THE MOSTLY MONTHLY NEWSLETTER OF THE

EUGENE 5160 CLUB ~ AUGUST 20WTF20

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

AUGUST 5160 CLUB

ZOOM MEETING IN CYBERSPACE

Edward Davis will host the Zoom meeting this Thursday – August 6th – at 6:00pm! 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 August 6th "join meeting" link is:
https://uoregon.zoom.us/j/96183250858?pwd=blpkOTlVMXdINlV0YW4wb2NRRjBMZz09

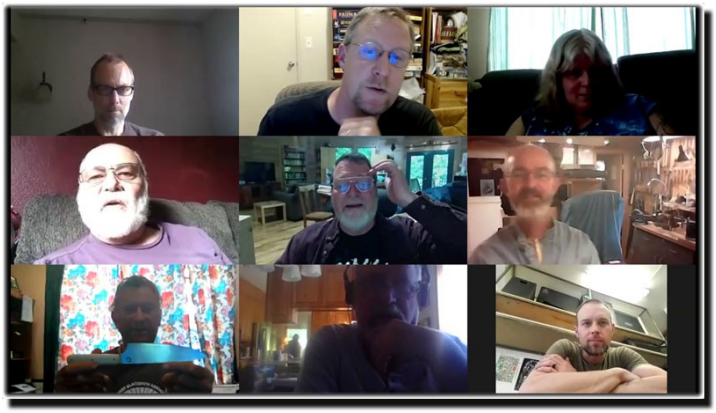
I doubt if you'll need them but this meeting ID is:
961 8325 0858
and the passcode is:
098053

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/ as a place to share your questions, insights, or photos.

JULY'S ZOOM MEETING

There were a number of us ready to go when **Edward Davis** fired up the meeting – and a few more joined the meeting in progress. Here we are...



... peering at **Lynn Moore** presenting a kitchen knife he's been working on – CPM 154 stainless blade – ivory Micarta handle with red spacers – with copper pins.

"I've been using it in the kitchen... just to give it a try... that CPM 154 is HARD STUFF!" Lynn heat treated the blade between profiling and grinding – sounds like the grinding took a long long time. "I don't think I'll do that again."

I believe that makers who grind after heat treat as a standard practice tend toward more aggressive belts

and grits than would be used pre-heat-treat. I'm sure there are many pros and cons.

Lynn's next knife was from industrial saw blade material gifted by **Ben Tendick** or **Dennis Ellingsen.** Myrtle handle with nice curly figure that does not show in the video snapshot, copper pins, Sally Martin lanyard hole pin. Lynn enjoyed putting in the "harpoon" and false edge.

Lynn mentioned that he'd made another kitchen knife with ironwood handle – but as it was sold and delivered (for a birthday gift) earlier in the week he didn't have it for show-n-tell. That one was a French chef knife in CPM-154.

Lynn noted that he heat treated the CPM-154 after profiling but before grinding. He heated them in stainless foil – and plate quenched directly in the foil – and had issues with the tangs warping. Lynn tempered the blades at 400-425°f, but the tangs broke when he tried to straighten them. He was able to silver-braise them back in place for a solid repair.

In response to a question Lynn said that he heat treated them in a programmable kiln. "You have to hold them *[CMP-154]* a little above 1900°f for an hour..."

There was discussion about heat treat ovens. Folks seem happy with Evenheat and Paragon.

Back on the issue of straightening out a warp, there was discussion about using the 3-pin-vice method – versus using some jig setup when placing the blade in an oven at tempering heat. There are innumerable variations, but the idea for straightening-in-the-oven is to place the blade between two non-flexing plates with bits of thin steel (washers, scrap, coins) at the areas to be corrected – and clamps fore and aft to make the bend... then do the tempering cycle.

Either method works. Mike Johnston noted that his version of the 3-pin-vice jig is to use 3 sections of black pipe. He drills a hole through the top of each pipe and puts a rod through the hole... so that all three can be hung down between the vice jaws and maneuvered around to match the correcting force needed for the particular warp being fixed.

