



VOICE

June 2015



FAMOUS BLACKSMITHS SERIES THOMAS GOOGERTY

In 1938 the Chicago Daily News captioned a front page story about Tom Googerty with the phrase, "Iron Worker With Dreams Helps Forge Men at Pontiac." The reporter described a group of eager young men busy at forge and anvil and praised the nearby exhibit room filled with elegant ornamental iron work. The soft-spoken master of the shop spoke proudly of his artisans' command of ancient skills. "I think we're doing something," said Mr. Googerty modestly. "You won't find much better workmanship anywhere than this. The lads who made these screens are artists. They have learned an interesting craft and, what is more important, they are able to do something toward preserving a vanishing art." The most remarkable thing about it all, concluded the reporter, was that the place was a prison and the artisans all inmates.

Googerty sought to transform his shop at the reformatory into a classic atelier (artist's studio), where he conveyed life skills and artistic vision to generations of students. Googerty believed that character, like iron, could be forged and his notion of teaching extended beyond teaching students how to do their work to how to live their lives.

See full article on page 20



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A traditional blacksmith shop floor of crushed, packed gravel. Softer on the feet than gravel, fireproof, yet easy enough to find anything that get's dropped.



NEWSLETTER DISCLAIMER

Blacksmithing is a very dangerous hobby/job. All members, demonstrators, and guests are responsible for using eye, ear, and respiratory protection and safe working methods. Minors must be accompanied by a parent or responsible adult.

The Blacksmith Organization of Arkansas, its officers, members, demonstrators, guests, writers, and the editor disclaim responsibility for any damages, injuries, or destruction of property as a result of the use of any information published in this newsletter or demonstrated at workshops, meetings, or conferences.

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Attendees at organization functions and classes consent to the use of their images in publications and web pages of the Blacksmith Organization of Arkansas.



NEWSLETTER DEADLINES

Submissions for articles, meeting minutes, announcements, events, and classified advertising are due to the editor before the last Saturday of the preceding month.

Members will receive an electronic edition by email by the first Saturday of the month. Those receiving hard copies will be mailed the next Monday.

SAFETY FIRST! THE SHOP FLOOR

I've heard it said that the bench top and the floor of any workshop represents the state of mind of the owner. Is yours clean? Organized? Or is it cluttered with unfinished projects and stuff that should be thrown away? Psychology aside, there are a few things your floor should be doing for you.

First, your shop floor needs to be clear enough that you aren't tripping over stuff. Blacksmith shops are often kept intentionally dim to better judge the heat of the metal you are working, and many smiths also wear shaded lenses in order to see into the heart of the fire. In "light" of this reduced visibility and the fact that you are carrying dangerously hot metal around, you definitely don't want to be tripping over stuff.

"The floor of any workshop represents the state of mind of the owner"

Second, you want your floor to be hard and flat enough to find small tools and work pieces that fall to the floor, and yet be soft enough to reduce fatigue. The thing that makes pea gravel easy on the feet (the round pebbles stay loose and don't pack) also make it easy to lose small things, not to mention making your footing uncertain, and make it much harder to move equipment around. Sweeping up is not an option on loose gravel or dirt floors.

Finally, your floor should be fireproof. This sounds like a no-brainer, but wooden floors were common in blacksmith shops as recently as 80 years ago. Even today, I've seen smiths install rubber mats to reduce fatigue, despite the noxious odors that occur when you drop something hot on them.

All in all, a blacksmith shop floor should probably be concrete or hard packed stone powder, at least around the forge and anvil. You may wish to provide softer footing around a bench area. Whatever your floor is made of, keep it swept clean and uncluttered!



LETTER FROM THE EDITOR

Last month I mentioned how high our website ranks in a google search for "blacksmith." Fortunately, we have a fine website that is growing better all the time. Our webmaster Tim Huddleston has been doing a great job of catching the website up to date. Thanks also to the chapter secretaries and those that help them get the wonderful minutes and pictures to Tim and me. I think there's a lot of great content out there. We get a lot of inquiries from Arkansans wishing to find a local meeting.



Our website has had more than twelve thousand different viewers since it went up. That's not one person hitting it thousands of times—that's twelve thousand different people looking at our site. Our best day has been over 480 different people. Most of the search terms were various combinations of "Arkansas" and "blacksmith", but we've had lots of hits from people searching for things like "railroad spike snake", "black rust vs red rust", and searches for names like Bob Patrick or Dale Custer.

If you haven't visited recently, check out the online newsletter archives. If you have saved the low-resolution emailed PDF's, you might want to go to the website and download the high-resolution versions. There is also an alphabetic index of articles with links that jump directly to the newsletter and page of the content. Interested in a project we have featured, but can't recall which issue it was in? From the homepage (blacksmithsofarkansas.org) go to the "Newsletters" menu option, and select "Article Index". You can search by name ("railroad spike..."), or go down to the P's and see all the projects in one list. You can also find all the traditions articles, interviews, poetry, and the all-important cow-pie theory of blacksmithing!

Robert Fox, BOA Editor

LETTER FROM THE PRESIDENT



Dale Custer, BOA President

June 2015

Let me begin this letter with a “Thank You” to Mark Marrow for his demonstration last month. We had a good turn out and I know I learned a lot of new things.

When sitting down to write these letters I often don’t know what I am going to write about. And this month was no different. As I racked my brain for something that would not bore everyone to tears I decided to discuss the future of being able to use coal for fuel.

I would like to keep this discussion non-political but it won’t be possible. Early in President Obama’s administration he announced that he intended to make it more costly for coal fired power plants to operate. His critics labeled this a “War on Coal”. Some of his supporters have adopted this name. Power Plants are by far the largest users of coal in this country and so are the main focus of the government in reducing the burning of coal. It seems to me that there are three main

ways the government could restrict the use of coal; they could control emissions, they could control the disposal of the solid waste from burning coal or they could control the production and sale of coal. It appears that they are focused on emissions. For generations coal power plants have been releasing the results of burning coal under regulations authorized by the Clean Air Act. But recently the government got the Supreme Court to say that congress really did mean that the EPA could regulate carbon dioxide under the Clean Air Act, even though the words don’t appear anywhere in the Act, it doesn’t meet the requirement set forth in the Act for a pollutant, carbon dioxide is something we exhale every minute of every day and it is one of the two major nutrients that all plants require to live (the other being water). The trees down by my smithy seem quite happy with the additional carbon dioxide I am providing from my forge. But the good news is as long as the focus is on power plants emissions we should be safe. Our emissions are microscopic compared to even a small power plant.

The administration’s focus on the reduction in emissions is based on their belief in the theory of Man-Made Global Warming. While I could use the rest of this column to list the problems this theory has just from a scientific perspective, I will resist. I will say that this focus works to our advantage since we are small emitters. A focus that would be more of a problem, but thankfully is less likely, is the disposal of the solid waste from the burning of coal. Since the government’s focus is on large emitters (i.e. power plants) they are concerned with what they call coal ash. You may say I know what that is but wait. Coal ash is defined as fly ash and bottom ash. Fly ash is the solid waste collected by the scrubbers on smoke stacks. And bottom ash is what forms in the bottom of a coal fire and is what we know as clinkers. Fly ash is the more toxic of the two yet when combined together they can be disposed in standard trash landfills. So throwing your ash in the trash is okay.

Many of the more extreme environmental groups were disappointed that coal ash wasn’t listed under the Hazardous Waste regulations. What this would have done to our use of coal is difficult to convey with just words. We would have to hire a company licensed to handle hazardous waste each time we need to empty our ash bucket. They would show up in the full coveralls, including hoods that you see on TV sometimes. They would take your ash bucket and seal it into a metal container and seal that one into another metal container which would then be transported to a special HazMat landfill. Costs for this, even for a few pounds start at \$3000. If on the other hand you think “I just won’t get caught”, make sure you don’t make any enemies, vengeful Exs or someone that would like to buy your land at pennies to the dollar. Government environmental agencies have more than their share of zealots who make a name for themselves by bringing “Outlaw Polluters” to their idea of justice. Luckily the EPA resisted this lobbying and set the regulations in line with the science of the matter. I wish I could say that they did this more often or that the organizations wanting stricter regulations have given up.

Continued on page 5...

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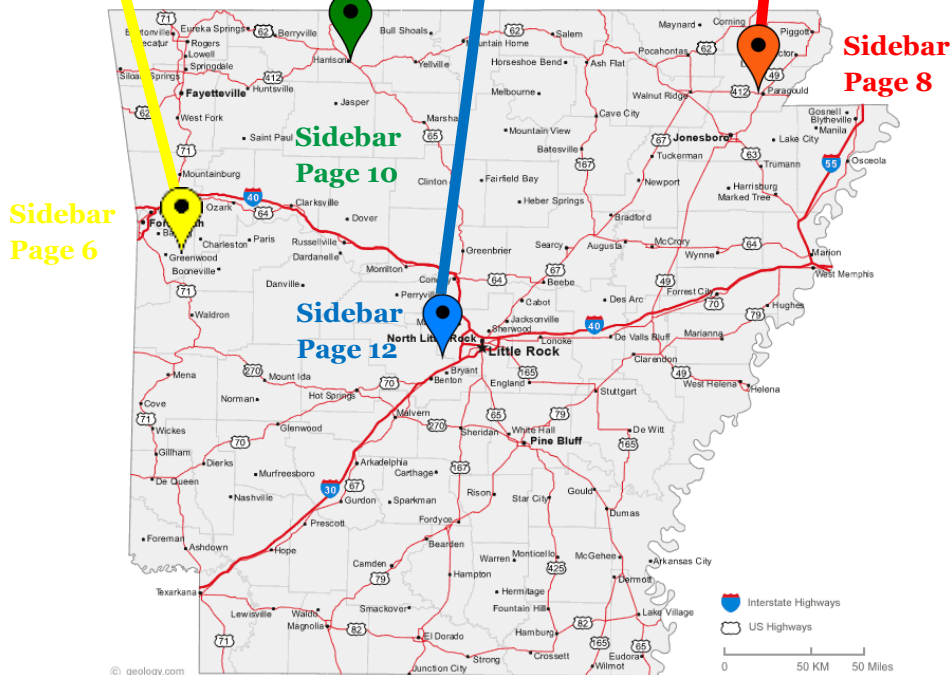
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BOA MEETING CALENDAR

	RIVER VALLEY AREA	NW AREA	CENTRAL AREA	NE AREA
JANUARY 2015	3 At Jerry Holmes' In Van Buren Fire Poker	10 At Ed Osoris' In Springdale A Door Knocker	17 At Larry Lane's In Sheridan Plant or Animal	3 At Jim Soehlman's In Jonesboro
FEBRUARY 2015	7 At Gary Braswell's In Lavaca Fire Shovel	14 At Richard Ross' In Flippin Dragonfly/humgbrd	21 At Tim Huddleston's In Bryant Made from RR spike	7 At Jim Soehlman's In Jonesboro Wall hook with leaf
MARCH 2015	7 At Jerry Holmes' In Van Buren Fireplace tool stand	14 At Stosh Japczyk's In Eureka Springs Hook for wall or door	21 At Herman Ginger's In Pine Bluff Made from rasp or file	7 At Lloyd Clayton's In Paragould A spoon
APRIL 2015	4 Cancelled (Easter Weekend)	18 At Tired Iron In Gentry Smith's Choice	11 At Dale Custer's In Little Rock Top Set tool	4 At Jim Soehlman's In Jonesboro Welded Ring
MAY 2015	2 At Ross Wilkinson In Greenwood Candleholder	9 At Cheryl Miskell's In Marble Falls A Corkscrew	16 At Thurston Fox's In Mayflower For use in the Kitchen	2 At Lloyd Clayton's In Paragould Three-Pronged Fork
JUNE 2015	6 At Jerry Holmes' In Van Buren Set of hooks (J,S,L)	13 At Rusty Wheels In Harrison A Trivet	20 At Tim Huddleston's In Bryant Scrolling Tongs	6 At Jim Soehlman's In Jonesboro Tomahawk
JULY 2015	4 At Gary Braswell's In Lavaca Door Handle	11 At Robert Meuser's In Mountain View A Spoon	18 At Larry Lane's In Sheridan Smith's Choice	11 At Jim Soehlman's In Jonesboro Flint Striker
AUGUST 2015	1 TBD	8 TBD	15 TBD	1 At Jim Barnes
SEPTEMBER 2015	5 TBD	12 At Tired Iron In Gentry	19 TBD	5 TBD
OCTOBER 2015	3 TBD	10 TBD	17 At Thurston Fox's In Mayflower Zombie Weapon	3 TBD
NOVEMBER 2015	4 TBD	14 TBD	21 TBD	4 TBD
DECEMBER 2015	5 TBD	12 TBD	19 TBD	5 TBD



METALLURGY — ENGINEERED STEEL



As our dependence on steel has evolved so has the effort to refine and create steel with enhanced properties. The new markets added demand for steel production. More companies emerged and processing improved. This month we will tour the various processes of secondary refining. Some steel will go right from an EAF or BOF right to the caster but today more steel goes through steps between melting and cast. These processes improve productivity, reduce alloy costs, further refine the steel, or a combination of these improvements.

