

EUGENE 5160 CLUB ~ MARCH 2020

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

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



MARCH MEETING

Thursday March 5th – 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

Oregon Knife Collectors Association – The 2020 April show will be here in two shakes of a lamb's tail (or two head shakes at smile-knife tales): OKCA Members only Friday the 17th – open to the public for a nominal entry fee Saturday & Sunday the 18th & 19th. Everything from the world of cut plus seminars and demos! <http://oregonknifeclub.com/shows.html>

2020 Big Sky Country Conference – July 10/11/12 in Frenchtown, Montana. 1st class knife makers, knife making demos, firearms, bowling ball cannon launch etc. Space is limited – register here: <https://www.joshsmithknives.com/history/big-sky-conference/>

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.

Check out the “Classes for Knife Making, 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.



FEBRUARY MEETING

DENNIS ELLINGSEN visited us bearing gifts [again!]: another batch of industrial Micarta. He noted that – much the same way folks call any facial tissue “Kleenex” - Micarta is a trademark that is used and abused to describe any type of resin impregnated



layered fabrics or papers. The Micarta that Dennis brings to the group has seen use in a sawmill.

“The bandsaw is 10 or 15 feet tall and they use the Micarta to keep the bandsaw straight so it doesn't wobble...” but when the blocks wear and get out of tolerance they throw them away. “And when I found out they were throwing it away I said 'Knifemakers – they're crazy – they love that stuff!' So I get it all.”

Dennis had a sample block from his batch that Craig Morgan had polished up one side of so folks could see what this particular Micarta looks like tidied up. He also had copies of the spec sheets for this Micarta for anyone interested.

He warned about using a face mask (or respirator) when working with it. Like all handle materials, you do NOT want the dust from this stuff collecting in your lungs.

“It gets a really fine yellow dust all over everything!” Mike Johnston chimed in. “It stays in the air for hours” added Craig Morgan. And Martin Brant summed it all up with “If you're in the shop grinding stuff and you're not wearing a respirator, you are jeopardizing your health!”

That said – Micarta is a desirable handle material. It is extremely durable and stands up to anything a camp knife can be subjected to. And in skilled hands it can be very handsome too.

Dennis passed around a knife made by David Kurt that is an excellent example of a Micarta handle.



Dennis reminded us that the April show is just around the corner. He also noted that when someone who has

paid for a table calls him to say that they cannot make it – they will sometimes refuse a refund and ask that the table be used however will benefit the OKCA. Dennis had just such a table that he gifted to “a starving knifemaker that can't afford the \$120...” Such a deal! Thank you Dennis for all your support of the 5160 Club!!

“I decided because I don't come here that often that I'd bring a couple of knives that might be of interest to you as knifemakers...” At last year's April show Dennis was particularly taken by one of the Display Award Knives and asked the maker if he could make a similar knife for him. Here's the puukko knife with stacked birch bark handle:



Then to top that, he got a birthday present of another stacked birch bark handled knife – spearpoint Bowie style – with copper inlay. Oh my!



The “front” of the knife reads “Ellingsen 2019”. Beautiful work by Theo Eichorn.

Dennis sent his son Ray and a couple of others out to bring in his “trunk full” of Micarta blocks of various sizes for the group to do our piranha-feeding thing. We relieved him of his Micarta. Martin Brandt also put some chunks of white marble on the table for anybody who wanted to make use of them.

Then – as advertised – Mike Johnston disbursed free gallons of acetic acid (the concentrated version of the acid in vinegar). This stuff needs to be diluted with 3 or 4 parts water before use. “If you're doin' like ya oughtter you'll add acid to the water.”

A couple of folks later sent me notes about just how corrosive acetic acid and vinegar can be:

Jove Lachman-Curl:

Don't keep it in your shop. I appreciate the acetic acid and I look forward to using it, but this warning may help people out.

I kept the gallon in my trunk for a couple days then put it in my shop. I noticed a slight smell of vinegar in my car but it didn't bother me.

