

EUGENE 5160 CLUB ~ DECEMBER 20WTF20

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

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



5160 CLUB ZOOM MEETING

DECEMBER 3RD 6PM

Same setup as all the recent meetings. Thanks **Edward!** I may sound like a broken record, but: If you have not used Zoom I highly recommend downloading the app and setting it up ahead of time. It runs on most phones, tablets, and up-to-date computers (but not so good on Linux in my experience). The more generous the screen size the better to view what others are presenting. Here's the download site:

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 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.



NOVEMBER ZOOM MEETING

First up was **Tristan Nguyen** and his first question to the group was about this folder he's working on:

He'd printed out an on-line set of drawings and worked this knife up with feather Damascus blade and spalted maple scales.

"It comes out all right but it takes a little bit of fiddling to go back in.

I'm not really sure how to get those connections a little bit better."

Edward noted that with a lockback folder like this, you have to have a slight angle to the face of the lockback spring's tooth where it engages the blade. It has to mate with the blade solidly to lock the blade, but not so much so that it doesn't want to let go when you press the back of the spring to let the blade close.

Edward suggested deconstructing a cheap folder to see how its parts fit. Get a St Vincent's thin chef knife, slip it between the folder's blade and liner, and baton it through the pins (faster than drilling out the pins) and examine the contact surfaces of the spring tooth and blade lock notch.

Next up Tristan showed us four kitchen knives that he has in process. They are matching feather Damascus blades and matching "keyhole" bolsters.

I am blown away by the precision needed to mate the handle material with the bolster in this style of knife.





less professional appearance. The conversation drifted to the conclusion that one should be clear with the customer about which method was used, and focus on quality. But still, quality hand tooling should command a higher price than quality machine engraving.

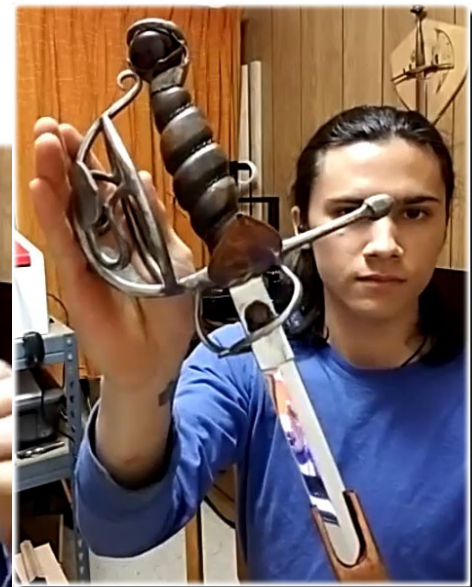
Edward chimed in that he has been using a Cricut Maker which uses a blade to cut pattern in leather and such. You can swap out the blade for an embossing wheel.



Tristan also showed us a period-piece shield that he made recently – historically accurate except that he used sheet steel edging rather than rawhide.



Aaaaand the rapier that he finished up a little bit back. It's a 5160 blade. Nicely done basket hilt! Tiger eye stone for the pommel set in a copper leaf. There is a smaller tiger eye stone set on the ricasso. A leaf motif on the basket, an acorn final on the quillion, copper leaf guards. Chain inset into the spiral fluted handle.



Tristan noted that in the forging process the feather pattern is sometimes stretched out or even lost.

In a separate note, he had a shipping failure where the tip of a knife had poked through the container. So Tristan bought a laser “engraver” that allows him to custom cut his own boxes. He called it a “K40 Laser Engraver” from China. His shipments are secure and he's gotten positive feedback from his customers on the boxes – so win-win!

He's also used it to etch designs into leather – as in the scabbard below. There was quite a discussion about



whether hand tool versus computer/machine etching gives a more or



Returning to the issue of forging out a Damascus pattern, he showed this twisted Damascus dagger blade, where the pattern became noticeably stretched during forging.

That's the blade of this bollock dagger – a traditional style with a couple of bollock-swells at the guard.

Spalted maple handle with brass butt cap and brass bolster.

“I think the funny thing about them” Jove tossed in “is that they have a remarkably good grip.”

I'm trying VERY hard to restrain myself from commenting.



Tristan shared a tip about making feather Damascus. He has had much more success using a Ferry Flip for the final billet assembly before splitting the billet with the wedge. Before he had been cutting the multi layer billet into 1” squares and stacking those up high. But he had continuing issues with the edges of the forge weld not holding together. But using a Ferry Flip for that final forge weld (before the split) makes the welds go better. You are forge welding against diagonal seams rather than a 90° seams.

