

EUGENE 5160 CLUB ~ MARCH 2018

<https://www.facebook.com/5160Club>

newsletter archive: <http://www.elementalforge.com/5160Club/>



MARCH MEETING

March 1st – 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 show-n-tell!

Request from the Thompsons:
“Please **drive very slowly** down our lane. The maintenance is all ours. Thanks.”



NOTES AND REMINDERS

OKCA April Show – April 6 members only 10am-7pm – **Open to the public** Saturday the 7th 8am-5pm, Sunday the 8th 9am-3pm (Public \$6/day - free to members) <http://oregonknifecolub.com/okcashow.html>

OKCA will have 2 tables at the Willamette Valley Arms Collectors Association show **March 17-18** at the Lane Events Center. Dennis Ellingsen is looking for knifemakers interested in displaying/selling at those tables! ibdennis@oregonknifecolub.org

Northwest Blacksmith Association – Intro Blacksmithing classes Portland, OR & White Salmon, WA; NWBA Conference May 11-13 Longview, WA; SwaptoberFest October 26-28 Longview, WA <http://blacksmith.org/events/>

California Blacksmith Association puts on a slew of events to the south of us. Check out their list: <http://calsmith.org/CBA-Events>

Bent River Forge aka Farrier Supplies – north of Monroe, OR has blacksmithing tools and supplies and ongoing intro to blacksmithing and other classes: <http://www.facebook.com/FarrierSuppliesOR/>

David Thompson – has coke and coal for sale (near Jerry's in Eugene, OR) – Talk to him at one of our meetings or call 541 688-2348.

DiamondBlade Knives (the friction-forging company that Wayne Goddard worked with) – Lynn Moore gives us a heads up that they will have an episode on Discovery Channel's “How It's Made”. The date is unknown so keep an eye out for it.



FEBRUARY MEETING NOTES



First up was **MICHAEL KEMP** (*that would be me*). It was the first time in the club's 9 years that Danita (my better half) came to a meeting and at first it looked like it was going to be a very small, dull meeting. Boy was I wrong.

I passed around the same blade I brought in January – with a light etch to show the pattern-welded design on the blade. The forge-weld pattern was not visible when I passed it around in January.

According to my notes from the workshop a couple of years ago the steels were 1075 for the edge of the blade and 1075/1018 for the pattern-welded parts. Since the meeting I've finished up etching the blade, Parkerized it, and hafted it. I didn't bother photographing it at the meeting but here it is all put together (I'll bring it to the March meeting):



The bolster and butt cap are leftover bits from billets I've made in the past – 1095/15N20. I took the advice from the January meeting and added another copper spacer to the handle. The wood is oak from our property that was aged a few years as a tree round in an open shed, then cut into handle blocks (with at least 80% fall-down) – dried, stabilized by K&G – and the blade and handle finished with my favorite wax/oil combo.



I forged this at a workshop at James Austin's shop in Oakland CA (www.forgedaxes.com). I took the workshop to learn the twisting process. Jim is a great guy – and if you want to learn how to forge a viking axe – check out his “Upcoming Classes”.

I've done a number of billets and knives with high layer count random Damascus but I'd never tried twisting a billet and “I wanted to see how much you twisted before it breaks – and I broke it.”

The blade was *supposed* to be made of two bars – plain 1075 at the edge and the forge welded billet at the spine. I was going for 2/3 of the billet twisted and 1/3 straight but I believe I let it get too cool while twisting and ruined the twist/no-twist junction – so I cut out the torn section and stretched out the no-twist section and stacked up: plain 1075 for the edge, then twisted Damascus, then no-twist Damascus at the spine. These are forge-welded together for the blade.

The rough blade sat at the back of my bench for years. Now that I finally finished the saex “all I have to do” is make a sheath for it.

There was discussion about techniques for twisting a pattern-welded bar. In the workshop I'd used an adjustable end wrench with an extra handle welded on. Here's a video showing the use of a jig and torch for making the twist. You can see what I mean at 4:20 <https://www.youtube.com/watch?v=vyUkYJeZtW4> In this awesome video the twisting is just a minor step in creating a “serpent in the sword.”