Brome McCreary made his 3-pin-vice jigs out of red oak dowel with inset magnets to make them "snap" in place on the vice jaws!

Brome has also made a two sided curved jig that hangs on the vice jaws the same way:

Back to the in-the-tempering-oven clamps, Billy O uses a couple of angle irons – 3 small clamps – and dimes to adjust out warps during tempering. He noted that with complex warping it can take 4 or 5 tempering sessions to straighten out a blade.

I noted that one of the chef knives I made warped at the edge but not at the spine – and I used the in-the-tempering-oven method with a broken tip from an old failed blade to put bending pressure on the edge but not on the spine.

Mike Johnston shared a kitchen knife that's seen a lot of general use in his daughter's kitchen. The blade is 13" forged from truck coil spring. East Indian rosewood with stainless steel bolster and a stainless Sally Martin pin.

When asked if he had any warpage issues with such a long thin blade Mike said "No, and I think the reason it doesn't do that is that I do a triple normalizing to begin with – then I do a clay back on it. With 5160, typically, I don't get any kind of hamon... it seems to slow the cooling down just enough on the spine to keep it from doing any warping. As soon as I started claying my thin blades like that I really haven't hand any kind of warpage issues."

Mike's second show-n-tell is "sort of a nakiri" but double beveled edge. Coil spring blade with cherry burl spacer and Peruvian walnut. "My daughter's in the background – she says she uses this every day!"

"I haven't sharpened it for two years now and she uses it every day and it'll still shave."

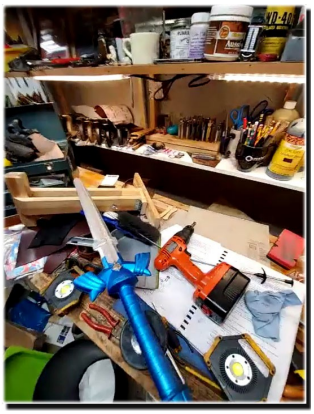
Brome asked how Mike attaches the thin bolster. Mike responded that the bolster *[maybe 1/8" stock?]* is just slotted to slide up the tang. "I undersize the hole so that I have to tap it down and then I heat it from the front side with a torch and a little silver solder from the back just to seal it up *[this would be the low temp silver solder]*. It's truly a good tight drive-on fit."

Mike's third show-n-tell had more heft! "It's a cleaver I made from an industrial circular saw blade. It's patterned after my Samuel Lee 1883 cleaver... not forged. It was edge quenched with a torch."

It's got a through-tang with a threaded brass button as the butt cap. *I have always threaded the end of the tang for this type of construction, but Mike takes a different approach:* Mike steps the tang in at the end – grinding down half the thickness. He takes a bolt and forges it to the tang thickness and grinds in a matching step. Then he drills a hole through both pieces and uses a 16d nail as a rivet and also uses low temp silver solder to keep it in place.

He knew this would get heavy use (it's been used to butcher moose) so he has both pins and the button butt cap. He threaded holes in the tang and used brass bolts for the pins. "I wasn't thrilled with the result – there were some little voids that I filled with finish.

In answer to a question about soldering the guard Mike said he uses ammonia or Windex to clean it before soldering and then uses Simple Green afterward to remove the flux.



Edward Davis then switched over to his cell phone and took us for a walk to his shop area, and front and center on the workbench was this amazing magic sword in for a repair job on its broken foam tip!

Moving right along to his knife making corner, Edward noted that his so-so bandsaw got vastly better after he went "to the bandsaw place on west 11th" and got a professional grade blade for it.

Edward bought this grinder from Steve Goddard and swapped out the single-speed motor with one that can run variable speed.

"Based on Brock's recommendation on the Facebook group I got the KBAC speed controller... it was not too difficult to wire this up. Basically this takes the 110v current from the wall and turns it into 3-phase for the motor and you can take it down to barely moving and all the way up to 2,000rpm..."

