September 2022

THE FORGE FIRE

The Newsletter of the Indiana Blacksmithing Association, Inc.

An Affiliate Of The Artists-Blacksmiths' Association of North America, Inc.

IBA is a Not For Profit Indiana Corporation recognized by the IRS under section 501(c)(3)

9:30 AM is the regular meeting time for IBA Hammer-Ins
with beginner training available at 9:00 AM.
PLEASE MAKE SURE TO ASK FOR HELP!

If you would like an IBA membership application form, please contact Michael Mills, Membership Secretary (812) 633-4273.

BULK LOTS ARE AVAILABLE TO DEMONSTRATORS,
SHOPS, SHOWS AND OTHERS WILLING TO MAKE THEM AVAILABLE.
WE APPRECIATE YOUR HELP.

More nearby resources and organizations for blacksmiths:

Rural Smiths of Mid-America:
Meetings are on the first Saturday of each month
Call Ron Gill
317-374-8323 for details

IBA MEETING SCHEDULE

Check the latest *Forge Fire* for monthly **IBA** revisions.

Sept 30 Oct 1	FALL REGIONAL CONFERENCE BUNKUM VALLEY METALSMITHS
Oct 15 2022	
Nov 19 2022	
Dec 10 2022	

Editors Message

The **Fall Conference** will be here before you know it, which is the end of this month. As soon as we can finish our agenda with specific times for Aaron and Steve, we will post it on Facebook etc. Thank you for your patience.

Tentative Agenda for the Conference September 30 - October 1

Bunkum Valley Metalsmiths

14586 N 1100E

Odon, IN 47562

Demonstration Schedule

Friday	4pm and 7pm	Sand Casting	Randal Kinnaman
Saturday	9 or 9:30am	Forge Welding	Aaron Baker
Saturday	TBD	Damascus	Aaron Baker
Saturday	TBD	TBD	Steve King

Saturday: Iron in the Hat

Open forges will be available during the conference

Food vendors for the conference

Friday evening	Bicknell Trail Life Scouts	
Saturday	Serena's Food Hut	11am-6pm

We will provide a final flyer and we will be posting in the Blacksmithing FB group. Please mark your calendar and plan to join us, we look forward to seeing you!

Note: bring a comfortable lawn chair

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Dates to Remember

Sept 23-25
SOFA Quad State

Sept 30 / Oct 1
Bunkum Valley Regional Conference

IBA Satellite Groups and News

1) Sutton-Terock Memorial Blacksmith Shop
Meet: 2nd Saturday at 9 AM
Contacts: Fred Oden (574) 223-3508
Tim Pearson (574) 298-8595

2) Jennings County Historical Society Blacksmith Shop
Meet: 2nd Saturday at 9 AM
Contact: Ray Sease (812) 522-7722

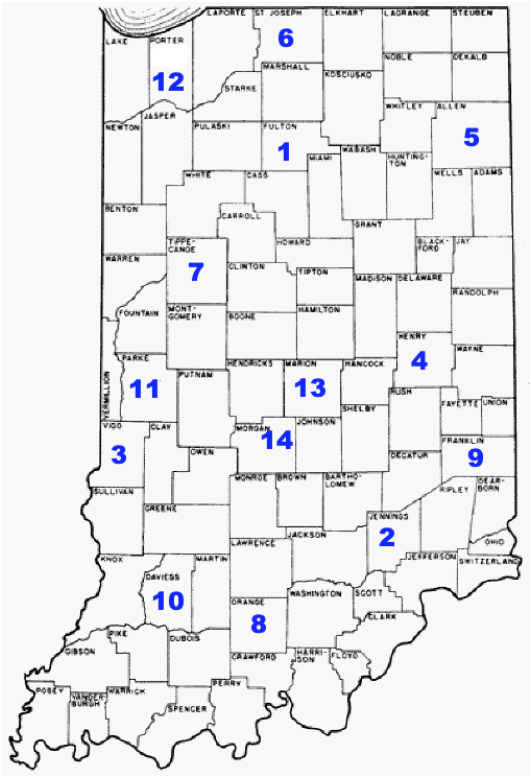
3) Wabash Valley Blacksmith Shop
Meet: 3rd Saturday at 9 AM
Contacts: Bill Cochran (812) 241-8447
Max Hoopengarner (812) 249-8303