One of the simplest steps in secondary refining is to add a stir station. During tapping, alloys are added to the ladle to remove oxygen called killing the steel and for alloying. Elements such as aluminum, silicon, and manganese will remove the oxygen from the steel but will create small oxides that are found in the cast steel as NMI (non-metallic inclusions). These NMIs will reduce the properties of the steel. Stirring the steel with either argon or nitrogen will aid in the removal of these NMIs. The station will also allow for some compositional adjustments but is limited as these remove heat from the ladle of steel. The stir station is not able to put heat

energy back into the ladle.

The furnace is for melting. Refining in the furnace takes time away from melting another heat. To improve the overall through put of a steel mill, LMFs (Ladle Metallurgy Furnaces) can be installed. The LMF works just like an AC EAF but the ladle is the furnace shell. A stirring gas, either argon or nitrogen, is used to float out NMIs, control the heat throughout the ladle and to help stir in alloys. Having the ability of putting energy back into the ladle allows for better slag control and increases the amount of alloys that can be added. EAF slag is highly oxidized where ladle slag for clean steel must be deoxidized. Adding new slag will consume a lot of energy to melt and protect the steel. Alloys absorb energy to melt called a chill factor. The goal of the LMF is to put energy back into the ladle for the rest of the process.

Higher levels of quality are achieved by putting the steel through a vacuum treatment. The two types of vacuum degassers in use are the tank, where the ladle of steel is placed into a tank for degassing, and the RH degasser, snorkels are lowered into the ladle and the steel is lifted into a vacuum chamber. In higher hardenable steels, hydrogen can cause the steel to flake after rolling. Hydrogen has no solubility in steel at room temperature. As the steel cools, the hydrogen is rejected from the steel. When the steel cools too fast the hydrogen becomes trapped in the steel and can approach several hundred atmospheres of pressure. This pressure can cause stair step fractures to occur in the center of the bars. Vacuum degassing aids in the removal of hydrogen from the steel. When the partial pressure of hydrogen is removed from the atmosphere above the steel, the hydrogen dissolved in the steel will move from the steel to the vacuum to maintain a balance. The tank degasser is related to the VAD (Vacuum Argon Decarburization) that is used in the production of stainless steels. At normal atmosphere, chrome is removed before carbon with oxygen, but in the vacuum, the carbon burns out first leaving chrome. This allows for the use of high carbon ferrochrome for the production of stainless at a reduced cost.

Next month we will discuss casting methods and products.

Ross Wilkinson
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President's Letter, continued...

The third way of control is perhaps the most dangerous to our use of coal as a fuel. The government could just decide to require a license to purchase coal and to require a fee for the license. They could say it was just a minor regulation. If the fee was \$2500 all but the smallest player would not think it worth fighting. But it would put us out of the coal business. \$2500 is for us is 100 members' dues out of 138 members. Thankfully the government doesn't seem to be moving in this direction at this time.

So to sum up what the War on Coal means to us; currently we can buy and use coal and dispose of the ash as we always have. But there are groups operating in the political world that would consider our loss of coal to be acceptable collateral damage in the War on Coal.

Dale Custer
President

Blacksmith Organization of Arkansas



RAFLE WINNER—DREW JANES

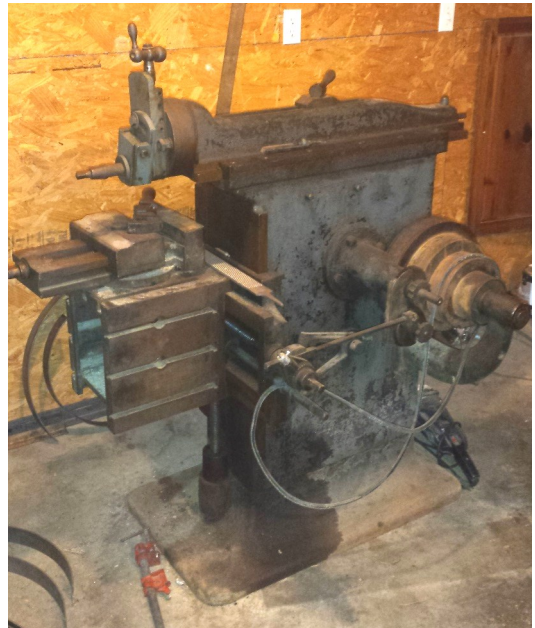
Bob Lock announced the winner of the anvil raffle.

Thanks, Bob, and congratulations, Drew! Since the anvil was once owned by Bob, we hope to see many future trade items and stuff for the sales table!



RIVER VALLEY AREA MAY MEETING

The May meeting was held on the second at my place. It was a sunny day without rain. Several members attended along with a couple of visitors. I was working on having the metal shaper in operation but am still working on how to power the equipment. The main obstacle is matching an electric motor up to a gearbox to have the right speed of the ram. The crew also saw my Edwards #10 shear in action.



There were two forges going in the morning to help finish projects and a forge welding demonstration by Jerry Holmes. After dinner, everyone gathered around to watch me make a flower. Several members made candleholders for the trade items.

Gale fixed a wonderful dinner with a choice of gumbo and/or German skillet. To top it off, we all had Southern Strawberry punchbowl cake for dessert.

The June meeting will, again, be at Jerry Holmes with a set of hooks (J, S, L) for a trade item. The July meeting will be moved to the second Saturday (July 11) to allow everyone to celebrate July 4th. It will be held at Gary Braswell's and the trade item will be a door handle.

Ross Wilkinson—RVBOA Secretary

NEXT RIVER VALLEY MEETING

The next River Valley BOA meeting will be held on June 6th at Jerry Holmes' shop:

1604 Daugherty Rd
Van Buren, AR 72956

The meeting will begin at 9:00 am and end at 3:00 pm. The trade item will be a set of hooks (J, S, and L).

Editor's note:

When we first started the electronic version of the newsletter, there were meetings on the 2nd, 3rd, and 4th Saturdays of the month. The submission deadline was set to the 4th Saturday in order to be able to include all the group minutes.

Now we have two groups meeting on the 1st Saturday, one on the 2nd, and one on the 3rd.

We are planning for the September newsletter to shift one week earlier, so that you receive your newsletter at least a week before your meeting.

More information soon!



PROJECT NOTES—CANDLE CHANDELIER

Author: Ross Wilkinson, BOA Member

May 16th was a special day for the family. My mother turned 70. Mary is still working as a seamstress but enjoys spending time with the family. Near the end of April, we started to plan a surprise party for her in Cameron, MO. I took the time to plan a special present for Mom on her big birthday. She likes candles so a candle chandelier was planned. Thanks to Todd Rowland for the idea of using old insulators to hold the candles. Todd had a very nice trade item at the May River Valley chapter meeting.

We were able to stop by the antique store in Leslie, AR after the NW chapter meeting. They had a number of insulators for sale. I was able to pick up 4 of the same shape and color. Once all the parts were in place, the plan was carefully locked inside my noggin it was time to work on the project.

I started with the base that held the insulators. There are two pieces that cross in the middle, where the central support holds them. These were made out of 3/8 rod. Each one was notched so that they lock on each other. The hardest part of the whole project was ensuring the insulators could snap in and out of the holders. This allows for easy cleaning of the insulators. The central support started as four pieces of 0.200" round rod 36" long. Into the rod was set a basket twist near the bottom and top. The length between the basket twists has a double twist. The spiral starts in the lower basket twist, reverses in the middle of the double twist and is followed in the upper basket twist.



The hanger was fabricated out of a short length of 3/8 rod left over from a cross member. The end that nests into the top of the central support was tapered down. The top part was squared and a blacksmith twist set in place before bending an eyelet to hang from. This was then welded into the central support. The 0.2



See member showcase on back cover for the completed project

rods were left long to be curled up.

Each rod length on the bottom of the central support was

worked into a rectangle and wrapped around a corresponding leg of the cross members. Candles are smaller than the internal diameter of the insulators. This was solved by installing the plastic cups for chair legs into the insulators. These fit snug into the insulators and the candles only needed a couple layers of tape for a snug fit.

It was a lot of work but Mom really enjoyed the gift. Dad and I welded a link of chain into a nut that held up an existing light fixture. The Chandelier is now over her dining room table in Kidder, MO.

Ross Wilkinson



FUN AT THE MOUNT JUDEA HERITAGE DAY

Tom Bates and I had a great time representing BOA at the second annual Mount Judea Heritage day. There was a small crowd, but many visitors to the booth spent extended time visiting with us learning about blacksmithing.

The Dutch Oven Cook-off had more entries than last year and was quite a success. Two people brought requests for us to forge special items for their craft. Tom made a tripod for a guy to hang his pot over the fire. I made a handle for a woman to lift a pot lid so that it would not tip and spill the coals off the top. It had to make contact with the lid at three points.

I especially enjoyed visiting with my late son Jacob's old friends from high school. One young woman who Jacob had dated had raised two daughters to adulthood, and then she and her husband adopted a little black boy. She brought her young son by to meet "the blacksmith." He took one look at me and said, "He's not black!" I replied, "Wait till the end of the day."

It was a beautiful day, and the forge was located in an idyllic location with a view of the mountains over the top of the school buildings. I hope more BOA members will join Tom and me for this fun next year.

Ron Wells
BOA Treasurer and Coal Meister



GOT A STORY IDEA?

Do you have a story you would like to see in the VOICE? Would you like to write it, or is it something you want to read?

Let us know—send an email to editor@blacksmithsofarkansas.org.



NEXT NORTHEAST MEETING

The next NEAC BOA meeting will once again be held at Jim Soehlman's shop. His address is

**462 Greene 731 Road
Jonesboro, AR 72401**

The meeting will be held on the first Saturday of June (the 6th). **The trade item is a tomahawk.**

The meeting will start at 9:00 am, and end at 3:00 pm. Dusty Elliot will be hosting the meeting in Jim's absence.

Directions:

From Lake Frierson State Park entrance (about 12 miles due north of Jonesboro on Hwy 141), continue north on 141 for one mile, then turn right (east) on Greene 731, go 1/2 mile. You're there!



NE ARKANSAS MAY MEETING

We held our meeting as scheduled at Lloyd Clayton's shop on May 2, 2015 from 8 am until 3 pm. Our trade item was a three pronged fork. There were three attempts and two that were successful. Some days you can forge and some days you should read about forging I'm thinking.

There were 14 people in attendance. Lloyd Clayton, Tera Clayton (that had an awesome spread again for lunch), Eddie Mullins, Raymond Lyerly, Jimmie Barnes, Cody Barnes, Matt Quinn, Courtney Quinn, Braelyn Quinn, Dusty Elliot, Tracie and Terry Taylor (Tera's parents), Rebecca Slayton-Soehlman and Jim Soehlman.



At our business meeting we talked about the Crowley's Ridge demonstration. A few things have changed regarding the demo. Crowley's Ridge has agreed not to charge us for a site on the stipulation that we do not sell any forged items in the park. We agreed to that. It wasn't possible to have the demo on a regular meeting date, so we are going to have the demo on June 20th. Eddie made contact with Ron for coal to be delivered to Jim's shop. Jimmie Barnes volunteered to host a meeting in September in conjunction with his sorghum harvest so we can see and participate in sorghum cooking....more details to follow on that. Courtney Quinn suggested that there was a professor at ASU that may be interested in BOA. Eddie is building the frame for the second sign.