He's got some knives ready for handle shaping and he's looking forward to being able to run slow for for the handle material.

"You'll love the slow speed – your belts will last longer and you won't burn up your handle materials." Brome kicked in.

Lynn noted that when you are doing inside curves (as one tends to do on handles) that the 2" belts with scalloped edges *[by Klingspor I believe]* don't edge-cut into the material like regular straight edged belts want to do.

Lynn got his from Pop's Knife Supply at https://popsknife.supplies

Lynn uses them in slack-belt grinding or with a piece of felt between the platen and the belt.

Frank Bobbio seconded the motion – saying that he uses the 1" scallop edge belts for doing finger grooves etc. He also uses slack-belt for this. "I get them in 120, 220, and generally 400... that's a standard I use for all the finger grooves on almost all my knives... and run 'em real slow – I generally never go over 30% doing those." Frank got his from True Grit (see web links at end of newsletter).

Brome McCreary jumped in next. "This is a knife I started out a while ago... I made this for my son... the handle is O1 – my favorite steel... the handle is kind of cool because when we bought our property here 20 years ago or so it had a huge English walnut tree on it" that his son loved to climb – but because of the danger the tree posed to the house due to core rot they had to cut it down. The wood of this knife handle is from that tree.

Michael Kemp *[yours truly]* picked up the theme of gleaned wood and showed a few pieces that I

harvested from trees on our property or our neighbor's when an oak or maple or cherry tree had to come down or was felled by ice or wind.

I would find parts of the tree that I thought might contain good figure and cut rounds for slow drying in an open shed. I let them cure for years after "sealing" the ends. I learned later from Martin Brandt that I should have sawn them down the middle to reduce checking. Anyhoo – I tried a lot of things to seal the ends. Johnson's Floor Wax didn't stop the oak from checking. Neither did a few other online-forum suggestions. The best thing was an old bucket of roofing tar I had lying around.

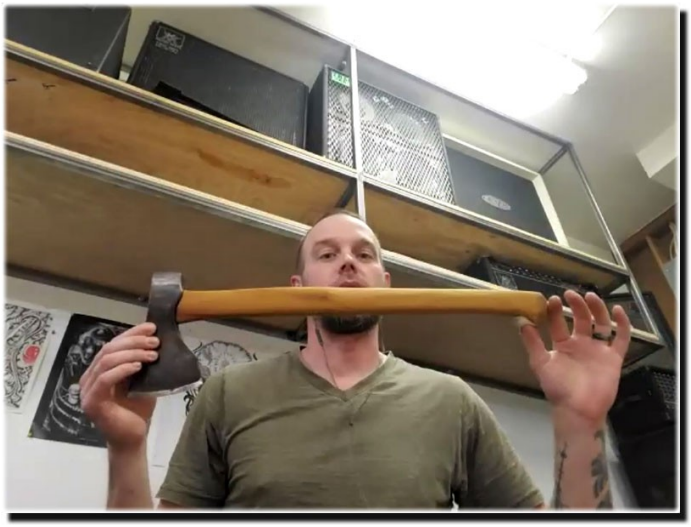
I got some nice pieces from a couple of maples and oaks that we had to take down – and some really impressive spalted oak from the neighbor's tree.

But you start with your tree rounds and let that cure. Then take the chainsaw to it and slab out where you think the figure will be – and throw most of it away... then you take your few slabs to the table saw and try to cut handle blocks getting the good grain while cutting out the cracks and rotten spots and again throw most of it in the wood pile. So you wind up with a TINY fraction of the rounds you originally set aside. But you know where those blocks came from!

The curly maple and the crotch-wood oak that I held up didn't pick up in the Zoom video worth beans... but you can get some idea of the spalted oak here (stabilized by K&G).

On the stabilizing note – **Adam** promoted Larry Davis in Springfield – of Gallery Hardwoods (see the links at the end of the newsletter). "His stuff is amazing... he's doing it right. I spent some money a couple of weeks back and I'm impressed... I got a big chunk of osage orange from him and I'm excited about that!"

