

 **EUGENE 5160 CLUB ~ APRIL-MAY 2021** 

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

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



5160 CLUB ZOOM MEETING

MAY 6TH 6PM

Here's the Zoom download site in case you don't already have it installed on your computer or widget:
https://zoom.us/download#client_4meeting

You do not need to create a "Zoom account" to participate in the meeting.

The recurring "join meeting" link is:
<https://uoregon.zoom.us/j/96183250858?pwd=blpkOTIVMXdINIV0YW4wb2NRRjBMZz09>

If that link doesn't work for you, the meeting ID is:
961 8325 0858
and the passcode is:
098053

Think about what you want to share in the meeting and how to set up lighting and position your phone/tablet/computer/web cam to show your stuff!

And remember Facebook "5160 Club – The Group":
<https://www.facebook.com/groups/5160ClubTheGroup/>
is a place to share your questions, insights, or photos.



The Eugene 5160 Club newsletter is for information only. Do not try anything mentioned here without hands-on training. Neither the folks mentioned in the newsletters nor the newsletter scribe are responsible for your actions or liable for any repercussions. If you are good with that: read on!



MARCH AND APRIL ZOOM MEETINGS

I had some difficulties last month when it came time to kick out a newsletter – so I'm catching up this month with a double-header!

Lynn Moore started the March meeting with the conclusion of his CPM 154 heat treating saga. He hasn't had problems with this steel before. This time around the heat treat oven went off the intended time/temp schedule, which resulted in a poor heat treat. Lynn gave the three blades another heat-treat – this time watching the oven more closely. Even though he got the oven to perform properly, the result was still poor. The blades were around 50HRC.

After consulting with Zac Buchanan, Lynn ran the blades through a full annealing cycle. "That took over 10 hours... after that I re-hardened 'em and that time it came out." He plate quenched with aluminum bars in their stainless heat treat bags, then he ran the blades through a dry ice/alcohol bath. "After tempering they're around 58[HRC]."

Lynn really likes plate quenching for eliminating warpage. "I had these big clamps and just clamped the heck out of it and it came out nice and straight."

When asked if he ground the bevel after heat treat Lynn replied that he'd tried that once and ran through so many belts on the hardened steel that he won't do that again any time soon.

Tyler Aldrich noted that he starts with 36 grit and can get the bevels set with one belt [on hardened steel]. There was some discussion about getting 36/60/80 grit scratches out of the steel.

Edward Davis has been breaking in a Sailrite industrial sewing machine on test pieces of leather. “I don't want it to run away on something I actually care about!” It will handle 1/4” leather and “goes a lot faster than hand sewing.”

He will be using this for sheath making as well as other leather projects. He's going to do some stress testing to see how much truth there is to the idea that saddle stitching is stronger and more durable than machine stitching.

The role of contact cement in sheath making was discussed. There seemed to be a feeling that combining contact cement with any style of stitching should make a durable sheath.

I (**Michael Kemp**) was put on the spot as to whether I'd gotten any knifemaking done. I shared that my passion for knifemaking evaporated when I retired. I guess, for me, it was a much needed balance to the abstract world of computer coding and to the interminably frustrating world of conference room whiteboard sessions that were an unavoidable part of my day job.

“When I'd get through with a business day – either with my head stuck deep in code, or come back from some round-table meeting of middle managers – I just wanted to pound on something... and I'm preaching to the choir here, but it's really cool to make something that's your own conception and you bring it into the physical world and it's something you can hold that sticks around.”

FWIW – I will be letting my Elemental Forge LLC and my Elemental Forge website lapse when they come up for renewal in September and December respectively. I will transfer the 5160 Club newsletter archive to my personal website, unless anyone has a better home for them.

There was quite a bit of discussion about the pleasure of knifemaking and other crafts – when done for a job versus when done as a hobby.

