

 **EUGENE 5160 CLUB ~ JANUARY 2018** 

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

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



## JANUARY MEETING

January 4<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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**OKCA April Show** – Members only April 6 10am-7pm – Open to the public Saturday the 7<sup>th</sup> 8am-5pm, Sunday the 8<sup>th</sup> 9am-3pm (Public \$6/day - free to members) <http://oregonknifeclub.com/okcashow.html>

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**Pendray/Verhoeven Wootz Video** – Frank Bobbio alerted us to this video featuring the late Al Pendray, JD Verhoeven, and a couple of smiths from Jordan smelting wootz from “Saladin's Mine” in Jordan: <https://youtu.be/OP8PCkcBZU4>

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**Northwest Blacksmith Association** – Intro Blacksmithing classes (Portland, OR & White Salmon, WA) etc. <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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**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/>

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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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**DiamondBlade Knives** (the friction-forging company that Wayne Goddard worked with) – Lynn Moore gives us a heads up that they will have an episode on Discovery Channel's “How It's Made”. The date is unknown so keep an eye out for it.



## DECEMBER MEETING NOTES

The meeting started with discussions ranging from endangered frogs to RFID chips to wood stabilizing options (rehashing stabilizing info I've recorded in previous newsletters).

I (**MICHAEL KEMP**) was first up for show-n-tell with the final set of "best of" handle blocks from my wood recovery project. As previously noted – I'd set aside oak, maple, and cherry tree rounds over the last decade to cure in my shed. These were mostly sections from forks in the tree trunks.

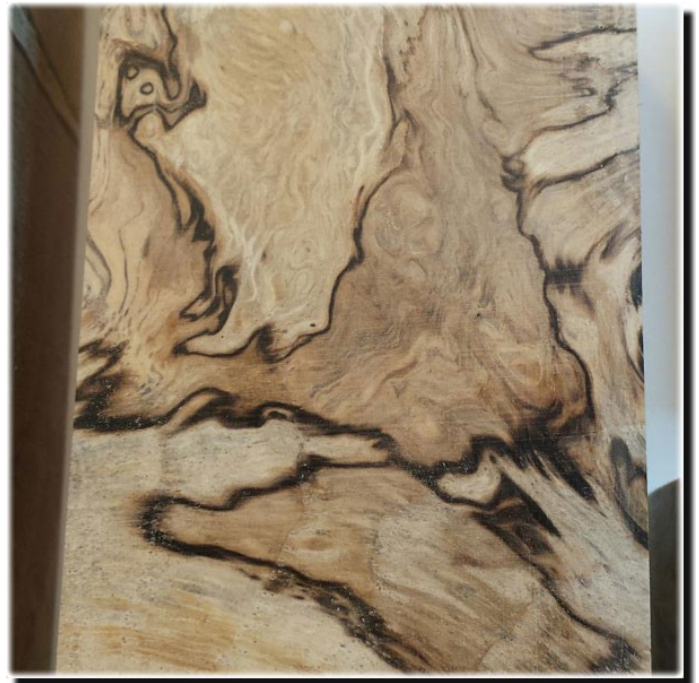


Now I need the room. Chainsawing slabs looking for interesting grain eliminated the vast majority of the wood. Table saw work turned most of the selected slabs into kindling. But there were some really striking pieces that came out of it. If I value my time at minimum wage I'd be better off buying wood blocks at the April show! But these have the sentimental value of having come from my property & some from my neighbor's property.

The oak blocks from crotch tree rounds have some remarkable grain.



And the spalted oak really stands out! I will be sending the spalted oak off to K&G for stabilizing when it's fully dried.



As I get around to using the solid oak, maple, and cherry blocks I'll probably just make sure they are bone dry (using a home made dehydrator) and treat with my favorite mix of beeswax, carnauba wax, and food grade mineral oil.

“... and I've been feeling bad about not having any new work to show – so I brought in an old piece to pass around and say 'I *do* make a knife sometimes...’”

This is one of my kitchen utility knives. High layer count random pattern forge welded “Damascus” that I made from 1095/15N20. It has a bubinga handle and brass fittings with a Sally Martin mosaic pin.

“You could have sold 400 of these at the April show” Erik Land tossed in “... as many times as that got picked up off the table!”



“Yah” I replied “If I had 'em for \$50 apiece!”

I've decided that with how few knives I make and how long I take to make 'em - I'm not even offering knives for sale any more. I'll just keep 'em to pass on to family or something.