Coal has arrived.

We aren't as focused as some of the chapters seem to be in their direction, but we discuss what we would like to learn and seem to come together to share knowledge at each meeting learning and teaching what we know. We are enjoying the group and learning so I feel we are moving in the right direction. We would welcome visits from other chapters.

There has been a change in the plans for meeting date in June. The last Voice said meeting will be held at Crowley's Ridge State Park. That has changed! The June meeting will be at Jim Soehlman's shop instead (see sidebar).

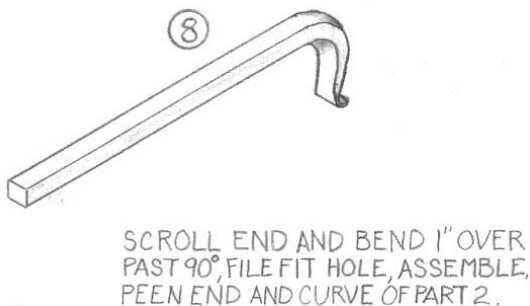
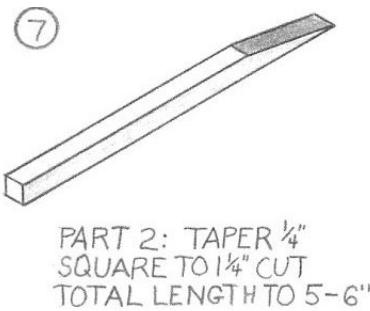
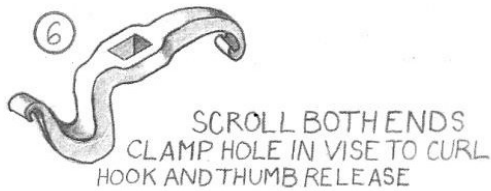
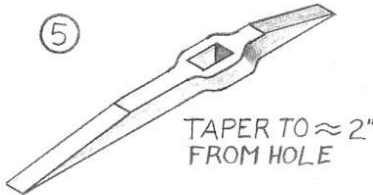
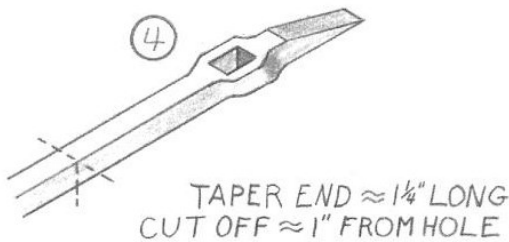
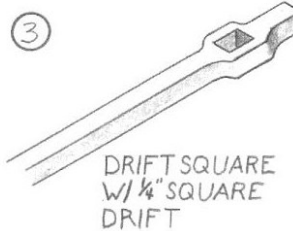
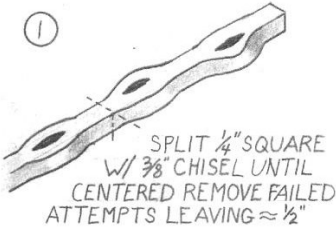


The Crowley's Ridge State Park demonstration will be held on Saturday, June 20th at Wolcott, AR. (north on Hwy 168, approximately 5 miles north of Jim's shop), from 10:00 am to 3:00 pm. The park interpreter ask if we could make things that would have been used by early settlers on the "Ridge"

The first Saturday in July is the 4th, so our July meeting will be held on the second Saturday instead—July 11th. We will start at 8:00 am. End time will depend on the heat. The trade item is a striker for flint. Any volunteer's to start a fire with their flint and steel?

PROJECT NOTES—ADJUSTABLE TONG CLIPS

Author: Nate Pressel. Used with permission from *The Upsetter*, the Michigan Artist Blacksmith Association (MABA) newsletter, Jan/Feb 2009.



TIP FOR STARTING A COAL FIRE

Getting the fire started using coke from the last fire is easy. But what should you use to start the coke?

Al Bart, Yreka, CA, always uses wood shavings. This doesn't get his fire dirty

Al says the news is so bad that it will spoil your fire. But if you do use newspaper to start the coke, use only newspaper printed with black ink. Colored ink newspapers and magazines should not be used. Colored inks usually contain barium, copper, and other metals.

(Publisher Note: This is no longer true of news papers, now these inks are made out of vegetables)

Pressure treated wood may release chrome and toxic arsenic.

The EPA speculates that burning plywood or chipboard may release aldehydes, including the carcinogenic formaldehyde.

A fireplace may take most of that junk outside, but a forge? Remember that black stuff you blew into your handkerchief? Better use wood shavings.



Blacksmiths Chess Set, from the September 2011 newsletter of the Vancouver Island Blacksmiths



From an article by Bob Thomson in the January, 1991, California



BOA Poet Laureate Robert Meuser is an artist of iron as well as word. Shakespeare said "A rose by any other name would smell as sweet." Well, maybe not this one.

NEXT NORTHWEST MEETING

The next Northwest Area BOA meeting will be held on Saturday, June 11th, from 9:00 am to 3:00 pm.

Robert Meuser
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Mountain Home AR, 72653
501-613-0133

The trade item will be a spoon.

If coming from the West going around Mtn. Home on Hwy 62 bypass : Take 62 bypass heading out and around Mtn. Home. Go to the end of the bypass and turn right on business 62 east. Going east, look for Old Chi Mill (a tavern) which is on your left. Our road is the second left after you pass Old Chi Mill, which will be Crawford Drive. You will also see a Dollar General Store on your right just before you turn left. Turn left right across from the store onto Crawford Dr. and go about 400 feet and you will see a green house with white trim on your left. That is our house, and you have arrived at 116 Crawford Dr.

If coming from the East going West on Hwy 62: From Henderson, Norfolk Lake Bridge, going west on 62, do the following. Continue on 62 until you come to the Dollar General Store on your left, a few feet before that make a right hand turn on Crawford Dr. Go the same 400 feet or so and there you will be at our green house/white trim.



NORTHWEST AREA BOA MAY MEETING

The Northwest Area BOA May meeting took place at Cheryl Miskell’s house, in Marble Falls. Dale called the meeting to order and thanked Cheryl for hosting. Dale thanked Mark Morrow for his remarkable demonstration of how to make a cutlass.

BOA members in attendance at this May 9th meeting included Dale Custer, Tom Bates, James Brantley, Joe Doster, Harold Enlow, Clyde Foster, Robert Fox, Keith Heffelfinger, Lynda Heffelfinger, Sam Hibbs, Gary Lee, Bob Lock, Nathan Low, Steve Low, Robert Meuser, Cheryl Miskell, Mark Morrow, Bob Patrick, John Peterson, Elmer Poston, Judi Sartwell, Sonny Sartwell, Hardy Todd, Ron Wells, and Ross Wilkinson. Guests included Ross Wilkinson’s family, Bertie Wells, Phylcia McUmber, Frankie Brantley, Brayden Low, Dean Hamilton, Garrett Manley, and David Kernodle. We had a total of thirty-six people at this meeting!

Dale reminded members that the June meeting will be at Rusty Wheels on June 13. Set up will be at noon on Friday, June 12. Please join Ron Wells on Friday at noon to help set up. The trade item is a trivet.



May Trade Items – A Corkscrew

The July meeting will be at Robert Meuser’s home. Trade item is a spoon. Robert lives in Mountain Home.

Robert Meuser presented Ron Wells with a poem he wrote in recognition of Ron’s selfless contributions as Coal Meister for BOA. Ron Wells said he very much appreciates the recognition. *See sidebar, p13.*

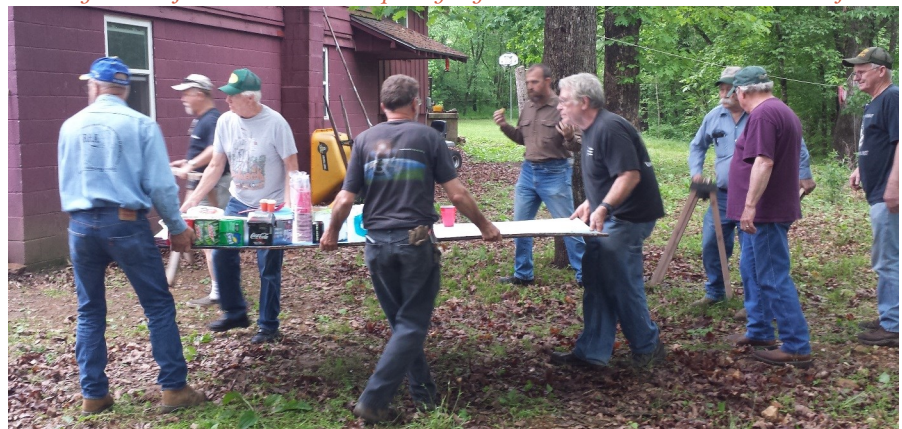


(Per Ron Wells, David Kernodle has joined BOA via a mailed application.)

Stosh has a long gas forge for sale.

Cheryl Miskell, NWBOA Secretary

A daring rescue of the lunch table was quickly organized when the weather threatened foul.





NE BOA member Danny Max Robb, Sr., died Sunday, April 19, 2015. BOA made a memorial donation in Danny's name to Danny's charity, The Children's Home of Paragould.

I WILL MISS DANNY ROBB

Ron Wells, BOA Treasurer and Coal Meister

This picture was taken last January. It was about 2 months after my son, Jacob, died and 3 months before Danny's death. We talked about Jacob and about Danny's mother who is in very poor health in a nursing home. I don't know if Danny even knew that he was dying of cancer. It would be just like him not to mention it, to be more concerned about others.

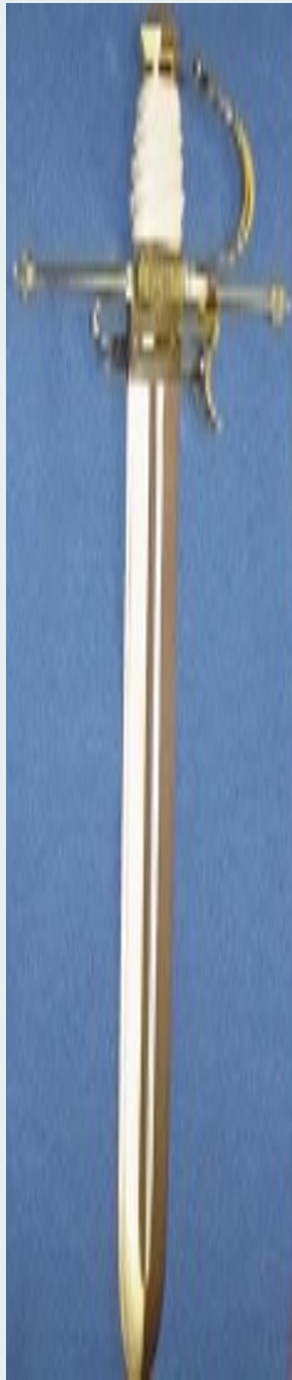
Danny was an early member of the NE Chapter of BOA. I didn't make it over to Jonesboro often, but I would take them coal every time I got a load from Vinita. I always enjoyed getting to their meetings and especially visiting with Danny. He was always willing to share his knowledge of machining. One time I was having trouble getting a small hex nut to hold welding it to a bar of steel. Danny told me that I could get nuts especially made for that purpose, but that the old fashioned square nuts would work and be a lot cheaper. Worked like a charm.

One time when I took coal over to their meeting, I brought six bags home unsold. Danny got wind of this and called me the next day. He felt terrible and apologized profusely for not taking the coal off my hands. He said that he didn't need any right then, but that he would use it eventually, and that it was a crime that I would haul it that far just to haul it back home. I told Danny that I appreciated that, but that it was no big concern. Danny was inconsolable. That's the kind of guy he was.

Along with his family and friends, I will miss Danny Robb.

Ron Wells

Editor's note: Danny was a very active supporter of the VOICE. He called me several times with friendly advice, but was just as quick to call for no other reason than to complement the newsletter staff on the work we were doing. When he listed that Colechester metal lathe in our classified ads earlier this year, he and I talked at length about his experience as a machinist. I found Danny to be full of interesting stories and generous with his advice. I, too, will miss Danny Robb.