If you haven't seen a Ferry Flip I suggest you Google it – a series of photos or a YouTube video will explain it better than I can put into words.

His next knife was a robust camp knife. The blade is multi layered with 120 layer Damascus on the outside, then a layer of 1080, then a layer of 15N20, and 1084 for the edge itself.

He likes the split heart & sapwood look and he looks in off-cut bins at Woodcraft and such for them.

Next up was a spear done in the Viking style. The blade has center and edges of 5160 with 128 layer twisted Damascus on each side in a V shape between the center and edges.

The socket is also 128 layer Damascus.



Several folks noted the mirror finish Tristan has on his work, and asked about his sanding and polishing technique.

“I try my hardest not to do any hand sanding...” noting that he had gotten some stress injuries in his hands when he started forging and sanding.

He uses a variable speed grinder with Trizact belts in grits going up to 800, then cork belts (you could use felt or leather belts too) that he loads with his own abrasives.



His last two blades were a chopper and a “beater” chef knife with a 1084 core and high layer Damascus outer layers.



Frank Bobbio stepped up next. In his first kitchen knife in months he finished up this santoku style chef knife. Single bevel, nice patina pattern.



He's also worked up about 8 blades from AEB-L that are also for single bevel (chisel grind) kitchen knives.



“Other than that I got set up for powder coating here, and in the last couple of weeks I've been practicing.”

In the group shot below you can see three of his RR spike digging trowels. Lower-left is his usual finish. Above is powder coat black. Lower-right is dual powder coat – black blade and copper handle.



“This stuff is VERY durable – like 10 times more than using a rattle-can.”

And here's the skull bottle-openers in copper vein and metallic blue!



The blue one is a 3 step powder coat with translucent on blue on silver vein. “I've probably got 6 hours into the powder coating.”



And here's a powder coat version of his anvil belt buckle.

As you may know, Frank loves to test things, and finish coatings are no exception.

Here is a set of samples with various rattle-can and powder coat finishes. Some as-forged, some sandblasted. He plans on throwing them in his tumbler to get a 50% wear, then bolt them to a board and set the outside for western Oregon's rainy season and see how they stand up!



Here's a close up of the patina job on that chef knife:



Next up was **Lynn Moore** with the blade for a kitchen knife “it's heat treated – about ready to put together a handle for it.”



He noted that he has some thick chunks of ironwood that he's started getting into for knife handles – like this work-in-process – from circular saw steel:



On the next work-in-process Lynn showed where the tang on a stainless knife broke during straightening after heat-treat. He silver braised it back together.



This inspired a discussion about tensile strength of silver braising. Don't confuse it with the low temp solder used for electrical connections or plumbing. Silver braising uses the same range of silver “solders” that jewelers use. Very tough stuff. Lynn noted that Wayne Goddard's early career as an

industrial saw sharpener involved silver soldering carbide tips on lumber mill circular saw blades. Lynn noted that when doing silver braising like this you have to have absolutely clean surfaces, not even a fingerprint. “When Wayne would go to repair carbide teeth that came off a saw blade he said that you could almost always see a fingerprint there somewhere. It would get that oil in there and it just wouldn't hold very well...”

Someone looked up the figures and reported back that low temp silver solder has 10k psi shear strength and 14k psi tensile strength, whereas silver braise has 40k psi shear strength and 70k psi tensile strength – which is in the same range as mild steel.

Next was another knife from saw blade – this one will have a bone handle:



He's tried dyeing test pieces of the bone with potassium peregrinate. “It looks like purple heart when you first put it on – then you come back a couple of hours later and it's shoe-polish brown.” He wants to find a way to get some more texture in it.

Jove Lachman-Curl jumped in next with a chef knife. “I made this one in April and it's been in the kitchen since, so you can see it's taken a lot of lines and it's been left on the counter. It's very thin. 1095. 1/16” at the spine... I think this is the thinnest knife



I've put into use. It's held up really well. I haven't had to sharpen it other than rubbing it on a steel a few times. And I put it through some bone when I processed 6 chickens with a friend of mine, even to the point of hacking with it. And I don't have any nicks or dings – which I'm really happy with!” He noted that it's 0.025” at 1/4” from the edge.

When he got ready to harden it he couldn't find his bucket of Rutland Furnace Cement and when he went around town, nobody had it in stock. He wound up getting high temp stove caulk from Midgleys stove store (now on Hwy 99 N). “I let it dry and everything, but as soon as I put it in the forge it bubbled up like a marshmallow and flaked off!” So that attempt to “clay” the blade did not go as planned. However there was still a gritty finish left by the stove caulk, and this thin blade did not warp in the quench.

