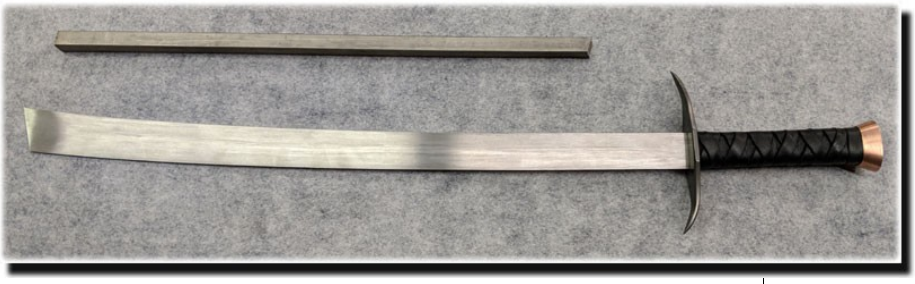
THE MOSTLY MONTHLY NEWSLETTER OF THE

EUGENE 5160 CLUB ~ DECEMBER 2018

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



JANUARY MEETING

Thursday January 3rd – 6:00pm at David Thompson's shop. Please do not arrive before 5:45pm. If you didn't get the directions in the meeting notice, email me for them: michael@elementalforge.com

Bring your show-n-tell!

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

NOTES AND REMINDERS

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OKCA April Show – this is the big one: April 12th is OKCA members only. April 13th & 14th are open to the public – admission is $6/day – members free. $120/table + OKCA membership. 360 tables at the Lane Events Center. Everything from the world of cut! http://oregonknifeclub.com/okcashow.html

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Check out the "Classes for Knifemaking, etc." section at the end of the newsletter for offerings around the region. Let me know if there's more that I should add to this list.

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

DECEMBER MEETING

LYNN MOORE got the meeting started with a utility knife he's finishing – industrial bandsaw steel blade, snakewood handle, nickle silver pins.

Next he shared a work-in-process. He got the blade from an OKCA member at their monthly meeting – he's putting a handle on it and finishing it up. He's going to use dove-tailed copper bolsters with ironwood scales.

Lynn then went into a description of his method for doing this style of dove-tailed bolster/scale handles.

I'll do my best to relay his instructions but I may miss something along the way, so if you see an error it's mine – not Lynn's – since his results speak for themselves!

Lynn uses the Micarta block pictured above as a jig to grind both the bolster and the scale to the same angle. He clamps this Micarta block to the table set at 90° to the belt – and makes sure that the front edge is parallel with the face of the belt. The Micarta should have a low angle to it – let's say 30° - which would give a 60° angle when you feed the stock down it against the belt. This is assuming that both the bolster and scale stock have smooth parallel faces. For the bolster you feed it in with the "outside" of the bolster against the Micarta – for the scale you feed it in with the "inside" of the scale against the Micarta.

First he sets up the bolster and scale the way he wants – leaving some extra material to account for grinding in the dove-tails. Then he drills the bolster holes. Sometimes he uses Super Glue (CA glue) to hold the bolsters in place while drilling (CA glue can be released with acetone). From then on Lynn uses "test pins" when doing trial fittings.

Generally you want to feed your stock down the Micarta jig square plumb and true... but for this knife Lynn found that he needed to grind the scale at a very slight angle so that it would cover the slight drop in the full tang outline. Which is why you want to start with slightly oversized stock and do trial fittings!

"So once I get [the scales] to where they're fitting really good and square then I can go back and drill my holes [in the tang and scales]. That way you're not trying to fit it in-between already drilled holes... it's a nice simple way to start at the bolster and work back" he noted.

"I have done some where I've done another dove-tail on the pommel..." in which case he gets the bolster ground and set with test pins, then gets the scales ground and set in place, then puts the back end angle on the scale, and fits the pommel to that – then drill the holes for the pommel. "The first time I did the bolster and the pommel and tried to fit the scale in between it – man was that a hard one!"

I've noticed that Lynn often uses some simple rod for the test pins – cutting it extra long, rounding one end and putting a 90° bend in the other end to grab onto for easy insertion and extraction.