In response to a question on the maker's mark I replied that I used an electro-etch machine and stencils from IMG International Marking Group (their website and other marking options are listed in the links at the end of the newsletter under “Logo/Etching/Stamps”).

Erik noted that “If you are careful you can get 15 etchings from one stencil.”

**FRANK BOBBIO** came to the front and started out with more about stabilizing wood. “I bought a vacuum chamber, a vacuum pump, and Cactus Juice - which is a thermo-plastic for stabilizing wood... used it up...” Frank noted that it seemed about the same level of stabilizing as stabilized wood that he's bought from a number of sources.



“I test a lot of stuff” *[no shit – and we're appreciative that you do, and share your findings!]* “I took the wood and set it in warm water to see how much would soak in to the pores... the wood would look wet on the surface – I'd sand it and it wasn't penetrating very far.”

*Note that stabilized wood is still mainly wood. I've run K&G stabilized wood through my dehydrator before making a handle out of it – and it takes a few days to get the moisture out. I judge that by weighing the block daily on a gram scale.*

Frank was surface treating blocks with Polyurethane, Wipe-On Poly, and Tru-Oil. He observed that even in warm weather it took a lot longer for the surface treatments to cure on Cactus Juice stabilized blocks. Frank noted that between Cactus Juice and K&G stabilized blocks, both sand and buff up just as nicely and both are just as hard, but the surface treatments cure better on K&G.

With more testing in warm water, Frank found that K&G stabilized blocks absorbed less water than his home setup. Part of that may be that his home setup is just doing the vacuum treatment, whereas at K&G they pull a vacuum and then use high pressure to force their stabilizing agent into the blocks. His home setup would suck stabilizing agent all the way through the blocks. He could tell it did because sometimes he adds dye to the agent – and when he cut dyed blocks in half for scales there was dye color in the center of the block. Frank is guessing that the high pressure process at K&G forces the stabilizing agent into smaller capillaries in the wood than his home setup can accomplish.

He noted that different woods absorb different amounts of the stabilizing agent (judging by before-

and-after weight). The weight gain was anywhere from almost nothing with his home system on myrtlewood to 3 or 4 times the dry wood weight with more porous woods done through K&G. The myrtlewood that he sent to K&G increased 140%.

Frank feels that the K&G stabilized wood is good without any top coat for kitchen use. "But for a hunting knife Cactus Juice [and a home setup] would be just fine – and you can add colors – mix up whatever color you want..."

Here's a couple of the test blocks Frank sent around the room. The differences don't show up in the photo – I guess you had to be there.



*I've used K&G with a large batch of various species of wood blocks. They charge by the weight of the stabilized wood they send back to you. Different wood has different weights – and different woods absorb different amounts of stabilizing agent – so 10 blocks of walnut may cost different than 10 blocks of maple. My ballpark figure is that I paid about \$5 per block – and this was with a large enough shipment to hit their second price break.*

In response to a question about using other oils for treating unstabilized wood handles, Frank noted that only urethane really holds up well to kitchen use. He is concerned however that urethane tends to crack after a few years. Hence his decision to go with stabilized wood through someone like K&G.

*As I've noted before – back in 2013 I tested 20 different treatments on unstabilized wood. Here's my notes and conclusions (long version):*

<http://elementalforge.com/blog/?cat=5>

*And here's a chart of notes-to-myself on what each mix was, how I did the test and what I thought of each treatment (big confusing chart):*

<http://elementalforge.com/blog/wp-content/uploads/WoodKitchen2013.html>

*And the **short version** is:*

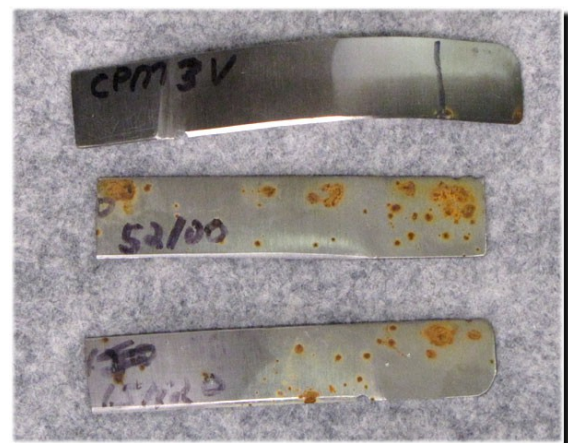
*I like beeswax/carnauba wax/food grade mineral oil. It holds up as well as gunstock treatments (Tru-Oil & Permalyn) but is easier to apply IMHO. A variety of oils are also contenders – walnut, coconut, and tung oil all got my respect – but they lose their luster faster than Permalyn, Tru-Oil, or the beeswax/carnauba wax/food grade mineral oil treatments.*

Frank then talked about his experience with the Rockwell tester he bought from Grizzly a couple of months ago (see the November 2017 newsletter).