When **Dean Walton** noted that he'd gotten a billet of Damascus through Amazon it sparked a discussion of the financial merits of selling billets rather than knives. The same applies for most craft supplies.

“I've been looking at Etsy and it turns out that I can sell unfinished leather straps for a better profit margin than for finished leather belts” Edward said. “If I make a belt, people will pay less for it than if I just sell them a strap...”

Tyler Aldrich was tagged next. First up was “a mistake turned into a finished product.” K-tip chef knife with a shallow blade belly. Explosion pattern Damascus cladding on a 52100 core. The initial san mai lay-up had 1/4” 52100 core and 1/2” total with the Damascus outer layers. So forging it down stretched the pattern. The handle is zebrawood with birdseye (from Gallery Hardwood).



“I tempered it at 350f and was able to hack a 2x4 with it. It is ultra-thin, so I got my heat-treat right.”

If I understood right, the “mistake” was that the initial temper at 325f left the blade edge a little chippy. Corrected with a little re-profiling and the slightly warmer tempering.

Tyler showed us another blade made entirely of the explosion pattern Damascus.



Again, a beautiful handle from Gallery Hardwoods.



There was discussion about a couple of folks going in on a batch of liquid nitrogen for Lynn's Dewar.

For the next show-n-tell, Tyler showed this explosion Damascus patterned "Bowie-esque" blade. He was trying to control the pattern distortion during forging. It was a learning experience.



Regarding food-safe finishes, he learned of a product through Instagram that he showed us. "I feel like a skill..." but he's very impressed by Axe Wax. "It's a polymerizing wax..." and takes a good polish. It is applied to a warmed surface (not too hot to touch). Let it dry for an hour, buff off, and apply another coat if desired. Tyler has been using two coats. <https://axewax.us/>



The final blade was an EDC sized blade from the same pattern Damascus.



In answer to a question Tyler said that he uses the Damascus steel in his tangs (as opposed to welding

He tests his chef knives on fatty meat. That often produces a pearlescent bluish patina. A light coat of Axe Wax protects the blade from taking this patina. He's considering sending along a tin with his high grade chef knives, basically a lifetime supply for the customer. The Axe Wax can be used on both the blade and on the handle to refresh the finish.

This next knife is a Nitro-V stainless work-in-process in a similar profile to the first knife, but with a little more belly, for a chef friend. The handle is blue-dyed maple burl, with carbon fiber liners. As with the first knife, this is a thin blade with a spine at 0.110". When he finishes up the belt grinder work he's shooting for an thickness of 0.004-0.005". Tyler also used dry ice and alcohol for the cryo step, but he's not happy with the messiness of that process.



on a chunk of less valuable steel). For a hidden tang it's not that much material, and for a full tang he wants the edge of the tang to present the Damascus pattern between the handle scales.

When Edward tagged **Frank Bobbio**, Frank relayed that he was busy cleaning up their property after a recent ice storm which had also cut their power for 12 days. It left lots of down limbs on their property. Down trees blocked the local roads. "I've never seen so many full size trees [taken down], not just broken limbs, they were just full-on over!"

Frank is saving aside some exceptionally straight sections of madrone that could be good for walking sticks. Lynn and Brome chimed in to praise the use of madrone for walking sticks.

Brome McCreary likes to put green cuttings of madrone in an old barn – out of the weather but still damp – so that the bark will tighten onto the wood. After six months he will bring them into a drier (but unheated) building to finish drying. "I've never had any problems with [small diameter branches] checking. It's the larger ones that I have seen checking, so usually I'll paint those [larger diameter pieces] or I'll cut them down so that they dry more evenly." But he did note that he leaves an extra four to six inches on the end of walking stick cuttings just in case some checking does occur at the ends.

He also noted that the bark will bruise easily (and permanently) until it dries, so you have to be careful not to bump them when cutting pieces. Here's a



chunk for the handle of a harvesting knife, looking fully dried. Brome compares the bark to leather in that any marks you make on it while wet (intentionally or accidentally) will be there forever.

