

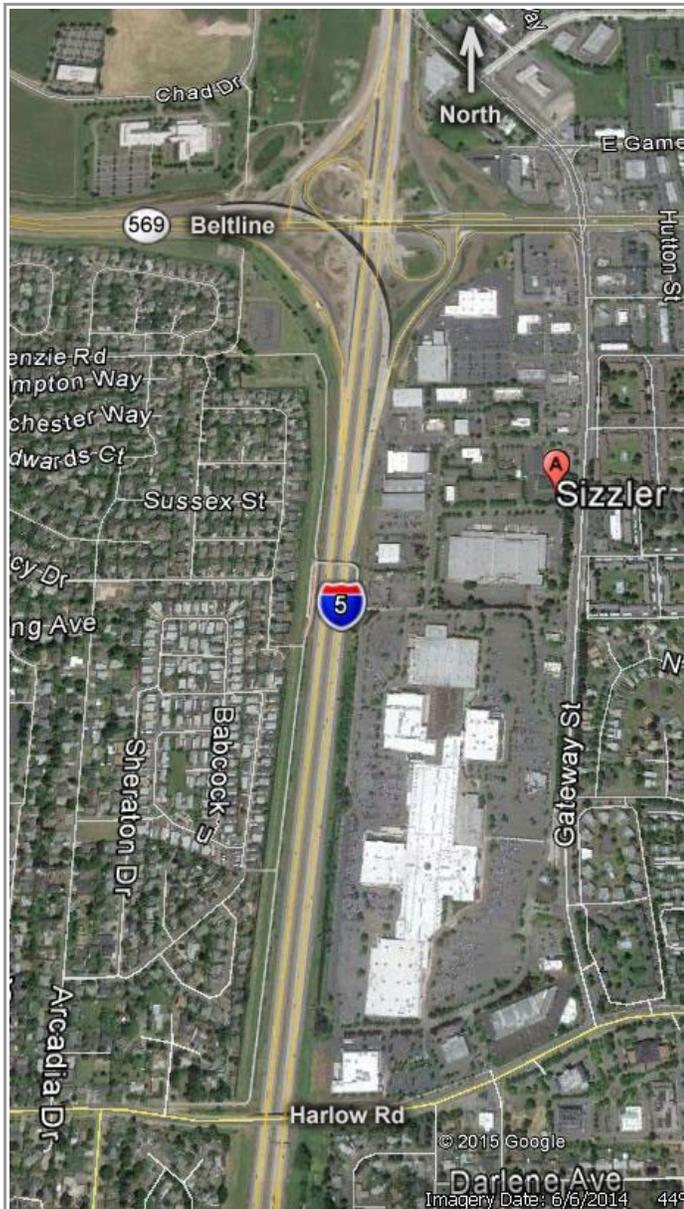
# EUGENE 5160 CLUB ~ MARCH 2015



## MARCH MEETING

Remember that 5160 club is meeting at the **Sizzler Restaurant** – just north of Gateway Mall at Gateway Street & Postal Way. Thursday 3/5/15.

Come for dinner (6:00pm) and informal conversation, followed by our usual show-n-tells, etc.



Parking is off of Postal Way. Order up your meal and meet us in the large meeting room at the West end of the restaurant.



## HEAR YE, HEAR YE...

- **Rockwell Tester:** John Emmerling alerted us to a Craig's List ad selling a used Rockwell tester (for only \$100) and other shop equipment in Lowell – about 15 miles East of Springfield: <http://eugene.craigslist.org/tls/4850359469.html>



## FEBRUARY MEETING

I (**MICHAEL KEMP**) reviewed our location search and how we settled on Sizzler. Feel free to bring other venue suggestions to the meetings.

The photos in this issue are a little iffy – but I'll eventually figure out low light settings, ASA, and all that... and where to set up the video camera!



I shared my “Jester's Shoe” chef knife. The blade is 15N20/1095 in the 700 layer range. Brass bolster, curly maple handle with one of Sally Martin's mosaic pins. I finished the wood using Dietrich's “Dragon's



Blood” mixture from my testing in 2013:  
<http://elementalforge.com/blog/?cat=5> and FWIW  
here's the testing and formula details:  
<http://elementalforge.com/blog/wp-content/uploads/WoodKitchen2013.html>



I'm fond of the watery wood grain look of 700 to 1,000 layer Damascus.