4) Fall Creek Blacksmith Shop
Meet: 4th Saturday at 9 AM
Contacts: Gary Phillips (260) 251-4670

5) Maumee Valley Blacksmiths
Meet: 2nd Saturday
Contacts: Clint Casey (260) 627-6270
Mark Thomas (260) 758 2332

6) St. Joe Valley Forgers
Meet: 4th Saturday at 9 AM
Contacts: Bill Conyers (574) 277-8729
John Latowski (574) 344-1730

7) Rocky Forge Blacksmith Guild
Meet: 2nd Saturday at 9 AM
Contacts: Ted Stout (765) 572-2467



8) Meteorite Mashers
Contacts: Mike Mills (812) 633-4273
Steve King (812) 797-0059
Jeff Reinhardt 812-949-7163

9) Whitewater Valley Blacksmiths
Meet: 2nd Saturday
Contact: Keith Hicks (765) 914-6584

10) Bunkum Valley Metalsmiths
Meet: 1st Saturday
Contacts: Jim Malone (812) 725-3311
Terry Byers (812) 275-7150
Carol Baker (317) 809-0314

11) Covered Bridge Blacksmith Guild
Meet: 1st Saturday
Contact: John Bennett (812) 877-7274

12) Snake Road Forge
Meet: 1st Saturday
Contact: Rod Marvel (219) 241-0628

13) Satellite 13
Meet: 4th Saturday
Contact: Darrin Burch (317) 607-3170
Doug Wilson (317) 439-7684

14) Old Town Waverly Blacksmiths
Meet: 2nd Saturday
Contacts: Mike Lyvers (317-728-5771),
Kenny Hale (765-318-3390),
Mike Jackson (317-509-9115).

Jennings County Historical Society Blacksmith Shop

The Vernon blacksmiths met on Aug. 13 at the forge of Dave Mcnulty. This was a little off of the beaten path, but was well worth the extra drive. The first thing we noticed was the abundance of humming birds. There had to be at least 75 to 100 or more. Kevin Welsh showed up early to set up a portable forge. Our meeting started with the pledge of alliance. Dave Good straightened a very large "nail". We discussed childhood days of saving all nails and learning how to straighten them. Dave Good and Dave Mcnulty, together, formed a hardy tool. Kevin Welsh made a set of tent stakes and Dave Good refined a claw hammer. He also impressed us with a 12" figure 8 pass- through and forge welded the ends from 3/8" round stock. He then made a hack from a large train coupler. A hack is a cut off tool made to use under a power hammer,which I didn't know. We got to observe the fine work Dave Mcnulty put in assembling his newly acquired 50# power hammer. Nice job Dave! our next meeting on Sept. 10 will be back to Vernon, so bring lots of iron in the hat, and, yes lots of money! Paul Bray

IBA Satellite Groups and News (continued)

Bunkum Valley Metalsmiths

The Bunkum Valley Metalsmiths met Saturday September 3. We had 22 attendees who helped load up the trailer for the Antique Show and did some forging. We love our young forgers who are willing to ask for or accept help and suggestions. We had a young visitor too! We always have a great lunch which included some homemade turkey & noodles, homemade rolls and too much more to list! Enjoy the pictures.

Remember this week is The White River Valley Antique Show, it begins Thursday and runs through next Sunday until about 2pm. More information can be found at http://wrvaa.org/ We will be demonstrating daily in the Blacksmith shop please stop by and say hello! It is a really great family event with something for everone, including a car show, demonstrations, flea market, consignment sales, animals, music and of course food!

Propane Safety: A Cautionary Tale

Joy Fire, Irvine

This 4 page article reprinted from the May/June 2022 edition of the California Blacksmith

Ed. Note: I was horrified to learn of this event. Both for Joy's life, and for the many of us who use propane forges. I use a propane forge 99% of the time - and at times, I have had leaky joints, burnt hoses, but never had to go through an event like this. Please take this as a cautionary guide for safely operating your smithy.

I have been a working blacksmith since 2011, and while I have had a few run ins with angle grinders and hot metal I have had the good fortune to avoid any serious accidents. Until this past January, that is.

Flash Fire!