It should be noted that there is tremendous loss of steel in this process. Not only the loss to scale etc. in making the pattern-welded bar – but to reveal the star pattern you see in my blade you have to grind off as much as 1/3 of the bar from each side.

Mike Johnston relayed how he spent some time in Gearhart with John Emmerling. “He uses a commercial pipe threader machine to do the twist. He made a U shaped chuck on both ends. He takes his bar [*of pattern-welded steel at welding temp*] drops it in there, hits the switch, and presto: twists it up just tighter than the dickens.”



MIKE JOHNSTON came to the front next “since I'm talking anyway...” First he talked some more about spending time with John Emmerling at his shop. They made some Damascus out of 1095 and 15N20. Mike didn't mention the stock thickness but noted

that they used 3 layers of 1095, a layer of 15N20, and repeat to build up a billet.

“I said 'John, that 1095's all rusty' and he said 'So what?' 'But don't you have to have it clean to forge weld it?' 'Naaaah – it's just iron oxide – it converts back' 'But John, don't you have to use some flux' 'Naaaah – you don't have to use any flux' Alrighty – I'll be darned if it wasn't the truth.”

The propane dragon's breath forge was running at 2,320°f and John said “Just wait about 10 minutes and you'll see it [*the rust*] disappear...” Mike said that John's method was to hit it with the power hammer just a little bit – just tappy-tappy-tappy – then go over to the press and lightly squish the layers together, working from one end of the billet to the other (without reheating) – then throw it back in the forge. After a couple more iterations of soaking in the forge, tapping on the power hammer and light work on the press “it welded up just tighter than the dickens. Converted all that rust back into iron apparently, because there were absolutely no flaws whatsoever.”

Other than brushing off the forge scale there was no cleaning of the billet. They chopped the billet into 6 pieces, re-stacked them and repeated the process.

On the next pass they cut the billet in 5 pieces and stacked them up on edge. After setting the weld on this round they again rotated the bar on edge and flattened it all out. “And got some really cool looking Damascus! It's kind of a crushed W but a little

different – it's like no Damascus I've ever seen... it's just solid as a rock. Not the least little flaw in it.”

Next, Mike passed around a Nakiri style kitchen knife that he made out of a truck coil spring. The handle is ziricote with 3 copper pins from Sally Martin. The blade is secured in the sheath with a tethered Sally Martin pin with a ziricote head on it.



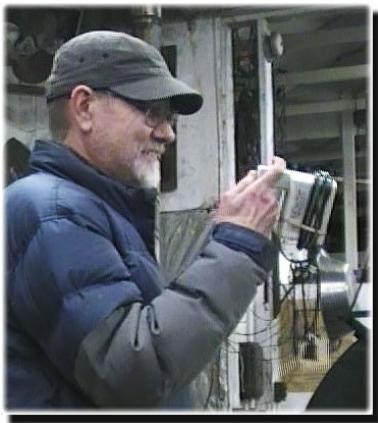
Mike noted that he came down with “a viral infection” in December that took him down for almost two months! So he only got back in the shop shortly before the meeting.

Then he unwrapped the big one. A Mainz style Roman gladius. The leaf spring steel blade is taken to a mirror finish. Brass plate at the front of the handle with black walnut bolster and pommel. Cow bone grip. Mike silver-braided a brass rod onto the tang to make a through-tang which he peened into a button at the back of the pommel.

“It's a little bit larger than typical at 23-1/2” and 2 pounds 6 ounces.”

He brought the unfinished scabbard that he's working on. The inner wooden scabbard is covered in calf skin. He will rivet the brass bands to the locket and add 4 hanger rings, a mouthpiece, and a brass chape.





JIM JORDAN was next up. He brought back a “find” from a trip to Arizona visiting family. “It’s a bulk demagnetizer for demagnetizing video tapes or 8 track tapes... they used to have these things called 'magnetic tapes'...”

“Was that tape something you used to tie things together with?” one of the younger folks chided him.

