THE MOSTLY MONTHLY NEWSLETTER OF THE

EUGENE 5160 CLUB ~ MARCH 2016

https://www.facebook.com/5160Club newsletter archive: http://www.elementalforge.com/5160Club/

MARCH MEETING

March 3rd – 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 share-and-tell – heck, I might even remember to bring something this time!

Note from the Thompsons:
"Please **drive very slowly** down our lane. The maintenance is all ours. Thanks."

NOTES AND REMINDERS

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OKCA April show – It's the big annual knife event around here – and a place for "anything that goes cut" as Oregon Knife Collectors Association likes to say. Custom made; factory made; fixed; folder; swords; tools; supplies; books; collectibles; and a good time for all! See the OKCA website for details: http://www.oregonknifeclub.org/
April 8th (OKCA members only) 9th-10th (public)

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Northwest Blacksmith Association events: **Making a Chef's Knife** March 26th/27th & April 3rd – Portland, OR; **Blacksmith Conference** will be at the Cowlitz Expo Center – Longview, WA: May 13th to 15th – see http://blacksmith.org/events/ for details and for other classes and events. **The Blacksmith Week** will be August 18th to 21st at Government Camp (Mt. Hood) see http://www.cascadiaart.org/ for Government Camp activities.

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Portland Custom Knife Show – March 5th/6th at Portland Expo Center – with the antique & collectibles show. http://christinepalmer.net/

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North West Knife Collectors and Washington Arms Collectors will have a joint **show in Puyallup, WA** August 6-7 2016 (previously scheduled for March).

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Helve Hammer and Quick-Change Dies Video – This is from a BladesmithForum.com thread Mike Johnston clued me into. This looks like an excellent power hammer & dies design.
https://www.youtube.com/watch?v=uzruqYkKGNM

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FEBRUARY MEETING NOTES

CRAIG MORGAN started the meeting, and he got some personal news out of the way first. Suffice it to say that he is dealing with a couple of serious surgeries. Good outcomes and improved health are expected. Your prayers & wishes are appreciated.

Craig's pass-around was one of Wayne Goddard's knives. “This one means a lot to me. Wayne was always making utility knives and tools. You can tell this one was special because he put a lot of time into it. The blade is a Helle from Norway – laminated steel – copper ferrule – bamboo handle from [Wayne's] backyard – piece of mokume on the end.”

The Helle website notes that they use a core of “high alloy steel which gives it a lasting, razor-sharp edge” protected by outer layers of 18% Cr / 8% Ni stainless.
http://www.helle.no/built-to-last/materials/

FRANK BOBBIO was up next. “By now you guys know I like testing things – not just taking the standard for what works and doesn't work” he said. He noted that traditionally, blacksmiths will mix beeswax, turpentine, and boiled linseed oil and apply this to a hot piece to protect it – often burning it on. Frank has been making a lot of blacksmith type items where the requirements for a coating are different from what you'd use on a knife... so he tested again with those pieces in mind.

“I took a bunch of pieces of 1/8”x1” mild steel, cut 'em in strips, started with the control with nothing on it...” and set up a test board. The test strips were all bead blasted, rubbed with Scotch-Brite, wiped with denatured alcohol, then treated separately before being attached to the test board.

Ballistol was one of the go-to treatments that Frank re-tested. He noted that Butcher's paste wax or Johnson's paste wax (carnauba wax) and beeswax are applied to hot (200°F) metal to ensure they flow into crevices. Frank noted that beeswax will eventually break down, partly into an acid, which itself will cause corrosion “way down the road.” That's why some folks champion paraffin or micro-crystalline wax like Renaissance Wax.

Note: My understanding is that unless heated to 250°F or more, beeswax is stable for an indefinite period of time. But how long is “indefinite”? It is true that natural waxes like beeswax and carnauba wax are composed of acids and alcohols. I wonder if it is the burning-on of the beeswax/turpentine/oil mixture that releases acid from the beeswax.

When Frank queried folks on the forums he got some responses saying “just use boiled linseed oil” which naturally dries and polymerizes – developing a shiny coating “we never have a problem – works good.”