On the 12th of January I was in what I have now learned is called a flash fire, the ignition of a cloud of flammable gas. My forearms, hands, and face were badly burned, and I ended up spending a week in the hospital. As of today, I am recovered and fully back to work, with a few limitations. I have learned a lot through this experience about propane safety and I wanted to share it with as many people as possible so others can avoid going through what I did. In this article I will describe what happened that caused my accident and what I have done since then to make my shop safe. Every blacksmith's situation is going to be a little different, but I hope that anyone reading this can take the parts that are relevant for them and adjust to fit their own needs.

My forge was made by me based on the design of Jeffrey Funk, the very talented blacksmith and founder of New Agrarian School in Montana. It is a single burner forced-air forge, cast from Mizzou and insulated with Inswool from Harbison Walker. (See figure below left, my forge before the accident) The design had nothing to do with the accident, it could have happened with any other forge.

On the day of the accident, my forge had been running for a several hours. It is well insulated, but the metal shell still gets very hot. I don't remember the psi but somewhere between 5-10 is where I usually run it. The tank I was using (100lb) started to drop pressure because it was empty, so I closed everything off, attached a new 40lb tank, (brass fittings on a black flexible high pressure gas line) and lit it back up again.

A few minutes later I noticed my regulator was freezing up badly, visible condensation on the outside and cold to the touch. As you can see in the pictures I had a ball valve after the regulator, I shut this off, but the needle on my regulator kept climbing. This really concerned me, so I closed off the tank. My memory is a little fuzzy here, but basically I was fiddling with my system to try to clear all the pressure. I know the tank was closed and the ball valve at my forge was closed, and I decided the safest thing to do was unscrew the fitting from the tank just so everything was disconnected.

Propane Safety

After a few turns of the brass fitting at the tank I remember hearing gas escape, and then a fireball erupted in my face. I fell to the ground and rolled to make sure I wasn't on fire. I could see the severe burns on my arms immediately and ran over to a shop neighbor and asked him to call 911. The result was second and third degree burns on my arms, hands, and face.

I was very lucky that the hospital I was taken to happened to have a specialty burn center. I spent a week there and had two surgeries but didn't end up needing grafts, which is the best-case scenario. My skin is all grown back now, but still sensitive to the touch, and I have to be especially careful of keeping it covered when I'm out in the sun. All things considered; I am extremely lucky this accident wasn't far worse.

Over-Filled Tank

Here is what caused the flash fire. The biggest problem was that the new tank I started to use was very overfilled.

I have since learned that there is a valve built into the tank that is supposed to prevent this, but obviously that failed. Unfortunately, it was mainly the fault of the technician who filled that tank, more on that later. This caused the condensation on my regulator and probably froze parts internally, essentially making it nonfunctional. There was obviously still gas in the high-pressure hose connecting that regulator to the tank. When I disconnected it from the tank that cloud of gas was released, hit the hot side of my forge, and ignited.

I was wearing a cotton t-shirt, jeans, and my safety glasses. I had one minor burn on my abdomen under the shirt, but other than that the material protected my skin. If I had been wearing gloves, my welding jacket, or other nonflammable sleeves, and a face shield over my safety glasses, I think I would have avoided getting burnt all together. This is an extra step of PPE and preparation that I obviously hadn't considered earlier but is important to note as an important and simple precaution that anyone can take.

Rebuilding My Shop

So, what I have done since the fire? When I was back to stable, I contacted Mutual Propane, which is the company that has filled my tanks for years. They were extremely concerned to hear about this accident and have been very instrumental in rebuilding my shop set up. The technician who filled that tank was not the person I usually work with, who has never made any mistakes like this. I took the overfull tank back in and they just opened it up in an open space with no source of ignition and let it drain until it was at the proper pressure. I've used it since then with no problem. Then they sent out their V.P. and general manager to meet with me at my shop and come up with a rebuild plan.

Propane Safety

Indoor Tank: Illegal

I learned from him that it is illegal to operate a propane tank indoors, in accordance with NFPA 58, a national code. This seems logical of course, but my set up was just the same as almost every other shop I have seen, so I didn't think much of it. While I had certainly had the thought that a rubber hose seems not the safest to use in a situation with hot metal, this also was so common that I let that slide as well.

I also learned that it is illegal to bring gas into a building at anything above 20 lbs. I have looked through NPFA 58 and did some internet research on my own, but I haven't been able to confirm the exact rules myself. This is one of those technical code issues that professional people learn and study, and unfortunately that is not me! For now, I keep my regulator at 10 psi coming into my shop.