In answer to a comment from Martin Brandt – why yes having a power

hammer makes it SO much easier to work up Damascus. There are several links at the end of this newsletter in the “Equipment” section that refer to the Ray Clontz/Clay Spencer tire hammer. This is the type we built at a workshop a year ago at what is now called “Quick & Dirty Tool Co.”



But it also helps to have a press. Several years ago I got inspired by online postings from a couple of young whippersnappers calling themselves Mad Dwarf Workshop – one video showed a wood splitter being used as a forging press.

So with a chunk of railroad rail from Wayne Goddard and some help from Dave Ryder to cut the rail up, I did the same thing (in my own way). It takes about 10 minutes to detach the forging dies and have a wood splitter – 10 minutes to put them back on and have a forging press. I've made dies that drop on over the rails – one for squaring, one for vertical drawing, one for horizontal drawing.



I had to true up the rail faces. And I had to add some brass bushings to the ram head to take some slop out of the action. And it's still kind of sloppy... but hey! I've got a wood splitter and a forge press!

What I've found works great for Damascus is to set up the press with a drawing die – then I can draw the billet with the press and flatten out the peaks and valleys from the drawing die with the flat die on the tire hammer (after re-heating – the press sucks the heat right out of the billet).

By the way – one of those young whippersnappers from Mad Dwarf Workshop is still making blades: David DelaGardelle aka Cedarlore Forge – it's well worth a look: <http://cedarloreforge.com/>



**CRAIG MORGAN** was up next. “I finally got my shop together – after a lot of years... it's a lot of fun being able to go out and work and not have to spend half the day cleaning up.” Craig passed around his in-process award knife for the upcoming OKCA show.



The blade is O1 – tanto style with a tapered tang – and will have stainless steel bolsters. He's still deciding what handle material to use.

There was discussion of using “trial” pins so that you can shape scales and bolsters together on the tang. Craig uses double-sided duct tape instead and swears by it.

Craig noted that this is one of 12 or 15 that various knifemakers are doing for award knives at the April OKCA show (see the Notes And Reminders section of this newsletter). Craig noted “Last year the [OKCA] board decided to judge the award knives and it really seemed to step up the effort. It's a lot to ask makers to do a free knife – but when they found out they were being judged they put extra effort into them – there was a really nice batch of knives out there... so we'll do the same thing this year.”

It came up in the discussion that Lynn Moore *almost* had another batch of his handmade knives stolen last October. His wife came home one day around lunchtime – apparently scaring off burglars. The sheriff later found a stash in the bushes nearby including a satchel containing the knives.

Next we had a couple of folks share curiosity pieces – each of which could make interesting handles!



**JIM JORDAN** passed around a piece of the curly holly that Jove Lachman-Curl brought to the last



meeting. Jim shaped a piece into one of his ergonomic handle shapes. This photo does not do justice to the way the wood catches the light (chatoyance). Jim seemed pleased with it and “I like the way that it came all the way from Ireland!”

**LYNN MOORE** shared an antler he found in a second-hand store. “I just had a headache when I picked it up and started looking at it. This guy had to have run into something REALLY hard – and I think he had to have knocked himself out!”



Lynn has some ideas about how to use parts of this twisted piece for handles.

**MARTIN BRANDT** shared some observations on “old timer” homemade knife handles he's researched. For American frontier knives he noted that “as long as they got a piece of antler big enough to grab onto ... they weren't real fussy about fit and finish!” And he relayed that in Scandinavian culture there is a history of selling a Puukko bare blade with a block of wood (to be whittled into a handle by the owner) and a sheath style that will hold a range of handle sizes. “As I looked through a lot of old collector pages... in the old old knives there's this big gap between the wood and the knife ... they got the tang in as far as their drill bit – or got tired of burning it in – and it didn't fall out this time, so they're good! It's amazing how many of those blocks of wood, all they did was round off the corners – looking like big old potato!”



**FRANK BOBBIO** passed around a couple of items. The first was this dagger necklace piece that he made years ago.

Pretty sweet!



The other was a dagger he made last year – “taking the concept of a railroad spike knife a little too far!”