WWW.SWORDSMITH.NET

You can find more about Mark Morrow and his swords at his website: www.swordsmith.net.

Mark has been making European, Roman, and Japanese swords for over 30 years, and is a recognized master of his craft.

But get your orders in now. He has a three year waiting list on commissions!



MARK MORROW, SWORDSMITH



As you saw in the NW chapter meeting minutes this month, we were fortunate enough to have Mark Morrow in town to do a demo for us. Mark grew up near Harrison, but now lives in New Jersey. He is still an active member of BOA, and was, in fact, a past president.

Mark makes his living as a swordsmith, and has built quite a reputation for himself. I have heard more than one expert claim that there is not another one-man shop in the world that can compete with the blades produced by Mark.

So we were very fortunate indeed to have Mark volunteer to demonstrate his trade to us in the form of a naval cutlass. As Dale explained last month, a naval cutlass is similar to a cavalry saber, only shorter and thicker to allow for the thicker melee and the need to clear away rigging, etc. on a naval vessel. A cutlass has edges on one side and on both sides near the point.

I arrived late, and when I arrived, the initial blank already had a tang and was already tapered slightly along its length. Mark was putting the point on the tip as I walked up. Mark was a wealth of information about every aspect of the process. For example, he pointed out that the point had a slight curve on the back side too—a historically accurate detail necessary for scabbarding the weapon without damage. He also discussed the techniques that were used in wielding this blade in battle, how they were stored aboard ship, and the differences between an officer's blade and those stockpiled for the crew.

Much to my surprise, Mark did not then start tapering the cross-section of the blade. Instead, he used a fullering jig very much like a Smithin' Magician to set a deep fuller along the length of the blade. Because the fuller was on the spine edge, the expanding metal gave the blade a reverse taper, curving inward *toward* the cutting edge. I don't believe anyone expected this.

At a certain point of fullering and curvature, apparent to Mark but not to the rest of us, Mark began drawing out the edge of the blade. Did I mention that this was all done with hand tools and strength of arm alone? Mark has power hammers in his shop, but seemed perfectly at home moving the metal the old-fashioned way.

Much to my surprise, the drawing out of the edge straightened the blade right back out, ending with the proper cutlass curvature. All without any forcing of the metal into position. It was easily apparent that Mark has been doing this a while.

At lunch, I asked Mark how long he has been blacksmithing (he began at thirteen). When I asked him about the first thing he



ever forged, it was, of course, a sword. He wanted one of his own, and couldn't afford even the cheap props available in magazines, so he made his own.

Of course, someone asked how much the blade he made today would go for. Mark said that, after adding the guard, hilt, and pommel, and polishing the blade, the cutlass would sell for around \$2400.00.

Not bad for a boy from Harrison!

Robert Fox, BOA Editor



PREVENTING SCALE AND PITTING WITH ... SOAP

I learned something from reading a very old book, over 100 years old, that has been useful and thought others might be interested.

Steel is more easily polished when soft than when hard. If you have something you need to not get scale on the modern solution typically is to put it in a heat treating furnace with a nitrogen atmosphere or to wrap it tightly in stainless steel foil when heating.

In an old book by J. G. Holstrom on the internet I came across something that has worked well on two knife blades I made. Holstrom said that if you wanted to not have an article scale, that you could put a thick paste of real soap on it before heating.

I did this once with Ivory soap and it worked well. The second time I didn't make a paste - - I heated the blade until it was hot enough to melt the soap, and melted soap all over the surface (it's a clear liquid when melted). Then I heated it to a hardening stage and quenched it, for both knives I did that in oil, but water might be used for some steels.

When I was done some of the coating came off where the steel was hardened, but not all of it. There was a black film that took a little buffing to get off, but there was absolutely no pitting on the surface. Ross Wilkinson has asked me about that in the past. This seems like an easy and viable solution. I assume he was heating those rounds you are providing as anvils ([editor's note—see classified adds, page 25](#)). I don't know how this would work on large objects, but you might want to go the route of making a paste first instead of melting a bar of soap, as you might bet a thicker coating.

Anyway, you still need to buff the piece to get the black off, but on a knife this worked great. I think, but have not tried, that it might be good for a larger object to melt the soap in a container like a steel can or an old frying pan or pot and paint the surface with the melted soap rather than have a paste with water. This is because the paste is a hassle to make and the melted soap seemed easier. Once melted on the blade the heating seemed just like normal, the soap was not apparent at a red heat. After quenching there is a black film, but it came off in many places where the metal was hardened. My last blade was differentially hardened - - The blade had the edge and point heated up to hardening temperature, but part of the blade was below. The part that was below the hardening temperature did not have much of the black coating flake off.



This coating should be made of carbon and sodium or potassium in some salt form. I know when the soap is made it an hydroxide, but after it saponifies the fat or oil I don't know what happens. I would not think the soaps with sodium laureth sulfate and hand cream in them would be as good, but only testing would find out. I had some old, hard, Ivory soap I used. Old fashioned home made soap might be better. I don't know about Fels naphtha laundry soap either. All are open for experimentation, but I will stick to Ivory as I know it works and it is inexpensive and a simple soap.

Bob Patrick—BOA Member



OUR COAL MEISTER COMETH

© Robert Meuser
5/8/2015

Listen my blacksmiths
And you shall hear
About our coal meister
We hold so dear

He trucks to Oklahoma
Through rain or snow
When we need coal
He's raring to go

He digs with his shovel
In coal so black
Dumps fifty pounds
In an old feed sack

He secures the bag
With a wire tie
Then brings it to the meetings
For you and I

We thank you Ron Wells
From the bottom of our hearts
We think you're the best
You're a good old fart





THE ROMAN GLADIUS

The earliest gladius was the Gladius Hispaniensis ("Hispanic sword"), which had a slight "wasp-waist" or "leaf-blade" curvature and an off-center tip.

From this early weapon evolved three styles of gladius. The Mainz variety came into use on the frontier in the early empire. It kept the curvature, but shortened and widened the blade and made the point triangular.

At home, the cheaper, but less battle-effective Pompeii version came into use. It eliminated the curvature, lengthened the blade, and shortened the point.

The Fulham was a compromise, with the straight edges of the Pompeii and the long point of the Mainz.



Top to bottom: the Fulham, the Pompeii, and the Mainz gladius

The Romans (who ensured that their own weapons were made with good steel) noted (in the 4th century BC) that the Celts of the Po River Valley had iron, but not good steel.

The Romans record that during battle, their Celtic opponents could only swing their swords two or three times before having to step on their swords to straighten them.

[Robert Fox—BOA Editor](#)



Some Legionnaires from CLASH 2008

LEE BURKS, LEGIONNAIRE

Lee Burks has been a frequent and welcome contributor to the VOICE. He is especially active on social media, and often sends me interesting things he has found.

After one such occasion, I asked him about his email address: britannus@windstream.net. It turns out that Lee, like many of our members, is active in the reenactment community. Only Lee is not involved in pioneer or Civil War reenactment. Lee has reenacted the Roman occupation of Gaul.

Billing themselves as "The premier iron-age immersion event in North America," this group meets each March at a walled Roman frontier fort, outlying buildings, and Celt village near Lafa, Arkansas. You can check them out online at www.ad43.org.

We will be discussing this group much more in an upcoming series on blacksmithing in the various reenactment communities. For now, I just wanted to take the time to discuss Lee's connection with Mark Morrow.



Lee at camp, manning the wall.



Lee's first century reenactor's kit. Mark made the sword. Lee made the hilt, the bone grip, and the sheath.

"I'll never forget getting killed by the Celts ... Good times!"

- Lee Burks

Like any reenactor, a Roman Legionnaire needs authentic equipment—and those Roman's carried around a LOT of equipment. Lee believes that his Mainz-pattern gladius was the first Roman-era sword Mark ever made.

Mark now makes and sells not only just the Mainz-style Roman gladius, but the Pompeii straight blade, the Hisspanis of the Spanish Legions, the gladiator's Pugios, as well as various spears (pilum) and shield bosses. The picture below shows some of his recent work.



A Roman gladius with bone handle recently made by Morrow, one of many designs he reproduces.



Apparently, even in the Roman Legions, a blacksmith had to first make a tool to make a tool...

Bob Patrick has also assisted Lee to reproduce authentic armor. When Lee needed a metal-shod staff for a flag/standard that would be driven into the ground, Bob forged the special bick that Lee used to make the tapered "ferrule" - the metal cone at the base of the staff.

Morrow told Lee to begin curling the piece using a cross-peen and the step of the anvil. The final shaping and smoothing is done using the bick.

Lee has also collaborated with Morrow on some Japanese weapons. Morrow forged and tempered the blades for Lee's katana and wakizashi. Lee made the sheaths (saya) and guards (tsuba). Morrow made the fittings and did the handle wrap (tsukamaki).

These are 5160 spring steel, clay coated for a true hamon temper line. Lee has cut rolled tatami mats with the katana, and says that it is superior to most of the modern made blades you can find.

[Robert Fox—BOA Editor](#)



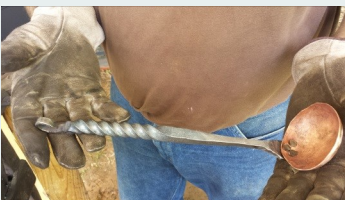


NEXT CAC BOA MEETING

The next Central Arkansas Chapter meeting will be at the home of Tim Huddleston in Bryant on Saturday, June 20th, from 9:00 am to 3:00 pm.

Tim Huddleston
 1200 Maple Acres
 Benton, AR, 72019

The trade item is a pair of scrolling tongs, with either straight or bent tips.



CENTRAL BOA MAY MEETING MINUTES



The Central Arkansas Chapter of the Blacksmith Organization of Arkansas (CACBOA) met on Saturday, May 16th at the forge of Thurston Fox (my father) in Mayflower. We had 11 members, including two who had joined this month. The weather had been predicted to rain all day, but it turned out quite nice!

This was the first meeting at Thurston's new forge location. The shop is so new that the grass is still green under the anvil and forge. We literally finished setting everything up the evening before—meaning I had no trade item—very embarrassing for the host of the meeting...

The project was “making a ladle or spoon from a plan” (see project notes, next page). A lot of the stuff we make is more art than precision. There's certainly a place for that, but I thought it would be interesting to be given a precisely measured plan to follow. There's a lot to be said for the ability to follow a shop drawing.

The exercise went better than expected. I'm a bit ashamed to say now that I had any concerns at all. Our CACBOA members took to the plans as if they were all a little OCD, and the results turned out wonderful. I guess it's true what they say—that you don't know what you're capable of until you try. This is a huge difference in skill level from the same group even a year ago. I'm very excited to be among a group who are gaining in skill so rapidly. I'm looking forward to great things!

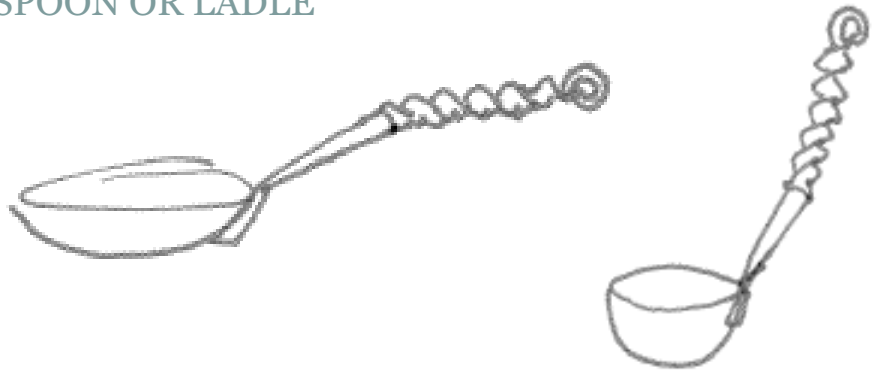
Robert Fox, CACBOA Secretary

PROJECT NOTES—A SPOON OR LADLE

Author: Robert Fox, BOA

Materials

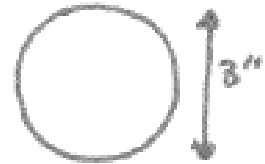
- 1 8" length of 1/2" square stock
- 1 Copper or steel sheet 3" x 3"
- 3 20-penny nails



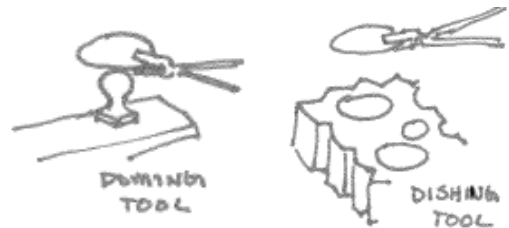
Directions

BOWL

1. Cut a 3" circle from a sheet of copper or steel. An easy source for small quantities of copper sheet is copper pipe. I bought a 2-foot section of 1" diameter copper pipe from my local big-box hardware store for well under \$10. Heat the copper in your forge until it begins to glow, then take it out and quench it. Make sure and use tongs—heat conducts along copper much faster than steel. You might be able to grab one end of a two-foot steel bar barehanded when the other end is in your forge, but heat will conduct to the end of the copper pipe much faster than it would in steel. Also unlike steel, copper doesn't re-harden when you quench it in water, so dunk that hot copper pipe in water then open it up with tin snips—you will be amazed how easy it is to cut! Oh! And don't bother with a compass—a regular soup can is just about 3" in diameter. Just remember to put it back in the pantry when you're done. File or sand the outer edge of the circle smooth.