This evening I cleared out some junk and scrap steel that has been in my trunk a couple weeks. It was covered in rust, like winter frost over everything, even a little on some stainless scrap.

I immediately moved the gallon out of my shop. There didn't appear to be any leak or residue on the clean concrete floor. I have a lathe in there. I will be going around with a spray bottle of baking soda water to neutralize things and some spray oil.

-Jove

Martin Brandt:

I don't know if there was any acid on your jug, but a little acid goes a long way when open or in enclosed spaces.

I once cleaned a few small rusty pipe threads with a small juice glass 1/4 full of muriatic acid in a tool room. When done we foolishly left it on a bench open. We came in the next morning and every hand plane, hand saw, table saw etc. that was exposed had a nice "frost like" rust patina.

I was steel wooling and oiling for a couple of weeks fixing my blunder. Store acids out of sunlight as that will degrade the jug with time due to ultra violet light. Keep capped snugly, but not excessively tight, where it won't get damaged or kicked over. When using protect yourself and remember it will off gas, so don't use in your shop for long unless you like steel wooling and oiling. Diluted it may be a bit less obnoxious.

Martin Brandt

Mike advised cutting this 80% acetic acid “at least in half... it is absolutely amazing for getting off forge scale. You put it in there – wait awhile – and virtually wipe away the forge scale... this is 80% - vinegar you

get in the store is 5% - this stuff will burn... always put your water in a container and pour the acid into it. Don't ever put water into the acid. It's bad.”

“I was looking for a gallon of the 30% stuff that they use in the agriculture business – couldn't find it – but one ag store I stopped in they said they didn't carry it – but oh wait a minute... and they went out and checked and found a barrel of it... they brought it out on a forklift and it was a 55 gallon barrel and it was 80%!”

High concentration acetic acid is used in agriculture as a weed killer. “It's not real good for heavy, woody, stuff but for new growth it just wipes it out.”

As for show-n-tell, Mike passed around a tool he made to quickly grab the handle on Damascus billets.

[typically a smith will set up a heavy billet of Damascus for forge-welding – and weld a handle of rebar or some such on one end. If the handle is short it gets too hot to hold. If the handle is long it gets in the way while the billet is heating up. If you re-use your handles they get shorter and shorter with each billet.]

Anyway... **MIKE JOHNSTON**

saw an interesting tool on a Youtube Damascus forging video – when he messaged the guy “and I said: where did you get that idea – and he said: I got the idea from Wayne Goddard... Any of you who knew Wayne Goddard know that he liked vice grips...”



So this tool is a handle extension that is used to clamp onto the short handles of Damascus billets. It consists of a pipe with an inner diameter just large enough to receive your handle stock. You prepare a vice grip by cutting off the top jaw and welding a block of steel on the bottom jaw. Drill and file out a rectangular hole near the end of the tube for that block of steel to slide into. Weld the top of the vice grip to the pipe so that – when closed – the block on the vice grip jaw slides into the pipe and will firmly grip any handle that is inserted into the pipe. Mike can work several billets at once and easily grab them out of the forge in sequence for forge welding and drawing out!



Mike relayed how he worked with a high school student on their senior project. “And being a high school student he said: I want to make a sword!”

The kid had a design worked out – Mike cut 1-1/2 coils of a Dodge 3/4” coil spring - “And he learned some humility straightening that out!” Mike whipped up an extra sword blank out of trailer leaf spring so that the student could get practice on the extra before working on his “real” project. When it was all said and done Mike finished up the “extra” into what he calls an elvish long knife (or short sword). Hollow ground main bevels and hollow ground clip edge. The handle is bocote (stained slightly darker).



Lynn's other pass-around was a work-in-process with trial pins through the handle material: a combination of heavy and finer canvas “Micarta”



BROCK came to the front. “I think it's 2 years since I started coming to 5160 Club – so I want to say 'Thank you' for the 5160 being here, and a couple of the guys I've made friends with and have been super helpful... everybody's been rad...”