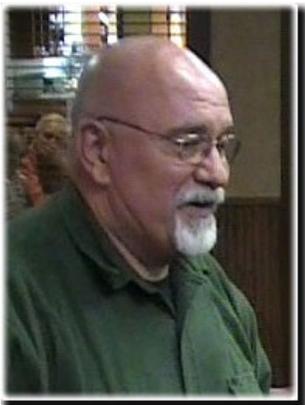
“I wanted to have a guard – but it presented a problem ... how to get the guard on!” So he cut the tang in two – put the guard on – and welded the tang back up before doing the twisted nickle silver wire wrap. Since the piece had already been heat treated he had to wrap the piece up in dripping wet rags while he welded the tang back together.

“The hardest part” Frank said “was getting a solder joint on an as-forged surface.” The guard is soldered to the blade – the blade and guard have an as-forged finish – but solder won't stick to that – so Frank put a micro bevel on the blade and the guard “about 20/1000's” for the solder. “It worked!”

**MARTIN BRANDT** also passed around the blacksmith knife he had “in-process” at the last meeting. He's finished up the knife itself and is working on the leather sheath.



Unfortunately I seem to have missed getting a close up photo of the knife?!



**MIKE JOHNSTON** has been getting more time in his shop.

“A friend of mine makes furniture out of used whiskey barrels. Nice White Oak and some of it's got some amazing grain to it... when you start working it - - - it smells like

you've been drinking out in the shop all day long!” So he passed around this knife – the blade is from Jeep coil springs; the wood is this whiskey barrel oak; with brass guard and some brass mosaic pins by Sally Martin (see the “Other Goodies” links below).



The finish on the wood is Deft clear lacquer. Spread on with fingers – let cure – sand – repeat. Mike has a neighbor who's done woodworking “forever” and asked Mike how he was doing the final finish. Mike had been using steel wool. “Try the inside of a brown paper bag” the guy said. Mike said “So I did – and it came out pretty darn awesome.”

The above knife is actually sold – but Mike borrowed it back so he could share it with the group.

“Now this one is from the same steel, different piece of wood from the whiskey barrel, copper guard, copper Sally pins, a little extra work on the blade [file work]. With a simple pouch sheath.”



*(my photos of the file work were blurred out due to hand shake at the slow shutter speed)*

Mike showed a piece of one of the barrel staves – showing how it is charred on the inside, and that you can see how deep into the wood the whiskey penetrated... which inspired conversation about how whiskey barrels are reused for wines or beers.



He also noted “My son-in-law makes a bourbon-oak-imperial-porter that will just knock your socks off!”

Mike shared that for something like \$7.50 at Harbor Freight you can get a set of diamond needle files that offers a lifetime guarantee. “I asked the manager and the manager said 'Yep, if you can ever dull one of these you bring it back and we'll give you a new set.’” Which sold Mike on it.

He also passed around this knifemaker's vice. You clamp the flange in a regular vice, clamp the knife blade between the inner blocks, then you can rotate the tube-within-a-tube and clamp it at whatever angle you want for working on the handle.



Mike got this from Wayne Goddard some time ago and just started using it recently. “I find this to be probably THE most invaluable tool in my entire shop. When I'm making handles, this is IT.”

“I have always had problems with gluing up a stacked handle. I can never get rubber bands to work. I got thinking 'How can I clamp this thing together?’ Well for \$2.99 at Harbor Freight you can get this plastic clamp. I cut down the middle of the jaw with a table saw so you can slide the blade in... epoxy your handle, arrange it how you want, get it all squared up, and clamp it.” To help keep the knife from slipping around Mike glued some hard foam onto the back face – he used a pad intended to protect a boat from scraping against the pier.



“One last thing – when I made one of these vices, I made two – so I've got one to give away.” Which he promptly did!

At this point there was some discussion of what to line the inside of a forge with. Typically a forge is insulated with Kaowool or Inswool – but these battings need protection from being torn up or dissolved by forge-welding flux. Satanite is a standard solution. Fire clay was discussed – Mike Johnston had used it by thinning it way down and soaking Kaowool in it – both to stick the Kaowool to the forge wall and to provide the inner protective coating. Rutland Furnace Cement (2700°f rating) was something that Mike has also used with success as an inner protective coating – again by thinning it way down and spreading it on the inside of the forge. Most Ace Hardware stores do not have this Rutland Cement in stock. *Scribe's note: Jerry's Home Improvement Center carries a 2700°f furnace cement – I don't recall if it is Rutland.* Georgies Ceramic & Clay – on Railroad Blvd in Eugene, between 1<sup>st</sup> St and River Rd – is rumored to carry the 2700°f Rutland Furnace Cement.