Lynn's next pass-around was another utility EDC with a myrtle burl handle, nickle silver pins, the blade is circular saw blade steel. Lynn took this chanterelle mushroom hunting – so the blade could use a little polishing back up. Beautiful wood. Comfortable in the hand.

Lynn's then passed around one he started at an NWBA conference class with Dave Lisch. "This just sat on my workbench for over a year. Got tired of looking at it so I decided I'd better finish it." The blade is hand forged. The handle is stag from India.

He glued three layers of liner (red/black/red) inside the stag – then treated that as one piece when assembling the handle.

STEVE GODDARD came to the front next – and started out with an "uh-oh" that I bet every knife maker who does his own heat treat has had: breaking a blade while trying to straighten it. He passed around the pieces to get feedback on the grain size. "And like my father, I'll make something else out of that blade."

His first pass-around knife was a little neck knife, noting that it's good to have some small knives on your show table. The blade is from high speed cutters from a toilet paper plant (from Wayne's stash). The line on the sheath is 250lb test tuna lead.

Steve is also working through other items from his dad's shop – like this little cable knife that Steve cleaned up with 400 grit and re-etched.

… and another cable Damascus knife that Steve found partially finished. Steve is working on finishing it up. *This one looks to me like Wayne put a ladder pattern on top of the cable pattern.*

Pulling out a stout dagger Steve commented that "this is stamped the way he did it in the 70's – maybe even earlier – we'll just have to make up a story."

Our next presenter said "Well I'm the new guy. A couple of months ago I decided to start messing around with knives..." He noted that he has a forge, anvil, and some tools from doing foundry work 40 years ago... but he's not too excited about heavy work. "I also worked with pottery... and everything with pottery and forge work is heavy – and I'm getting too damned old!" So he's been purchasing blades online and putting handles on to suit his tastes.

The first pass-around had imitation horn scales. They were a bit thin, so he added Plexiglas liners to them.

His 2nd pass-around was a bone handled job. He didn't like how the guard stuck up above the back of the knife – so he ground it down to be more of a bolster. Which also fit his sheath better – and he noted that he also buys his sheaths online.

"I'm having fun!"

ERIK LAND was up next and got a round of applause when he said "I, fortunately, have all my Christmas orders out the door!"

"Most of you know I make folders, and here a while back I got a chance to talk to Luke Swenson who's another folder maker far above my abilities..." and as a result Erik has changed the mechanics of how his folders work.

"I've moved the front pin almost half way. And what that does is it gives me a mechanical advantage for the spring holding the blade."

"I've got a whole bucket full of scales that are garbage because when I pre-tensioned the spring I didn't do it quite enough."

In his newer pattern with the forward spring pin in the center of the handle (rather than closer to the butt) "...that automatically gives me a stiffer spring. And then instead of me measuring from the back of the spine to the pin, I'm measuring how much it changes in the rear hole."

I'm not following Erik completely – but that's how he said it at the meeting – it'll probably mean a lot more to you slip-joint makers out there.

"So far I've changed 4 patterns and made 4 prototypes – and it's got every bit as good a snap to it, and it's a **whole** lot easier for me to do it."

Erik is investing time with redoing his CAD programming etc. but is confident that it will pay off in the long run. He noted that there are no other slip-joint makers in this area that he's aware of – so his talk with Swenson was quite valuable.

Here's a knife in Erik's old style – you can see the forward spring pin – second from the left – is far back near the butt.

In the photo below you can see his prototype with the forward spring pin in the center of the handle:

SAM TAYLOR got up next. Sam works in forged titanium. Long time readers of this newsletter might remember that he brought an impressive sword work-in-process to the January 2016 meeting.

Here I am hamming it up with the sward from the January meeting – which was described in the February 2016 newsletter. Titanium is incredibly light, flexible, and tough... and totally different to forge and heat treat than steel.

Sam has since moved to Longview Washington. It sounds like he's been busy.

