

EUGENE 5160 CLUB ~ AUGUST 2015

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AUGUST MEETING

August 6th – 6:00pm at David Thompson's shop. If you didn't get the directions in the meeting notice, email me for them: michael@elementalforge.com.

Bring your latest project or show-and-tell!



IN THE MEAN TIME...

We skipped the July meeting, but in the mean time **MIKE JOHNSTON** finished up a few blades that he sent me photos of:

Here's a camp/kitchen knife in classic Goddard style. "8 1/8 inch forged 5160 blade with a mustard finish. VERY flexible blade, 3/32 at handle with a continuous distal taper. OAL 13 3/4". Handle is black walnut with 10 brass pins (hidden tang). I did not quench the tang but it hardened anyway. So hard that a new high speed drill bit would not cut, slow speed with cutting oil!"



And here's Mike's interpretation of a nakiri bocho (Japanese veggie knife). "7 1/4" blade forged and flat ground from Ford coil spring. 12 1/4" OAL handle is octagonal in cross section from brass, maple burl and Peruvian walnut. Very light and very sharp."



And here's a set of hunting knives. Mike says "I thought my hunting partners needed a new knife for our upcoming caribou hunt. A little field testing never hurts."

"The blades are 3 3/4" hidden tang forged from Ford pickup coil spring. Handles have a brass guard with a combination of black walnut, curly maple and zebrawood and one mosaic pin in each."



And your truly (**MICHAEL KEMP**) got another of my kitchen knife series done. Since it sold and is now on the East coast (I can't bring it to the meeting) I'll include it here.

I've decided to call this design style my "Sylvan" line. Somehow "Jester's Shoe" just didn't seem like good marketing.



This kitchen utility knife's 5" blade is of 1095/15N20 Damascus from a 700 layer billet. It's just over 9" overall. I made the handle longer than the prototype based on our daily use of the prototype knives. The

bolster is brass with red and black spacers. The handle is bubinga finished in a mix of bee's wax, carnauba wax, and food grade mineral oil. This mix is food safe and stood up well in my testing and in daily kitchen usage. That's a Sally Martin mosaic pin.

I've been struggling with how to get the etching and highlighting effect I want with high layer count Damascus. And with how to keep the dark oxides from wearing off during use.

This time around I let it etch three times as long as I had in the past – using multiple 30 minute etches in a dilute solution of ferric chloride, then rinsing and briefly sanding with 2000 grit paper between dunks. I got a much deeper etch than “just enough to bring out the pattern.” Then I used a trick someone on the forums mentioned to set the dark oxides. After the final 2000 grit sanding I coated the blade with cooking oil and heated it over a burner until it was hot to the touch, then let it return to room temp. I repeated this process several times. My hope is that this will set the color – like seasoning cast iron – so that it will keep its color longer in kitchen use.



The result was higher contrast than my prototype knives.

It has the best fit-and-finish that I've done so far (if I do say so myself). Who says old dogs can't learn new tricks?

From the learning-by-goofing-up department: Be careful of overheating mosaic pins when working with them at the grinder. If you get the mosaic pin hot the colored epoxy in the pin can liquefy and leave tiny voids.



JUNE MEETING NOTES



MICHAEL KEMP (that would be me) started the meeting. I brought in my current “blown burner” setup. I had been using a T-Rex burner with good results... until I started working with forge welded Damascus.

Maintaining temps at 2,250°f caused my 5 gallon propane tank to freeze up over time. I have a bad back and don't want to horse around a larger tank, so I set up a T connection that allows me to have two tanks in use at the same time. That eliminated the freezing and has the added benefit of allowing me to swap out a low tank without turning off the forge.