Somehow the conversation turned to shop lighting. It is amazing how helpful bright shop lights are for achieving the best results.

Mike praised Costco LED lighting. A 2 tube 4' LED shop light costs about \$40 (for fixture & bulbs) 3700 lumens, color temp is cool white, 38 watts. 50,000 light hours – that ought to last a while! Mike replaced two old 8' fluorescent units with two 4' LED fixtures “and it's at least twice as bright – and draws hardly any electricity.”

**HUNTER LOTTSFELDT** was last up. He's a student at OSU working with grad students in materials science.

Specifically, Hunter is on a team participating in this year's Bladesmithing Competition at the TMS 2015 conference in Orlando:

<http://www.tms.org/meetings/annual-15/AM15bladesmithing.aspx>



Their project is a 24 layer 15N20/1095 Damascus blade. "For heat treat, we have access to a variety of kilns. We ran sample 1095 strips, because we were getting some weird results with cut-off pieces of the Damascus." They were not getting decent Rockwell – only in the 40c-50c range.

Here's the forum thread he started to get some help: <http://www.bladesmithsforum.com/index.php?showtopic=31071>  
Hunter faced a lot of the same questions in our group as on the forum: Was the sample really at the proper temp? Did you take too long from the kiln to the quench? Did it sit there and de-carb in the kiln?

The quench was a gallon of canola oil at 130°f. The kilns tested out as being w/in a couple of degrees. The test strips were 1/8"x3/8"x1-1/2". Soak time was about 10 minutes. Hunter found that if he cranked the kiln up from 1475°f (recommended) to 1535°f then he got the Rockwell C he was looking for (mid 60's).

"The weird thing was that when we tried that with pieces of Damascus we still couldn't get it to harden."

In response to a suggestion from the forum thread they tried brine quenching a Damascus sample – which turned out to be too harsh, as they got cracks in the sample.

Then they tried going hotter in the kiln – topping out at 1650°f – still no joy. They'd tested with a magnet to make sure they were hitting the transformation temp. *Scribe's note: Steel reportedly goes non-magnetic around 1420°f, while Ac3 transformation temp on 1095 would be something like 1450°f – with the official recommended austenitizing temp being 1475°f – which is still well below 1650°f! 15N20 is 0.75 carbon – so with my feeble understanding of metallurgy I would guess that 15N20's lower carbon and added nickel would lower the 1095 austenitizing temp – so I would have expected the Damascus to harden from a lower temp than 1095 alone.*

So out of desperation, Hunter and the crew went all backyard bladesmith and fired up a forge. "We tested it [a Damascus sample] with the magnet, quenched it in canola, perfectly hard... 61Rc... and according to Jim Hrisoulas you don't get the real Rc hardness with Damascus because you're crushing those multiple

layers..." So they ran this process on their blade. It worked, but lo and behold – right in the middle of the blade a "pimple" bubbled up! Hunter took some suggestions about piercing and collapsing that blemish. They looked at the micro-structure of the blade "and it looks good."



I (Michael Kemp) shared my experience with my first 15N20/1095 Damascus blades. The first one I heated to 1475°f and quenched it in room temp Parks 50 oil. The as-tempered hardness is in the low 50s Rc. The next one from that billet I accidentally overheated to about 1525°f and again quenched in room temp Parks and got around 60Rc after tempering. I was using 10 minute soak times.

... after some general discussion and swapping of shop stories, we wandered into the night.



## NOTES AND REMINDERS

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**OKCA April Show** – April 10<sup>th</sup> (members only), 11<sup>th</sup> & 12<sup>th</sup> (public). This is the big annual show of everything that goes CUT. Display tables, sale tables, demos, lectures, supplies, books, factory knives, handmade knives, swords, axes, flaked stone blades, you name it. This year's theme is *Japanese Blades & Kitchen Cutlery*. Show info can be found at: <http://www.oregonknifecub.org/okcashow.html>

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The **Western States Blacksmith Conference** will be held in Hollister, California (just south of the Bay Area) April 23-26<sup>th</sup>: <http://www.westernstatesconference.com/>

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The **Northwest Blacksmith Association Spring 2015 Conference** is scheduled for May 15-17 at the Cowlitz Expo Center in Longview, Washington:  
<http://blacksmith.org/events/nwba-blacksmith-conference-2015/>  
Check their calendar for mentoring sessions and class schedules.