The V.P. Tom taught me that it best not to have a regulator indoors if possible, since they have a safety valve that will release gas if the diaphragm fails, and that would mean flammable gas leaking into an enclosed space. In the end we did end up using some rubber line, but it was manufactured by the company and much more robust than the cheap one I had been using. Again, there are rules in NFPA 58 about rubber, and I think my shop conforms to them, though it would be better to use iron or brass pipe if possible. In my shop, my concern was that I need to be able to move my forge, and had thought that a solid setup might be susceptible to breakage in an earthquake. So, the rubber hose seemed to be the best option.

Tom's main concern was keeping it off the ground and away from anywhere it could be cut or melted. My forge is close to an outside wall, so what we ended up doing is moving all my tanks out there, where they can be properly secured by a chain, and drilling a hole through the wall. A 20lb regulator attaches directly to the tank, then to another short hose, so I can use different size tanks, that attaches to ¾" black pipe (schedule 80). This pipe goes into my shop, drops down to the floor, then comes up under my forge, where it attaches to the hose that connects to brass fittings on the forge itself. In NFPA 58 there are tables for calculating what size pipe to use for different gas pressures. There are also requirements on the kinds of pipe, like using flare fittings for the copper.

In the line of these fittings that deliver the gas to the burner we installed a needle valve and a dial pressure gauge. I keep the regulator at the tank set at 10psi, and fine tune the adjustment with the needle valve, using the gauge to determine the pressure.

Propane Safety

It may be the addition of the pipe instead of just a small diameter hose, a better regulator, the needle valve, or a combination of all three, but my forge works better than ever now, and I am pretty happy with it overall. I do still think the rubber hose isn't ideal, and perhaps I will talk with Tom about changing it in the future, but according to our judgment so far, it is safe enough for comfort. Of course I am sure there are many other ways we could have done something similar, but this worked best for my situation according to our best judgement.

I am very grateful for the help of Tom, Roger, and Jose, the two technicians who did the actual installation, and to Merrilee, who is the parts department expert I first talked to about my accident. I would recommend this company to folks in the southern California area, you can look them up and give them a call if you have any questions yourself. They aren't in Northern California unfortunately, but Tom suggested a company called Delta Liquid for anyone up north. I hope this article has been informative and will help you to consider your own safety at your shop. Please know that I am not an expert, you should absolutely consult with a professional. Have fun forging, and remember, fire is hot!

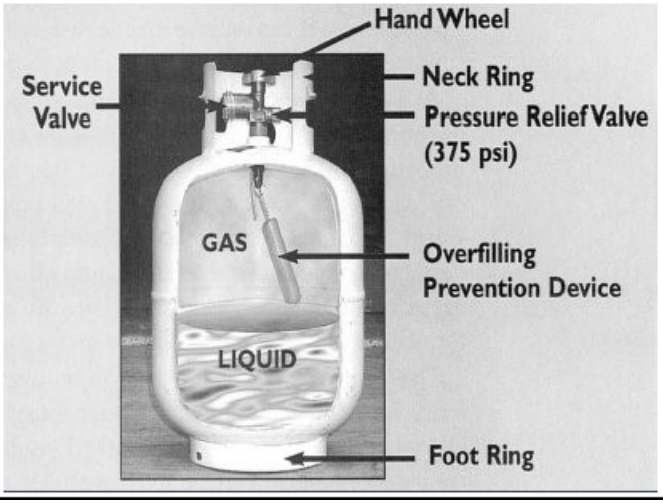
Joy Fire is an artist blacksmith with a small shop located in Santa Ana. Her specialty is furniture and functional art and design. She also teaches welding at a local community college and will be completing her graduate program to receive an MFA this May.

Add From the CBA Safety Chairman Eric Stephens

I recommend a couple safety inspection processes that should be completed on a regular basis.

1. Check the dates on their tanks when they refill or exchange them. Tanks are only good for 12 years then must be recertified. Recertifications can range from 5-12 years depending on which process is used. At right is a picture of where the date on the tank should be stamped.
2. Check all hoses and connections with a soap and water mix. I have dish soap and water in a spray bottle next to the forge. Every time I swap tanks, I spray with soap to make sure that there are no leaks at the valve.
3. At least once every few months, inspect all hoses for cracks or damage, and check all connections. I wipe down the entire length of the hoses with a soap and water mixture while the gas is on, and spray all connections as well.
4. Ensure the safety kit that is near the forge contains burn cream and sterile, non-stick dressings.
5. Make sure you have a fire extinguisher within reach of the forge, and that it is inspected and in good working order.

