

# EUGENE 5160 CLUB ~ SEPTEMBER 2017

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

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



**Bent River Forge aka Farrier Supplies** – north of Monroe, OR has blacksmithing tools and supplies and ongoing intro to blacksmithing and other classes: <https://www.facebook.com/FarrierSuppliesOR/>



## SEPTEMBER MEETING

September 7<sup>th</sup> – 6:00pm at David Thompson's shop. If you didn't get the directions in the meeting notice, email me for them: [michael@elementalforge.com](mailto: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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**Northwest Blacksmith Association** – Intro Blacksmithing classes (White Salmon, WA) and misc events. <http://blacksmith.org/events/>

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**California Blacksmith Association** puts on a slew of events to the south of us. Check out their list: <http://calsmith.org/CBA-Events>

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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.

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## AUGUST MEETING NOTES

We met at the end of a stinkin' hot day in August... and after getting folks' attention and admitting that I just am not getting any knifemaking done this Summer I prompted for the first show-n-tell. “Is **anybody** getting into the shop this time of year?” Martin Brandt called out.

“I am!” replied **ERIK LAND** as he took the floor. “Hi – I'm Erik – I'm a knife addict” he said. “Hello Erik!” we called back.

Erik laid out some pieces of Brazilian cherry wood he was giving away to for handle material.

He had a couple of folders that he'd started “a while back – and I'm just getting to cleaning them up...” These are on patterns he has used before. O-1 steel for the blades – which has been his favorite high carbon steel.





The liners and bolsters are 410 stainless. The springs are O-1 tempered way back.

The top handle is Micarta from the batches given to the group by Dennis Ellingsen. Erik cuts his Micarta across the ply for a different texture (you will usually see Micarta cut along the ply).

“I’m using French Etch on everything now” he said with a twinkle in his eye. “French Etch” is Erik’s marketing savvy name for the Wayne Goddard mustard etch (using French’s mustard to force a camo type patina on high carbon steel). Erik’s version of the process is to stipple the mustard on the blade (with a finger); let dry for an hour or so; wash it off; do a 2<sup>nd</sup> stippling of mustard/let it sit/wash it off; then do a quick dip in ferric chloride. It was noted that a diluted cold bluing could also be used.

“I’m trying to finish up all my high carbon patterns that I’ve got going done because I bought in a bunch of CPM 154 on Bill Harsey’s recommendation and I’m going to start making some folders out of stainless steel.” Then Erik noted that “Heat treating 154 for the blades is a piece of cake but then I started asking around for a recipe for the frames – because I’ve got to get it down to 45-48 [HRC – Rockwell hardness C scale] – and you’ve gotta take this stuff up to 1200°f to even begin to start getting in there and I’ve got an oven so that’s no problem – but there’s no-one doing slip-joints in CPM 154.” So once again one of our gang will be doing something new and different. In the ensuing discussion folks noted that CPM 154 is used in fixed blades and flippers – but nothing with springs.

In response to a question Erik replied “I could [use a high carbon steel for the spring] but then the spring turns dark – I want it all to be stainless. I love working with O-1... it’s easy to work at home: you

can torch harden it, you can forge harden it, it’s just about idiot-proof – I think. But the downside is that if someone wants to use it as a fishing knife that’s a problem...” because of the need to immediately clean and oil the blade after use to prevent rusting... “or accept that it’s going to get a little rusty.”

David Thompson shared that “back in the old days” he and Wayne had experimented with making Damascus from O-1 and mild steel. It was pointed out that the mild steel would make a soft edge. I shared that I’ve heard the argument that at high layer count, such an edge would have a cutting effect like a serrated edge.

There followed some discussion of whether plain modern steels – properly heat-treated – might have better cutting abilities than a typical modern Damascus (pattern welded) blade. A san mai type of construction might provide the best of both worlds – putting a high performance steel core into a decorative Damascus wrapper.

Frank Bobbio noted that the extra manganese in 1084 steel makes an extra dark black when etched... and that ferric chloride from Micro-Mark is affordable and of a very good quality.

<http://www.micromark.com>

**FRANK BOBBIO** came forward next. The first knife he passed around was a kitchen paring knife – 15N20/1084 Damascus blade. African blackwood handle that was just sanded and put into use. This knife has been used in Frank’s kitchen for about two months.