Most of the treatments are familiar. Frank noted “The 2nd to last one [of the test bars] was this EDCi for Every Day Corrosion inhibitor – a vegetable based product that came out number 2 or 3 on the knife testing as far as performance... and on the end is Eezox which on the internet test always comes out about the best – but it has chlorinated solvents, so – not good to get (long term) on your hands. Chlorinated solvents and wax. I think the chlorinated solvents get the wax into crevices better.” Frank saw a note about Eezox in the '90s but had trouble finding it. He got some on eBay and has tested with it – but doesn't want to use it on a regular basis because of the chlorinated solvents.

After treating the test pieces Frank came back in an hour or two and wiped each down “so that there was no heavy standing wax product” but the wax treatments were still somewhat dull and “waxy”.

In response to a question about blacksmiths recommending boiled linseed oil, Frank noted that the type of decorative items they sell are usually mounted or displayed indoors – so they are probably not subjected to weather. In that case BLO is probably just fine.

I asked if the BLO he was talking about was truly boiled or if it was linseed oil with chemicals added (9 out of 10 times you'll be sold chemically treated rather than truly boiled linseed oil – it's still marked “boiled”) – and Frank said yah – linseed oil with Japan dryers in it (i.e. chemically “boiled”).

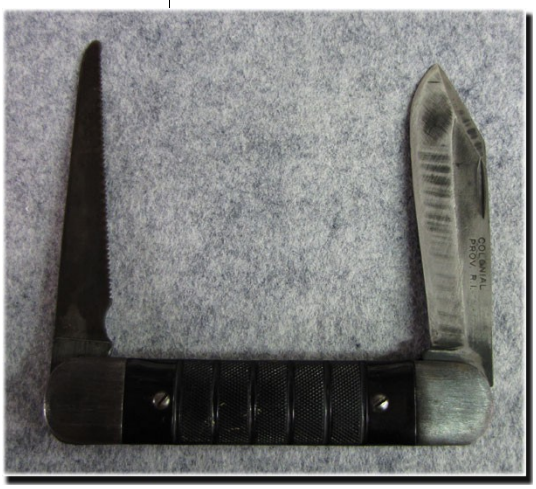
The textured pieces on top read: Linseed Oil/Hot; Paraffin/& Ballistol/ Hot; EDIC*(EDCi?)*/Hot. The main test pieces read: None; Ballistol/Hot; Paste Wax/Hot; Paste Wax/Linseed Oil/50-50/Hot; Linseed/Oil/Hot; Linseed/Beeswax/ 50-50/Hot; Linseed 40/Beeswax 40/Ballistol 20/Hot; Linseed/Paraffin/50-50/Hot; Paraffin 75/Ballistol 25/Hot; EDCi/Cold; Eezox/Cold. Frank noted that Ballistol does not usually do this well in his tests.

Martin Brandt noted that he'd gotten a gallon of Eezox from S&M Gun shop several years ago. He warned that when he put some in an oil can it ate the solder out after a while & started leaking! Martin found that a black powder can is working (so far). He likes how the Eezox pulls all the dirt out of pores in the steel and leaves a light protective layer when you towel it off.

Frank likes the EDCi for it's food safe composition: http://aegissolutionsknifecare.com/edci/
"That'll be my go-to for BBQ tools and such."

On the textured and heat-colored pieces on the top row of the photo, Frank noted that the linseed oil and the paraffin/Ballistol pieces started rusting almost immediately with regular misting.

Frank said he hadn't made any knives recently but did have a pass-around: "a WWII survival folding pocket knife – has a big lock blade and a little saw – made by Colonial."



Frank reiterated his health concerns about Eezox but said that despite how this current test went, in a previous test with salt water, everything started rusting in 2 days except Ballistol which went 3 or 4 days and Eezox which held up about 12 days.

Break-Free was also mentioned as great protection, but leaves a visible film.

Jim Jordan relayed that in a tool and die shop he used to work at they kept a patch of suede with lanolin worked into it that they'd use on precision gauge blocks etc.