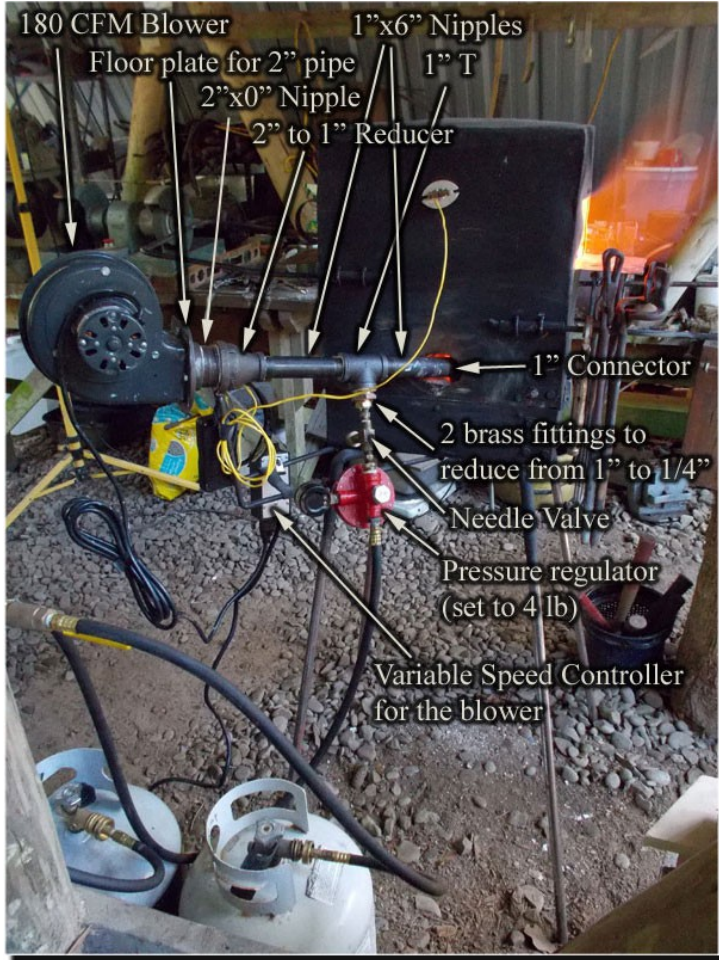
But that only got me part way there. With the T-Rex burner size I had and the configuration of my forge, if I pumped enough propane through the venturi burner to hold the temperature it was a wastefully rich atmosphere. That's better than an oxidizing atmosphere, but I wasn't happy.

Wayne Goddard's advice that for serious Damascus work you need a blown burner came back to me. The photo on the next page is what I wound up with. I'm using smaller diameter pipe than Wayne, I believe, but it works right for the size and configuration of forge that I have... your mileage may vary.

This works great for forging and welding temps, but for heat treat I could not run it low enough to hold the temperature down in the 1,500°f range. My solution was to get the next smaller diameter of pipe, grind the outside of it down until it slips inside the final 1"x6" nipple. That constrains the gas/air mix so that I can hold the lower heat treat temps. I pull the smaller pipe out for welding, put it in for heat treat. I drilled and tapped a hole in the 1"x6" pipe for a set screw to secure the smaller pipe when it is in use.

Even with the small pipe in place and my variable speed fan set to the lowest setting PLUS completely

covering the fan intake, the fan pulls too much air in through the motor assembly! On my recent visit to John Emmerling's shop I saw that he uses a gate valve between the fan and the propane nozzle to control the air. So the photo below is accurate except that I've added a gate valve between the fan and the propane. And these days I leave the pressure regulator set to 10 pounds and control the propane with the needle valve.



I got all the black pipe from a hardware store plumbing department. DO NOT USE GALVANIZED PIPE – the zinc will vaporize at high heat and can make you sick. The “bell” on the end of the burner is just a 1” connector. I didn't smooth it out or anything.

You should be able to get the brass fittings and regulator at a BBQ supply shop – or check the “Forge & Refractory” section at the end of this newsletter. I got the squirrel cage fan at a pot grower's supply store – but Mike Johnston clued us in that you can get them cheaper at a wood stove store or manufacturer.



JOYE LACHMAN-CURL started a discussion on damping the ringing of an anvil. Magnets or chains attached to the anvil are sometimes used. Putting silicone calking under the anvil was also mentioned.