He brought in a knife roll with work he's getting ready for the April OKCA show.

The first was a 1095 “pig sticker” – which wound up a little thin for a camp knife but fine for general use. The blade finish is tumbled with 3/4” minus gravel (Brock tried traditional tumbler material but prefers the more random effect of 3/4-). The handle wood is reclaimed redwood and G-10.



The handle on the next one is some of the Micarta from Dennis and big leaf maple from Brock's property. The steel is AEB-L with a “dirty wash” and a glyph appropriate for the “pirate crew” that the customer participates in with the Society for Creative Anachronism. (photo on next page)



LYNN MOORE was up next with a couple of knives he's been working on. First up was a cleaver made from one of the circular saw blades that Dennis Ellingsen donated to the group.

The handle is from Gallery Hardwoods – stabilized maple. Copper pins. The thong hole is “from a piece of old antenna off the farm...”





this mix (-95 to -99°f) and liquid nitrogen (-320°f).

The next pass-around was a slightly larger EDC style with Vanadis 4E powdered metallurgy steel. The scales are again his big leaf maple with Westinghouse liners.



The next pass-around was in the Japanese bunka knife style – with a slightly modified handle. AEB-L steel. The handle material is “Micarta” with I believe G-10 accents.



Next up was an Every-Day-Carry knife. Brock calls this style “the Row” named after the river in the valley where he lives [pronounced as in “they got into a big row” - not as in “row row row your boat”]. The steel is AEB-L. The handle is “garage Micarta so it's My-carta with a Y.” He noted that he's starting to be satisfied with his leatherwork.



Next up was a traveler from South Carolina **RONNIE VEHORN** who was visiting family in Eugene and decided to spend the evening with us.



“My wife and I spent 27 years in South Africa... during that time we did missionary things and also had a small safari company...” He has a favorite pocket knife design that he calls “The Brothers of the Warthog” which a local knifemaker would do for him. The scales are warthog tusk. When a friend on safari would shoot a warthog he would be given the opportunity to buy one of these folders. When the original knifemaker passed away at 42 years of age Ronnie was able to get another friend, Willie Paulsen, to take up producing the knives.

There was a bit of discussion about AEB-L which was generally favorable. Brock noted “from what I've used and been testing I've been super happy with AEB-L. When I've taken it back to about 61 [HRC] it's been tough enough batonning and twisting and some of the abusive stuff that backwoods and hunting might see...”

“I think we wound up with about 30 of these knives scattered around the world... it's a stainless steel Damascus from Sweden, Damasteel blade, with titanium bolsters, warthog ivory... I wanted to get out of the house this evening and I figured I could either go to the bar, the church, or find a knifemakers club!”

In answer to a question he said that he goes to a sub-zero quench with denatured alcohol and dry ice, noting that according to the science there's no appreciable difference in out-in-the-field use between quenching in

“I’ve met a lot of knifemakers. I used to trade horn material and African hardwoods...” He would look at the knifemaker advertisements in the back of the Knifemakers Guild magazine and send letters to the ones he liked – and offer enough handle material for 10 knives in trade for one knife made in his favorite fixed blade style. “I wound up with 25 or 30 beautiful knives of the same profile but with a different finish and a different handle material – antelope and hardwoods.”

Ronnie passed around the beautiful “Brothers of the Warthog” folder and a warthog tusk:



burl. I've been setting them up in epoxy – I've got 3 more going at home...” Combine that with a ½ off coupon at Joanne's Fabrics for their epoxy and suddenly burl handle blocks become much more affordable. In these blocks he mixed a drop of acrylic paint in with the epoxy to give it a little color but still be translucent – without altering the curing properties of the epoxy.

Next up he showed a wakizashi for which he made a 1,000 layer Damascus billet for the blade. “Since Forged In Fire I've been trying to go back and make a 1,000 layer anything that doesn't have any delaminations in it... this is the first billet that doesn't have any issues with it and that I can say that I'm proud of.” The saya scabbard is walnut. He did the same style of tsuba as he did in Forged In Fire. And for practice he made another one of plain steel with some forge scale left at the top of the blade.