“This is the best deal I’ve ever made: 25 cents!” Jim bragged.

Now I’m fond of magnetized screwdriver bits and such – but for Jim, and others apparently, magnetized tools are a problem – for instance an engraving tip picking up loose chips while you work.

I suppose some of you younger folks might recognize this from a scene in Fight Club. Just count yourselves lucky you never had to put up with VHS picture “quality”. Or try to recover an unspooled 8 track or cassette tape.



“One of the guys at work brought me a piece of plainer blade” Jim went on – showing a Japanese style blade he made from it – noting that this blade has a soft body with a hard steel insert brazed into it. “It’s like san mai almost – without having to do any of the work!”

The line between steels was visible in the blade, but doesn’t show in my photo:



Mike Johnston mentioned that he has a bunch of paper shear blades that are similarly constructed.



PAUL HAINES got up next. “This is not a knife – but I probably made 250,000 of these things... if you don’t know what it is – you’re lucky!”

I never worked on a green chain, but my understanding is that the pickaroon was used to separate planks and cants as they came down the green chain.

Paul’s dad was a green chain foreman “and he got tired of re-forming the pickaroons that the mill bought so he started making ‘em. I got out of the army and worked with him...” and they pretty well sewed up the market in Oregon, northern California, southern Washington, and into Montana.



LYNN MOORE got up next with a wee small cleaver he’s been working on for a friend who does a lot of pig butchering and BBQs.

The steel is from an industrial circular saw that he got from Dennis Ellingsen.

He initially left some of the carbide teeth on – but the brazing didn’t hold through heat treat – so he ground off the gullets.

“It’s getting close but I’ve still got work to do. The wood is red gum burl – it’s getting’ there!”





Our next presenter said “We spent 6 days up in the Himalayas at some villages. One of the last evenings we found a goat that we could prep for the village elders, church elders, and the school board that allowed us to stay there...” The trekking chef gave him a knife like this first pass-around blade to behead the goat. “One fell swoop. Cleanest kill I've ever had on anything. And they used every ounce of that goat.”



The village elder presented him with this new knife in the same style that he'd used to behead the goat. He said that the village forge had a goatskin bellows that one guy would lay on the ground and pump – the air going through a wooden funnel into a tube in the ground into the forge.

“Since then we've used it to behead a lamb and we're about to do a whole bunch more... but it is so clean... in the village, all the grandmas, the little kids, everyone has one of these things hanging on a loose little thing on their belt or on a string [around their neck].” They use it as a general tool for lopping branches, firewood, everything.

“I want to make several because I'm so impressed with how clean it works.”

Next he passed around a kukri that he got in Kathmandu. “This one you can behead a cow with. One fell swoop and their head's off – water buffalo.”

In response to a question he described the process: one person pulls on the lead while another pulls on a back leg – so that it presents the neck properly – then chop close to the head “and it's instantaneous and clean – I'm just so impressed. It's clean and done. Instead of shooting or slitting the throat.”

Here's the water buffalo beheader. If I'm remembering right the spine was about 3/8" thick.



He also brought back a smaller kukri for each of his sons – and passed one around. This is an every-day-carry style kukri and sheath with pockets for a small knife and a small honing rod.



EDWARD DAVIS started out reminding us that he hates pocket clips – and that has led him into sheath making... and he has made a number of these designed for folders and pocket tools.

First he passed around a folder that he made from a kit a year ago in it's friction fit sheath. “I've been using it for about a year, but I found out that some people will actually freak out if they can see the knife on your belt.”

So he's making a sheath for it with a top flap.



I find this humorous, since Oregon is an open carry state – but hey – don't make the crowd nervous if you don't need to. Several years ago I researched Oregon and Eugene knife laws and verified them with both the Eugene mayor's office and the Eugene Police Department. Here's a link to what I learned: http://elementalforge.com/tips_notes/?page_id=146

Next Edward passed around sheaths that he has made for various sized folders and for a Leatherman. On the Leatherman sheath “I went a little overboard and lined it with fake crocodile – so I had to stitch it all around the flap to stay.”