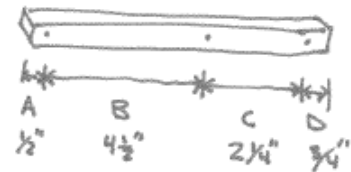


2. Using a doming tool or a dishing swage, form the bowl from the circle of sheet metal. If using a dishing swage, use the ball end of a ball-peen hammer. Start in the center and spiral outward. Keep returning to the center and starting again. You can tell when you are getting close, because the tapping will not longer sound hollow. Watch out for "folds" appearing on the outer edge. Catch them before they get too large and use the hammer to lay the metal back flat. Keep in mind that as you finish one section of the bowl, you can pull a previously finished section back. Keep going around until you are sure the entire bowl is completed. I have seen people make doming tools from trailer hitches, but I have not yet used one myself, and am not sure of the proper technique to use. I am told that the major difference between them is that a dishing tool "spreads" the metal, making it thinner and weaker in the process. Used properly, a doming tool can actually compress the sheet metal, making it thicker. Medieval armorers used both dishing and doming to control both the shape and thickness of the armor. For a spoon, you only need to dish about 3/4" deep. For a ladle, try for closer to 1 1/2" deep (a half-sphere). When going for a deep bowl, it may be easier to start on a shallow depression and work your way up to a deeper one. The sheet metal, even soft copper, can work-harden. Reheat (and, for copper, re-quench) as needed.
3. When the bowl is complete, use a file to smooth the edge of the bowl again. The process of shaping the bowl may have stretched the metal unevenly, leaving high and low spots. File the bowl flat and remove any sharp edges.



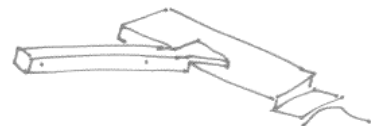
HANDLE

1. Using the 8" section of 1/2" square stock, use a center-punch to mark off the material into four sections:
 - A. 1/2" long. This will be the loop at the end of the handle
 - B. 4 1/2 inches long. This will become a decorative twist
 - C. 2 1/4 inches long. This will become a taper from the twist down to the bowl
 - D. 3/4 inches long. This will become the "flat" at the end of the handle that will be used to rivet to the bowl.

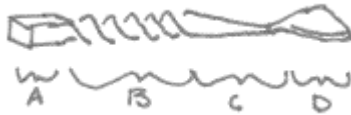
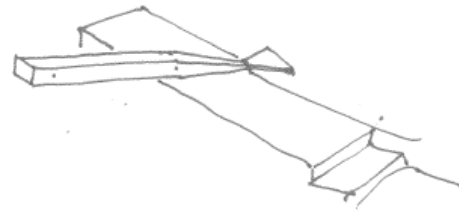


Only mark one side. This can be done cold.

2. Use the near edge of the anvil to set a shoulder in the section marked D, above. Do not dress the stock—allow it to spread into something of a fishtail. Flatten it to about 1/8" thickness—about the thickness of a nickel.



- Use the far edge of the anvil to taper section C. The taper should begin as the full width of the stock, and end the same thickness as section D. Hang the previously finished section D off the far side of the anvil so that you don't hit it. Make the taper a square cross section throughout. When the square taper is finished, you can then bring it to a round cross section if desired.



- Heat and put a twist in section B. Leave section A un-twisted.

- Using the near edge of the anvil, set a shoulder in section A. Keep the twist off the anvil to avoid damaging it. Dress the shoulder on both sides as you go, until it is a 1/4" square cross section.

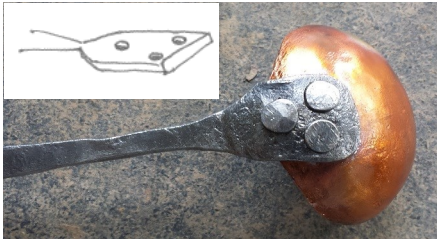


- Form section A into a loop.



RIVET

- Using a center punch on cold stock, mark two or three rivet locations, then punch or drill holes sized for a large nail diameter. You can use the chart, at right, to see the common sizes ranges for nails. For a 20d nail (a little over \$3 a box at the local big-box hardware store), use a #8 or #9 drill bit. Non-galvanized nails make good rivets.



Specifications, Common Nails				
Size	Length,"	Diameter	Min	Max
2d	1	0.072	0.070	0.074
3d	1 1/4	0.080	0.076	0.084
4d	1 1/2	0.090	0.095	0.103
5d	1 3/4	0.099	0.095	0.103
6d	2	0.113	0.109	0.117
7d	2 1/4	0.113	0.109	0.117
8d	2 1/2	0.131	0.127	0.135
9d	2 3/4	0.131	0.127	0.135
10d	3	0.148	0.144	0.152
12d	3 1/4	0.148	0.144	0.152
16d	3 1/2	0.162	0.158	0.166
20d	5	0.192	0.188	0.196
30d	4 1/2	0.207	0.203	0.211
40d	5	0.226	0.222	0.230
50d	5 1/2	0.244	0.240	0.248
60d	6	0.262	0.258	0.266

The 20-penny nail (above) shows a maximum diameter of 0.196". A #9 drill bit is 0.196" (see chart on opposite page). For a bit looser fit, you might want to bump up to a #8 drill bit, which is 0.199".

- Using the doming or dishing tool you used to create the bowl, form the end of the handle so that it "fits" the bowl.
- Placing the handle on the bowl where you want it, mark the locations of the holes on the bowl with a marker, then set the handle aside and remark with a center punch. Punch or drill the holes. The center punch mark will help keep the drill from wandering.
- Cold rivet the two parts together. It is easier to support the existing head on the outside of the bowl and form the new head on the inside. You may find it easier to set the ball of a ball peen on the rivet like a top set, then strike the peen with another hammer. It isn't usually a good idea to hit tool steel with tool steel, but you won't need to hit it very hard.
- Finish as desired. If you are going to actually use it, use a food-safe finish like beeswax.



Tim Huddleston's meeting project. I'm taking credit for supervising...





Precision, Quality and Innovation...
Since 1880

INCH/METRIC TAP DRILL SIZES & DECIMAL EQUIVALENTS

DRILL SIZE	DECIMAL EQUIVALENT	TAP SIZE	DRILL SIZE	DECIMAL EQUIVALENT	TAP SIZE	DRILL SIZE	DECIMAL EQUIVALENT	TAP SIZE
	.0135		10	.1935				
	.0145		9	.1960				
	.0156		8	.1990				
	.0160		7	.2010	1/4 - 20			
1/64	.0177		6	.2031				
	.0180		5	.2040				
	.0200		4	.2055				
	.0210		3	.2090	1/4 - 28			
	.0225		2	.2130				
	.0240		1	.2188				
	.0250		A	.2210				
	.0260		B	.2280				
	.0280		C	.2340				
	.0292		D	.2344				
	.0310		E	.2380				
1/32	.0312		F	.2420				
	.0320		G	.2460				
	.0330		H	.2500	5/16 - 18			
	.0350		I	.2570				
	.0360		J	.2610				
	.0370		K	.2656				
	.0380		L	.2660	5/16 - 24			
	.0390		M	.2720				
	.0400		N	.2770				
	.0400		O	.2810				
	.0410		P	.2812				
	.0420		Q	.2900				
	.0420		R	.2900				
	.0430		S	.2950				
3/64	.0465	0 - 80	T	.2969				
	.0469		U	.3020				
	.0520	1 - 64, 72	V	.3125	3/8 - 16			
	.0550		W	.3160				
	.0595		X	.3230				
1/16	.0625		Y	.3281				
	.0635		Z	.3320				
	.0670	2 - 56, 64		.3390				
	.0700			.3438				
	.0730			.3480				
	.0760			.3580				
5/64	.0781	3 - 48		.3594				
	.0785			.3680				
	.0810			.3750	7/16 - 14			
	.0820	3 - 56		.3770				
	.0860			.3860				
	.0890	4 - 40		.3906				
	.0890	4 - 48		.3970				
	.0935			.4040				
3/32	.0938			.4062				
	.0960			.4130				
	.0980			.4219				
	.0995			.4375				
	.1015	5 - 40		.4531				
	.1040	5 - 44		.4688				
	.1065	6 - 32		.4844				
7/64	.1094			.5000				
	.1100			.5156				
	.1110			.5312				
	.1130			.5469				
	.1160	6 - 40		.5625				
	.1200			.5781				
1/8	.1250			.5938				
	.1285			.6094				
	.1360	8 - 32, 36		.6250				
	.1405			.6406				
9/64	.1406			.6562				
	.1440			.6719				
	.1470	10 - 24		.6875				
	.1495			.7031				
	.1520			.7188				
	.1540			.7344				
	.1562			.7500				
	.1570			.7656				
	.1590	10 - 32		.7812				
	.1610			.7969				
	.1660			.8125				
	.1695			.8281				
11/64	.1719			.8438				
	.1730	12 - 24		.8594				
	.1770			.8750				
	.1800			.8906				
	.1820	12 - 28		.9062				
	.1850							
	.1875							
3/16	.1890							
	.1910							

METRIC TAP DRILL SIZES		
METRIC TAP	TAP DRILL (mm)	DECIMAL (Inch)
M1.6 x 0.35	1.25	.0492
M1.8 x 0.35	1.45	.0571
M2 x 0.4	1.60	.0630
M2.2 x 0.45	1.75	.0689
M2.5 x 0.45	2.05	.0807
M3 x 0.5	2.50	.0984
M3.5 x 0.6	2.90	.1142
M4 x 0.7	3.30	.1299
M4.5 x 0.75	3.70	.1457
M5 x 0.8	4.20	.1654
M6 x 1	5.00	.1968
M7 x 1	6.00	.2362
M8 x 1.25	6.70	.2638
M8 x 1	7.00	.2756
M10 x 1.5	8.50	.3346
M10 x 1.25	8.70	.3425
M12 x 1.75	10.20	.4016
M12 x 1.25	10.80	.4252
M14 x 2	12.00	.4724
M14 x 1.5	12.50	.4921
M16 x 2	14.00	.5512
M16 x 1.5	14.50	.5709
M18 x 2.5	15.50	.6102
M18 x 1.5	16.50	.6496
M20 x 2.5	17.50	.6890
M20 x 1.5	18.50	.7283
M22 x 2.5	19.50	.7677
M22 x 1.5	20.50	.8071
M24 x 3	21.00	.8268
M24 x 2	22.00	.8661
M27 x 3	24.00	.9449
M27 x 2	25.00	.9843
M30 x 3.5	26.50	1.0433
M30 x 2	28.00	1.1024
M33 x 3.5	29.50	1.1614
M33 x 2	31.00	1.2205
M36 x 4	32.00	1.2598
M36 x 3	33.00	1.2992
M39 x 4	35.00	1.3780
M39 x 3	36.00	1.4173

PIPE THREAD SIZES (NPS)			
THREAD	DRILL	THREAD	DRILL
1/8 - 27	11/32	1 1/2 - 11 1/2	1 3/4
1/4 - 18	7/16	2 - 11 1/2	2 7/32
3/8 - 18	37/64	2 1/2 - 8	2 21/32
1/2 - 14	23/32	3 - 8	3 1/4
3/4 - 14	59/64	3 1/2 - 8	3 3/4
1 - 11 1/2	15/32	4 - 8	4 1/4
1 1/4 - 11 1/2	1 1/2		

Bulletin 1214-SM/S 05/10

starrett.com

I once made a pineapple-twist stand to display an interesting old gear on a bookshelf. I wanted to tap a threaded hole in the bottom to secure it to a wooden base. I had a 1/4" bolt and a 1/4" tap, so I drilled a 1/4" hole, only to find the hole was too large for the tap. I now use this chart, provided free by Starrett, to tell me what size drill bit to use when I'm trying to put in threads.