It was quenched in warm canola oil then tempered twice for hour intervals at 450°f.

Lynn relayed that David Lisch has been using various pottery clays and has had good success with them, using different thicknesses of clay to create patterns on the blade.

If you notice some vertical lines on the photo of the blade above, those were lines that Jove made on the blade with a sharpie when he was planning the clay pattern – but they survived the whole heat treat process!

The ferrule is aluminum tubing reformed into the egg shaped cross section of the handle. He then formed the rosewood handle to match and used bronze braising rods for the pins. He gave the aluminum a nice hammered/stippled finish.



Brome appreciated the contoured front of the handle, noting that a sharp front to the handle – such as in traditional Japanese kitchen knives – cuts into your hand when using the pinch grip that is recommended for control in many kitchen knife uses.

Tyler Aldrich presented next, starting with one of his “S grind” chef knives. “I've been grinding this slowly, slowly, slowly... it's not been easy to get everything right.” Above the edge bevel the body of the knife has a very shallow hollow grind. This hollow grind is on a 36” radius which goes almost up to the spine, making a very thin blade.



Thin and flexible. Tyler is justifiably proud of this one! Nice integral bolster. Amboyna burl handle:



Very flexible:

“Best knife I've made yet!”

Here's a photo of what Tyler called “a practice knife” for the S grind:



That one will get finished and go to a family member.

Here's a push-dagger that he's got in-process, with Damascus patterning from ladder dies that he made.



Then Tyler took us across his shop to show off his latest shop equipment project – an awesome press!

“It's 58” tall so it fits through most man-doors, 5 hp motor, Craig's List power pack, all the other hydraulics, I made the work-head...” and he's really excited about is that the bottom (ram head) has an open center with side hole: “so if you're punching through your slag's not getting caught inside the

work head and you can drop plugs out the side. I'm going to set it up with a plate to catch anything and protect the cylinder.”



The void he mentions is hidden by the solid bottom die in this photo. Replace that with a die with punch-through holes and your plugs will fall down and out the side of the ram head assembly.

He also has plans for a top die that will allow him to drop a step in making feather Damascus.

A quick demo made **short** work of a metal cylinder!



And then there's Tyler's WIP ribbon burner forge. He has a PID controller to ensure that if the electricity goes out, the propane gets shut off too. Otherwise, during a power outage, the fan would quit but the gas would still be going. Not good. Controllers can also be rigged up to a pyrometer to be able to set and maintain a forge temperature. Frank Bobbio has recommended the book *Digital Temperature Control For The Blacksmith Forge*.



There was some discussion about the accuracy of different types of pyrometers. Frank Bobbio showed us how he tested his Paragon Furnace's built-in pyrometer against two others and found that a cheap one can be off by a couple hundred degrees.

There was also discussion of using pottery firing cones to calibrate electrical pyrometers.

*Note from the scribe. IMHO beware: pottery firing cones are good for judging a temperature **range**, not a precise temperature.*

And the cones respond differently depending upon how fast the temperature ramps up. Slower = more accurate, faster temperature change = less accurate.

Frank also mentioned that he'd acquired a double-high convection toaster oven from Craig's List for tempering. \$40 brand-new is hard to argue with!

He uses 3 oven thermometers plus his IR gun to gauge the temperature accurately.

When I was still making knives I snagged our old kitchen drop-in range when we replaced it and set it up on blocks in the shop. Wayne Goddard would warn about how toaster ovens and kitchen ovens cycle through a temperature range when set at a specific heat. They can cycle 50°f. So I kept a deep and narrow pan of sand in the oven, with an oven thermometer tucked into it. I figured that the thermal density of the sand would even out the oven's temperature variation. I would turn on the oven an hour before I was going to temper anything. Let the sand come up to temp, then bury the blade in it. Seemed to work well.

Brock showed us a knife he got back from a customer for sharpening. A petty chef (6 7/8" blade of 52100 steel, 11 3/4" overall) nicely patinaed in his raindrop type pattern. Blood wood handle with Hanson G-carta bolster with Micarta and G-10 liners and spacers.

The blade "started life at 0.090" thick. There's quite a bit of distal taper..." He noted that he grinds the blade bevel really close to the choil and up high without coming up into the pinch.



“I'll take 52100 super thin before I sharpen it. I'll take it down to 3 to 4 thousandths...”



There was quite a discussion of various etchants and patina recipes depending on the type of patina or depth of etch or type of steel you were working with.

Somebody tagged **Eric Land** next. Eric said he's been busy enough that he's hardly set foot in his knife shop, but he's working on his first 2 blade folder. “And that's been kind of a learning experience, trying to get both blades to fall in right, and be flush on the back...” but the one he showed is ready to finish up.