A couple of these have a metal belt clip rather than a leather loop. He was concerned about whether a metal clip would securely hold the sheath to the belt – but his experience is good so far.

He noted that he is pondering ways to avoid having any metal (like the flap snap) exposed. He also noted that he likes saddle stitching as opposed to machine stitching because even if a thread gets cut it won't unravel. Edward also has tried several variations on stitching the belt loop, lining, and flap.

The red dyed sheath dried out the leather enough that when he went to fold the flap the leather cracked “so I guess you need to wet mold the flap over before using the red dye!” In response to a question he relayed that he is using Fiebing's Professional Oil Dye, which he noted has an alcohol base.

Mike Johnston shared that he combines the dying and wet forming by dying the leather and wet

forming it while it is still wet from the dye. “Works exceptionally well... and another thing you can use to wet form is a combination of alcohol and shellac because it makes the leather more rigid. And make sure not to wet form too warm – if you wet form with warm water it turns your leather into Masonite and it just shatters.”

STEVE GODDARD came to the front noting “I had somebody give me 100 plainer blades... I'm starting to make a few knives out of 'em. We were talking about finishes a few months ago...” adding that the finish on this one was done with a Scotch-Brite belt – which he loves. The handle is stabilized spalted alder. The pins are a brass tube with copper Sally Martin pins inside that.



He noted that grinding the hardened D2 goes through belts faster – “but it kind of nice not to have to go through heat treat and tempering.” One drawback is drilling tang holes in the hardened tang. There was discussion of using carbide drills at fast (or slow) speed to drill through hardened steel... as well as the high speed drill for hardened steel that Frank Bobbio mentioned back in October – the Artu “multi-purpose” carbide drill bits – run at 2,000 rpm. *I have not found these in Eugene – but you could probably special order them through True-Value.*

He also passed around a stacked leather handle garage sale find:





Our host **DAVID THOMPSON** shared a wire cup brush that he was curious about – in that it is impregnated with resin or wax – and was curious why that would be done. The general consensus was that this might be done either to

keep the brush from broadening out – and/or to keep wires from coming loose and spraying across the shop.



SHANNON JOHNSON said to start with that he was jealous of my very fine hat – so he came with his “shit head” hat – which looked cozy and is guaranteed to stand out in a crowd.



He noted that when he came he thought he'd have the biggest cleaver in the group “but I was quickly disabused of that idea!”

The cleaver is a family hand-me-down that he uses to chop ice with. He experimented with a mustard finish on the blade. He wasn't very pleased with his results after trying several types of mustard – which revived our “mustard finish” discussion which you can review in old newsletters by using the google search string: **mustard finish site:**<http://www.elementalforge.com/5160Club>



The other knife he passed around was a railroad spike knife.



As an aside re: drilling through hard steel Shannon said he'd had good results drilling a small hole through steel using an arc welder with the polarity reversed – then going back with a larger diameter drill bit to finish out the hole. “Worked like a champ. It just pushes the steel out rather than depositing on the steel.” A neighbor (who is a fabricator) had seen Shannon trying to drill through the chunk of steel and said “you'll never get through that” and told him about reversing the polarity on an arc welder.

There was some discussion about how well city neighbors might react to the noise if you set up a forge. “Invite all the neighbors over for open forging and they'll be your friends forever” chipped in David.

Mike noted that using a particle-board stacked stand for the anvil helps buffer the sound of hammering. Another approach was wrapping the anvil in bicycle inner-tubes and steel scrap. Or attaching big magnets to the anvil. Or putting a bunch of silicone under the anvil when you mount it on the base (let the silicone set up before mounting the anvil). Or using a combination of oil and sand (or sawdust) in hollow sections of the base.

And if you are in the city you're better off with a propane forge than coal!

And with that the meeting broke up into informal discussions...



Have fun and work safe!

Your Scribe ~ Michael Kemp



FREE DE-CLASSIFIEDS

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. No charge – just email me at Michael@ElementalForge.com

Knifemaker equipment and supplies are often put up for sale in the OKCA classifieds – so remember to check their newsletters:

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



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 a small show in December and the big knife show in April – if you haven't seen it you've been missing something special!