Brome followed up the previous meeting's discussion on grinding jigs and head knife grinding by showing

us the modification of his jig for a head knife:



He noted that because of the curve of the blade, the angle of attack of the belt grinder changes as you go from the center to the two edges. So while he roughed in the bevel with the jig using a 36 grit belt, when he goes to finer grits he will lose the jig and true up the bevel by hand.

Moving on to sheath making, Brome notes that even dry leather will take marks from a clamp, so he glues bits of felt (or leather) onto the clamp jaws with contact cement. This is a "Quick-Grip" clamp by Irwin. He likes these for their ratchet system.



The small jaw on the Quick-Grip lets you test your blade fit in the sheath to customize the welt and plan your stitching.

Brome uses a stitch groover tool to mark the line to be stitched, then marks the stitch spacing with a #5 stitching wheel.

To make the stitching holes, Brome uses a punch made from a 16d nail mounted in his drill press. He clips the head off the nail. Then he files down the nail to just a little larger than the sewing needle that he will be using. He prefers using a punch rather than a drill so as not to remove any leather from the hole.



“Eventually the leather swells back out and locks that stitch in, which is what I prefer.” He turns the drill press up to full speed to punch the holes.

For a sheath with a dramatically tapered welt, he uses a jig to support the sheath. He uses a chunk of pine for the base, cuts a slot for the belt loop, and adds a

wedge of wood or cardboard to support the seam area and true up the centerline for punching the holes. “I just hot glue 'em on [the wooden or cardboard wedge, that is] so I can just rip 'em off and put another one on... I just eyeball it, I don't get out the micrometer or anything.”



There was a discussion about the balance between the thickness of the welt and the amount of wet leather molding one can use to give the sheath a firm fit for the knife handle.

As for sheath decoration, Brome will sometimes mount a standard leather stamp in his drill press. He puts the wet leather sheath under it and presses in about 0.002”, counts to 10, and lifts the stamp. That eliminates any bounce from doing the stamp with a hammer.



Rashelle Hams was up next with a couple of axes that she's been working on. The first one is a small camp axe (handle wedges are not cut off yet). Made from 4142 steel.



The next one is based on a carving axe pattern that she created. The customer (a spoon carver) wanted the beard of the blade to come near her knuckles when she would choke up on the handle while roughing out the spoons. This is 4140 steel.



In response to a question Rashelle said that her shoulder is getting better. She has more range of motion as she heals from the surgery. But to protect her shoulder, she is relying more on power tools, so the eyes on these axes are punched in rather than lapped and forge welded.

Billy O has been making billets. He's also been working on some chess pieces made from Damascus, but nothing to show at the moment.

That sparked discussion about folks like Devin Thomas, and Daryl Meyers who focused on making and selling Damascus billets rather than Damascus knives. Tyler shared that he'd made a billet for Brock, which Brock had used for a folder. It sounds like they are both more than happy with the collaboration:

<https://www.facebook.com/delightvalleyblades/posts/1097862790715343>

My experience from back when I made a few billets of high layer count random Damascus was that I'd lose at least half the steel to scale and truing up the billet for the next weld. Tyler confirmed my experience. He said that he loses 15-20% of the material on each forging.

Martin Brandt was in the meeting audio-only. He instigated a discussion of tricks for doing plunge lines. He's been fighting with a blade he made from a Nicholson file in the hardened state – so creating those plunge lines between the blade bevel and the ricasso is particularly challenging.

Frank suggested clamping on a carbide file guide and using a belt grinder with a flex back belt, running the belt slightly off one side of the platen so that it will cut a radiused groove. Frank recommended using a felt fronted platen and a 220 grit J-Flex such as the Hermes RB406 aluminum oxide belt (blue front/yellow back). *Tru-Grit has a scalloped edge version – straight edge might work better for plunge lines. Pops has them too – not sure if these are straight or scalloped edge.*

There was quite a discussion of belt options.

