm having – but then again they are skilled enough to work the billet faster than I can and I'm sure that has something to do with it.

JIM JORDAN was asked about the various slots and holes in the cutler's anvil and demonstrated some uses with his pocket knife.

Jim then shared a small fixed blade knife he made via stock removal from a D2 circular saw that was originally used in a paper mill. It has a stabilized burl – partial tang – handle.



MARTIN BRANDT has been working some old rototiller tine into a blade... which can be a bit of a challenge when you have to test-and-guess about steel composition and work around bolt holes and such... but Martin loves working with recovered material.



From spark testing and how it works at heat, Martin is wondering if it is an S series steel.

He also showed us a horseshoe he made into a tack hanger.

There was discussion about upcoming OKCA shows and how we all have difficulty finishing blades.

I took the front again to gauge interest in having a 5160 Club table at the April OKCA show. It was decided we would do it!

We talked a little about the upcoming tire hammer build workshop. I'll be going up to that a few days after our January meeting – so I'll report back on how that went at the February meeting. You can get the plans for this hammer for \$30 – about 1/2 way down this web page:
http://www.alaforge.org/Trading_Post.html

We talked about different power hammer designs, and the going price for a Little Giant.

Talk drifted to forge design and fuel options – and whether different designs/fuels can achieve forge welding heat. Now I usually forge weld in the 2200-2350F range (above 2350F I'm not only pushing the rating on my forge insulation, I'm getting into the “burn” range for steels that I work with) – but other smiths forge weld at lower temps – notably JD Smith seems to weld around 2000F. Given that, with a proper design wood/coal/propane could each be used. More of an issue is control over the oxidizing or reducing atmosphere within the forge.

I had heard first from John Emmerling, then noticed it elsewhere, that a critical step in getting a solid forge weld is that once you have hammered or pressed the layers together at welding temp and returned the billet to the forge: let it heat up and sit at welding temp for 15 minutes. It's my understanding that the welding really occurs during this long soak. After you've got the layers in tight contact, this long soak allows “diffusion welding” to take place – where bonds between atoms shift and form across what used to be a boundary – and new steel grains form across the old boundary. This is different from arc or torch welding where you are creating a combined liquid area to bond two pieces of metal together.

Martin said he'd heard about the same: “Put it in the forge and go smoke a cigarette” not that he was advocating cigarettes – just that this was what he'd been told by experienced smiths.

We discussed borax versus kerosine versus nothing. Martin talked about watching Britons forge weld without flux in a coal forge. This has also been

mentioned in a couple of the threads I've been watching on “no flux” welding in the online forums. **Kevin Cashen** has posted a page of microscopic imaging of two identical billets that he forged: one with – and one without – borax flux.

<http://www.cashenblades.com/dryweld.html>

Here's the thread on ABS about no-flux welding:
<http://www.americanbladesmith.com/ipboard/index.php?/topic/1361-dry-forge-welding-damascus-without-flux-or-kerosene-topic-for-december-2013>

And here's the thread on Bladesmith's Forum:
<http://www.bladesmithsforum.com/index.php?showtopic=27937>

From there I mentioned my current project. I took 40 blocks of cherry wood which I got bone dry. Then I applied 20 treatments (2 blocks each), used G/Flex to glue them to steel straps (sanded to 400 grit) and subjected them to cycles of:

- 30 minute soak in hot soapy water
- Scrub with scrub sponge
- Rinse
- Dry
- Repeat



Currently I'm on the 5th cycle – you can see my results on my web site: <http://elementalforge.com/blog/?post=10> and I'll bring the blocks to the January meeting. For full description of the treatments and last posted results: <http://elementalforge.com/blog/wp-content/uploads/WoodKitchen2013.html>

Once again, simple cooking oils are doing surprisingly well – you can be the judge at the January meeting.

Also – another surprise to me – is that G/Flex isn't

performing nearly as well in this application as Loctite E-120HP epoxy did in the 2011 test. Of course, E-120HP is more expensive – and that's before you shell out the one-time cost of \$40 for a “manual applicator” (ain't that just a sweet little “Oh by the way”). E-120HP only seems to have a couple of years of shelf life once you pop the cartridge cap... but I'm sipping coffee from a steel-and-plastic insulated cup that I glued the handle back onto in 2011 and it has held up over the years. Around me, that ain't bad.