“And then I ground this one out this morning...” it was from a 20 layer Damascus billet for the spine of the dagger – with plain steel on both sides. He cut alternating divots in the outer layers so that it would form the central Damascus into a “snake” when the divots were forged out straight.

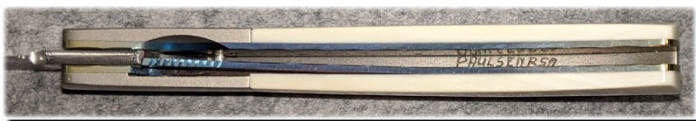


Tristan also passed around a chef knife made from the same bar of snaked Damascus.

TRISTAN got up front next – spreading out an array of blades in various stages, and a couple of blocks of handle wood. The previous night he'd stopped by Goodwill



“and there was this clock there for \$7 and it was a huge piece of





His next piece was from a billet where he initially wanted to do feather Damascus – but dropped back to crushed Ws. The handle is from a batch of Osage orange that he was gifted. Tristan likes the color and pattern in this wood.



Apropos of handle wood, someone in the group mentioned that Mike's Bargain Center (just south of Beltline on Hwy 99) had a bunch of purple heart in stock – some with some interesting grain. Mike's carries an ever-changing supply of boards and panels so it's pot luck what you will find there.

Tristan noted that when he has worked with purple heart it was brittle is tends to break. He got confirmation from the group that that's how it is. Jove chimed in about modifying drill bit geometry in order to reduce the bit grabbing and chipping out the material as you drill through it. He later sent me more details and some photos – I've included them at the end of these meeting notes (before the web links).

Here are a couple of Every-Day-Carry knives that Tristan made. He's experimenting with landscapes on the sheaths and interacting on-line to get stories from followers to turn into landscapes on future sheaths.



CASEY came to the front next. He said he's been having fun with mustard finish. *If you browse through old newsletters you can find a few descriptions of applying French's Mustard to create a protective and decorative patina to high carbon steel.* Someone in the group playfully called it “French Etch”.



He's been making knives from leaf springs from old equipment. The first one was a kitchen knife with an ebony handle. The second was a karambit.

I don't seem to have a photo of either of them – sometimes pieces get passed around without crossing my table to get photographed!

Casey noted that he likes the “French Etch” patina as it highlights the clean steel at the sharpened edge – similar to a san mai look.

He also noted that he had been having issues with some curly maple handle material cracking on him... so maybe Jove's notes at the end of these meeting notes will be helpful there too.

Another woodworking trick to limit chipping out when drilling through a piece of wood is to clamp a sacrificial piece of wood to the backside of what you are drilling – this supports the wood as the drill works through exiting the handle material.



FRANK BOBBIO started by talking getting good lighting on your grinder work area. He noted that you can get a gooseneck LED lamp from IKEA that has a very small head on it and a long neck – which lets you mount it close to your work without getting in the

way. Frank removed the base on his and mounted it directly onto his grinder. Brome noted that these often wind up in the IKEA bargain bin.

He's also kept an eye on eBay and Amazon and found similar LED goosenecks with magnetic bases. Frank notes that the magnet may not hold well if placed on sheet metal – thicker metal lets the base magnet grab just fine.

Brightness (lumens) and color (kelvin) may vary.

Frank talked a little about re-purposed material for Damascus billets. He's used pallet strapping (plain steel) and industrial bandsaw steel (15N20ish) and gotten 59-60 HRC results from it.

Looking for a replacement for the pallet strapping he focused on bandsaw blades for the Wood-Mizer portable sawmills. These vary from high-carbon blades to some with nickle and chromium on up to bi-metal etc. Frank rounded up some used high-carbon blades to use in place of pallet strapping. Here's an example he brought in (now that's a **used** blade):



Frank has been using his induction furnace more and more. One issue with it versus propane is that in a propane forge you can adjust the forge atmosphere to eliminate almost all oxygen – which reduces scaling. With the induction furnace there is no such control. In the past Frank has made cans for his billets, but this time he tried using flux – which worked well. *I'm thinking he must have inserted the steel vertically through the induction coil or I would think that the*

melted flux would corrode the coil.