The chart can be combined with the nail sizes on the previous page to pick drill sizes for nails. For instance, the previous page tells us the maximum 16 penny nail diameter is 0.166 inches. Using the chart on this page, I see that that would be a number 19 drill bit. I don't happen to have a #19, but I do have 11/64. If I didn't have that, I would probably move up to a loose 3/16.



THE HISTORY OF BLACKSMITHING IN ARKANSAS

Our Traditions series on famous blacksmiths has covered many remarkable smiths to whom our craft owes a great deal: Cyril Colnik's tradition of artistic excellence, Samuel Yellin's tradition of large scale, high-quality production; Francis Whitaker's tradition of precision training in fundamental skills, and the Bowie Knife tradition that originated with James Black.

But the man we are featuring this month best exemplifies the tradition I would most like to incorporate in my own life—a tradition of character.

Very little today is known about this man, other than that his religious, moral, and social convictions played as large a part in his blacksmithing as his artistic beliefs. He truly felt that his vocation was forging men, as much or perhaps more than forging iron. More than showing these boys how to shape metal, he was showing them by example how to shape their lives.

I hope I can learn from the legacies of all of the smiths we have featured, that I am one day known as a smith of great skill and artistry, but, when the fires of my forge grow cold at the end of my years, what I hope most is that I will have been known as a man of character.

The thing that I most want to make is a difference.

Robert Fox—BOA Editor

(Continued from front cover)

BLACKSMITH TRADITIONS: THOMAS GOOGERTY

Editor's note: Unlike most articles in this series, this is not a compilation, but a word-for-word extract from the publication "Forging Character, Forging Iron: The Work of Thomas F Googerty" by Howard S. Miller, copyright 1999 National Ornamental Arts Museum. This extract has been made available to ABANA and its affiliates through the courtesy of the National Ornamental Metal Museum.

By 1938 Tom Googerty had been forging iron and men at the Illinois State Reformatory for nearly half a century. His calling stemmed from native talent and personal choice, channeled by broad-ranging progressive reform movements that energized many Americans at the end of the nineteenth century.

Several movements converged to give Googerty's career purpose, direction, and a social setting. A humanitarian urge to save children from poverty and crime focused on a newly-named social malady, "juvenile delinquency," and invented new juvenile courts and reformatories to cure it. An educational crusade to integrate thinking and doing prompted the creation of manual training programs throughout the country. An aesthetic revolt against declining quality and taste in an age of mass production found expression in an artistic movement called Arts and Crafts.



Thomas F. Googerty (1864-1945)

Chicago was a hotbed of these overlapping progressive reforms, and the city's cultural influence spread out across the prairies of northern Illinois. Pontiac, a county seat farming community of a few thousand people and no paved streets, was nearly a hundred miles southwest of Chicago but just hours away on the Chicago and Alton Railroad main line. However rural its setting, Pontiac lay well within Chicago's expansive cultural sphere.

Thomas Francis Googerty was born in Pontiac about 1863 (in later years he claimed various birth dates) to a barely literate Irish immigrant family. His father, Thomas, worked for the railroad; his mother, Mary, kept house and occasionally took in boarders, and probably laundry. Tom junior was the second child and the first son, born a year after his sister Jennie. Younger brothers Andrew and William followed Tom a year apart.

Thomas senior died in 1865, leaving Mary with little besides four young children and a modest house next to the tracks. She somehow eked out a living and sent the children to St. Mary's Roman Catholic Parochial School. Home and school doubtless instilled the religious devotion, social conscience, and moral rectitude that governed Tom's adult life. Pontiac offered him growing-up space that was small enough to be nurturing but large enough to give an



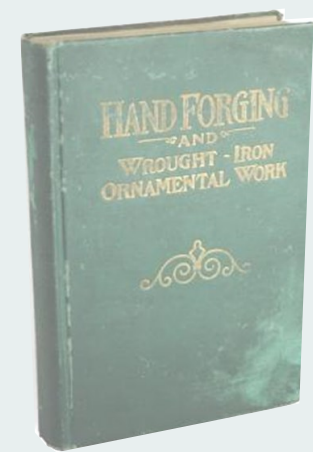
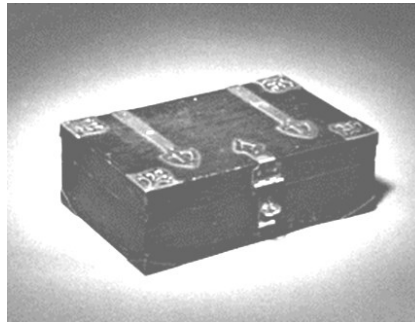
There were parts of the Illinois criminal justice system which operated on a "for profit" basis, selling products and services of the inmates. In many cases, as you might imagine, this was a system prone to abuse. But Googerty's studio operated outside that system, simply as a school. The items produced by his students were exhibited, but never sold. Because of this, the artifacts themselves are quite rare, and the photography not up to today's publications' standards. Nevertheless, you can still make out enough detail to marvel at what mere boys were able to accomplish under his tutelage.

inquisitive child a hint of the wider world. All four Googerty children matured into popular, successful adults who traveled widely but continued to live at home with their mother. None of them ever married.

By 1880 Tom was working in a local blacksmith's shop. Sometime during the 1880s he left Pontiac on his journeyman's quest, traveling the country, practicing his trade. Chicago would have been a natural destination, a booming nearby city with plenty of smithing work and an active arts community.

Where Tom journeyed during the '80s and early '90s remains unclear, but he must have spent as much time in museums, schools, and libraries as he did at the forge. By the time he returned to Pontiac in 1894 Tom had transformed himself from a skilled small town blacksmith into a sophisticated master craftsman. Somewhere in his travels he had steeped himself in the traditions of medieval European ironwork and embraced the most energetic social and cultural reform movements of the day.

By 1910 Tom was gaining a national reputation as a manual arts teacher and exhibiting artist. He approached his teaching, writing, and craftsmanship as complementary parts of one creative whole. Pieces initially made as instructional examples appeared later in museum exhibits and as



BOOK REVIEW

Written as a text book by Thomas Francis Googerty one hundred years ago at the end of the horse drawn era and the beginning of the modern industrial era.

Beginning in 1910, Googerty spent seven years at the University of Wisconsin-Stout teaching forge work. Googerty wrote and illustrated several books on metalworking and received both national and international prizes for his artwork. These were the texts Googerty used to teach blacksmithing.

"Art, in its best sense, may be expressed in iron as in the more noble and precious materials" - Thomas Googerty

illustrations in Googerty's three books and nearly fifty published articles. For years the influential American Blacksmith featured pictures of ISR ironwork as exemplars of taste and craftsmanship, "exquisite in their apparent simplicity." Stout Institute, a major manual training school in Menomonie, Wisconsin, invited Googerty to teach during the summers between 1911 and 1913. Another measure of his growing artistic reputation was his 1914 election as a Craftsman (and later Master Craftsman) member of Boston's prestigious Society of Arts and Crafts.

Editor's note: The "ISR" mentioned in this article is the "Illinois State Reformatory," a juvenile detention center for boys.

Googerty usually taught about thirty students at a time, who split their days between the classroom and the shop floor. His full course ran about 18 months. Only a few inmates had the natural aptitude or interest to benefit fully from a Googerty apprenticeship. His inmate-artisans were a cross-section of the general reformatory population, which during his years generally fluctuated between one and two thousand. Almost all ISR inmates were teenagers, though many were under twelve and some were as young as eight. The majority were incarcerated for burglary or larceny, or simply as juvenile delinquents who had gotten into trouble once too often. About five per cent were African American, more often than not from southern Illinois.

Googerty probably first showed his and his student's work in the ISR display rooms. He soon reached a wider audience, exhibiting at the annual juried Arts and Crafts fairs sponsored by the Art Institute of Chicago. He exhibited there almost every year between 1906 and 1921, winning Chicago Municipal Art League prizes in 1914 and 1921. His ISR ironwork exhibits were also a hit at the 1905 Illinois State Fair and at other regional arts events well into the 1930s. A panel of ISR student work won a "best-of-show" gold medal at the 1915 Panama-Pacific International Exposition in San Francisco.



Tom Googerty usually wrote simple, how-to-do-it instructional prose. Occasionally, however, he tried to express the aesthetic that guided his artistic vision and artisan's hand. Googerty believed that a blacksmith earned the right to be called an artist if he acted on the "universal, divine impulse within us...to make things beautiful." The artist-blacksmith was one who "understands and follows God's law, Truth, the laws of Nature, the laws of Art, and abides by the possibilities and limitations of this sturdy, honest material."

Googerty's aesthetic principles

Continued on page 22



Fig. 15. Upsetting by Ramming

The illustrations in Googerty's books are landmarks of blacksmithing process. Many have been reproduced or copied in other works. Where other books of the era showed tools and equipment Googerty's books show processes as well as examples and layout methods.

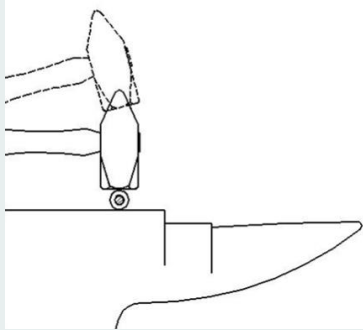
Much of the work, especially the lamps, are classic Arts and Crafts style.

This is a classic how-to book of the time and one must adjust the methods to modern sensibilities. The book calls for use of lead and other materials we now avoid in the home shop. Nevertheless, it deserves a place on every smith's bookshelf.

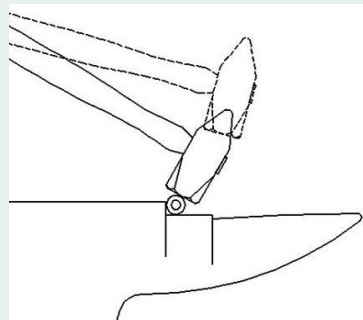


REDUCING/ENLARGING THE DIAMETER OF A PIPE OR TUBE

This tip was demonstrated by Bob Patrick at the 2012 Saltfork Craftsmen Artist Blacksmith Association (SCABA) conference, and used with permission from their February 2015 newsletter.



To enlarge a pipe or tube, forge pipe on the anvil face with a close fitting mandrel in the core while rotating the piece. The material will be expanded along the circumference of the pipe resulting in an increased diameter



To reduce a pipe or tube, forge in the step of the anvil or in a V-shaped swage while rotating. In this case, a close fitting mandrel is not needed unless you want it to become semi-permanently fixed in the pipe with a shrink fit.



stressed honesty and integrity; graceful line, form, and due proportion; and creativity grounded in Nature and History.

Honesty and integrity governed the relationship between the worker and the work. Googerty drew particular inspiration from German and Belgian ironwork of the 12th to 17th centuries, in part because he believed that in medieval times the craftsmen had also been the designers. Art and technique had fused naturally at the Gothic forge.

The modern factory, however, had alienated the "studio trained artist" from the "shop trained man." The former could dream but not do, the latter do but not dream. Unlike some handcraft purists, Googerty did not object in principle to laborsaving machinery. He did insist, however, that hand work had "a beauty which the machine cannot produce."

Honesty and integrity also demanded a natural fit between material and object, form and function. Because iron was a crude, sturdy metal most often used for everyday things, ironwork should be "fashioned into shapes that are suitable and practical for the material." Ornamentation should relate to use, as in the case of visible rivets and decorative bolt heads that served both as fasteners and design statements.