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

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

FORUMS

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

Knifedogs Forum (USA Knifemaker)
<http://knifedogs.com/forum.php>

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

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

Blade Forums
<http://www.bladeforums.com/>

Hype-Free Blades
<http://www.hypefreeblades.com/forum>

Peter Newman of Bent River Forge/Farrier Supplies has a closed Facebook group for Oregon Blacksmiths
<https://www.facebook.com/groups/173156733117832>

REFERENCES

Wayne Goddard's books are available at Amazon:
<http://www.amazon.com/Wayne-Goddard/e/B001JS9M10>
And you can email the Goddards directly for his DVD at wgoddard44@comcast.net

Most of the companies in the “Knife Maker General” links (below) have a section for how-to books and DVDs.

Verhoeven's Metallurgy For Bladesmiths PDF – this is a very deep dive, not an introduction.
<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

From the Heat Treating Society of the ASM – the Heat Treater's Guide Companion for Android devices. Look up heat treating details on hundreds of steels in the palm of your hand.
<https://play.google.com/store/apps/details?id=com.pfiks.mobile.heattreaters&hl=en>

My “Knife Info” has some knife musings and cheat sheet charts – plus Oregon and Eugene knife laws:
http://elementalforge.com/tips_notes/

CLASSES FOR KNIFE MAKING, ETC.

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

Michael and Gabriel Bell of Dragonfly Forge offer an ongoing 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, Oregon.
<http://www.cartercutlery.com/bladesmithing-courses/>

David Lisch is an ABS Master Smith who has taught classes in Washington. He recently moved his shop and has not restarted classes yet – keep an eye out on this page:
<http://www.davidlisch.com/Learn.html>

Jim Hrisoulas now offers both formal classes and mentoring sessions in 2 hour blocks at his shop in Henderson, Nevada:
<http://www.atar.com/joomla/> and click the “Bladesmithing Classes” link.

The ABS (American Bladesmith Society) offers classes in Washington, Arkansas and elsewhere – if you are up for traveling across the country to take classes, check out their “Schools” link:
<http://www.americanbladesmith.com/>

James Austin offers forging classes in Oakland, CA – axes, tongs, viking anvil, etc.:
http://forgedaxes.com/?page_id=148

Blacksmithing classes at Farrier Supplies aka Bent River Forge
26729 99W, Monroe, Oregon
Coal, coke, forges, parts, tools, classes...
<https://www.facebook.com/FarrierSuppliesOR>
(541) 847-5854

Blacksmithing and some bladesmithing workshops are hosted regularly by the Northwest Blacksmith Association: <http://blacksmith.org/>

USA Knifemaker has a lot of fun & informative videos on their YouTube channel:
<https://www.youtube.com/user/USAKnifemaker/videos>
... and hey - “free” is a hard price to beat!

Nick Wheeler also has a good YouTube channel with a lot of how-to videos:
<https://www.youtube.com/user/NickWheeler33/videos>

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/>

Zoro
<https://www.zoro.com/>

KNIFE MAKER GENERAL

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

Jantz Supply – Davis, OK
<http://www.knifemaking.com>

Texas Knifemaker's Supply – Houston, TX
<http://www.texasknife.com>

USA Knife Maker's Supply – Mankato, MN
<http://www.usaknifemaker.com/>

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

Alpha Knife Supply – ?Everett, WA?
<http://www.alphaknifesupply.com/>

True Grit – Ontario, CA
<http://www.trugrit.com>

Especially Abrasives – lower cost 2x72 belts
<http://www.especiallyabrasives.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://shop.sbsm.com/>

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.pmtsc.com/tool-die-steel.php>

Alpha Knife Supply – ?Everett, WA?
<http://www.alphaknifesupply.com/>

KNIFEMAKER EQUIPMENT

Beaumont (KMG) [Ohio] – the industry-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>

Oregon Blade Maker [Oregon] – affordable chassis and accessories, good reputation – you supply the motor
<http://stores.ebay.com/oregonblademaker>