"I've been making titanium swords for six years or so – started here in Eugene..." He started making titanium swords because he thought they **should** exist. The conventional wisdom was that they couldn't be made – but Sam knew from a little experience with titanium that all the reasoning behind that was flawed. That set him searching for a titanium alloy that could be forged into a sword.

"There are all sorts of alloys, and they are all totally different from each other, just like steel."

What he first had success with was an alloy made by Boeing in the early 90's – possibly for a stealth helicopter project. "I got enough of it to practice with and figure out how to forge it and heat treat it..." It is not available commercially but a similar alloy is. The Boeing alloy is 89.5% titanium, 10% niobium, and 0.5% hydrogen *(if I heard right)*. This is still the best alloy he's tried. The second-best is an alloy from Russia that was made as ballistic armor.

Sam has tested 15 to 20 different allows – forging, heat treat, performance, and only a few make the cut. He recommends getting some "6 4" bar-stock to experiment with (aka Ti-6Al-4V or 6% aluminum, 4% vanadium) – as an "economical" way to learn about titanium forging.

Titanium metallurgy is like turning steel metallurgy on it's head, though there are some parallels. For instance, titanium has an analog for hardened steel's martensite phase which is called "alpha prime".

The sword he brought this time is made from the Russian alloy. "This is really typical of the kind of thing I make – in size and shape. The handle is a little bit atypical." He noted that this size is fairly useful – like a machete … "all the shrubs in your yard turn into enemy ninjas and need to be taken care of." He went on to note that "it's extremely tough – it has a viscous springiness to it... I can easily bend these things way past 90° and it'll come back true... But if the heat treatment is off it won't happen."

Since it weighs 60-70% the weight of iron it is easy to make a beefier sword. With it's springiness you want to pay attention to the vibration node near the blade's point – which makes a sweet spot for a chopping blow. He also notes that a vibration node at the front of the handle reduces shock to the hand.

The flat tip on the sword he brought this time is to move some mass forward which moves the chopping vibration node forward as well – and this sword is meant for chopping and slicing rather that stabbing.

Sam said the titanium is good at absorbing shock – so a miscut won't shock your hand as badly. The distal taper in the blade is important – he compared it more to the taper in the arm of a bow rather than the taper in a steel blade, saying that slow motion video of the strike by a titanium sword shows ripples running up and down the blade – much different than a steel blade. "And it's insanely strong!"

But he noted that it is a real challenge to finish titanium nicely. He's tried diamond and other options but "the best thing is just a good ceramic belt, but it does tear 'em up pretty quickly."

In answer to a question Sam said that he'd never anodized the titanium because he bets it would wear off quickly during use.

He also said that you can get a very good edge on titanium and that it holds up well. He noted that the closest steel grade in this aspect is 1095.

Answering more questions Sam detailed his forging and heat treat – which I'll try to summarize here:

- Forge starting at the phase change temperature of 1600°f - you can keep forging until all the color is about gone. 1600°f is the top of the forging range – and you can't "soak" it or it will

ruin the titanium within minutes. “If you start to see a yellowish powder then you know you're too hot.”

- Forge in an oxidizing atmosphere. A reducing atmosphere ruins titanium within a couple of minutes. “It's the opposite of what you would think.” An oxide layer on the billet protects the titanium.
- Forging titanium refines the grain and makes it harder by up to 10 HRc. After investing millions of R&D dollars, aerospace firms often forge titanium parts just to get finer grain and increased hardness.
- Sam has been doing a lot of hand forging but feels that a small power hammer is almost required for titanium forging. But be sure to hit it lightly a lot of times rather than hard.
- You have to go slow with forging. It does not move like hot steel. He likened it to thick corn starch/water where the harder you hit, the more it resists movement. “The harder you hit it the harder it pushes back – and if you hit it too hard it will crack, even if it's hot... a round-faced hammer is good: you want to just massage it out – and then grind it from there.”
- Titanium is a horrible conductor of heat. “6 inches away from it glowing it's cold enough to grab.” *But your scribe recommends caution.*
- For the final hardening Sam holds the blade at the phase change temp for a time determined by the maximum thickness of the blade, then quenches it in ice water.
- Quenching creates warpage.
- Quenching leaves the titanium in a malleable “beta phase” and warpage can be corrected with careful low temperature blows.
- “Aging” is done after the quench to harden the blade. Any remaining warpage will be there to stay. Aging is a type of a precipitation hardening. I wish I had a precise description of Sam's process, but I didn't catch it.

