



FOR A DEBT THAT  
CAN NEVER BE  
REPAID, WE HONOR  
THOSE WHO HAVE  
MADE THE HIGHEST  
SACRIFICE IN  
SERVICE TO OUR  
NATION, TO LIBERTY,  
AND TO JUSTICE  
FOR ALL.



THE MOSTLY MONTHLY NEWSLETTER OF THE

# ☯ EUGENE 5160 CLUB ~ JUNE 2012 ☯

The June Meeting will be Thursday the 7<sup>th</sup> at 6pm at the **Woodcraft** store in **Delta Oaks Shopping Center** down the row from Market of Choice and kitty-corner from Walmart and Dick's Sporting Goods.



## JUNE MEETING

The June meeting will be our first at the new location for Joe & Susan's Woodcraft – congratulations to the Essins on the move to a larger store in a great location – and *many* thanks for hosting our meetings!

We'll start out with show-your-work – so if you've got something to show & get feedback on, bring it in.

Our May meeting had some sharing of work, notes on forge construction, and general discussion. I took fewer photos than usual.

But to balance that – we had a *great* hammer-in at Jim Jordan's – and I got lots of photos from there.

See you on the 7<sup>th</sup> – and remember to go to Delta Oaks – not Sheldon Plaza!



## MAY MEETING NOTES

**WAYNE GODDARD** opened the meeting by drawing our attention to the home-made anvil that **KEN SWADER** brought in:

Shows you what you can do with a welder, steel, and perseverance. Ken drilled and hand-filed those hardy and pritchel holes!



Wayne noted that as an alternative way to add a hardy hole you could weld an impact socket onto the side or end of the anvil.

Wayne then shared that there is a changing of the guard going on at the Oregon Knife Collectors Association. The OKCA Knewsletter that came out a few days after our meeting bore out what Craig Morgan and Wayne told us. Please read the OKCA Knewsletter for details – Pages 3, 8, and 9:

[http://www.oregonknifeclub.org/Newsletter\\_1205.pdf](http://www.oregonknifeclub.org/Newsletter_1205.pdf)

I am grateful to Dennis and Elayne and Ole and John and all the folks who have pitched in (like Craig and Bernard and..and...and...) – for making the April shows happen and the Sizzler meetings lively.

OKCA will go forward under new leadership, but the annual show will never be the same.

Many thanks to the OKCA's retiring “old guard” for all your work and devotion. And for all those shows!



... so after some reminiscences of past shows the meeting moved on. I scribbled down something about Pieh Tool Co. books – I think Wayne was recommending this site:

<http://www.piehtoolco.com/contents/en-us/d624.html>

where you not only browse the “Knifemaking & Armor” section but lots of other useful collections. It was also noted that Peih has a great spread of tools and supplies that may be hard to find elsewhere - from anvils and off-center tongs to hammers for forging and much more.

There was an extended question & answer & discussion on forge construction. I'll put down the highlights as I caught them:

- Forced Air versus Venturi – both get the job done.
- Forced Air – you can build your own burner – there are lots of plans available in books and on-line.
- Venturi – you are better off to buy your burner from someone who specializes in machining them (mine is from <http://www.hybridburners.com/>).
- Venturi has the advantage of not requiring electricity for the fan – however, Mighty Mike demonstrated at our hammer-in that a car battery and an inverter work just fine to power a portable forced air forge (see photos below).
- Put the squirrel cage fan higher than the propane inlet on a forced air forge – propane is heavier than

air and you do not want it to collect in the fan.

- The squirrel cage fan should always be run at full speed. Choke off the air intake to adjust the flame between neutral and rich mixtures.
- Using loose fire bricks for an adjustable door - or to open/close an “exit” window - works just fine.
- A trough in the bottom of the forge lined with fire clay can catch borax (flux) to minimize forge wear and tear – rake out the flux (make a rebar tool).
- A \$20-\$30 adjustable regulator can be had from Eugene Welding Supply or Ace Hardware or even Home Depot – without a pressure gauge.
- Wayne says his old dragon's breath forge and horizontal forges in general should be a thing of the past. He recommends vertical “birdcage” propane forges – which he notes were documented as early as 1937 or '38 in Popular Mechanics. Even heating and less scale are a couple of the advantages. I have to say I enjoyed using them at the ABS school. Mighty Mike brought his birdcage forge to the hammer-in (see photos below).

There was a note that when making cable Damascus you get a better weld by soaking a couple of minutes at high temp – which also decarburizes the wires to give a better “webwork” pattern.

There was discussion of controlling the arc of a convex grind. Wayne noted that he made hundreds of such knives when he was using just a bench grinder and a drill with sanding wheel – so it *can* be done by eye and hand. Using the slack belt section of a 2x72 grinder gives you more control – especially you control the tension of the belt.

This segued into a discussion of using felt on the platen to get a very slight radius on a convex blade. McMaster-Carr has a “Hard Off-White S2 Felt” that got oohs and aahs as it was passed around the room along with other felt and graphite cloth samples. Here's the felt – Wayne likes the 1/2”:  
<http://www.mcmaster.com/#felt/=hqyqca>  
And here's the Hermes graphite cloth Wayne has been using: [http://www.hermes-schleifmittel.com/...](http://www.hermes-schleifmittel.com/)

There was some discussion of who's belts are shedding grit (my right eye works fine but is still unhappy about the grit it got in the socket a year or two go – and yes I *was* wearing safety glasses – that's

when I went over to a sealing full face mask when grinding) – and who's belts have the worst seam, giving them an unpleasant “belt-bump”. Marty Brandt who noted that you can hold a chunk of bench grinder wheel up to the running belt to just hit that high point and grind off the belt-bump.