Conversation drifted back to Axe Wax, which was highly praised. And yet we are a bunch of folks who love to experiment on our own. Some plans may be in the works to play with walnut oil and bees wax.

Edward asked me about the wax combo that I settled on years ago. I make it with ½ carnauba wax and ½ bees wax (by weight). Melt that down in a double-boiler setup and add as much food grade mineral oil as you want to get the right consistency for the job at hand. If you don't like the idea of using food grade mineral oil you could use another oil of your choice.

Somebody brought up Eezox gun oil for protecting blades from rust. But if you shy away from food grade mineral oil you should run away from Eezox, as it has more “interesting” chemicals.

On the other hand, in Frank's extreme testing of protective oil coatings on carefully prepared steel samples “nothing compared with Eezox... I would mist them every day and everything else would start rusting and Eezox would go 30 days...”

On the other hand, Frank noted that the test sample with a thin coating of Ballistol (created in 1905 as a combo of mineral oil, acid, alcohol, acetate, and vegetable oils) came in a very good 3rd in his testing and is marketed as food safe. “It way outperformed waxes: Renaissance Wax, carnauba wax, Johnson's Paste Wax...”

... and that wrapped up the March meeting ...

Just as a curiosity: natural waxes are made from a combination of modified acids and alcohols. I would not expect either an acid nor an alcohol to act the way a wax acts, but somehow the combination makes the coating we know and love!

At the April meeting, Edward had another Zoom meeting that he had to attend. He left me in charge and I have to admit that I got to gabbing with Blair and I was not on top of letting folks in from the “waiting room.” If you are one of the folks I left waiting there for awhile, I apologize!

There were only a few of us “in attendance,” chatting about our aches and pains and the weather like a bunch of old folks. Oh right...

Lynn Moore got things going by showing us one of the CPM 154 chef knives that he's been working on. The bolster is green Micarta with stabilized maple from Gallery Hardwoods. The handle parts are put together in a dovetail with copper pins and a stainless steel spacer with thin red liner on each side of the stainless. “It's not done yet, but getting close.”



Lynn recommends the NWBA Zoom meetings, some of which are knifemaking demos. He may do a demo of his process for making dovetailed handles. Some sessions are recorded and posted to their YouTube channel.

Brome shared that he's been swamped with putting together his crew for this season for his day job. So nothing to show from the shop.

Martin Brandt, on the other hand, showed us the puukko blade that he has in process. Wayne Goddard handed out plugs of O7 tool steel many moons ago, and Marty used one for this 4-3/4" blade. Quenched in Parks 50 and tempered at 425f. "I can just barely touch it with a triangular file."



Next he showed us a couple of go mai blades. 3-1/2" and 2-1/2". 1095 core, side layers of nickle shim stock, and outer layers of 1008. "I've been trying to decide whether to etch it or just let it patina with the bright strip in there." These are also done in the puukko format.



Here's another puukko, about a 4-1/2" blade of 1084.

And "a little scrap of leftover" bridge cable Damascus (pictured below). About 2-3/4" blade length. This is from the suspension "pedestrian" bridge next to the Ferry Street Bridge in Eugene. It's a large seven strand cable. They designed that "pedestrian" bridge to be strong enough to carry emergency vehicles in case the Ferry Street Bridge got blocked with traffic, so it looks WAY overbuilt.



"When they were doing that [*building it*] I went by to see what they were doing with their trimmings. They were stringing the cables individually and when they got to the end they were using some kind of big crimp to crimp them into one big cable. They had all these 3' to 6' tails hanging in the air that they just torched off... so I brought home maybe 100 pounds of that stuff. I asked 'em and they said

'Help yourself! It's just scrap.'" Martin figures that the steel is about 1080.