KEITH JOHNSON shared an Applegate-Fairbairn fighting knife that he was lucky enough to find at an estate sale the previous weekend. This is one of the original models (made by Blackjack). Keith gave us the background. Col Rex Applegate wanted to improve on the Fairbairn-Sykes fighting knife and while he claimed to have collaborated with LTC Fairbairn, he pretty much did the redesign himself. Bill Harsey made the first batch (*Bill Harsey spoke to the 5160 Club back in September 2010*) but the close-to-handmade approach was too expensive and slow. Blackjack was given the contract, and produced about 7000 knives. But once again it was more expensive than Applegate wanted, and there were problems with the handle design (which tended to crack). The contract then went to Al Mar, who made some design changes. Al Mar revised the handle and made their version with laminated wooden handles. Keith relayed how Applegate didn't approve of the wooden handles and gave the contract to Gerber. Gerber made the dagger for some time. Gerber still makes a folder version, but it is Böker who now makes a couple of versions of the dagger.

Keith passed around his Blackjack A-F dagger – a piece of history!



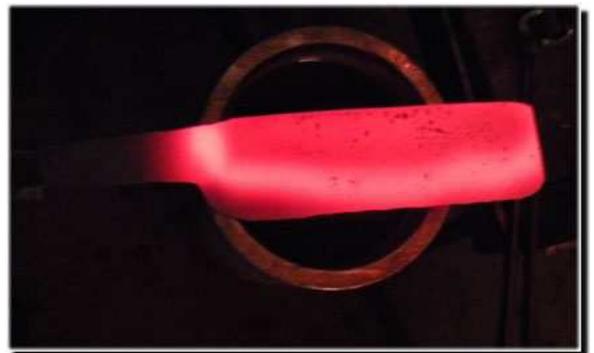
Between the meeting and the writing of this newsletter I've gotten some photos from **MIKE JOHNSTON** I'd like to share. Here's how he clays up his blades (some smaller blades and “Dark Wave's Big Sister”):



And to get an even heat treat for a long blade like the Big Sister he took something he noted about Wayne Goddard's forge – he extended the back opening of his vertical forge with a simple wrap of Inswool with the new rear opening created by soft high-temp bricks. Mike warns that one has to be aware that this brings the forge heat that much closer to the wall – note the hard firebrick propped up on the wall in front of freshly scorched drywall.



And lastly – a good photo of recalescence:





MISC. NOTES

 I've added **Pine Ridge Burners** to the **WEBSITE LINKS** under **FORGE & REFRACTORY**. This is a type of burner reputed to be very quiet and efficient. They also offer the valves, fittings, blowers, etc. needed to build your own burner.

 I've added an **OREGON KNIFE MAKING CLASSES** section under **WEBSITE LINKS**. If you are aware of publicly available knife making classes in Oregon beyond what I've listed – let me know!

 I was intrigued by a posting **Alan Longmire** made on notes from an 1960 metallurgy book regarding decarburization, forge atmosphere, and how to test forge atmosphere with blocks of wood: <http://www.bladesmithsforum.com/index.php?showtopic=27937&page=2#entry265225>



FREE DE-CLASSIFIEDS (IN NO PARTICULAR ORDER)

Email me a brief description of what you are selling/buying/looking for with your preferred contact (phone/email/...). Unless you let me know you want a shorter run, I'll run the note for 3 months and then send you an email to see if it's still valid.

For Sale: Vises, hammers, misc bench grinders. One lapidary-double ended polishing machine, it has a built-in filter type dust collector. Too much else to list.

Call Wayne Goddard at 541-689-8098

Wanted: Looking for a good buffer, forging tools, etc.

Contact Mike Todd at mtodd@toyotaliftnw.com

For Sale: I have a TW90 grinder with all the goodies: surface grinder, 8" and 10", 70 Duro wheels, small wheel attachment with most sizes, 3 work platforms, and 10" platen. It's wired for 110 but can be 220. According to

Travis Wuertz I should be asking \$5,000.00 given that there is right at \$6,000.00 invested - and it would take 90 days lead time from the time you pay for a new one plus \$300.00 for shipping. So \$5,000.00 seems fair to me. It's almost new. I have only made a few knives with it! contact Ben Davis 1-541-423-5216 – located in Central Point, OR.