He also showed a pattern that new to him – made from a Remington knife style with a gunstock handle. This has become a popular style and he wanted to try it.



Third up was a pattern in homage to folder maker Tony Bose. “It's a knife based off an 1800s gardener's knife... he released a sketch on the back of a paper napkin... so I took that and turned it into a CAD drawing... it's ready to scale up *[finish up]* too...”



Eric shared that he's just interested in one-off knife making. He'd tried production runs of knives and “it was just like watching paint dry... took all the fun out of knifemaking... I've made maybe a dozen chef knives here lately...” and he's hoping that when Oregon winter really sets in he can spend more time indoors in the shop.

Then somebody put **Rafi** in the spotlight. He reported that he's been struggling with getting his forge to perform the way he wants. He replaced his 1” burner pipe with 2” square pipe that they had (and he cut up and welded).

He's also had to open up the propane nozzle to get good performance.

He did show a knife that he's finished up since our last in-person meeting. He's thinking that the handle is a little small and the spine a little thick.



Then next was a kitchen knife with black walnut and Micarta handle.



He explained that the 2-part handle was not the original intent. He set it up with an all black walnut handle but in rounding the front end of the walnut scales, things got away from him – so he rebuilt it as part walnut, part Micarta.

Rafi – you are NOT alone. Congratulations on recovering your work. Sometimes you can recover it, sometimes not. Every knife maker I know has some version of what I call my “oops drawer”.

The steel on that one was from a thrift store circular saw blade.

Next up was an ulu with a black walnut handle with nail pins, also from saw blade.



Brome chimed in “do you know that's how most of them are made on the North Slope – out of circular saw blades – because they're already curved. They just attach a piece of bone or a piece of ivory. My grandmother was a member of a village on the North Slope, so I have one in my collection from up there that has an ivory handle...” The ones made before western influence were made with slate blades.

Next was a dagger with cherry wood handles, again with nails as pins. “So it has 4 bevels that come down to a nice point that I didn't burn!”



“This one is my favorite so far – kind of a trail knife, like a carving knife... I quenched it and then I wire brushed it... this handle is kind of curvy and way bigger and fits better in my hand.”



Rafi thanked Lynn for all his help, and gifts of steel, and RR spikes. Here's a RR spike knife Rafi made:



He mentioned that he was not able to get it to harden. RR spikes are *not* what a knifemaker calls high carbon, and will only harden using techniques that would shatter high carbon knife steels.

Frank shared his technique. One issue is having a very aggressive quenchant. The home-brew recipes for “super-quench” for instance. Another problem is that you cannot spare the time to pull it out of the forge and dunk it – that will take too long – so Frank holds his RR spike blades right above his tank of Superquench (using vice-grips) and heats with a torch, so that when the steel is ready it goes into the quench in a tiny fraction of a second.

Frank made his Superquench in a 5 gal bucket with: 5 lb block of salt, 4 ½ gal water, 16 oz blue Dawn dish soap, and some Simple Green. Check for recipes on-line. Do not use this on high (or even medium carbon) steel unless you want your blade to crack! Mild steel only.

Frank mentioned that some types of plastic buckets get brittle over time with Superquench in them.

When Frank gets a new steel in he cuts samples off and does a heat treat with each one in oil, and if it doesn't get the harness he's looking for he will do another sample in Superquench. He marks the samples and keeps them for reference.



Rafi wants to start making kitchen knives, and has orders for a couple of knives.

Conversation drifted to safety issues. Frank shared a couple of experiences with angle grinder and wire brush cups. In one he had a RR spike project in a vice, got all suited up with leather apron and gloves etc. and still had the angle grinder catch, whip around his apron, catch up in his shirt in back “it wound up the shirt until it locked up the motor and was stuck on my back smoking!” Another time he had a cheap wire cup brush come apart while in use “and my whole jacket was just covered in porcupine needles of the wire.”

So yah, personal protection equipment is a must!

And that was the end of the meeting!



Just as a side-note, we had some official survey work done recently for our property's East boundary line. We are getting official since that neighbor is clear-cutting.

Metal rods pounded into the ground, trees marked, records put in with the county – the whole shebang.

When I saw the scribing tool I had to take a photo to share with you all:



Have fun, keep well, and work safe – and see you in the Zoom-verse!

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 December show are COVID canceled. The big knife show in April might happen – sign up for their newsletter to stay in the loop: <http://www.oregonknifeclub.org/index.html>
Go to the “Knewsletter” 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 Grospitch – Blue Lightning 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.petersheattreat.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.