DAVID THOMPSON shared a knife that his daughter Ellie brought home from one of her travels. She went to Borneo on a break from college – to set up solar panels for villagers, etc.

Being a blacksmith's daughter, she asked around until she got introduced to the local blacksmith. He was back behind a bunch of huts, sitting on the ground working on an anvil.

“Here's this little blond girl with the little Borneo blacksmiths saying 'Hey I'm a blacksmith too!' ... and they got her in there working.” They were using charcoal for their forge and put her to work running the hand pumps for the forge. “Working two pipes – two tubes that go into the fire – she says there's a knack to it.”

She bought the knife shown below as a gift for her dad. David passed it around:



MIKE JOHNSTON was up next. “I’ve gotten hooked up with an outfit called TMart” he said:

<http://www.tmart.com/> which has lots of items for low prices. They have free shipping with three to five weeks deliver time because it's all coming directly out of China. Mike got an infrared thermometer gun from them that he demonstrated and passed around. “They've got several grades of these – this one goes up to 2,102°f down to -58°f... I believe the highest one is rated up to 2,700°f”. Mike tested on 5160 when it was going through decalescence and it was right at 1,520°f every single time – right on the nose. So Mike is happy with it. The only drawback being that the laser pointer is slightly offset from the point that it reads temperature from.

TMart sells everything from corsets to LED automobile light bulbs to “you name it.”

Mike's second share-n-tell was a “thin flexible kitchen knife... forged out of a Ford coil spring – just playing around. Sanded to 400 grit.”



“Since I had the forge going I did something I've been wanting to try for quite a while... a straight razor. And since I don't have a contact wheel to make the hollow grind I used a curved wooden platen that was attached to my metal platen...” The handle is bocote. Mike hand-made the pins.



Mike referred to Murray Carter's video on sharpening a straight razor.

Mike also brought a batch of cookies his wife made – Yum - Thanks!

FRANK BOBBIO started off by saying he'd just bought a tumbler (a rock tumbler to be used for cleaning/texturing parts). He asked for recommendations for stonewashed finish &/or deburring fresh cut parts. The Leatherman factory was recommended for getting scrap metal punch-outs to be used for such purposes. Rock shops are a source for lots of sizes of grit. Eugene Lapidary supply on W 11th for example. 3/4minus gravel and nut shells were also mentioned.



There was quite a bit of discussion about the curious construction of the tumbler Frank had gotten off of Craig's list.

Frank then shared around a railroad spike dagger he made recently. “This is the first double-edged knife I've made in a while!”



MARTIN BRANDT asked if there was anyone present who was just setting up their shop “trying to find

tongs and that sort of stuff? Well I brought in a few of my toys. Over the years I've got tongs that work now, but rather than trying to find the perfect tongs the main thing is just to get to work... you don't have to have brand-new fancy stuff. You can make your tongs – adapt stuff – garage sale finds...”

As an example Martin showed what had been a set of pull-off nippers from a farrier that he modified slightly as tongs for holding railroad spikes. He ground slots in the jaws so that he can hold a spike firmly without dinging up the head of the spike. (It was noted that these nippers are high carbon steel – so don't get them orange hot and toss them in the water bucket or they'll crack.)

Martin took a pair of flat-jaw tongs “which are nigh unto worthless for just about everything” (*my sentiments exactly!*) and made a custom box tongs out of them. Or start with 3/8” mild steel round bar or similar and make tongs from scratch.

Martin described the process: Get a couple of inches of the end hot. Quench the very tip and upset so you get a fat spot where you can flatten it for the hinge rivet hole. Draw out your tip to the shape you want – then rivet the two halves together.

Mike Johnston mentioned using long flat jawed tongs from Harbor Freight as a starting point for making your customized gripping or scrolling tool.

Here's Martin's set of examples:



There was general discussion about padding various tools (vice grips, scrolling tools, vices, etc.) so that they don't mark soft metals. Leather, rubber, plastic, shrink-to-fit tubing were all mentioned.

... with the caveat that you don't want rubber or plastic anywhere near the forge!