We are glad that Joy didn't have worse injuries and that she is recovering well.



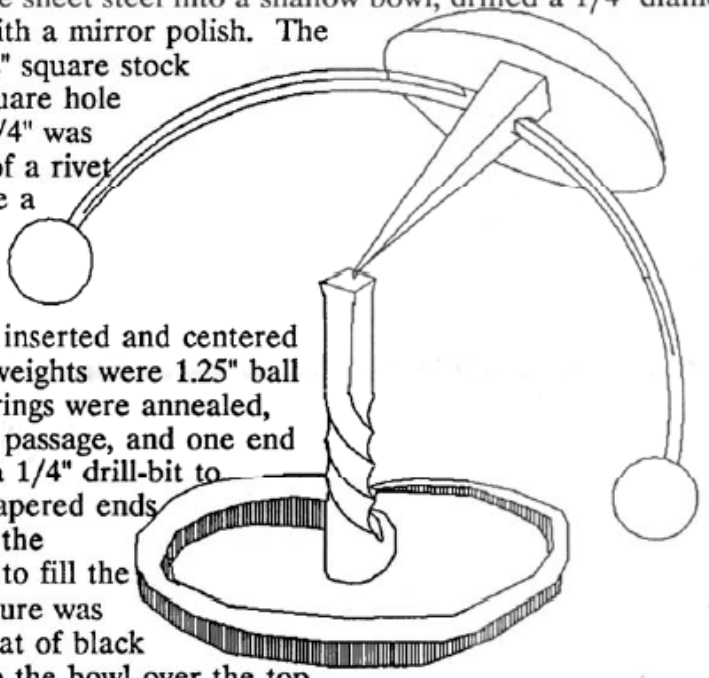
This 1 page article originally appeared in the Florida Clinker Breaker, September 1990

A Balancing Toy

Steve Bloom

A typical early American toy was a wooden figure holding a balancing pole. The toy appears to be about to topple but is actually extremely stable. The trick is to weight the ends of the pole and position those weights such that the center of gravity of the toy is below the "bottom" of the figure. The concept lends itself to a quick blacksmithing project that will also use up some tag ends of stock that you happen to have lying around.

I dished a 3" circle of 16-gauge sheet steel into a shallow bowl, drilled a 1/4" diameter hole in the center and finished with a mirror polish. The "body" of the figure was 3" of 1/2" square stock tapered to a point with a 1/8" square hole punched near the top. The last 1/4" was ground down to form the shank of a rivet (1/4" diameter). The "arms" were a single piece of 1/8"square stock (14" long). The ends of the arms were ground to cylindrical cross-sections for 1.5". The arms were inserted and centered through the punched hole. The weights were 1.25" ball bearings (apprx. 4 oz.). The bearings were annealed, drilled to make a 3/16" diameter passage, and one end of the passage was reamed with a 1/4" drill-bit to form a counter-sunk area. The tapered ends of the arms were passed through the weights and the end riveted over to fill the counter-sunk depressions. The figure was then wire-brushed and given a coat of black lacquer. The last step was to slip the bowl over the top of the figure, rivet it into place and to bend the arms appropriately.



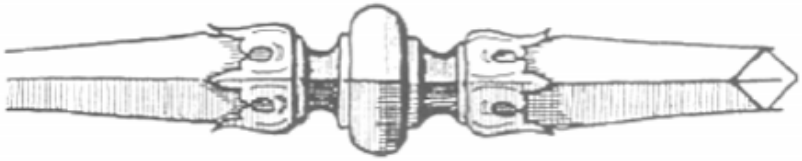
The base was from 12" of 1/2" square stock. One end was upset and a slight depression was created in that end using a ball pein. A taper started 6" from that end and the stock was drawn out to 18" long overall. A twist was made just below the upset and the taper was reflected through 90 degree angle and coiled into a base. The base was wire-brushed and given a coat of black lacquer.

The real potential of this project is not the object I made but the spring-board it represents for you. There's a lot of potential here to fool around with decorative motifs in iron while generating an "active" object.