I'm sorry to say that I did not get the next presenter's name. I think he told me a meeting or two ago but it escapes my old brain. He started out with: "I've been doing this for not quite a year … I wanted to bring this... a Scandinavian battle axe – made from a 32" saw-blade … I'm enjoying myself. Listening to you guys I look more at details. And I'm happy with it."

He put a mustard finish on it – and asked about how folks apply the finish.

Craig Morgan offered that you want to dab the mustard on with your finger rather than smear it on with a rag.

The June 2013 newsletter has Wayne Goddard's description of the mustard finish process: http://www.elementalforge.com/5160Club/201306Newsletter.pdf

Steve Goddard suggested cleaning the blade with lacquer thinner before applying the mustard. He said "Dad always took it to a 600 grit finish that he'd swirled around so it looks older. I take it to 1000 all one way and it looks completely different. It's kind of a preference thing." He also noted that he uses a paper towel to dab the mustard on – so he won't get fingerprints in it.

Our presenter noted that he took the axe to 120 grit with a vibrating sander... and that he might try gun blue next time around.

Jove Lachman-Curl noted that on Jim Jordan's advice he tried a patina using warm vinegar in a pan with a piece of aluminum foil on the bottom – which worked really well.

Our presenter asked about molten salt baths for patinas. It was noted that hot bluing [gun bluing] is a salt process. It was also noted that molten salts can be dangerous – both because of their fumes and if a drop of water (or sweat) gets in it the results can be explosive – and ***highly*** corrosive.

Frank Bobbio said that some gunsmiths highly recommend Brownells Dicropan IM as being virtually as good as hot bluing "and it's WAY better than cold blue... it's something you can do on your stove – but with the hazmat fee it costs maybe $70."

I noted that I use a couple of tricks for cold bluing. I clean the piece, then immerse it in a dilute solution of Ferric Chloride. Once I get a light etch I hose it down and use a trick that Wayne gave me of diluting Birchwood Casey Super Blue in a gallon or two of water. My superstition is that the FeCl3 gives the cold bluing more surface to work on – and per Wayne's advice, dunking it in the diluted cold blue eliminates the streaking and splotching I was getting by following the official Super Blue instructions.

This gives me a really nice finish – but since I use my knives in the kitchen – and since I habitually use a Scotch Brite scrub sponge – the finish wears off over time. My latest experiment is: after the above process and before attaching handle material, I'm applying kitchen oil (coconut or canola) and heating the piece to maybe 200°F, letting it cool, and repeating a few times – like seasoning cast iron. I have yet to have a piece in use long enough to judge just how well this "sets" the bluing.

STEVE GODDARD was up next. He shared that Wayne had taken a fall earlier in the day – he got some bruises and road rash but is OK.

Steve passed out fliers for the garage sale he's been doing. He's cleaning up Wayne's house and a lot of tools, parts, and supplies have been up for sale.

"I was going through dad's stuff and back in 2000 he wrote for Blade – a six part series 'All About Belt Grinders'... so when you want to take it to the next level you don't need a $4,000 one" Steve said as he passed around copies of the articles.

Idlers can be skateboard wheels. Mike Johnston noted that his parents used to roller skate “back in the stone age” and their roller skate wheels were hardwood. Mike himself has used hardwood wheels on his own home-built grinder: “2 inch by 8 inch oak [in 2 layers glued at 90° - with a keyed drive shaft hole] that I turned on my lathe for the main drive wheel and a smaller wheel with a little bit of a crown for the idler wheel and recessed for a bearing.”

Craig Morgan said he made his first grinder out of hard maple with a pillow block/industrial urethane drive wheel. The idler wheel was a skateboard wheel. He used a lathe tool to true up the drive wheel. “Worked like a charm.”

There was rambling discussion of grinder construction and customization. A couple of tidbits were (1) don't weld the frame, use bolts so you can adjust it with shims or whatever, and (2) use electrical or painter's tape to increase the crown on the idler wheel to keep the belt from wandering.