“Ooo yah” said Mike “and don't leave your butane lighter near the opening of your forge while it's running because it'll go flaming all over your shop when it burns through! ... it was fairly dramatic for quite a few seconds.”



WALTER HARDCASTLE

came to the front and shared “my first forged-to-shape blade” that he'd made in David Thompson's shop with help from David and Martin.

“It needs another day's work but it was really great” getting hands-on instruction from David and Martin.

ERIC LAND relayed a cautionary tale about warranting your work without checking for reasonable usage. Eric makes very nice gentleman's folders.



“I just got my first folder back in for repair. I ran into someone who had purchased a folder some time ago and asked 'How's the folder going?' and he says 'It's broken.' 'It's broken? Why didn't you call me and tell me?'...”

so Eric gets the folder back to work on it for free. The spring is broken. There are little marks along the back spine of the blade. So Eric contacts the owner “What were you doing with it?” “Well I was batoning some limbs with it.” “I'll fix this one for free – the next one I'll charge you!” As if a gentleman's folder is the proper blade to baton anything with!

Someone in the group asked “so was it still sharp?”
Yes it was!

Eric has changed his construction techniques since the folder was originally made – so he took it all apart and rebuilt it.

Eric uses O1 steel for both spring and blade but is considering something more stainless.

This led into discussion of the finicky heat treat needs of stainless and the pros and cons of sending it out for professional heat treatment. With some stainless you can get decent results using dry ice and denatured alcohol. Others need liquid nitrogen.

Frank Bobbio had done testing of liquid nitrogen quenching with blades made from 5160, O1, ATS34, and 440. He used rope cutting ability to see how sub-zero affected edge holding. “It seemed like the stainless steels picked up some edge holding ability” but not so much the 5160 and maybe a little better for the O1. He also tested the breaking strength of the blades and was surprised how easily the stainless blades snapped.

“The O1 became my go-to steel because of the edge holding and toughness.”

Mike Johnston relayed how Ed Fowler described his experience with 52100 and cryo treatment. Ed experienced both better edge holding and more toughness in the steel with cryo treated 52100.

Frank chimed in saying that Bob Kramer has called 52100 the best steel for kitchen knives.

The meeting broke up into smaller conversations at that point and I packed it up and headed home happy!

~ ~ ~ Michael Kemp



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. It's free – email me at Michael@ElementalForge.com

D2 Planer Blades for Sale: Joel Puckerson sent an email saying: I have over 200 D2 planer blades available that vary between 6 and 25 inches for knife making at reasonable cost. My contact info is jpcustomknives@gmail.com and (541) 220-3629.



NOTES AND REMINDERS

The **Northwest Knife Collectors Kelso Show** will be September 26-27 at the Red Lion conference center in Kelso. Watch here for more details: <http://www.nwkc.org/home.html>

I finally ran down the original article on making a ribbon burners that John Emmerling wrote back in 2005 for the NWBA Newsletter: <http://blacksmith.org/2005-1-hot-iron-news/>

You can download the PDF from that site. John's article starts on page 11.

There's a new set of epoxies made specifically for bladesmiths, created by a man with a decade of experience in making fishing rod adhesives. <http://www.bladebond.com/Products.html>
If you try some of this stuff, I'd love to know which product you tried and how you liked it!

Also, the “Technical Data” page on the BladeBond site has informative notes on surface prep for various materials and other epoxy issues.

Valley Stainless (that does water-jet cutting) is one of Craig Morgan's customers. They told Craig “bring in a pattern” and they'd work with you on small batch cutting. They don't have a website yet. 29884 E Enid Rd Eugene, Oregon 97402 (541) 686-4600



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>

OREGON KNIFE COLLECTORS ASSOCIATION (OKCA)

The OKCA hosts monthly dinner meetings where you are guaranteed to see treasures from the wide world of “things that go cut!” OKCA also puts on the big knife show in April – if you haven't seen it you've been missing somethig special!

<http://www.oregonknifeclub.org/index.html>

Go to the “Knewsletter” link and scan a recent newsletter for a membership form and contact info.