Looking for Training: I am a 66 yr old man with a strong interest in learning to craft fine cutlery. I have forged a half dozen knives over my lifetime, and I found the experiences very fulfilling. I spent 25 years working in building repair and construction and about 3 years working in a cabinet shop. I am somewhat familiar with hand tools and power tools in general. I often modify or make my own specialty tools as well as some parts for my mowers and truck. I have done some basic metal fabrication, but I have only spent a total of about two weeks working at a forge. I'm not very good at arc welding, but braising and soldering come almost second nature to me. I am currently putting a shop together which will include a small anvil and a coal forge which I inherited from my grandfather. They should prove adequate for working the small pieces of material I would expect to use in Knife Making.

My Bachelors degree is a 5 yr BFA in Visual Design from the U of O.

The V.A. has approved me for a training program. They are talking about an apprenticeship or part time minimum wage On-the-Job-Training position that they would subsidize, but the burden of finding such a position falls on me. I am seeking guidance. And a job helping out in someone's shop.

I am hoping that the 5160 Club might prove a resource in pursuing this goal as well as in gaining knowledge that can be used to refine my skill. I have been watching the ABS videos on YouTube and reading your newsletters. I am thirsty for more!

Contact: Allen Grush at a_grush@msn.com



WEBSITE LINKS

5160 CLUB

5160 Club Newsletters are archived at:
<http://www.elementalforge.com/5160Club/>

Hint: to Google the archive for a specific knife style or presenter name, use a search like this:
sami site:<http://www.elementalforge.com/5160Club>
or this:
ron lake site:<http://www.elementalforge.com/5160Club>

FORUMS

Knifedog Forum
<http://knifedogs.com/forum.php>

Bladesmith's Forum aka Don Fogg Forum
<http://www.bladesmithsforum.com/>

American Bladesmith Society
<http://www.americanbladesmith.com/ipboard/>

Usual Suspects Network
<http://www.usualsuspect.net/forums/forum.php>

Blade Forums
<http://www.bladeforums.com/forums/forum.php>

REFERENCES

Many of the sites linked under “Knife Maker General” have book & video sections. Our own Wayne Goddard's books are available at Amazon:
<http://www.amazon.com/Wayne-Goddard/e/B001JS9M10>
And you can email Wayne directly for his DVD at wgoddard44@comcast.net

Here's a few other useful references:

Verhoeven's Metallurgy For Bladesmiths PDF
<http://www.feine-klingen.de/PDFs/verhoeven.pdf>

Verhoeven's updated book:
<http://www.amazon.com/Steel-Metallurgy-Non-Metallurgist-J-Verhoeven/dp/0871708582>

ZKnives – Knife steel composition/comparison/etc.
<http://zknives.com/knives/steels>

Kevin Cashen's Bladesmithing Info
<http://www.cashenblades.com/info.html>

Tempil Basic Guide to Ferrous Metallurgy
http://www.tempil.com/wp-content/plugins/download-monitor/download.php?id=Basic_Guide_to_Ferrous_2010.pdf

GENERAL TOOLS & SUPPLIES

Woodcraft Eugene – special thanks to Joe & the crew! 1052 Green Acres Rd Eugene, OR 97408 (Delta Oaks Shopping Center) 541 685-0677
<http://www.woodcraft.com/stores/store.aspx?id=515>

MSC Direct
<http://www.mscdirect.com/>

Grainger
<http://www.grainger.com>

Surplus Center
<http://www.surpluscenter.com/>

Victor Machinery Exchange
<http://www.victornet.com/>

OREGON KNIFE MAKING CLASSES

Gene Martin offers personal instruction at his shop south of Grants Pass for a daily rate.
<http://www.customknife.com/>

Michael and Gabriel Bell offer a constant series of small group classes in Japanese style sword forging and fittings. Located on the southern Oregon Coast.
<http://dragonflyforge.com/>

Murray Carter offers small group classes in a variety of subjects, primarily focused on traditional Japanese cutlery. Located in Hillsboro.
<http://www.cartercutlery.com/bladesmithing-courses/>

KNIFE MAKER GENERAL

Knife kits, steel, tools, machines, supplies such as handle material, fasteners, belts, glues, finishes, etc.