Frank is very happy with the African blackwood. You can buy seconds that are still excellent for knife



handles at Gilmer Wood in Portland for a reasonable price – “This, I think, is going to be my go-to on any kitchen knife. You don't have to put a finish on it and it's almost impervious.”

The finish on the blade was to sand to 600 grit – put into Micro-Mark ferric chloride diluted 3-to-1 with distilled water – pulled it out and there's no after-sanding as the 15N20 was already highlighted and did not require sanding to brighten it up.

Frank noted that boiling in water saturated with baking soda doesn't just neutralize the etch – it chemically sets the black oxides and makes them more permanent. Some folks boil for 15 minutes – some for an hour. After a rinse and quick air dry some folks lightly sand with fine paper on a hard backing – some don't. Some oil and let it sit for a couple of days. Frank notes that to help protect the etch while hafting the blade he's taken to putting a couple of wraps of saran wrap rather than wrapping the blade directly with painter's tape.

There was discussion about how boiling might be transforming iron oxides into magnetite or goethite – much tougher substances.



Frank's next comments were about making platen attachments for hollow-grinding. Here is the work-in-progress. Frank plans to

sandblast this and use a Brownells back-on Teflon coating to reduce drag. Others in the group have made radius platens out of wood with good results.

Next, Frank passed around what I suppose you'd call a brut-de-forge dagger. “I made this a month ago. This is 5 layers: 5160 in the center core, then a layer of 15N20 [on each side], then a layer of mild steel...” After forge welding he used a couple of texturing dies. The handle is African blackwood and a forged guard. Frank is keeping this one for himself. He was surprised that he didn't get any comments on it when he posted a photo on Facebook. However a retired



prison security guard commented “I know some killers in prison who would go bat-shit crazy over that knife!”

Then Frank passed-around an 11-layer knife. There are 5 layers on each side of 15N20 and pallet strapping – with a CruForge V center. He noted that for the dagger he forge-welded the billet to the full length of the blade whereas on this one he forge-welded a thicker, shorter billet and drew it out. In the future he plans on forge-welding the billet to the approximate size of the blade – without doing much of any drawing-out.



Then Frank's next passed-around was similar construction – the handle being some burl that Frank stabilized. On this one he added a sacrificial outer layer of 1/8” mild steel which he ground off after using his texturing die on it. He also ran some 3/16” angle grinder marks across the blade before forging it out – which gave more interest to the pattern.



Frank noted that – while some folks on the forums talk about “high carbon” pallet strapping – Frank's research indicated that any strapping narrower than 1-1/4” will likely be pretty mild steel. And even over that width he believes that in knifemaker parlance it would be a medium carbon steel at best (maybe 1055/160 range).

His final passed-around was a steel frying pan he forged out of 1/8” steel. He noted that it was pretty quick to form to shape – but took a lot of work to flatten and true it up!



There was informal discussion about cast iron and steel cookware and handle design.

**MIKE JOHNSTON** was up next. He started out by updating us on his experience with Tru-Grit's "VSM" sanding belts – which he's been using since the April show. "I'd say they hold up pretty much the same as the Blaze belts [which are noticeably more expensive] ... now the ones I bought were the XK760X



and the XK885Y ...” Both are ceramic abrasives - the XK885Y is billed as being more frangible for better self-sharpening as the belt gets worn. “With my high-speed grinder it makes a lot of difference.” Mike notes that both of these belts come in 60 or 120 grit – so be sure you are getting the grit(s) you want. “They work well – track dead straight.” Lynn Moore noted that he had had trouble with these belts not tracking well – so your experience may vary.



Mike then showed us his sanding block for a hollow-ground blade. He glues a wine cork (real cork, not plastic) to the

edge of a sanding block – then he rounded the cork gently on the long dimension so that it gives him a slightly flexible, rounded surface to get into the concave surface of the blade. “I went from 200 to 2,000 grit on it and it worked like a charm.” He noted that if you wanted a wider, gentler radius in the long dimension you could glue up 2 or more corks end-to-end.