There was some discussion about heat treating methods. Scientific and precise versus backyard heat-treat. You definitely need the precision of the scientific method for stainless steel, but with simpler high carbon steels some folks have had plenty of success with a magnet and a bucket of canola oil or a tray of Goddard's goop.

Frank Bobbio's shop work had nothing to do with knives. A Harbor Freight tire changing rig bent itself up when he went to change tires on a Honda quad, so



Frank fabricated a sturdy replacement part. The bead breaker is supposed to be shaped like the one on the right. The one on the left bent like lead.

And here's Frank's homemade replacement.



There was general discussion about varieties of wood, getting koa permits in Hawaii, taking on a student, looking forward to getting together in person at some point, and then we called it a night.



Keep well, work safe, and see you in cyberspace!

Your Scribe ~ Michael Kemp



WEBSITE LINKS

5160 CLUB

Check out Facebook “5160 Club – The Group”:
<https://www.facebook.com/groups/5160ClubTheGroup/>
as a place to share your questions, insights, and photos.

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

OREGON KNIFE COLLECTORS ASSOCIATION (OKCA)

The OKCA is putting out their newsletter, but the monthly dinner meetings and the knife shows are COVID canceled for the time being. We are all hoping that their big knife show in April might happen in 2022 – sign up for their newsletter to stay in the loop:

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

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

FORUMS

Lambowie – Check out this new on-line marketplace. It's billed as a low-overhead alternative to eBay for forged knives, swords, etc. as well as bladesmithing equipment and materials. If you have feedback on this site – let me know!

<https://lambowie.com>

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

Knifedogs Forum (USA Knifemaker)
<https://knifedogs.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/>

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

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

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
Sg2goddard@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. I no longer see the original free PDF – but here's the updated book on Amazon:

<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>

Knife Steel Nerds – a metallurgist's blog on the technical details of steel
<https://knifesteelnerds.com>

Tempil Basic Guide to Ferrous Metallurgy
[http://es.tempil.com/assets/5/31/Basic_guide_to_ferrous_metallurgy_\(2\).pdf](http://es.tempil.com/assets/5/31/Basic_guide_to_ferrous_metallurgy_(2).pdf)

From the Heat Treating Society of the ASM – the Heat Treater's Guide Companion for Android devices.
<https://play.google.com/store/apps/details?id=com.pfiks.mobile.heattreaters&hl=en>

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

CLASSES FOR KNIFE MAKING, ETC.

Erik Olson is teaching intro to forged knives in Eugene. I don't have a business contact but his personal Facebook page is:
<https://www.facebook.com/erik.olson.77715>

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

Anvil Academy in Newberg has various classes now including a knifemaking class:
<http://anvilacademy.info/schedule/>
<http://newbergdowntown.org/whats-happening/knife-making-class/>

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

Bear Iron in Cottage Grove offers blacksmith classes through Lane Community College.
<https://www.beablacksmith.com/sign-up>

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/>

White Hart Forge offers intro to blacksmithing classes plus some advanced classes and some intro to knife making classes. Oak Grove, Oregon (just south of Portland). <https://whitehartforge.com/classes/>

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

David Lisch is an ABS Master Smith who teaches classes in Washington.
<http://www.davidlisch.com/>

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

Keep an eye out on California Blacksmith Association for workshops and events:

<http://calsmith.org/CBA-Events>

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

Zoro

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

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/>

Widget Supply - Dremel tools, needle files, craft knives, drill bits, etc – Albany, Oregon.

<https://widgetsupply.com>

And of course there are the local hardware stores like Jerry's, and chains like Harbor Freight and Woodcraft.

KNIFE MAKER GENERAL

Lambowie – a low-overhead eBay alternative for custom knives and knifemaking equipment.