He's found that he needs to do 3 initial hardness tests to settle the machine in each time before it will give truly accurate results. This was recommended by an experienced user – presumably the first 3 pressure applications are dislodging a bit of lubricating oil in the mechanism and settling the parts in place. "I'm holding half a point accuracy."

Changing subject, Frank noted that he's made a lot of kitchen knives out of the 15N20 industrial bandsaw steel from Dennis Ellingsen. He wanted to see about taking it up a notch – so he got some flat stock 52100 (ball bearing steel) and some CPM 3V. He said that the 15N20 has held up fairly well to kitchen use. The 3V steel has 7% chromium (stainless steels are generally considered to start around 13% chromium) so it's halfway to stainless. "The reason I went with 3V is that I can heat treat it myself – I don't have to send it out. With the other stainless steels you have to do a cryo quench or you lose 30-40% of your wear resistance..."

Frank put samples of 3V, 52100, and 15N20 on a piece of wood sitting out in the rain for a week. Here's the result:



As you can see, the 3V did very well. The 52100 rusted a little more than the 15N20, but not that much more. The 3V sample is bent because Frank had done a test heat treat on it that got it to 59 HRC – bent it to 100-110° without breaking – and it came back to this maybe 60° bend.

In response to a question Frank noted that 15N20 “makes a darn good kitchen knife... I'll etch it and put a mustard finish on top because it **is** a kitchen knife and it will start getting a patina - doesn't seem like it rusts that fast as long as you dry it off - but it definitely gets dark...” He noted that in going to 3V “I didn't want to use stainless but I wanted something that was more high-performance.”

Then he passed around some kitchen knives in process made from 3V:



“There's probably better powdered metallurgy stainless steel for kitchen knives than this, but the reason I went with this is (1) if you have a heat treating furnace you **can** do it yourself without cryo treatment and (2) it's one of the few steels you can get from Crucible that is 0.090in thick.” Other steels are only available in greater thicknesses – too fat for kitchen knives (unless you are making a cleaver).

“The heat treat is a pain in the ass – or you can send it out to Paul Bos or Peters heat treating...” [see the links at the end of the newsletter]

Frank noted that Alpha Knife Supply (where he bought the 3V) has user feedback listing 3V as the favorite knife steel – and Frank is inclined to agree. According to Crucible, 3V gets to the same hardness as A2 or D2 but has a wear resistance rating several times as high as those steels. “3V is a high shock tool

steel... one of the things is that the austenitizing temperature rather than being 1525°f - it's 1950-2050°f and the tempering range is like 1000°f. But at 1900°f it's a shock steel, at 2000°f it's in-between, and at 2050°f it basically turns into a high wear-resistant steel and you lose some corrosion resistance. But if you overshoot it all you ruin the steel.”

Given the austenitizing sensitivity Frank spent a long day testing 3 pyrometers against each other for accuracy. One was an eBay \$20 “standard high temperature” version, one was an Omega American made version for \$45, and the third was the Paragon thermocouple that came with his oven. At 400°f the Paragon responded quickly but the other two were slow. “When you get up to 1600°f the eBay one was 170°f off and took 20 minutes to get up to temperature – at 1950°f the Omega one was about 3°f off and 10 seconds slower than the Paragon because it was in a tube [a protective ceramic tube].”

He noted that that he bought a PID with the Omega thermocouple but only uses it for temperature display – not for controlling the oven.

He also noted that his oven can run as much as 200°f hotter in the back than near the door. But with some care he was able to heat treat the 3V to 61 HRC after tempering.

In response to another question Frank relayed that he tested plate quenching 3V with a stainless foil wrapper and without. “And the decarb without was maybe 0.020in on each side...” and that's more than Frank wants to lose.

3V is rated as an air-quench steel but he followed some online advice and used metal plates cooled to 0°f in the deep freezer and used his hydraulic press to clamp the austenitized (critical temp) blade and plate-quench it without removing it from the stainless foil. He heat treats 3V before grinding to ensure he's getting solid contact with the quench plates – and can get a good HRC reading (with parallel sides rather than post-grinding bevels).