There was discussion about using spray tack to stick sandpaper to a sanding block – or buy sticky-backed sandpaper.

Next Mike noted that his usual procedure with the coil spring he uses is to harden his blades only up into the ricasso. This should leave the tang soft enough to drill – but the tang often gets too hard to drill with standard bits. In response to a question he said that he leaves drilling the tang for after heat treat

“because I never know what I'm going to do with the handle – I don't think that far ahead!”

So on a hunch he chucked up a Dremel 9903 tungsten carbide bit in his drill press “and it didn't even slow down.” ...and was a proper sized hole for the mosaic pins he uses.



“I've tried using cobalt bits and had almost no luck with them at all.”

And here's one such knife – coil spring blade. The bolster is a sandwich with copper on the outside and file-worked circular saw steel in the middle. Thuya burl handle with a Sally Martin mosaic pin.



Then Mike hauled up the parts of his forge. It's made from two 20 pound propane tanks welded together. The propane burner fits down at the bottom, slightly off center to

produce a swirling flame (to eliminate any hot spots). Two doors at the top allow for working with pieces that are longer than the width of the forge (or block off the “back” door). There's a long work table welded under the “front” door.

“If I were building another forge I'd drop the doors down a little to give it more head space above the doors – and make the doors a little bigger.”

Mike's burner is a simple 1” black pipe (do not use galvanized – as the zinc will vaporize at heat and make you sick). He has a 90° elbow to give it some mixing room between the propane and the forge without having the pipe stick way out into the shop. The bottom of the elbow is maybe a foot long. About 8” up the vertical part of the pipe he drilled a hole for the propane input. The pipe fits into a larger pipe





welded into the forge itself and is secured with set screws.

He cuts the bottom of the forge so he can get things out of it if they drop in – or to re-line the forge. He has it lined with two 1” layers of Kaowool.

His first lining was coated with simple fire clay (like used in grouting fireplaces) and his current lining is coated with a layer of Rutland furnace cement (thinned down) “and I notice that it takes a little longer to come up to temp – but not significantly.”

You need a regulator to control the pressure of the propane coming out of the tank. A Weber grill type regulator will **not** do the job. Mike attached a piece of copper tubing to the hose out of the regulator that he necked down onto a 0.030” drill bit – creating a 0.030” orifice. He has a bend in the end of the tube so that he can just hang it in the hole drilled into the burner pipe. The blower (from a wood stove) sits on top of the vertical portion of the burner pipe via a home-made funnel attachment. Mike has a damper on the fan intake to control air flow. At 2-1/2 lbs pressure in the propane his forge easily gets to forging heat. For welding he lets more air into the fan and runs 4-1/2 to 5 lbs pressure on the propane regulator. He also uses a needle valve on the forge side of the regulator to fine tune the propane flow.

Mike noted that if he has a piece that's longer than the width of his forge he can put a tube of Kaowool up to the “back” door to extend the heated area enough to allow heat treating.

There was some discussion of controlling heat and carbon monoxide when forging in an indoor shop.

There was discussion about a forge at the Mt. Hood event where one group had a forge that you would start with propane, then shift over to used cooking oil. This is a blown burner – so the oil is fed into the burner close to the forge and the forced air blows the

drops off the end of a flanged out copper tube (that the oil is fed in through) – pretty much atomizing the oil before it enters the forge and is ignited. “He was saying that out of one gallon of vegetable oil you get the equivalent of five gallons of propane.”

In response to a question Mike noted that even when he isn't going for a hamon, he will put about 1/16” of Rutland furnace cement on the spine of his knives before hardening – about 1/3 of the blade width – in order to have a tougher spine – and reduce warpage. He quenches point down into the oil.

**EDWARD DAVIS** stepped up next, noting that he'd made a couple of paring knives using a pattern from one of Murray Carter's books. He passed-around one of them.

The blade is from the 15N20 bandsaw steel that Dennis Ellingsen gave to the group. The handle is walnut that Steve Goddard gave him – sporting mosaic pins that Edward made.