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The **Northwest Knife Collectors Kelso Show** will be September 26-27 at the Red Lion conference center in Kelso. Watch here for more details:  
<http://www.nwkc.org/home.html>

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The **ABS California Hammer-in for 2015** will be in October – College of the Sequoias – Tulare, California. Watch the ABS forum thread for details:  
<http://www.americanbladesmith.com/ipboard/index.php?/forum/23-abs-hammer-ins/>

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Martin Brandt mentioned during the January meeting that he has **1050**, **1065**, and **5160** for sale. For the moment he also has **ITC-100** heat reflective coating for forge interiors – he bought a gallon and is reselling the extra in pints.

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John Emmerling shares a forum posting from Rick Marchand on his method of **straightening during the temper** that's well worth a look:  
<http://www.bladeforums.com/forums/showthread.php/838681-Straighten-During-The-Temper>

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Mike Johnston responded in detail to a question about how he does his **claying and hamon development**. I've put it in PDF form in the 5160 Club newsletter archive page. It's well worth a read:  
<http://www.elementalforge.com/5160Club/MikeJohnstonClayHamon.pdf>



Keep Well ~ Be Safe ~ Have Fun!

Your Scribe

~ ~ ~ Michael Kemp



## FREE DE-CLASSIFIEDS (IN NO PARTICULAR ORDER)

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. It's free – email me at [Michael@ElementalForge.com](mailto:Michael@ElementalForge.com)

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No entries this month – send me a email if you have something you want put in.



## 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 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

Knifedogs Forum

<http://knifedogs.com/forum.php>

Bladesmith's Forum aka Don Fogg Forum

<http://www.bladesmithsforum.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/forums/forum.php>

## REFERENCES

Many of the sites linked under “Knife Maker General” have book & video sections.

Our own Wayne Goddard's books are available at Amazon:

<http://www.amazon.com/Wayne-Goddard/e/B001JS9M10>

And you can email Wayne directly for his DVD at [wgoddard44@comcast.net](mailto:wgoddard44@comcast.net)

Verhoeven's Metallurgy For Bladesmiths PDF

<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)

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/)

## OREGON KNIFE MAKING CLASSES

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

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

Michael and Gabriel Bell offer a constant 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.

<http://www.cartercutlery.com/bladesmithing-courses/>

## 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/>

## **KNIFE MAKER GENERAL**

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

Jantz Supply

<http://www.knifemaking.com>

Texas Knifemaker's Supply

<http://www.texasknife.com>

USA Knife Maker's Supply

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

Knife and Gun (K&G)

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

Alpha Knife Supply

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

True Grit

<http://www.trugrit.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://sb-specialty-metals.com/products/knifesteels>

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>

## **EQUIPMENT**

Beaumont (KMG) [Ohio] – the industry's 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

<http://www.2x72beltgrinder.com>

AMK [Ohio] – affordable grinder, quick-change between platen & contact wheel

<http://amktactical.com/>

Coote [Port Ludlow, Washington] – affordable, simple grinder – you supply the motor

<http://www.cootebeltgrinder.com>

Grinder-In-A-Box – grinder kit, assembly required

[http://www.polarbearforge.com/grinder\\_kit.html](http://www.polarbearforge.com/grinder_kit.html)

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/>

Quick and Dirty Tool Co. [Auburn, Washington] - will build Spencer/Clontz style tire hammers

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

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>

## **FORGE & REFRACTORY**

Chile Forge  
<http://www.chileforge.com/>

Mankel Forge  
<http://mankelforge.com/forges.html>

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

Omega – thermocouples & measuring equipment  
<http://www.omega.com/>

Auber – more thermocouples and controllers, etc.  
<http://www.auberins.com>

Hybridburners – home of the venturi T-Rex  
<http://www.hybridburners.com/>

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

Zoeller Forge – low cost venturi & parts: Z Burners  
<http://zoellerforge.com/>

## **BLACKSMITH**

Blacksmith Depot  
<http://www.blacksmithsdepot.com>

Pieh Tool  
<http://www.piehtoolco.com>

Centaur Forge  
<http://www.centaurforge.com>

Quick and Dirty Tool Co.  
<https://www.facebook.com/QDTool>

## **LOGO/ETCHING**

Ernie Grospitch – Blue Lightning Stencil  
<http://www.erniesknives.com/>

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

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

## **OTHER GOODIES**

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

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

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

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

Coyote Steel – misc., 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/>