Adam went ahead and shared his 3rd forged axe head with a 20" handle in the osage orange (already sold). "There's no way you guys can see *[through the Zoom video]* the chatoyance in that grain... but you get a little light on this stuff and it makes the hair on the back of my head stand up on end... it's just beautiful!"



Here's axe head #1:
A bearded axe. Adam is using the drift method for creating the eye. "I'm still getting my tools dialed in... so I've been doing axes that last couple of weeks. It's been great!"

On another tack he got a radiused platen for doing chef knives.

Next up Adam shared a long kitchen slicer that he recently made.

He made the Damascus from low layer count twisted bars – stacked and forge welded into a stacked billet.

The individual twisted bars were about 40 layers "twisted about 10 times". For the handle construction he drilled and threaded the integral bolster, took 5/16" grade 5 bolt material for the through tang (forging it a little flat in the middle), screwed that into the bolster and TIG welded that in place. The butt is secured by a threaded nut – with an inset mosaic pin.

There was quite a bit of discussion about alternatives to the TIG welding, such as silver brazing or using thread-lock.

Going from refined to rough-n-ready Adam showed us his new "correcting and rounding" hammer that he made the day before.

I asked Frank if he was OK with me putting his hori hori prototypes in the newsletter – he said "It doesn't really matter" so here it is!

Frank Bobbio jumped in next with a couple of his "hori hori" prototypes. "It's a Japanese gardening blade – hori hori means dig dig."

Once Frank decided to take on the design "I want to make a hori hori garden trowel knife that's up to survival knife standards."

Prototype #1 (above) has a slight radius like a trowel but not as deep. It has a full tang and a steel pommel TIG welded to the tang.

"I had a professional outdoorsman *[Brome]* test it for me." He took it into the back country for a week and used it for fire prep *[and a full range of camp use]*... and did things with the blade that will not be mentioned in a public newsletter. "I don't even know why he would do such a thing to one of my knives!" But Frank's knife held up to all the punishment!

Using Brome's feedback prototype #2 has a deeper radius – like a standard garden trowel. He added a sharp edged 1/2" radius and short flat spot on the spine for striking a fire-starter rod. Frank changed the pommel to an extension of the full tang with two lanyard holes that could be used to lash to a stick as a spear point. He also changed the back from V-tooth to actual saw-tooth profile (#2 above, #1 below):

“When I do end up making these maybe a couple of months from now I'll offer one with a curve – more as a trowel – and the other will be completely flat.” The trowel version won't have a pommel.

Frank noted that he is plasma cutting the blade profile including the saw teeth out of 8670 industrial circular saw material that was donated to the group by Dennis Ellingsen or Ben Tendick.

“According to one of the charts on Knife Steel Nerds *[see link at the end of the newsletter]* 8670 is perhaps the strongest or toughest cutlery steel that you can find... it's 10-20% stronger than 5160.”

Frank created test pieces from an L6 saw blade and from an 8670 saw blade and found the 8670 to be significantly stronger. “The strength was three times stronger on the 8670... obviously there are better steels for edge retention, but for strength that's about as good as you can get.”

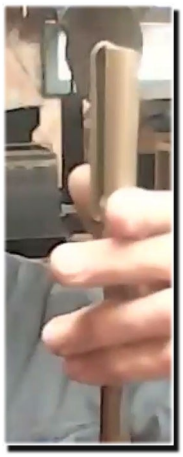
Frank prompted Brome about the PVC sheath he makes for fixed blades:

It's a piece of 2” PVC pipe that is heated and pressed flat (with room for the blade). Brome leaves an extension of one side of the pipe that he then heats that and wraps it around for a belt clip.