Jantz Supply
<http://www.knifemaking.com>

Texas Knifemaker's Supply
<http://www.texasknife.com>

USA Knife Maker's Supply
<http://www.usaknifemaker.com/>

Knife and Gun (K&G)
<http://www.knifeandgun.com/>

Alpha Knife Supply
<http://www.alphaknifesupply.com/>

KNIFE STEEL SOURCES

New Jersey Steel Baron
<http://newjerseysteelbaron.com/>

Niagara Specialty Metals
<http://www.nsm-ny.com> (click Products/Knife Steels)

SB Specialty Metals
<http://sb-specialty-metals.com/products/knifesteels>

Bohler Uddeholm
<http://www.bucorp.com/knives.htm>

Pacific Machinery & Tool Steel – Portland, Oregon
<http://www.pmtsc.com/tool-die-steel.php>

2X72 BELT GRINDERS

Beaumont (KMG) – the industry standard
<http://www.beaumontmetalworks.com/shop/>

Travis Wuertz – premium brand
http://www.twuertz.com/Home_Page.php

Pheer – affordable, satisfied customers on the forums
<http://www.2x72beltgrinder.com>

Coote – affordable, reliable – you supply the motor
<http://www.cootebeltgrinder.com>

Grinder-In-A-Box – low cost – assembly required
http://www.polarbearforge.com/grinder_kit.html

Wayne Coe – grinders, motors, VFDs, etc.
<http://www.waynecoeartistblacksmith.com>

Contact Rubber Corp – wheels etc.
<http://contactrubber.com/contact-wheels.asp>

Sunray – drive wheels
<http://www.sunray-inc.com/drive-wheels/>

True Grit – grinder belts
<http://www.trugrit.com>

FORGE & REFRACTORY

Chile Forge
<http://www.chileforge.com/>

Mankel Forge
<http://mankelforge.com/forges.html>

High Temp Tools (scroll down the page for the category buttons)
<http://www.hightemptools.com/supplies-mainpage.html>

Omega – thermocouples & measuring equipment
<http://www.omega.com/>

Auber – more thermocouples and controllers, etc.
<http://www.auberins.com>

Hybridburners – home of the venturi T-Rex
<http://www.hybridburners.com/>

Pine Ridge Burners – for ribbon burners and all associated fittings, blowers, valves, etc.
<http://www.pineridgeburner.com>

Zoeller Forge – low cost venturi & parts: Z Burners
<http://zoellerforge.com/>

BLACKSMITH

Blacksmith Depot
<http://www.blacksmithsdepot.com>

Pieh Tool
<http://www.piehtoolco.com>

Centaur Forge
<http://www.centaurforge.com>

LOGO/ETCHING

Ernie Grospitch – Blue Lightning Stencil
<http://www.erniesknives.com/>

IMG International Marking Group
<http://img-electromark.com/>

OTHER GOODIES

Sally Martin Mosaic Pins – So. Oregon
<http://customknife.com/index.php?cPath=13>

Burl Source – handle blocks/scales – So. Oregon
<http://www.burlsales.com/>

Gilmer Wood – N.W. Portland
<https://www.gilmerwood.com/>

Oregon Leather – 810 Conger Eugene and 110 N.W.
2ND Portland
<http://www.oregonleatherco.com/>

Coyote Steel – misc., scrap, copper, brass, bronze –
Garfield & Cross St. Eugene
<http://www.coyotesteel.com>

Cherry City Metals – Salem, Oregon – metal
recycling and useful objects
<http://www.cherrycitymetals.com/>

Amtek – tool steel & cutting tools
<http://websales.amtektool.com>

Rio Grande – jewelry tools/supplies
<http://www.riogrande.com>

Otto Frei – jewelry tools/supplies
<http://www.ottofrei.com>