FORUMS

Knifedogs 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

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

My “Knife Info” has some knife musings and cheat sheet charts – plus Oregon and Eugene knife laws:

http://elementalforge.com/tips_notes/

PACIFIC NORTHWEST 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/>

David Lisch is a ABS Master Smith who teaches classes in Seattle. I've heard rave reviews from his students. Lisch is very skilled at blacksmithing in general and bladesmithing in particular.

<http://www.davidlisch.com/Learn.html>

And speaking of the ABS (American Bladesmith Society) – if you are up for traveling a good distance to take classes, check out their “Schools” link:

<http://www.americanbladesmith.com/>

GENERAL TOOLS & SUPPLIES

Woodcraft of Eugene – thanks to Joe & the crew for six years of hosting 5160 Club meetings – we've had to move on, but the hospitality was appreciated.

<http://www.woodcraft.com/stores/store.aspx?id=515>

MSC Direct

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

McMaster-Carr

<http://www.mcmaster.com>

Grainger

<http://www.grainger.com>

Surplus Center

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

Victor Machinery Exchange

<http://www.victornet.com/>

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/>

True Grit

<http://www.trugrit.com>

KNIFE STEEL SOURCES

New Jersey Steel Baron

<http://newjerseysteelbaron.com/>

Kelly Cupples (High Temp Tools) – Alabama

<http://www.hightemptools.com/steel.html>

Niagara Specialty Metals – New York

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

SB Specialty Metals – New York & Texas

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

Bohler Uddeholm – numerous U.S. locations

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

Sandvic – stainless steels – Texas & Pennsylvania

<http://www.smt.sandvik.com/en/products/strip-steel/strip-products/knife-steel/sandvik-knife-steels/>

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

EQUIPMENT

Beaumont (KMG) [Ohio] – the industry's benchmark
2x72 belt grinder
<http://www.beaumontmetalworks.com/shop/>

Travis Wuertz [Arizona] – premium versatile grinder
http://www.twuertz.com/Home_Page.php

Pheer [Gresham, Oregon] – affordable grinder made
in Oregon
<http://www.2x72beltgrinder.com>

AMK [Ohio] – affordable grinder, quick-change
between platen & contact wheel
<http://amktactical.com/>

Coote [Port Ludlow, Washington] – affordable,
simple grinder – you supply the motor
<http://www.cootebeltgrinder.com>

Marinus Kuyl [Hillsboro, Oregon] – another
affordable grinder made in Oregon – and parts – you
provide the motor.
<http://oregonblademaker.com>

Grinder-In-A-Box – grinder kit, assembly required
http://www.polarbearforge.com/grinder_kit.html

Wayne Coe [Tennessee] – grinders, motors, VFDs...
<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/>

Quick and Dirty Tool Co. [Auburn, Washington] -
will build Spencer/Clontz style tire hammers
<https://www.facebook.com/QDTool>

Renaissance Metal Art [Mulino, Oregon] – 80# ram
air hammer
<http://www.rmetalart.com/tools.htm>

Anyang [Texas] – air hammers from 20# to 165#
<http://www.anyangusa.net/>

Meyer Machine Tool [Ohio] – treadle hammer
<http://www.meyermachinetool.com/Blacksmith-div-.html>

Spencer/Clontz tire hammer plans/workshops
http://www.alaforge.org/Trading_Post.html

Appalachian Power Hammer plans
<http://www.appaltree.net/rusty/index.htm>

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>

Quick and Dirty Tool Co.

<https://www.facebook.com/QDTool>

LOGO/ETCHING

Ernie Grospitch – Blue Lightening Stencil

<http://www.erniesknives.com/>

IMG International Marking Group

<http://img-electromark.com/>

Electro-Chem Etch

<http://www.ecemmi.com/products.html>

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/>

Shelton Pacific – stabilized wood – Shelton, WA

<http://stores.sheltonpacific.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>

M3 Composite – space age mokume & other

<http://www.m3composite.com/>