Googerty particularly disliked efforts to mimic Nature. He insisted that delicately wrought iron rose petals and realistic leaves might show off technical virtuosity, but failed as art. "Nature does not furnish us with readymade designs.... It is impossible to utilize things in nature...without the play of human invention and imagination." The true artist-blacksmith "conventionalized" organic forms. "We simply use things in Nature as a motif to get our ideas," he explained, "and arrange them according to fixed rules and principles."

The rules and principles were the traditional (Googerty would have said universal) notions of ordered line, mass, form, and due proportion that had characterized Western art since the time of the Greeks. Within these bounds the artist-blacksmith should let invention play.



Decorative arts make more sense in their historical and social settings than they do in the splendid isolation of museum displays. Tom Googerty's peculiar workplace helped shape his art because it largely insulated him from market forces and critics' jibes. His forge shop was not part of the malingering ISR contract labor system, so none of its products were for sale. Since there was no commerce in ISR ironwork it had no ascertainable cash value. Both literally and figuratively priceless, the products of Googerty's shop were peculiarly pure art, valuable only for the intangible pleasures they gave to those who made and later enjoyed them.

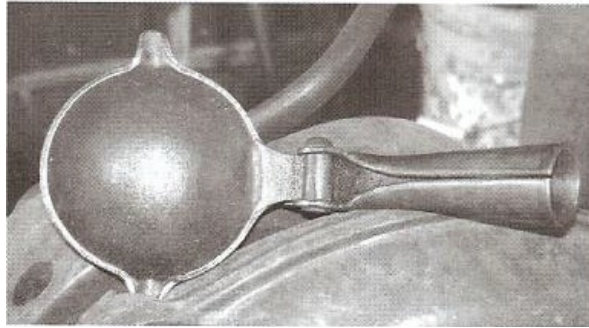
If material conditions affected Googerty's creative output, artistic fashion helped shape his style. His time, place, and taste all put him squarely within the genre called Arts and Crafts. English in origin, Arts and Crafts was less a coherent movement than a set of widely shared attitudes toward art and life. It gained momentum in the late 1880s and quickly spread to the United States.



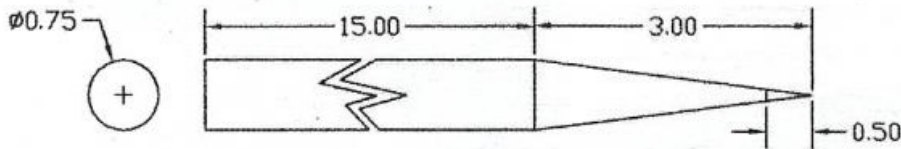
PROJECT NOTES—FOLDING LEAD SPOON

Author: Jim Stuart. Used with permission from the Michigan Artist Blacksmith Association (MABA) newsletter, May, 2015

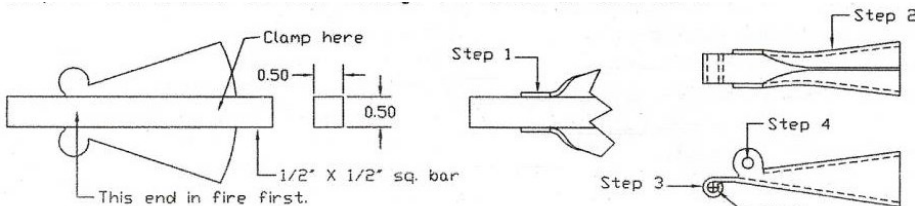
Black powder muskets/rifles often came with a bullet mold and lead spoon to be used to manufacture custom bullets. As a hunting or military weapon, the tools would have to be designed to travel easily.



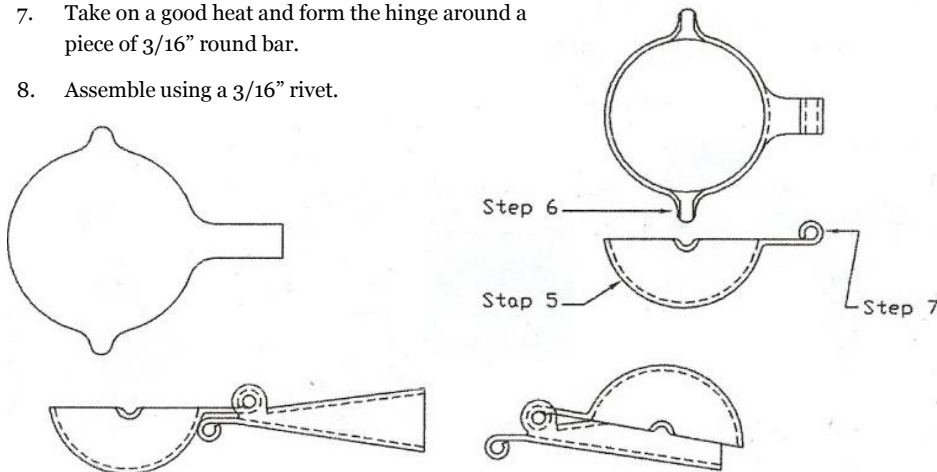
Before you can start your lead spoon you will need to hammer out a mandrel. Start out with a piece of 3/4" diameter by 16" round bar. Hammer out a 3" long taper, then cut the first 1/2 off.



1. Down the center of your handle blank clamp a piece of 1/2" square bar. Place the end of the handle blank into the fire, with the square bar on top. After the end takes on a red heat, place in a vice and hammer the two ears around the 1/2" square bar.
2. Place the handle back in the fire. Take on a good heat and then hammer the opposite end around the mandrel.



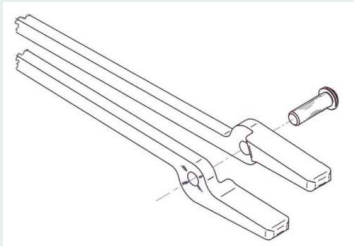
3. Take on a good heat and form the stop around a piece of 3/16" round bar.
4. Drill a 3/16 hole through the center of both ears.
5. Take on a good heat and hammer the bowl shape into the spoon blank. This can be done with a swage block or a wood block with a bowl-shaped depression and a ball peen hammer.
6. Take on a good heat and form the pour spout into the spoon blank. This can be done using a swage block or a wood block with a small half-round or V-shaped depression and a cross-peen hammer.
7. Take on a good heat and form the hinge around a piece of 3/16" round bar.
8. Assemble using a 3/16" rivet.



RIVETTING INFORMATION

Here's a tip from the May 2015 Saltfork Craftsmen Artist-Blacksmith Association to take about half the slack out of the tongs' riveted joint. A small chisel or an old star drill (hand concrete drill) is used to cut small notches at the outside of a hole in the joint. It is best to make these cuts on the side of the tongs that will have the rivet headed. These notches prevent the headed rivet from rotating in that side of the tool.

Notching other single riveted joints, such as the legs connected to a campfire cooking trivet, works nearly as well as a square rivet in preventing unwanted rotation. For the trivet legs, chisel cut both the ring and the legs; heat and forge both ends of the rivet.



Chisel Cuts (one side only) lock the headed rivet from turning in this half of the joint.



GET A HANDLE ON IT

April 2015 Pittsburgh Area Artist-Blacksmiths Association

Did you ever need a project you could forge in a quick amount of time? This could be your next favorite!

Using 4" x 4" x 1/4" tubing, cut a thin "slice, approximately 1/4". Heat and flatten. Twist and shape!



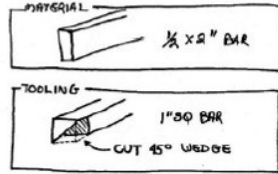
PROJECT NOTES—SCROLLING WRENCH

Author: Mark Hopper. Illustrations: Jim Guy. Used with permission from the *The Hammer's Arc*, the Alex Bealer Blacksmiths of Georgia.

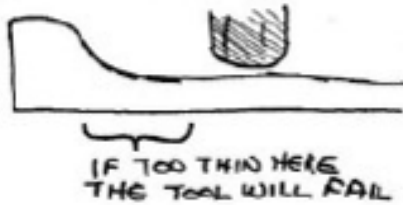
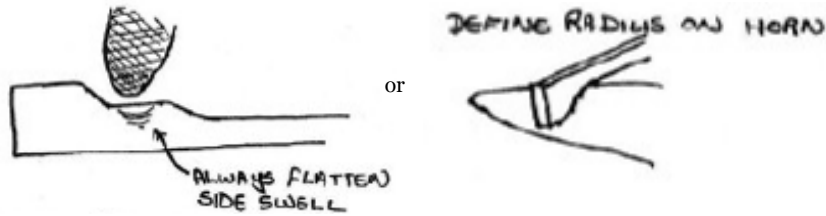
Like you, I have used modified adjustable scrolling wrenches, BUT this tool is traditional, beautiful, and worth making as it is an excellent lesson in forging!

For the scrolling wrench itself, you will need a 12" x 2" bar.

You will also need a 1" square bar to make a tool you are going to need. Cut or grind a 45 degree bevel in one end as shown, approximately 1" deep into the stock.

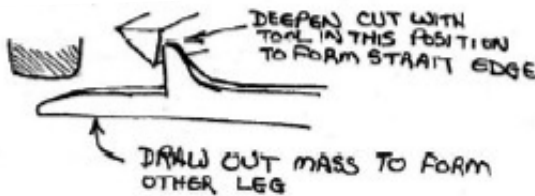


1. Draw out the handle using a fuller or the horn of the anvil. Keep the sides dressed to its original dimension.

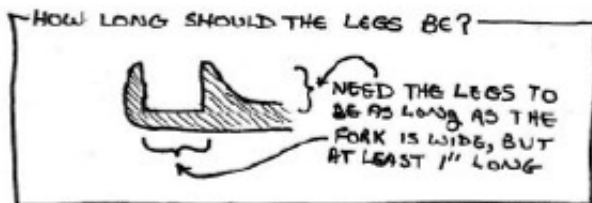


2. Work your way down the handle, leaving the stock thick enough to withstand the bending force it will be subjected to when used (1/2" x 1/2" minimum)

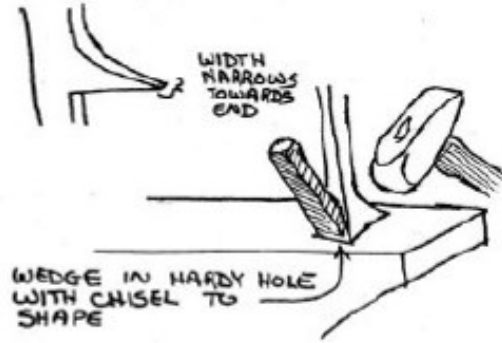
3. Begin forming the fork, using the tool described above



4. Draw out the legs of the fork. The legs should be at least one inch long.



- 5. Shape the first leg taper using the hardy hole of your anvil.