He relayed how much of his learning process was trial and error. Not only was there no available information on forging swords from titanium – it was considered to be impossible. So he had to try out alloys and methods – and believe that what he was learning by trial and error was real – and build on it. “Figure out why later.”

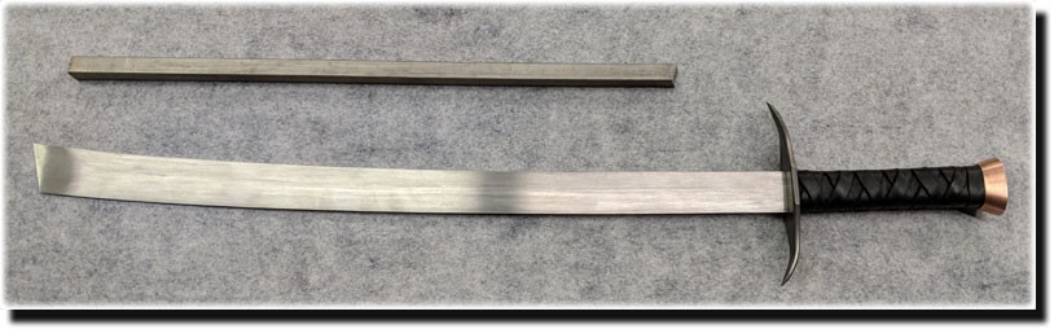
He said that his brother also works in titanium and has been making kitchen knives out of it. He has gotten 65 HRc hardness out of some alloys and heat treat processes. It sounds like they are thinking about a san mai construction with harder titanium core and tougher titanium sides.

Sam still likes steel better for most knives. He feels that titanium really shines when it comes to larger blade sizes like machetes and swords.

The sword he passed around has a rubber, elk skin, and nylon handle. The guard is from a different alloy – also heat treated.

“You can split firewood with that thing like it was an axe even though it's light weight. It weights about a pound and a half.”

And heeeeere's the sword! Along with a section of the titanium bar of the same dimensions (and alloy) used to make the sword:



Thank you Sam for making the trip to share your work and discoveries with us!

If you want to see a few of Sam's videos, go to YouTube and search for “Mad Science Forge” - here's the link:
https://www.youtube.com/channel/UC1G3CoVLsG2sNfEGh7vZlOQ

Another intriguing video is Peter Johnsson's discussion of medieval sword design from a few years back at Arctic Fire. Aw heck – all the Arctic Fire videos are a kick. But find an hour-and-a-quarter to watch this and you won't regret it. If you just want

Peter's explanation of sword dynamics: rotational inertia, balance point, pivot points, and vibration nodes – and how they affect the sword's performance – this starts at around 48 minutes in. Here's the link: https://www.youtube.com/watch?v=nyAc5HbUuqw

At that point in the meeting I put out a few pieces I'd cut from the 15N20 industrial bandsaw steel that Dennis Ellingsen brought in – for free to anyone wanting them.

Our host **DAVID THOMPSON** got up next, saying that he'd picked up some junk store treasures from a family trip to Medford recently.

He was particularly impressed by the economy of design in an Italian made scythe. It's basically metal sheet with a curled up outer edge – presumably for giving strength and stiffening the blade. The through-tang is simply hammered over to lock it into the handle.

"I'm always trying to figure out how these things are made... I looks like this was cut out of sheet and then forged over an anvil *[to give a shallow belly to the length of the blade]* on this back edge/stiffener you can feel the little hammer marks, kind of irregular... probably the cheapie Harbor Freight of the time."

He also picked up a "fisherman's friend" - specialized pliers with fold-out tools for working with fishing line and tackle. "I figure I'll clean it up, get the rust off, and toss it in my drift boat and let it get rusty again!"