He also passed-around three mosaic pins that he created. He'd had issues with the epoxy setting up more quickly than expected. “I was using a 30 minute epoxy, but when I added charcoal to it to make it black it set up in 5 minutes. I can't tell if it set up fast because I added charcoal to it or because I had a large reservoir of it in the pot *[and when it started to set it heated up the whole reservoir – probably speeding up the chemical process].*”



There was quite a discussion about what may have caused the acceleration and what could be tried to counter it. Frank mentioned dyes for polyester that are available through Hobby Lobby or Joanne's fabrics – which might not react

chemically. Or using polyester rather than epoxy for mosaic pin matrix.

*Since there was a newbie present I brought up the issue that even within high carbon steels, the type of steel will affect what heat treatment works or fails. And more-so for stainless! There followed some discussion about the virtue of starting out with a known steel.*



**JOVE LACHMAN-CURL** came to the front and started by reinforcing the “start with a known steel” advice.

Jove noted that he'd finished a knife recently but had shipped it off to the new owner so “I don't have it with me but I do have a photo.” *And he forwarded photos to me so that I can put them in this newsletter.*

“It's a 7 inch kind of santoku-ish chef knife with dark tropical wood in the handle with some curly holly from my dad's farm in the middle... stainless bolsters soldered on with Stay Brite.” It has a 1095 blade quenched in canola oil.



Jove noted that this has a CA glue (cyanoacrylate aka super glue) finish that gave him some grief. Multiple coats of the thinnest version you can buy. This one had three coats – sanded between coats. There seems to be a difference of opinion about sanding between each coat versus only sanding

at the end of the process. A piece of copper or aluminum wire formed to a chisel edge works well to scrape excess off from metal bolster or butt cap without scratching the metal.

Mike Johnston pitched in that he noticed that his canola oil – which he's been using for years – “didn't want to quench right any more” and seemed worn out – prompting him to replace it. This generated discussion about how the thermal process of quenching takes its toll on a quenchant – especially on non-commercial quench oils.

Jim Jordan prompted Jove to talk about his recent trip to Alaska – and we enjoyed hearing about salmon fishing and gold mine exploring.

On another subject, Mike Johnston noted that if you want a small batch of wood blocks stabilized you can do that through North Woods Figured Wood <http://www.nwfiguredwoods.com/> in Gaston, OR – down the valley between McMinnville and Forest Grove.

There was a rambling discussion of various commercial and home-brew quenchant – followed by another rambling discussion of glues.

**JIM JORDAN** got up next with a piece of lilac from a very old bush on his place that he gleaned for a light hammer handle.



Lilac has a pith core. Jim drilled that out and put a piece of bamboo chopstick in with

Gorilla Glue. Jim pulled out a couple of chasing hammers he's made – and a hammer head that he will mount on the lilac handle (with the special bamboo core).

“I want to keep these nice purple and cream colors to it...” so he asked on-line and got the suggestion of putting varnish might help because it protects against UV light.

Jim knurled a rope pattern on the hammer head by chucking the head in a lathe and using the grinders from a pencil sharpener as a lathe tool.

The finished chasing hammers were made from discarded ball joints. The ball joints were already



hardened on the outside but soft on the inside so Jim ground off a face on them such that the outer rim is hardened but the hammer face is soft. "If you've ever hit a chisel and the chisel goes BING and flies off into the darkness because you've got a hardened hammer – well it's nice to have a soft face on the hammer."

The handles on these two hammers are from a hawthorne tree that lost branches in last winter's ice storm.



Next, Jim passed around a water pump pulley that he'd picked up at a garage sale – noting that for \$20 these items would make great wheels for home built belt grinders – with good quality bearings and all.



Jim mused that you could wrap it in polyurethane to have a contact wheel.

Lynn Moore noted that Wayne Goddard used these in his home built grinders.

In discussing grinder builds and curved platens an adjustable rasp was brought up – which changes it's arc using a turnbuckle... the conversation went towards using such a thing as a marking tool when cutting/grinding a radiused wooden platen... or for marking a smooth curve for handle or blade profile.

Then Jim pulled out his latest guilty purchase – a professional engraving machine from Steve Lindsay. He testified that this engraver “goes a lot faster and a lot smoother” than his home made engraver. “It just goes through metal like you wouldn't believe.”

*I didn't get a decent photo of Jim's new toy – but here's a sample he did “in about an hour” with it:*



Jim was admitting that his next engraving purchase would probably be a microscope.