At any rate here is a “test knife” he made from the resulting 20 layer billet:



The lighter material is industrial bandsaw steel (15N20ish) and the darker material is the plain steel Wood-Mizer bandsaw blade.

This next blade is quite a bit more complex. It is also a billet that he made in the induction furnace using ferric chloride flux. The core was 1/4” CruForgeV clad in: a layer of the industrial bandsaw steel (the thick light gray line), then nickle foil (the thin bright line), then 80 layer Damascus.



There was some discussion about using stainless steel foil (with a thin piece of linerboard or paper to burn off any oxygen inside the wrapping) to avoid the extra time building a can or the mess of melting flux.

Frank noted that the induction furnace heats very much from the outside in. Any looseness between the layers of a billet keep the interior from reaching the desired temperature. *This may be also due to the extremely quick heating of the induction furnace.* So Frank does a preliminary heat below welding temperature – takes the billet to the press to squeeze the layers tighter together – and in the next heat he gets much better penetration of heat into the center of the billet.

While this means that he starts with 30 seconds in the coils – then 10 seconds out – then repeat multiple times until he can see from the color that the inner layers are up to temperature ... the whole process can be as fast as 4 minutes from the time he switches on the induction furnace to the first forge welding heat.

“It's not the machine for forge welding [*in quantity*] but it is fun – I wanted to try something to make a billet for one knife. It's 4 minutes from the time you turn the machine on until you're setting it in the press and forging it out – that's the fun part about it!”



DAVID THOMPSON, our gracious host, shared a different type of blade.

“This is my kind of blade here, the kind of blade I use...”

He said that when he runs across old tools like this (with good handles) at garage sales he can't resist.

It's not stamped out of cheap mild steel. There's a taper to the thickness of the spade blade.

After he cleaned up the handle and blade then the way the light catches it you can see a short crease line where the blade had been sprung (leveraged hard enough to bend the wrong way). “That's the test of a good shovel – to pop like that and spring back into shape!”

“All my wood handled tools – I have a piece of PVC pipe with a cap on the end that I fill with linseed oil that I soak 'em in. I let this soak for 3 months. What really sold me on linseed oil on wood is I had an old pair of ash oars – 9 footers that I used for 30 years or so and I still have 'em. But I always kept the blades in a bucket of linseed oil... and I never wore the blades off – scraping on rocks and stuff – lasts forever. Those ash oars – I've had one stuck in a rock and almost bent half way around and never broke one. So I think linseed oil on wood is good.”

He does the same treatment on his hammers and other wood handled tools.

And closing up our meeting was a new young maker named **RAPHAEL**. He shared his first knife.



The blade is from a saw blade. The handle is cherry wood that Steve Goddard gave him.

“I used my poppa's 1”x40” belt sander with 150 grit... took awhile to grind the bevels... I did the handle with a hacksaw and sandpaper. The pins I did with steel nails...” assembled with epoxy. He worked on doing plunge lines too.

He noted that they quenched the blade using a camping propane torch, tempered at 400°f for two 1 hour cycles. The handle was soaked in olive oil.

Raphy was raising money to buy parts to build a 2”x72” grinder. He has developed a sourdough starter from wild yeast and had a box full of sourdough bread loaves that he sold out at the meeting.

And Raphy made a better 1st knife than most of us can lay claim to!