Last up was something that the seller called a hoof knife – but the eventual consensus was that it was a folding timber scribe. This one was unique in that it not only was a folder (some are and some aren't) but it also has a fold-out hand guard.

Last up was **EDWARD DAVIS.** "Well it's been 2 months and I've finished 2 knives!" He passed around a small utility knife – that for Edward is a 2 finger knife – but it's for a grad student as a present for her successful defense of her dissertation. It's meant as a camping knife so it has to be light. *The blade is from the same industrial bandsaw blade that was being given away that evening.*

"I got it down pretty thin. I'm going to make a sheath that will have a metal belt clip so you can clip it on – and also a hole so you can use it as a neck knife. The pins I made myself. The handle is made with stabilized burl... and I have 4 more of these lined up – I figured if I was going to make one I should make five – so hopefully over the next few months I can get those done."

Have fun and work safe -

Your Scribe ~ Michael Kemp

Website Links

5160 Club

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

Hint: to Google the archive for a specific knife style or presenter name, use a search like this:
sami site:http://www.elementalforge.com/5160Club
or this:
ron lake site:http://www.elementalforge.com/5160Club

Oregon Knife Collectors Association (OKCA)

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

http://www.oregonknifeclub.org/index.html
Go to the "Knewslettter" link and scan a recent newsletter for a membership form and contact info.

Forums

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

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

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

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

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

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

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

References

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

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

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.
https://play.google.com/store/apps/details?id=com.pfiks.mobile.heattreaters&hl=en

My own "Knife Info" has some of my knife musings and cheat sheet charts – plus Oregon and Eugene knife laws:
http://elementalforge.com/tips_notes/

Classes for Knife Making, Etc.

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

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 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

MSC Direct
http://www.mscdirect.com/

McMaster-Carr
http://www.mcmaster.com

Grainger
http://www.grainger.com

Surplus Center
http://www.surpluscenter.com/

Victor Machinery Exchange
http://www.victornet.com/

Zoro
https://www.zoro.com/

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

Knife Maker General

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

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

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

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

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

Alpha Knife Supply – 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/

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
ttp://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

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

Knifemaker Equipment

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

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

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

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

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

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

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

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

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

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

Wayne Coe [Tennessee] – grinders, motors, VFDs...
http://www.waynecoeartistblacksmith.com

Contact Rubber Corp – wheels etc.
http://contactrubber.com/contact-wheels.asp

Sunray – drive wheels
http://www.sunray-inc.com/drive-wheels/

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

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

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

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

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

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

True Grit – under "Machines & Accessories"
http://www.trugrit.com

Forge & Refractory

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

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

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

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

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

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

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

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

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

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

Here's the original article on making a ribbon burners that John Emmerling wrote back in 2005 for the NWBA Newsletter:
http://blacksmith.org/2005-1-hot-iron-news/
You can download the PDF from that site. John's article starts on page 11.

Blacksmith

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

Blacksmith Depot
http://www.blacksmithsdepot.com

Pieh Tool
http://www.piehtoolco.com

Centaur Forge
http://www.centaurforge.com

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

Logo/Etching/Stamps

Ernie Grospitch – Blue Lightening Stencil
http://www.erniesknives.com/

IMG International Marking Group
http://img-electromark.com/

Electro-Chem Etch
http://www.ecemmi.com/products.html

Steel Stamp, Inc.
www.steelstampsinc.com

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/cutlery.html

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

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

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

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

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

Wood Suppliers

Burl Source – handle blocks/scales – So. Oregon
http://www.burlsales.com/

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

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

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

For 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/

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

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

Alpha Knife Supply – 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 – your mileage may vary.
https://www.turntex.com

Other Goodies

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

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

Coyote Steel – wide variety of new steel, scrap, copper, brass, bronze – Garfield & Cross St. Eugene
http://www.coyotesteel.com

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

Amtek – tool steel & cutting tools
http://websales.amtektool.com

Rio Grande – jewelry tools/supplies
http://www.riogrande.com

Otto Frei – jewelry tools/supplies
http://www.ottofrei.com

M3 Composite – space age mokume & other
http://www.m3composite.com/

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

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

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

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