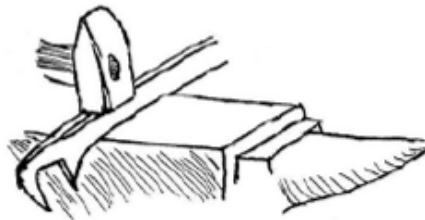
- 6. Draw out the other point



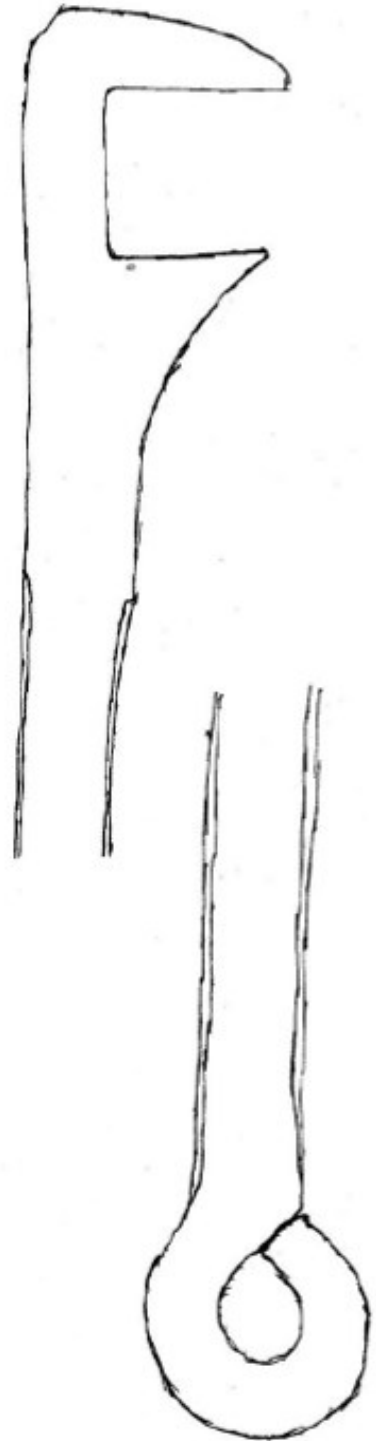
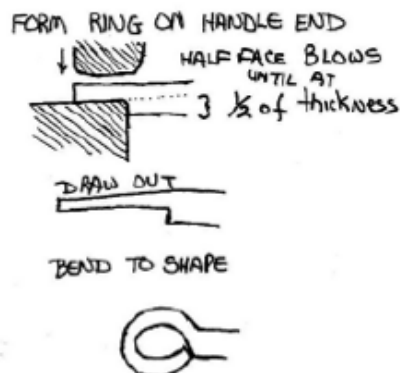
- 7. Bend the front fork down over the appropriately sized stock, then like up the forks and square the shoulders.



- 8. Chamfer the handle.



- 9. Draw out stock for a ring on the end of the handle, and bend to shape



Blacksmithing Demo

Saturday, June 20th 2015

Have you ever wondered how early settlers, such as Benjamin Crowley, made their own silverware, knives, outdoor cooking utensils, and weapons?

Have you ever wanted to learn the skills yourself?

Here's your chance!



BOA, an affiliate of Artist-Blacksmiths Association of North America-ABANA, is a Jonesboro chapter that teaches interested parties about the skills, techniques, and traditions of blacksmithing. They aspire to expose the art of blacksmithing to the public and to serve as a center of information about blacksmithing and its tradition. During this demonstration, participants will be able to watch and enjoy the art of this historic life form.

There will also be information about how to join the group.

This free demonstration will be held in the picnic area at Crowley's Ridge State Park from 10:30-3:00. Participants are encouraged to bring a sack lunch and lawn chairs. There will be signs pointing to the correct picnic area.

Elizabeth Whaley, Park interpreter at Crowley's Ridge State Park, created and is distributing this flier. Way to go, Northeast!

THE TAILGATE—CLASSIFIED ADS

FOR SALE

COAL FOR SALE

50 pound bags.
BOA Members price \$8/bag
Non-member price \$10/bag
Contact Coal-Meister Ron Wells, or see your chapter steward.



ROUND ANVILS

Ross Wilkinson has some very nice round sections of 1053 with the surface smoothed and hardened. They range from around 145 lbs to 180 lbs and he is selling them for \$1 per lb. Send an email Arw3rd@hotmail.com



ANVILS ETC. FOR SALE

Bob Lock has Forges, blowers, anvils, post vises, post drills, welding flux, hardies, etc. Call to see if he has what you need.

Call 417-847 6708 (Shell Knob, Missouri)

WANTED

HIT-AND-MISS ENGINES

Bryan Parsons sold that 350 lb bridge anvil, but is looking for hit-and-miss engines. If you have a lead for him, call 479-957-5498. Word is that Bryan also has some salvaged metal available.

EDUCATION



NEW FOR FALL BLACKSMITHING CLASSES

Bob Patrick is teaching a course at his shop through the Arkansas Craft School November 7-9. Those who are interested should contact the Arkansas Craft School at <http://arkansascraftschool.org> for cost and to sign up.

This will be a beginning course. Bob will be taking only 4 students, each of which will have a separate forge, anvil, and hand tools.

Bob will be glad to discuss any particular type of work a prospective student is interested in if you email him at bobpatrick@southshore.cc

EVENTS

Crowley's Ridge State Park

Saturday, June 20, 2015
When: 9:00 am until 3:00 pm

Fellow Smiths, it's time for us to show up and demonstrate for the public.

I will start loading the trailer Wednesday, June 17th with our portable forge, stumps and anvils, metal and coal. Start gathering up your tools and anything that you have made to put on a table to talk to people about.

Let's make this a fun day at the park for us (bring your family) and have all our members there. If we have lots of members there then we can be forging and talking to the public. Let's plan on grilling, bring what ever you want to eat. If the kids want to go swimming there's a really neat little lake there for them to swim in.

I look forward to see everyone there. Call other members and remind them.

Jim Soehlman
NEA BOA Secretary

[See flier, previous page](#)

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Contact the editor at editor@blacksmithsofarkansas.org
All content is subject to editorial review.

MEMBERS

Ads are free to BOA members.

NON-MEMBERS

Advertising for non-members is charged on a per-issue basis based on the size of the ad and whether it is in color or black and white only, per the chart below.

	Number of Issues	Page Size			
		Full	Half	1/3	1/6
B&W	1	\$51.00	\$28.38	\$19.06	\$10.44
	4	\$48.06	\$26.63	\$18.00	\$9.75
	8	\$45.50	\$25.00	\$17.00	\$9.25
Color	1	\$82.19	\$50.25	\$29.50	\$15.69
	4	\$79.31	\$48.50	\$28.44	\$15.00
	8	\$76.44	\$46.75	\$27.38	\$14.31

LARGE-SCALE PROJECT CLASS

Bob Patrick is also teaching a course at The Eureka Springs School of the Arts (ESSA), October 6-9.

15751 US Highway 62 West
Eureka Springs, AR 72632

The class will work as a group will learn how to design, plan, and execute a gate using traditional methods, as taught to Bob by Francis Whitaker. It will be an intense 5-day class.

Techniques will include layout, making a materials list, transferring dimensions properly with a layout stick, forging, bending, piercing, riveting tenons, drilling, and possible forge welding, collaring and other techniques. The basic techniques apply to railings and grills, signs and other architectural metalwork.



Those who are interested should contact the ESSA directly at for cost and to sign up. Their phone number is (479) 253-5384, or they can be reached by email via their website at <http://essa-art.org/contact.html>



PIN VISE

The main distinction of a pin vise is that you hold the vise in one hand. With this in mind, the uses of a pin vise narrow to small work like filing, bending, or engraving. Pin vises are usually about the size of a short pen and come in open-jaw and collet versions. Other great uses of the pin vise are for holding something further away from your body so you aren't directly in the line of fire, like when you are sharpening drill bits on a grinder. Lots of the uses of tongs would be better served with a pin vise. Think of how many times a piece of work or tool has slipped out of the tongs versus the strength you get from holding something in a vise.



This pin vise is only four inches long

GET YOUR BOA T-SHIRTS!

BOA t-shirts are only \$10. You can't beat that with a rounding hammer! Get the black if you are worried about coal grime, or the grey if you are worried about the heat. Or get both for the winter, and layer up!

The silk screening process requires that we save up orders until a minimum number is reached. Fill out the form below, but send no money. You will pay when the t-shirts arrive.



The design on the back of the shirt



The right-front pocket area

Enter the quantity of each color and size below. White is also available with black ink.

	BLACK	GRAY	WHITE
SMALL			
MEDIUM			
LARGE			
X- LARGE			
XX-LARGE			
XXX-LARGE			
4X-LARGE			

- With Pocket**
- Without Pocket**
- Tall Sizes**

All t-shirts are \$10. Big-boy (3X & 4X) and Tall sizes are \$2 more.

Indicate if you are interested in getting a cap. Yes No

Your Name _____

Address _____

City, State, Zip _____

Phone # {in case we need to contact you} _____

Bring this form to the next Meeting. Do not include payment. Pay when T-shirts are delivered



BLACKSMITH ORGANIZATION OF ARKANSAS MEMBERSHIP APPLICATION

Date: _____

Name*: _____ (Plus Family Members)

Address: _____

Primary Phone: _____

Email**: _____

Email: _____

Email: _____

Special areas of interest:

- Knife making Gunsmithing Architectural
- Restoration Buck Skinning Medieval

Membership dues are \$25 per year, due in January***.

Make checks payable to "BOA (Blacksmith Organization of Arkansas)"

Mail to:

Ron Wells, BOA Treasurer
HCR 32 Box 141
Mount Judea, AR 72655

Or bring to the next meeting and give to the Treasurer or Steward.

*BOA's membership is a family membership. For the payment of one membership, all the members of a family would be afforded all the benefits and privileges of full membership. They would, however, **have ONE vote on BOA business per family membership.**

BOA's Newsletter is available as an **electronic newsletter. It is **only** distributed to **active email addresses**. Please make sure your email address and those of your family members are entered correctly above.

***Membership dues are paid with the submission of this application; thereafter, they are due each January. If the dues **are** paid in the **last three months (October, November, or December)** of the year, membership is **paid up** for the following year. If dues **are not** paid within the **first three months (January, February, or March)** of the year, the member is **removed** from the membership.



MEMBERSHIP APPLICATION

Also available online at: www.abana.org

Name: _____ Email: _____

Address: _____ WWW URL: _____

City: _____ Phone: _____

State: _____ Zip: _____ Fax: _____

Type of Membership: _____ Credit Card Information: _____

Regular\$55 Overseas\$65 Visa Mastercard

Student\$45 Contributing ..\$100 Card# _____

Senior\$50 Library\$45 Expiration: _____

There is a \$5 discount for 2-year memberships and renewals

The Blacksmith Organization of Arkansas (BOA) is an ABANA Chapter Affiliation

Submit check, money order (US banks only), or credit card information using this form to

Artist-Blacksmith's Association of North America, Inc.

259 Muddy Fork Road
Jonesborough, TN 37659

Phone: 423-913-1022

Fax: 423-913-1023

Email: centraloffice@abana.org

BENEFITS OF BOA MEMBERSHIP

BOA members continue a tradition of educating our members and the public in the techniques and history of blacksmithing, the king of crafts.

In addition to our monthly meetings, newsletter, and email chatter, our members are active in their communities with many interesting events and demonstrations.

Members also receive discounted prices on coal and stylish BOA apparel.

BOA membership is a family membership. For one membership fee, all the members of the family are considered active, and each may receive an electronic newsletter.



BENEFITS OF ABANA MEMBERSHIP

With your ABANA membership, you receive a subscription to both *The Anvil's Ring* and *The Hammer's Blow*, as well as discounted conference registrations and discounts at many web sites.

The Anvil's Ring, devoted exclusively to the craft of blacksmithing, is the association's quarterly magazine which presents articles on topics such as architectural iron, decorative design, hand forged tools, historical references, advice to beginners, etc.

The Hammer's Blow, also a quarterly publication, is a black and white magazine full of "how to" tips and techniques for professionals and beginners alike.

**THE BLACKSMITH
ORGANIZATION OF
ARKANSAS (BOA)**

BOA is an affiliate of the Artist-Blacksmiths Association of North America (ABANA).

We are exclusively for the education of members and other interested parties in the skills, techniques, and traditions of blacksmithing. We aspire to expose the art of blacksmithing to the public, to serve as center of information about blacksmithing and its tradition, and to do so in cooperation with and as an affiliate of the Artist-Blacksmiths Association of North America.

Information on when and where we meet and how to join can be found within the pages of this, our monthly newsletter.

If you're not already a member, we hope you will be soon!

**BOA MEMBER
SHOWCASE—
ROSS WILKINSON**

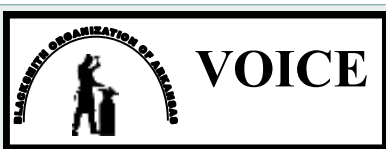
Ross made this chandelier for his mother, Mary, on her 70th birthday.

That's setting a pretty high bar for the rest of us! And for himself. What are you going to make her next year, Ross? And remember, that big 75 is coming up...

Now there's a boy that loves his mamma!

Nice job, Ross, and happy birthday, Mary!!

See page 7 for the complete project notes.



The Blacksmith Organization of Arkansas
218 Trelon Circle
Little Rock, AR, 72223

PLEASE
PLACE
STAMP
HERE