<https://lambowie.com>

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 – Cedar City, UT

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

True Grit – Ontario, CA

<http://www.trugrit.com>

Especially Abrasives – lower cost 2x72 belts

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

STEEL SOURCES

New Jersey Steel Baron

<http://newjerseysteelbaron.com/>

Coyote Steel – wide variety of new steel, scrap, copper, brass, bronze – Garfield & Cross St. Eugene

<http://www.coyotesteel.com>

Martin Brandt – 5160 Club member in Springfield who always has some knife steel and supplies on hand. 541 954-2168

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/>

Sandvic – stainless steels – Texas & Pennsylvania
<https://www.materials.sandvik/en-us/products/strip-steel/strip-products/knife-steel/sandvik-knife-steels/>

Burcham's Metals – Albany, Oregon – recycled metal of all sorts. Very good pricing.
<http://www.burchamsmetals.com>

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

Swift & McCormick Metal Processors Inc.
3192 NE Sedgwick, Terrebonne, Oregon
541 548 4448
Everything from big chunks of steel to railroad spikes. Very good prices. They can torch-cut big pieces down for a small fee.

Amtek – tool steel & cutting tools
<http://www.amteksteel.com/index.html>

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

Alpha Knife Supply – Cedar City, UT
<http://www.alphaknifesupply.com/>

KNIFEMAKER EQUIPMENT

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

Origin Blade Maker – aka Oregon Blade Maker [Portland, Oregon] – affordable chassis and accessories, good reputation – with or w/out motor
<https://originblademaker.com>

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.
<https://originblademaker.com/>

Broadbeck Ironworks LLC – [Maryland I think] – Grinders, attachments, belts, leather sewing machines
<https://www.broadbeckironworks.com/attachments>

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

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
<https://www.sunray-inc.com/products/wheels/>

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

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

True Grit – under “All Products”/“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>

Mathewson Metals – forges, burners, anvils...

Tacoma Washington

<https://mathewsonmetals.com>

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. for Kaowool, castable refractory, fire brick up to 2,600°f, etc. Portland, Oregon

<http://hightempinc.net/>

Omega – thermocouples & measuring equipment

Stamford, Connecticut

<https://www.omega.com/en-us/>

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

<https://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 Gropitch – Blue Lightening Stencil

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

IMG International Marking Group

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

Marking Methods, Inc.

<http://www.markingmethods.com>

Electro-Chem Etch

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

Steel Stamp, Inc.
www.steelstampsinc.com

LectroEtch – Ohio
<https://lectroetch.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.petersheatreat.com/?s=cutlery>

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/>

WOOD & HANDLE MATERIAL

Burl Source – handle blocks/scales – So. Oregon
<http://burlsource.us/>
<https://www.facebook.com/BurlSource/>

Shelton Pacific – stabilized wood – Shelton, WA
<http://stores.sheltonpacific.com/>

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

Bamboo Oasis – wide variety of bamboo – Beaverton, OR phone 503-703-1345
<https://bamboooasis.com/>

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

Atlas Billiard Supplies – Wheeling, IL – cue blanks of Micarta and exotic woods – with some sizes suitable for knife handles. <http://www.cuestik.com/>

For Eugene area boards, planks, etc. there's:

Crosscut Hardwoods at 2344 W 7th, Eugene
<http://www.crosscuteugene.com/>

Tree Products Hardwoods at 150 Seneca, Eugene
<http://treeproductshardwood.com/>

Northwest Timber has larger pieces of figured wood. In Jefferson Oregon between Albany and Salem.
<https://nwtimber.com/>

and it doesn't hurt to check Mike's Bargain Center on Hwy 99 just south of Beltline, Eugene
<https://www.facebook.com/MikesBargainCenter/>

WOOD STABILIZING

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

Gallery Hardwoods – Eugene, OR
<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 – Cedar City, UT
<http://www.alphaknifesupply.com/>

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

OTHER GOODIES

Grey Leather Company – Eugene – Hannah Morgan
does custom leatherwork, including sheaths.
<https://www.facebook.com/GreyLeatherCo/>
<https://www.etsy.com/shop/GreyLeatherCo>

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/>

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/>

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.