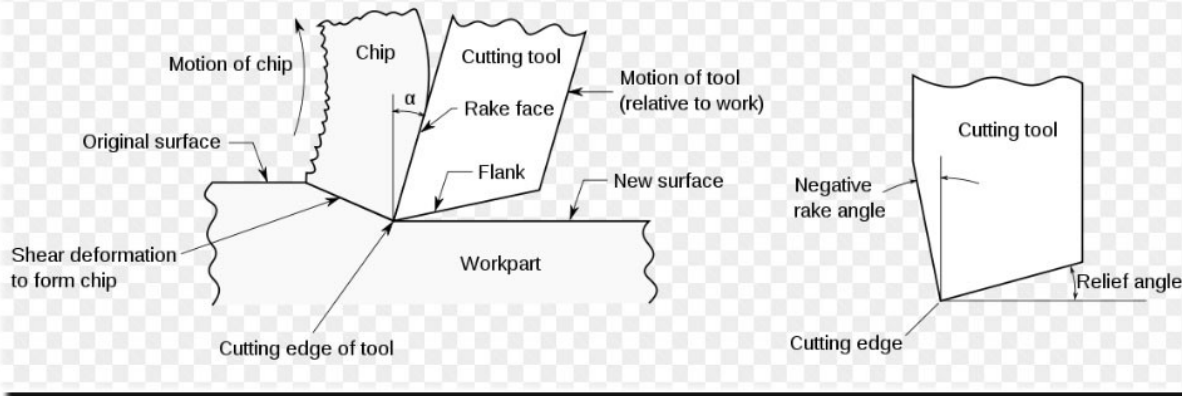
And I came home with one of his loaves and it was excellent: crisp crust, firm and chewy and light body with good sourdough flavor!





Here are Jove Lachman-Curl's notes on drill bit geometry to reduce or eliminate grabbing and chipping out when drilling "grabby" material.

In cutting tools for metals and other solids they taught me this diagram, (I snipped this one from Wikipedia)



Alpha is the rake angle. For example, If you were using a cold chisel to remove weld spatter from a steel table this face would be the top face of the cutting edge. Adjusting this angle is what makes the chisel want to dive deeper into the material or to plane out to the surface and pop free.

In machining on a lathe the rake angle is on top of the tool. A lot of rake angle (say 10 deg) makes the tool grabby because it wants to hook under the chip and the chip pressures the tool into the work piece easily. The relief angle is there just to stop rubbing and to make the tool sharp enough to penetrate.

On a drill bit the relief is on the end of the drill, and the rake is in the flute of the drill.

Most drills rake angle is quite a lot which makes them grab in fibrous materials and pull themselves through like a screw. This can split your wood scales. Horn, polycarb and other plastics are similar in this way. They are soft and grabby compared to steel.

What I do is use a sander or a small slip stone to make the rake angle about zero. Thus it scrapes its way through gently. This works well for cast iron, and brass too. But it's a life saver for grabby plastics.

I think I actually got this tip from Jim Jordan

originally.

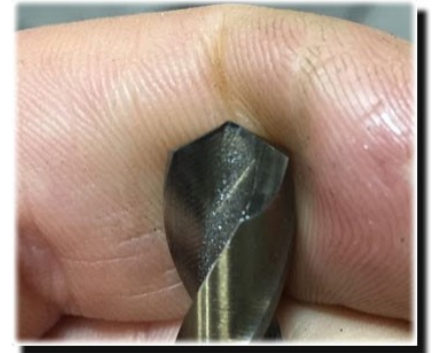
Zero or negative rake is often said to extend the life of cutting edges and recommended for hard materials when doing lathe work. So it should make the drill bit cutting edge stay sharp a little longer too, I think this is why it's recommended for cast iron.

The amount of flat you need is only a little more than the thickness of a shaving, I ground almost twice what I usually do to make it visible for this. I usually just kiss it off the belt, but a little more does no harm.

These bits will still work for steel but will require more pressure. And of course you can also just sharpen it off, back to normal. With small bits it's easier to use a stone or an easy lap diamond file.

Hope this helps folks.

Photo before changing the rake angle:



...and after:



... and here's a side view (a little hard to see):



Have fun, keep well, 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)

<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.heatreaters&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

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/>

Sandvic – stainless steels – Texas & Pennsylvania

<https://www.materials.sandvik/en-us/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>

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 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/>

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/>

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

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>

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.