HUNTER LOTTSFELDT got up next. We'd last seen him just before he & his cohorts at the OSU materials sciences program were about to go to a national conference. They were entering a Damascus knife in a competition at the conference. And they won!! The blade is 24 layers of 15N20/ 1095 – a very nice D guard Bowie and sheath with inlaid beaver tail skin. The handle is cable Damascus.

Hunter explained that the holes in the blade were an “engineering change” (as Jim Jordan kindly put it) to deal with a last-minute blemish in the blade.

OSU has a blacksmithing club – with a Facebook page: https://www.facebook.com/osublacksmith/

“My partner in crime – Casey – is doing a senior project – so we commissioned him to make us a power hammer! A version of a tire hammer.”

“Part of the reason I've been gone is that I went all last term backpacking in Tanzania – for three months... I brought a knife that I got there. For the traditional people there – the Maasai – to become a man you have to become a warrior. Your dad gives you a machete, spear, and shield... it's pretty common to see men with machete and spears.” Hunter said.

This class was a National Outdoor Leadership School course. In response to a questions Hunter said there were 6 days in the 3 months where they were not backpacking – and gave us glimpses of his experience there. In response to a question - he was happy with his Asolo boots – which he hadn't had time to break in before the trip.

“The blade's from China... It's kind of funny. All the metalwork there has disappeared... importing 100s of machetes and making the handles and sheaths themselves.” *Unfortunately I did not get a photo of the Tanzanian machete.*

“Any problem with the lions?” someone asked. “No” Hunter replied “It's the buffalo you have to watch out for. Lions are lazy but the buffalo are mean and angry! Cape buffalo.”

MIKE JOHNSTON was up next... “I haven't been particularly productive lately” *(which means he's been about 10 times as productive as I am).*

Mike relayed how he's transitioning to being a driver at a metal fabrication business. That should give him some scrapping options!

He built a 48 layer billet of 1080 and 15N20 at the hammer-in last year. “I made one knife out of it and it worked very nice.

Well, I took a small piece – 3/8" thick by 1" and twisted it – forging it as I twisted it and forged it at high temperature. Turned out really nice..." except that it was slightly warped after heat treat. He heated it to 400°F, put it in the 3-point straightening jig "and it went TINK!" at virtually no pressure. The break showed large grain – even though he'd done his usual normalizing.

Mike tried again with another piece of the billet, forging at a lower temperature (under 1500°F). It quenched nice and hard. Again with a tiny warp. Again "TINK!" with almost no pressure. But this one was very fine grained "just like satin."

Mike asked the group whether forge-welding significantly changes the heat treatment you should use on the steel. "I've used the 1080 ... heat treats wonderfully. I've used the 15N20, works great... Put the two together and it didn't work. It's just as brittle as the dickens."

In response to questions Mike assured us that he triple-normalized as usual – and followed his usual (knifemaker standard) heat treat process – and hardened by quenching in 120°F canola oil and tempering at 400°F for three times. And he repeated that he brought both blades back up to 400°F before attempting to straighten them in the 3-point jig.

He reiterated that the 1st blade had large grain, but the 2nd blade had no visible grain.

I relayed that I have two of my Damascus knives in the kitchen – one is paring knife size, the other petite chef size – and both are flexible and in the upper 50s Rc hardness.

I have not tested my Damascus knives to destruction (my bad) but I have had to straighten out some warpage on various Damascus blades. I do that on the 2nd and 3rd tempering round. I've never broken a Damascus blade at that point – so I'm not sure that Damascus itself is the problem. Then again mine are 15N20/1095 rather than 15N20/1080 and have 500 to 1000 layers (theoretically). My tempering temperature is 375°F.

On the other hand I have not done the twisting that Mike did on the pieces that broke on him.

There was discussion about how the welds might compromise toughness. Mike said that the breaks did not follow the layer pattern but went straight in line with the tempering jig, not along the layer or twist lines. There was no sign of a crack in either blade before attempting the straightening.

"They etched up nice" Mike said, and he's going to use the remnants for jewelry.

"I was playing with a new piece of steel" he said – from a John Deere field mower blade. He hardening a test piece before making the blade. "I couldn't break it. I couldn't even bend it with a cheater bar. It's marked 'JB' and '059'... it forged great!"