“On the negative part: it's the hardest steel I've ever ground. There's no problem with a new ceramic Norton Blaze 36 grit belt... but once you get down to the 220 and on - belts just don't want to touch it.”

After some wide-ranging discussion Frank offered to test the 3 rust test sample pieces against batonning into a 1/4in mild steel rod (they have knife edges).



The 52100 broke, the 3V dented, and the 15N20 held up best of all – go figure!



*All were about 59 HRc if I understood correctly.*

There followed quite a few clusters of discussion about all things heat treat and steel selection.

“I’m once again in-and-out of the knife business... all I know is that I don’t know how anybody makes any money in the knife business because it takes so frickin long” Frank said.

“I don’t see anybody pulling up to knife shows in Cadillacs other than people who already have ‘em” Martin chimed in.

“Well some people seem to be doing it” I opined “but they’re doing stuff that can be cranked out over and over – or they’ve got a real high reputation and can charge a thousand dollars or more for a knife.”

“Think about the knife makers we know that are full time” Erik added “not very many of ‘em...” and in

general discussion it was noted that some of them have other sources of income – or a spouse with good income or at least good health insurance coverage. And/or they just work damn crazy hard at it. And/or they’ve found a niche that supports them or a following of collectors.

There was extended discussion of blade finishing techniques – probably because that can consume a huge amount of time depending on the steel and your goal for a final finish. Final grits, belt versus wheel, buffing styles and compounds, stone wash and tumbling, yadda yadda yadda.

**ERIK LAND** started out by saying that he had **not** spent much time in the shop lately. But he had to play with his new surface grinder by making himself a new safe-edge file. This is a file with the teeth ground off one side. This allows you to file into a corner and only cut one side of the corner – the side with the teeth ground off does not cut the other side. Here’s his pass-around:



This one has the teeth ground off one face and one edge. *I will note that you can do the same thing with a round file. I’ve got a chainsaw file with a side ground smooth that I use in the rare instance when I have a straight plunge line for the ricasso.*

There was discussion about how fast you can dry various species of wood blocks. Frank has had success using a microwave to carefully heat blocks to just hot enough to start evaporating the moisture – very carefully and over several hours – putting the blocks in zip-lock bags when taking a break from monitoring them. It was suggested that a microwave would be better than an oven as an oven dries exclusively from the outside in whereas a microwave penetrates into the wood and would dry the block more evenly.

**EDWARD DAVIS** came to the fore to pass around a folder he'd completed. The kit was from Texas Knifemaker's Supply – Edward personalized it by doing filework on the back-spring and using a mosaic pin which he made himself. The scales are from some walnut that he obtained from Steve Goddard. “I rubbed the blades out by hand – about 40 minutes of rubbing – not bad. And I polished it using a Dremel tool – and I can't get all the fingerprints off it! It was really shiny before I got my fingerprints all over it.”



There ensued various comments from the group on the unforgiving nature and futility of a mirror finish.

“That's the thing” commented Edward “is I'm not actually going to use this one. This was me seeing if I could make something really fancy and shiny. I think I've got maybe 40 hours in it... and I still managed to nick it on the belt sander before I decided I was done with it.”

“I like how it came out. I like the action.”

In response to a question Edward said that one of the pins in the kit was too short – hence a ring showing on one side of the bolster – the lesson being to check everything before final assembly – even from a kit.

There followed a discussion of chamfering (a steep countersink) the rivet holes for peening rivets for a secure fitting. Erik said that he goes 1/2 the diameter of the pin deep into the pin hole.



There was a discussion of peening versus upsetting. Upsetting being using the flat end of the hammer and

striking the pin heavily and squarely on the head – which transfers force the length of the pin and tends to thicken the pin along its whole length. Peening uses the round end of the hammer and the pin is struck lightly in such a way as to round and spread the head of the pin, not the center.

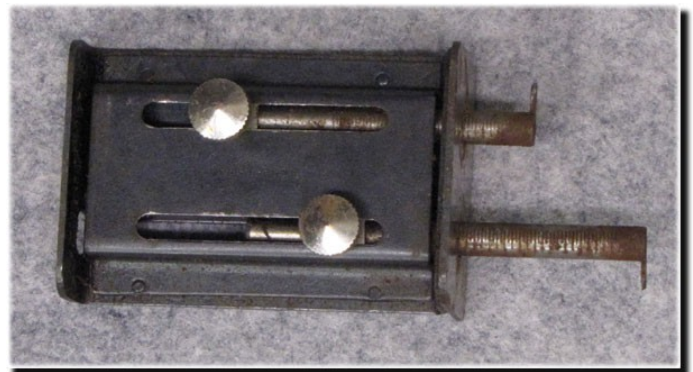
“You only have to drill the pin out once or twice and you take things a lot more gradual!” Erik noted.