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

Northridge Tool [Ohio] – precision manufactured belt grinders
<http://www.northridgetool.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_order.html

The “No Weld Grinder” plans can be purchased from
<http://usaknifemaker.com>
either as a booklet or as a download – just use the search
box to enter “no weld grinder”

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/>

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.appaltnet.net/rusty/index.htm>

Helve Hammer and Quick-Change Dies Video –
from a BladesmithsForum.com thread.
<https://www.youtube.com/watch?v=uzruqYkKGNM>

True Grit – under “Machines & Accessories”
<http://www.trugrit.com>

FORGE & REFRACTORY

Chile Forge
San Marcos, Texas
<http://www.chileforge.com/>

Mankel Forge – Muskegon, Michigan
<http://mankelforge.com/forges.html>

Western Industrial Ceramics Inc.
All things refractory – Tualatin, Oregon
<http://www.wicinc.com/>

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

High Temp Inc. has also been recommended for
Kaowool etc. Portland, Oregon
<http://hightempinc.net/>

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

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

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

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

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

Here's 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.

BLACKSMITH

Farrier Supplies aka Bent River Forge
26729 99W, Monroe, Oregon
Coal, coke, forges, parts, tools, classes...
<https://www.facebook.com/FarrierSuppliesOR>
(541) 847-5854

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

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

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

Quick and Dirty Tool Co.
<http://quickanddirtytools.com/>

LOGO/ETCHING/STAMPS

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>

Steel Stamp, Inc.
www.steelstampsinc.com

HEAT TREAT SERVICES

Here are some folks who provide heat treating services for blades. While all of these have been recommended by one reputable person or another I have not had experience with them. If you use one, let us know how it went!

Paul Bos Heat Treating at Buck Knives. Paul Bos has retired and handed the torch to Paul Farner. Highly reputable. Post Falls, Idaho:
<http://www.buckknives.com/about-knives/heat-treating/>

Peters Heat Treating is another highly reputable operation. Meadville, Pennsylvania:
<http://www.petersheattreat.com/cutlery.html>

Texas Knifemaker's Supply offers heat treat services. Houston, Texas:
<http://www.texasknife.com/vcom/privacy.php#services>

Tru-Grit provides heat treat services. Ontario, California: https://trugrit.com/index.php?main_page=index&cPath=34

K&G also provides heat treat services but I can't find a reference on their web site – you'll have to contact them for details. Lakeside, Arizona:
<http://www.knifeandgun.com/default.asp>

Byington Blades heat treat service is in Santa Clara, California: <http://www.byingtonblades.com/>

It's my understanding that Chris Reeve Knives uses ACE Co in Boise Idaho – which is enough for me to add them to the list:
<http://www.aceco.com/heattreat/index.html>

WOOD SUPPLIERS

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/>

North Woods Figured Wood – Gaston, OR
<http://www.nwfiguredwoods.com/>

WOOD STABILIZING

K&G (Knife and Gun) – Lakeside, AZ
Good reputation with everybody.
<http://www.kandgstabilizing.com>

Gallery Hardwoods – Eugene, OR
I've purchased stabilized blocks from them at the April show. They tend to be heavier, presumably more durable/stable but less wood-feel than others.
<http://www.galleryhardwoods.com/stabilized.htm>

WSSI (Wood Stabilizing Specialists International, Inc.) – Ionia, IA – some folks have had issues with them, some folks are totally happy.
<http://www.stabilizedwood.com/>

Alpha Knife Supply – ?Everett, WA?
<http://www.alphaknifesupply.com/>

Turn Tex Woodworks – San Marcos, TX
“Cactus Juice” and pressure chambers etc. for the do-it-yourself folks – your mileage may vary.
<https://www.turntex.com>

OTHER GOODIES

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

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

Coyote Steel – wide variety of new steel, 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/>

Voodoo Resins – striking resin handle material
<http://www.voodooresins.com/>

Minarik automation & control
<http://www.minarik.com/>

The Engineering Toolbox (formula & info reference)
<http://www.engineeringtoolbox.com>

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.