There was general praise and adulation for variable speed grinder motors. I'm gonna have to get me one of them VFD setups. Then I can slow it down so it won't burn my wood handles so easy.

Wayne noted that if you slow the belt down to about 100 feet-per-minute and spritz the belt regularly you can even grind abalone on a 2x72.

Wayne really likes the Norton SG belts – and dresses his partly-used belts back up with a star wheel.

Talk moved on from there to “anvil tales”. Anvils with lead filler, anvils on stacked particleboard bases (like mine used to be), a huge anvil uncovered in pristine condition packed for military shipment – found when excavating a driveway.

It was noted that a “farm anvil” would generally be 80-90# while a blacksmith's anvil would generally be 200# and on up to as much as 750#.

<https://www.blacksmithsdepot.com/> seems like another source of tongs, anvils, hammers, etc.

There was talk of having a meeting at David Thompson's place – but that is still in the future.

The hammer-in at Jim Jordan's was announced.

And as the evening wound down, Mike Johnston (the Mighty) passed around a knife made by Jim Hale in Hillsboro – Mike was particularly taken by the handle carving – you can see why:



## A BIRDHOUSE FORGE

**MIKE JOHNSTON** welded up a vertical forced air propane forge recently – mentioned it at the May meeting – and brought it to the hammer-in. Mike graciously sent some notes and a couple of photos of the forge:



This is my first vertical forge. It's just about as ugly as it could be made and anyone who can weld would not call what I do welding.

It is two standard propane tanks cut apart and welded together. The bottom is separate from the top so installing the liner is easy and so is removing work that is dropped into the forge (guess why I know that's important).

The liner is two, one inch layers of ceramic batting that are soaked in a thin mixture of fire clay and each are formed into the inside of the forge body. A layer of thin fire clay is spread over the whole inside.

I welded a short piece of rectangular tube on both sides of the forge to put the work in and be able to run long pieces through the forge to heat the middle of the work. I use a piece of soft fire brick to close the back opening during most of my forging. The plate running out from the entry opening is for laying the work while it heats.

I welded a pipe to the side of the forge body for the burner to slide into. The burner tube is 1" steel pipe.

The burner is held in place with two "set screws". The burner is set so its flame enters the forge at an angle so the flame rolls around the inside. The copper tube enters the vertical pipe and is crimped down over a .030" drill bit.

The squirrel cage fan is from a wood stove. The transition from the fan to the burner tube is too restricted and I need to modify that.

With this 1" burner, the forge gets up to a good forging temp fast with very little scale, but would never get to welding heat. The top ring where the tempering jig is sitting is a great place to keep a pot of coffee hot all day too.

My next forge that will set next to this one will look similar, but will have a 2" burner.

Mighty Mike



There were three one-brick forges going – each built slightly differently. Mighty Mike's birdcage. Marty's dragons' breath. And a work-in-progress that looked promising, but was only fired up for a short time.



Here's Wayne's one-brick forge:



Dave Rider picked up the demo from Wayne to talk about heat treat.

Of course in order to talk about heat treat he had to forge a small blade...



## SPRING 2012 HAMMER-IN

**JIM JORDAN** and his family graciously hosted the 5160 Club Spring 2012 Hammer-In – and it was a great time!

Wayne gave a starting demo on the basic steps of forging a blade. And everybody and their dog was in attendance.



Here's how the knife progressed:



Anyway – Dave explained normalizing, annealing, hardening, and tempering. Dave has a great one-table portable workshop with a forge, a still air pot for normalizing (and checking color of the steel in shade), and pots that set down into the table for annealing (vermiculite) and quenching (oil mix).

Dave whipped up a little integral blacksmith's knife:



You can sort of see Dave's version of the one brick forge – encased in sheet metal and with a hollowed-out 1/2 brick behind that can be turned forward for a 1-1/2 brick forge or turned backward to close off the back of the 1<sup>st</sup> brick.





Dave demonstrated finding critical temperature using a magnet (not shown) and normalizing in still air:

Three normalizations are often done starting from successively lower heats to ensure complete relief of internal stresses in the steel from the forging process.



Dave then annealed the knife by bringing it up to critical temperature and burying it in the vermiculite pot. Vermiculite and wood stove ash are commonly used by bladesmiths for annealing. Vermiculite is a little easier to keep dry – and is available in bags at gardening stores.

At that point the steel is in Pearlite form – and is easier to sand, drill, etc.



Sometime later – after the anneal – Dave sanded the the blade down to shiny metal:

Ben Tendick – B.R.T. Bladeworks – has been doing stock removal (like this beauty) and is exploring forging...



Mighty Mike Johnston throws the hammer:



Well, I can hear the demands of my day job growling like angry lions in a cage that's too small... so I'll just paste in some "best of" photos with minimal notes and let you fill in the rest with your imagination...

“Passing the Bar Exam” means something a little different for a bladesmith – if the end of the bar is heated to critical and water-quenched it should be brittle – and a hammer blow should break off the end. This shows that the steel can be properly hardened. Even stock fresh from the mill does not always live up to its specifications. Does it pass the Bar Exam?



Blair Goodman's multi-Anvil stand:



Wayne's portable outfit:



Marty forging...



Mike Johnston's:



Marty Brandt's anvil – note the straightening jig in the hardy hole:



There were a number of forge designs – and some puzzling over ways different folks come up with to inject propane into the burner:



Blair Goodman forging:



Not only did the Jordans treat us to coffee and homemade cinnamon rolls – they served up a *delicious* lunch! Many thanks!!







**5160 CLUB'S 2012 SPRING HAMMER-IN:**

**IT WAS ALL GOOD!**



**BAMBOO-HANDLED KNIFE CONTEST**

Don't forget this challenge/contest! Judging at the *July* meeting.

Your Scribe ~ ~ ~

Michael Kemp