At the end of the meeting Mike Johnston put in that he has acquired a big heavy 12” Craftsman bandsaw on a base – which runs 1/2x80” sanding belts but it needs new tires. If anybody is interested he could let it go for a very reasonable price (see the de-classifieds below).

Also he had a couple of good size twist wire wheels for a big arbor in the back of his truck headed for recycling unless someone wanted them.

That prompted me to ask Martin Brandt where he gets the twisted wire cups (for an angle grinder) that he uses for removing scale: welding supply shops. Safety glasses and sturdy shop apron are a must with wire wheels in case the wires come loose. You don't want to loose an eye.



Have fun all – and work safe!

Your Scribe ~ Michael Kemp



## FREE DE-CLASSIFIEDS

Email me a brief description of what you are selling/buying/looking for with your preferred contact (phone/email/...). Unless you let me know you want a shorter run, I'll run the note for 3 months and then send you an email to see if it's still valid. No charge – just email me at [Michael@ElementalForge.com](mailto:Michael@ElementalForge.com)

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Mike Johnston has a 12” bandsaw with one used blade and box of 5 (1 used) 80 grit belts. Needs new tires but does work. \$50 will deliver it to the next 5160 Club meeting or it can be picked up in Forest Grove. [bladesmith97116@gmail.com](mailto:bladesmith97116@gmail.com) 503 351-3104

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OKCA members: knifemaker items are often put up for sale in their classifieds – so remember to check their newsletters: <http://www.oregonknifclub.org/>

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## 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.oregonknifclub.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>

Julious Griffith's knife groups on Facebook:

- Custom Knives For Sale by Maker - Available now
- Knifemaking - Works in Progress (w.i.p.'s)
- Knifemaking Equipment Buy, Sell, or Trade (used only)
- Knifemaking - Masters to paying Students connection
- Knife shop photos
- Knife Calendar - Events, shows, hammer-ins,



schools, misc.

These are all closed groups – to keep them focused – so if you want to join one of the groups, click the “+ Join Group” button and also message Julious and give him some info on yourself so he knows you have real interest in the group.

## REFERENCES

Our own 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 [wgoddard44@comcast.net](mailto:wgoddard44@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>

Tempil Basic Guide to Ferrous Metallurgy

[http://www.tempil.com/wp-content/plugins/download-monitor/download.php?id=Basic\\_Guide\\_to\\_Ferrous\\_2010.pdf](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. Look up heat treating details on hundreds of steels in the palm of your hand.

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

My “Knife Info” has some knife musings and cheat sheet charts – plus Oregon and Eugene knife laws:

[http://elementalforge.com/tips\\_notes/](http://elementalforge.com/tips_notes/)

## CLASSES FOR KNIFE MAKING, ETC.

Gene Martin offers personal instruction at his shop south of Grants Pass for a daily rate.

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

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/>

David Lisch is an ABS Master Smith who has taught classes in Washington. He recently moved his shop and has not restarted classes yet – keep an eye out on this page:

<http://www.davidlisch.com/Learn.html>

Jim Hrisoulas now offers both formal classes and mentoring sessions in 2 hour blocks at his shop in Henderson, Nevada:

<http://www.atar.com/joomla/> and click the “Bladesmithing Classes” link.

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](http://forgedaxes.com/?page_id=148)

Blacksmithing classes at Farrier Supplies aka Bent River Forge

26729 99W, Monroe, Oregon

Coal, coke, forges, parts, tools, classes...

<https://www.facebook.com/FarrierSuppliesOR>

(541) 847-5854

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

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**

Woodcraft of Eugene – thanks to Joe & the crew for six years of hosting 5160 Club meetings – we've had to move on, but the hospitality was appreciated.

<http://www.woodcraft.com/stores/store.aspx?id=515>

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/>

## **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 – ?Everett, WA?

<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

<http://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>

## **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](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](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](http://www.alaforge.org/Trading_Post.html)

Appalachian Power Hammer plans  
<http://www.appaltnet.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  
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.steelstampinc.com](http://www.steelstampinc.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](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/>

## **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 – ?Everett, WA?  
<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.