Brome explained his process:

- He starts with schedule 20 pipe (not for residential use). It's not available at general hardware stores but you can buy it at an irrigation supply store. Brome goes to an irrigation supply shop in Tangent that lets him dumpster dive for broken lengths that they've thrown out.
- He gets multiple diameter pieces, flattens them, and keeps marked samples so that he can quickly choose the right size for any blade:

- He heats the pipe in his oven to the same temp as Kydex – about 275°f usually works well.
- Insert your blade (or better yet piece of wood or metal the proper thickness) into the hot pipe.
- Put a piece of smooth-surfaced plywood on the floor – with the hot pipe & insert on top – and put another piece of smooth plywood on top. Stand on this “sandwich” to flatten the pipe. Brome has found that if he rocks back and forth is helps form a crisp edge on the sides.
- You can use a heat gun to soften and customize parts of the sheath, like extra forming for the sheath mouth.
- Brome uses a longer section of pipe than is needed for the blade so that he can cut a tongue at the top to fold over for a G (or J?) type belt hook. I'm guessing that he bends the bottom hook before bending the entire flap over to form the belt pass-through. I'm also betting that doing the initial flattening over an extra-long piece of wood or steel the thickness of the blade would make it easier to accommodate the tongue for the belt hook.



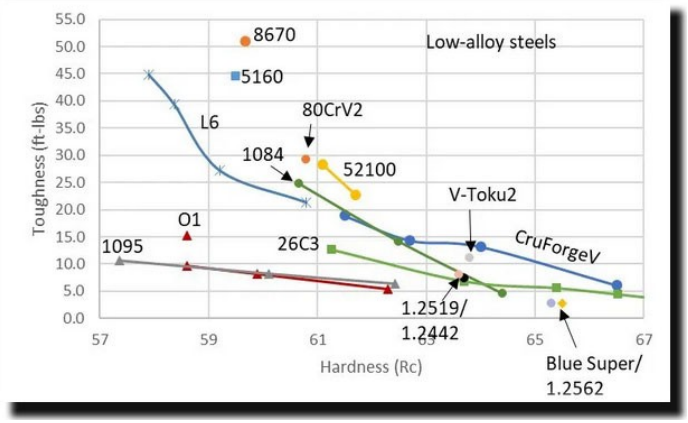
- Brome doesn't like the bright white of the PVC so he paints them – just a flat color with maybe a brush-and twig camouflage. He uses “just regular old rattle-can paint” with maybe nutmeg as the base and hunter-green on top.

“It's quick and dirty and safer than a cardboard and duct tape sheath!”

Frank jumped back in to recommend following the Knife Steel Nerds website, saying that there are new articles all the time. Adam reinforced that advice, noting that he just read their past article on sub-critical annealing "which was really informative, but still way over my head." Brome chimed in that, despite the technical terms, they have really valuable articles and "they have really amazing graphs and it really portrays that strength versus durability... they do a really great job with that."

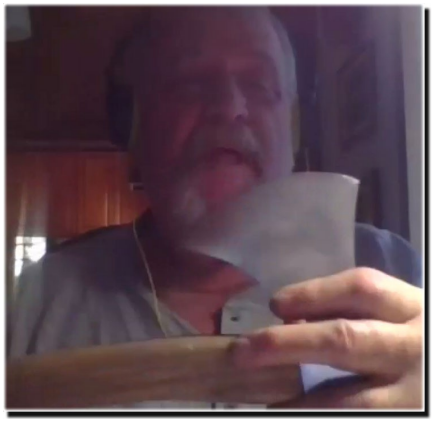
It was noted that the Knife Steel Nerds guy is Larrin Thomas – son of Mr. Damascus Devin Thomas – and has a PhD in Metallurgical and Materials Engineering... so he's got the chops!