This 2 page article originally appeared in the Metalsmith March 2021

Decorative section for balluster, doorknocker, or scroll

Thomas Latané



Forging

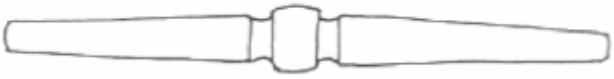
Mark with small fuller

Taper end to aid fitting into spring fuller

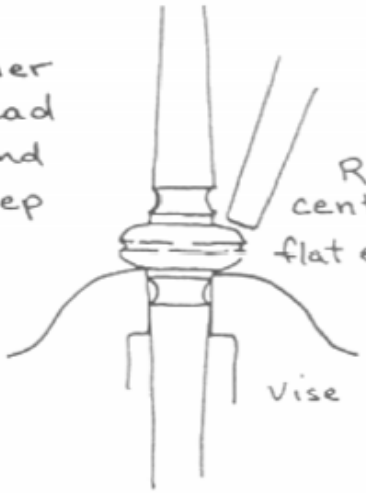
Fuller 1/8" deep with 1/2" radius

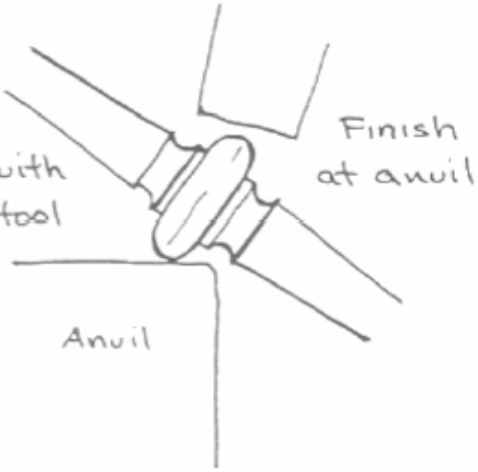
Draw to taper from depth of fuller

Work other side



Fuller 1/8" further with 3/8" radius





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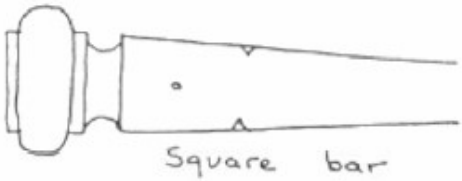
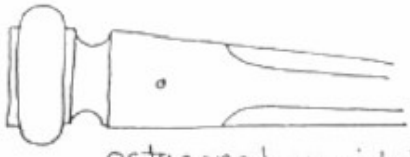
Stamping (hot)



Square bar



octagonal variation

Mark for circle (between leaves) and leaf tips

Stamp circle with rounded stamp (to locate on center mark) then flat bottomed stamp

Stamp accent under circle

Stamp star shape above circle

Press metal back from leaf tips

Work in "v" block to join lines from both sides of a leaf tip

Filing

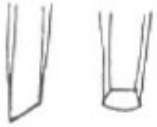
File to refine form making corners of fullered sections and steps meet. File another step below leaf area

Chasing (cold)

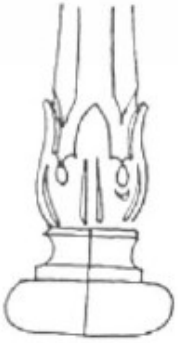
Hold in vise to chase around leaves to refine shape and planish.

Peal back leaf tips cold and file to make smooth curve.

Chase veins at corners.



Chasing tools are short to prevent flexing



The *FORGE FIRE*
Newsletter of the
Indiana Blacksmithing Association, Inc.

Farrel Wells *Membership Secretary*
8235 E 499 S
Dunkirk, IN 47336-8807

First Class Mail

Address Correction Requested
If Undeliverable return to
sender

Sept 30—Oct 1 IBA Fall Conference
Bunkum Valley Metalsmiths

14586 N 1100E, Odon, IN 47562

Directions: Take US 231 south and then SR 58 towards Odon. After the turn-off from US 231, go for 2 miles, and then turn right so as to head north on CR 1100. After another 2 miles, Jim's place is on the right. Forge Master: Jim Malone, ph: (812) 725-3311

Demonstrators:	Friday Evening	Sand Casting	Randal Kinnaman
	Saturday	Forge Welding	Aaron Baker
		Damascus	Aaron Baker
		TBD	Steve King

Iron in the Hat: Saturday

On site food vendors Friday and Saturday

Open forges available

Bring a lawn chair