It's finished to 400 grit on a belt – with a micarta handle. "Just a fun project."

Frank Bobbio returned to the issue of normalizing. He'd seen magnified photos of grain size on one of the forums – where the difference between pre-normalized and 1st normalization was obvious, and between 1st and 2nd also, with only a little change between 2nd and 3rd.

You can get the temp to heat a steel up to from many sources (it's dependent on the steel's composition) but Frank's question was: **they generally say to let it air cool – but how low do you need to let it cool to?**

In the general discussion that followed there seemed to be good arguments that letting it cool just to black heat might not be complete enough "because there's a

lot that goes on with a steel between 900°F and room temperature."

In Frank's online search he could not find a specific temp to cool it down to. His text book on metallurgy just says "air cool" *and my memory of my metallurgy book is the same*.

On the one hand, to create new grain structure you only need to cool the steel down to where it changes from Austenite to Pearlite (for instance) as that is when grains are re-formed. But on the other hand there may be more issues with retained Austenite or other transformation issues if you don't let the piece cool further.

Hunter told us that when they were at the normalizing stage with their contest knife at OSU he engaged Jerrod Miller from the online forums (a knowledgeable source) on the subject – and Jerrod was of the opinion that in general industrial processing normalizing is not as critical as it is for knife makers – due to the thin form of knives and the demands placed upon them. Especially considering the forging temps in knife making (grain growth is highly temperature sensitive). Jerrod does 6 or 7 normalization cycles, but he said "at least 3 and cool to a black heat."

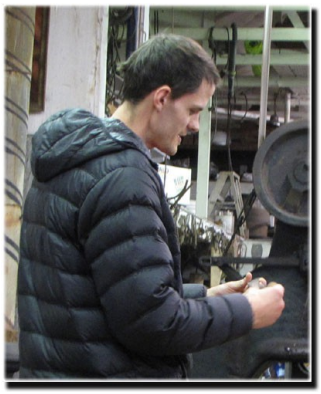
There seemed to be consensus in the group that it would be best to cool it to tempering temperature. Jim Jordan looked it up on EngineersHandbook.com – which says to cool to room temperature.

Frank talked about his search for forge interior coatings: Kast-O-Lite 30, Wayne Coe's Castable, Mizzou, Satanite, etc. Lots of forum folks use Kast-O-Lite. David Lisch uses Mizzou for his forges – and for the ones he built for the NWBA.

Frank is going with the Mizzou "it was hard to coat the Kaowool because there were a lot of pea sized pebbles and broken fines and it has fiber in there..." Frank said – but the Mizzou is also the preferred product for casting ribbon burners. Mizzou also has higher strength ratings than Kast-O-Lite.

A Eugene source for Mizzou might be E.J. Bartells.

It was mentioned that Ron Wailes of the NWBA makes ribbon burners for sale. I can't seem to find a link for Ron, but in the "Forge & Refractory" links at the end of this newsletter is Pine Ridge Burners which also sells pre-made ribbon burners.



ANDY showed us a kitchen knife he made for his sister's house warming. The blade is from a small chop saw blade. He noted that he's been working on more kitchen knifes.

The handle on this one is purple heart:

Andy also shared a neck knife:

And in the spirit of waste-not-want-not Andy has plans for this chunk of RGS (really good steel – aka – mystery metal) that he found on the floor at the Goddard shop – he likes the profile of it and plans to go with a Wharncliffe style with it.

Next up, **MARTIN BRANDT** shared one of his current projects.

"I've been playing around, doing a little bit of carving... This is a guy for hollowing stuff out" he said, demonstrating the motion with the long-handled knife-scoop in the photo. He got the idea from a Gaelic hook knife maker in Sussex – via the internet.

The Sussex maker hollow grinds the center of the blade – and the outer surface probably needs a convex grind. Martin plans to make his hook knife thinner so it is easier to engage the edge into the piece being carved.

He noted that the long handle (an old shovel handle) gives you leverage for the carving, and that in one video he watched the carver had a strap from the handle around his neck so that he could use his shoulders to help power the cut.