Here's a sample graph from the Knife Steel Nerds article "Ranking Toughness of Forging Knife Steels" from February 2020: https://knifesteelnerds.com/2020/02/17/ranking-toughness-of-forging-knife-steels/



Roger Wells jumped in next with some comments about osage orange:

"It's also known as hedge in the Midwest. It's used for fence posts. They also make hedgerows with it to keep livestock in... they use it for fence posts because they put it in the ground and it does not rot. It can sit there for 100 years and it just doesn't rot... there are stories of driving a tractor over the post and bending it flat – they drove the tractor back off and it sprang back up! It's also called bois d'arc because *[the French]* used it for wood for flatbows, and it bends like a son-of-a-gun – I made about 50 bows and you can bend it around almost a 90° angle and I used to sell those on-line... it's a wonderful wood – and that yellow color will go to a chocolate brown eventually... When I was in Iowa I bought a couple of posts – 10' or 12' long and about 14" in diameter for $10 apiece!"



Roger has also been getting axe heads from eBay and "putting together axes for splitting firewood..."

He noted that the axe heads he gets have the edge grind so thick that the axe won't stick in the chopping block – so he grinds them thinner. "It's a pain in the ass to buy an axe head and have to grind it down... but that's what I've been doing, I've put together about half-a-dozen of these – it's fun to go out in the morning and split wood and drink coffee and look at the birds!"

Your scribe can't help jumping in here to note that it's not just eBay axe heads... I had a friend give me a Japanese low layer Damascus kitchen knife to repair (I forget the right name – similar to a western petty) that his wife had broken the tip off of – but despite the obvious knife abuse, my point is that this $200+ factory made knife had a 1/2" spot on the blade that had never been sharp. The bevels didn't even meet!?! The moral of the story is: don't expect modern factory output to have reliable quality control!

In response to a question Roger said that he's got "so much wood I don't know what I'm gonna do with it..." he has the osage stash and quarter sawn white oak from a tree he took down a couple of years ago and "I've got aromatic cedar that my dad cut in 1947" that has cured so long that Roger thinks it's

like the wood that is baked to stabilize it for luthiers – so that it won't absorb moisture.

Brome asked about sources for handle material, noting that he no longer finds decent handles in hardware stores. Edward mentioned Owens Axe and Handle from British Colombia on Instagram: https://www.instagram.com/owens_axe_and_handle/ … they restore axe heads and make traditional handles. They sell through https://lamacaaxes.com/ Adam mentioned Ol' Feller Restoration out of Harrisburg or according to his Facebook page Junction City: https://olfellermfg.com/ https://www.facebook.com/pg/olfellerrestoration/

Lynn talked again about the knife that he'd sold earlier in the week. Stainless steel blade. Ironwood handle with copper pins. When questioned about what he uses for copper pins – well of course, the electrician uses #8 copper wire. "I just straighten it on the anvil... use a .03 drill bit... I put the pins in and leave them a little long and grind 'em back."

Billy O had introduced himself earlier in the meeting, noting that he's been an NWBA member for about 11 years. About 6 years ago he tried his hand at forge welding and has been making Damascus (mainly kitchen knives) ever since.

Billy stepped in with some questions about a kitchen knife that he's making for a chef who has helped out the dog rescue where his sister works. The chef wants it for breaking down turkeys. He specified a santoku shape and a 5mm spine. "The question that I have is this is a thick heavy thing... should I taper it to the point... I'm assuming that he wants some meat at the tip so he can get into the *[turkey]* joints and pop the joints... the other question is... on the tang – should I keep the full width for strength or should I go for a wa handle?"

It doesn't show at this stage, but the knife is 15 layers of 15N20 and 1080 for the edge and a san mai on the spine of 15N20 cladding 1080 in the middle which Billy hopes will create a cloud-and-water effect on the blade with a waterfall from the tang into the blade. We all want to see it!

Lynn felt that the knife would be strong enough to go with either tang construction. He's partial to tapering toward the point... but if it's only for chopping up turkeys then maybe leave it thicker.

Brome brought out a Chinese chopper to show that it has a taper toward the tip – and has a hidden tang... and Chinese choppers get a lot of use and abuse!

And with that we signed off until next time...

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 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

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 Networkhttp://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

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

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

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/

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 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.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.