There followed discussion of the caveats on buying cheap kits or blade blanks online. Erik tossed in that when he had issues heat treating an inexpensive Damascus (pattern welded) steel from Pakistan he could not get a straight answer from the seller as to what the steel actually was.

Edward also shared a photo on his phone of a Wayne Goddard knife that one of his cohorts had been given in college from somebody who had “found it outdoors”. It looked remarkably well preserved for having been left outdoors. His cohort used the knife as a digger for soil classes and it still kept an edge!



**SHANNON JOHNSON** brought in a couple of non-knife oddments and fun finds. Along with an antique-worthy but rusty pruning saw he got a little box with an Craftsman edge scribing tool – with the original receipt. “The part that I really like” he said “the tool was \$1.38 but the shipment from Dearborn was \$0.07 !”

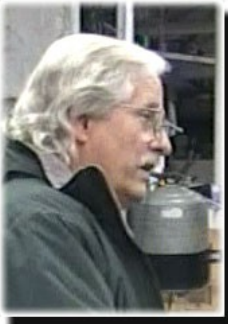


Someone also passed around this unique hammer:



If I heard right David Thompson called it a saw straightening hammer.

There was quite a discussion about flash tempering: bringing a hardened blade up to tempering temp for a few seconds using a Templ heat crayon mark. Versus holding the blade at tempering temperature for two or three one hour cycles. Versus Ed Fowler's heat treating methods. Some of it may be the different steels in use and the different uses of the knives. The proof is in the pudding.



**MARTIN BRANDT** passed around a classic cleaver he'd picked up at a garage sale. "This one's nice. It's got a soft back – you can see where it's been beat on to get through things, or used as a hammer... the edge is quite hard..." using the dull file method Marty estimates the edge being upper 50's low 60's HRc. "From what I could gather it's late 1900 to 1916."



Marty then brought up the shadow that passes over a blade going up to critical temp and the brightness that goes across a blade as it cools below critical temp. "I turn my lights way down low – you can't see it [*in a well lit room*] I mean even under the table it's

too bright. You've got to get it pretty dark – not pitch black but pretty dark."

Martin showed around a video that he played on his phone of the brightness crossing the blade as it cooled down. The technical terms are decaescence (for the shadow crossing the blade when it is heating up) and recaescence (for the bright area crossing the blade when it is cooling down). What's happening is that as the cooling steel transforms from austenite into pearlite (or martensite if it is an air-hardening steel) – the transformation releases heat. Here's a Youtube video of a blade cooling down. The recaescence is visible between about 8 and 10 seconds into the video as a bright line following a shadow across the blade.

<https://www.youtube.com/watch?v=GM-EPWDpmRs>

A similar thing happens as the steel is heated up to critical temperature. As the steel goes into the austenite state it absorbs energy – causing a shadow to cross the blade from the edge (which heats up faster) to the spine.

This was followed by a discussion about normalizing. Normalizing means raising the steel to above critical temp (to form austenite) and letting it cool back down. This makes two phase transformations, into and out of austenite, causing the grain structure of the steel to be re-formed twice. Normalizing is used to reduce stresses introduced by hammering and to refine grain size. It was noted that normalizing also redistributes the elements in the steel – creating a more uniform distribution of the steel's components. This led to a side discussion about whether you should cool to black - or to room temp - when normalizing. The standard in knifemaking seems to be to cool to black before re-heating for another round of normalizing, forging, or hardening.

*FWIW here are my notes-to-myself on steel phases and heat treatment:*

[http://elementalforge.com/tips\\_notes/?page\\_id=87](http://elementalforge.com/tips_notes/?page_id=87)



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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Knifemaker equipment and supplies are often put up for sale in the OKCA classifieds – so remember to check their newsletters:  
<http://www.oregonknifeclub.org/>



## WEBSITE LINKS

### 5160 CLUB

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

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

### OREGON KNIFE COLLECTORS ASSOCIATION (OKCA)

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

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

## FORUMS

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

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

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

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

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

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

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

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.heatreaters&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.pmtsc.com/tool-die-steel.php>

Alpha Knife Supply – ?Everett, WA?  
<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](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.steelstampsinc.com](http://www.steelstampsinc.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?](https://trugrit.com/index.php?main_page=index&cPath=34)

[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.