"And that's a Wayne-inspired ferrule: 3/4 inch [copper] pipe annealed several times and forged down." The mounted hook knife is 52100. "I forged this at Blacksmith's Night [a regular gathering at the Thompson shop] and burned half of it off! This is from the half I didn't burn. Start with a long piece."

"That only happened in 3 seconds" chimed in Blair Goodman.

"Oh jeez! I only turned around, scratched my head or something!" Martin agreed "But they were running a white hot fire. They were working on a BIG piece. One of the learning lessons is: if they're running a big piece and you're running a little piece maybe you better wait!"

The unmounted hook knife in the photo is from a half-round Nicholson mill file from Wayne's shop. The mounted knife is 60mm diameter and Martin wanted a 50mm one also.

Martin tempered the file to 425°F – he worked up to that in 25°F steps until he could just barely cut it with a dull triangle file.

The carved cup is based on the Scandinavian Kuksa style. It's made from Birch crotch wood.

When Martin sat down **JOVE LACHMAN-CURL** came forward to ask some questions of the group.

There seemed to be general agreement that if you are not edge quenching, you should quench point-down into the tank.

Jove noted that he'd lost another blade to brine quenching. He said that with his 1095 he'd tried applying 1/16" claying of Rutland's furnace cement – normalized it – quenched it but it didn't get full hard.

"Don't normalize it with the clay on it" Mike said. "I had three blades of 1080 – had it all set up for nice hamon line – and realized I hadn't normalized them so I normalized all of them three times – quenched them and had zero hamon and they didn't get full hard. So I scraped off the clay, re-normalized them three times, re-clayed them and quenched them and they came out fine."

Jove instigated a discussion of using black sand for smelting your own iron (or steel).

Cliff Christian mentioned the Dragonfly Forge will be having a seminar on smelting steel (Oroshigane) from sponge iron and charcoal on the last weekend in May: http://tomboyama.com/the-school/oroshigane-steel-making-seminar/may-28-29-2016-oroshigane-steel-making-seminar/

Frank mentioned Niels Provos' work smelting wootz. And here's the 1st of several YouTube videos of it: https://www.youtube.com/watch?v=f9j9vUGi0QA

Here's a shot of the smelt at the Axe-N-Saex-In I attended a few years back.

The black sand and crushed charcoal were in a crucible on a stand inside a chamber made of wrapped Kaowool held in place with bailing wire. The blower was a St. Vinnies discard from an inflatable play house. The propane was fed straight into the air pipe. All very makeshift, but produced an ingot and was a lot of fun!

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Back on the subject of corrosion protection for knife blades, Craig told the story from many years ago: after a show at the fairgrounds Ed Fowler got up to talk about knife care and said "I keep a tin of bear fat and I just rub it on my blade, keep it in the sheath, and everything's fine." And J.D. Smith – sitting in the back – calls out "BEAR FAT? Your world is so far removed from anyone Ed – I don't know anywhere in downtown Boston I can go pick up a tin of bear fat."

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Have fun all – and be safe!

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

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no submissions this month...

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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 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/forums/forum.php

Julious Griffith groups on Facebook:
- Custom Knives For Sale by Maker - Available now
- Knifemaking - Works in Progress (w.i.p.'s)
- Knifemaking Equipment Buy, Sell, or Trade (used only)
- Knifemaking - Masters to paying Students connection
- Knife shop photos
- Knife Calendar - Events, shows, hammer-ins, schools, misc.

These are all closed groups – to keep them focused – so if you want to join one of the groups, click the "+ Join Group" button and also message Julious and give him some info on yourself so he knows you have real interest in the group.

References

Our own 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

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

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.
http://www.cartercutlery.com/bladesmithing-courses/

David Lisch is an 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

Speaking of the ABS (American Bladesmith Society) – 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 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/

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://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.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

High Temp Inc. has also been recommended for Kaowool etc.:
http://hightempinc.net/

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/

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

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

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/

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 – 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/

Minarik automation & control
http://www.minarik.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.