

# Saltfork Craftsmen Artist-Blacksmith Association

July 2016



**The 2016 Saltfork Craftsmen Annual Conference is coming up fast and the Conference Toolbox made by Don Garner is ready to be filled with donated items. Please consider donating an item to support this annual tradition.**

**See Page 14...**

**Saltfork Craftsmen  
Artist-Blacksmith Association  
Officers and Directors**

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**Editors notes...**

At the last Board of Directors meeting, I was one of the nominees elected to the Board. I would like to take this space to thank all of you who took time to vote in general.

I would also like to thank those of you who cast one of your votes for me specifically. I consider it an honor to be on the Board and will do my best to help guide the club in a positive way.

If you have never attended a Board of Directors meeting (which are always open to any member to attend), I can tell you that your Directors and Volunteers, both past and present, work very hard to make the best decisions they can to benefit the membership.

Attending some past meetings as the newsletter editor, I have watched these folks churn through a multitude of issues trying to make sure they consider every conceivable way to improve the overall experience for SCABA members. That task is not always as easy or straightforward as it might seem. It takes a lot of good ideas and weighing of options to reach the optimum decisions.

With that in mind, your Directors are representatives for your interests as members. If you have good ideas or concerns about issues related to SCABA, please let one of the Directors know. Better yet, feel free to attend a BOD meeting to bring your item up for discussion. These ideas and issues are taken seriously by the Board.

Thank you again for your vote of confidence!

- Russell Bartling - Editor

The Saltfork Craftsmen Artist-Blacksmith Association, a non-profit organization Our purposes are the sharing of knowledge, education and to promote a more general appreciation of the fine craftsmanship everywhere. We are a chapter of the Artist-Blacksmith Association of North America.

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**Visit our Saltfork Craftsmen Website:**  
[www.saltforkcraftsmen.org](http://www.saltforkcraftsmen.org)



## President's Notes:

Hey folks!

Some of you may already know, but for the ones that don't, I have become the president again. And, as usual, I am not sure if I should be happy, or afraid!

I am astounded at how many new members the club has gotten lately. It sure seems to me that the heat hasn't slowed down club activity by any means. There are meetings, classes and workshops going on all over the place! At first I thought that the Forged In Fire show had really got a lot of people interested in Blacksmithing. (Or maybe Blade Smithing) But after taking a closer look, it seems that there are people interested in all types of blacksmithing. So welcome, to all of you new folks!

I need to thank Eric Jergensen for his articles about induction forging, that he wrote and put in the newsletter! I

have been trying to find the manufacturer of these units for a very long time. He listed Lihua Machinery's website, and once I contacted them, I have been on a roller coaster ride ever since! I ordered 5 units and once they shipped them, (DHL Air Freight Door to Door) I had them inside 1 week. The order was for 4-LH15A machines and 1-LHY35AB machine. The 15 machines are 240volt single phase machines. (Like a weldor or cloths dryer voltage) The 35 machine is 480volt 3 Phase (commercial or industrial voltage). These machines are water cooled, (like a TIG weldor) and we have tried a few different set-ups, with different levels of success.

I've been texting back and forth with a guy at Lihua Machinery all this time, and have learned a lot from him. The problem with communicating with him, is that his time zone is 13 hours ahead of ours. Usually we quit texting at 11:00 PM here, because it is his lunch time (12:00 PM the next day) there! My first contact with him was 3-24-16, and I think I have got to go to bed before midnight only 3 times since!

If you haven't already, you should take a look at the Youtube videos that Eric has put up on induction. It's pretty interesting! With induction you can get your heat almost instantly, with out having smoke or heat making your work area unpleasant.

I will try and write more in coming issues, but I probably should stop my babbling for now.

Thanks! - Byron Doner (Korny)

*(Refer to the February and May 2016 SCABA Newsletters for the Eric Jergensen Induction Forge articles and links to the corresponding Youtube Videos. - Editor)*



## Division of (Volunteer) Labor

It's been suggested that we need to clarify who does what in terms of the Saltfork Board members and other positions of responsibility. This list is an attempt to expand on the definitions of these roles to help in getting the right person when needed. Please keep in mind that everyone on this list gives their time on a volunteer basis and this list may change, expand and evolve over time:

<b>Name</b>	<b>Position</b>	<b>Address</b>	<b>Phone</b>	<b>Duties</b>
<b>Byron Doner</b>	<b>President</b>	6520 Alameda Norman OK 73026 byrondoner@esok.us	405-650-7520	President BOD Meeting Chair Cone Shipping
<b>Doug Redden</b>	<b>Vice President Conference Chair</b>	2050 E. 410 Rd. Oologah, OK 74053 Doug.redden2@att.net	918-230-2960	Vice President Conference Chair Librarian BOD Meeting Minutes
<b>Mandell Greteman</b>	<b>Director/ Workshop Coordinator</b>	409 East Broadway Foss, OK 73647 mandell01@windstream.net	580-515-1292	Workshop Coordinator
<b>Bill Kendall</b>	<b>Director/ Swage Blocks</b>	1756 E. 59 <sup>th</sup> St Tulsa OK 74105 wwkendall@aol.com	918-691-2173	Swage Block Shipping Quotes Swage Block Shipping
<b>David Seigrist</b>	<b>Director</b>	P.O. Box 163 Hollis, OK 73550 dseigrist2004@yahoo.com	580-381-0085	
<b>Terry Jenkins</b>	<b>Director</b>	222 N. Washington Blanchard, OK 73010	405-476-6091	
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<b>Teresa Gabrish</b>	<b>Treasurer</b>	P.O. Box 18389 Oklahoma City, OK 73154 tgabrish@gmail.com	405-824-9681	Treasurer Secretary Club Membership
<b>Dodie O'Bryan</b>	<b>Webmaster</b>	Pawnee, OK scout@skally.net	—	Website Updates Web Calendar Updates

## Vice President's Notes:

The Tulsa State Fair is coming up Sept. 29 thru Oct. 9. All who will be available to demo contact me to let me know what dates you will be available. We will be listed on the State Fair handouts and directories this year.

The hammer workshop with Brian and Ed Brazeal is set for the third weekend in Sept. Cost is \$ 200 for the first day and \$ 100 each additional day. For those interested contact Ed Brazeal. His contact info will be listed in another section of this newsletter.

Conference, it will be here before we know it. Now is time to get ready. If you are interested in the workshops check out the information about this and make sure you email or call in on the 19th to get registered.

Next is who do you, the membership, want to see demo at your 2017 conference. Let me know as soon as possible so I can get them booked.

This week I demoed for the frontier days youth camp at Will Rogers birthplace ranch. It was a time with the campers. There was great interest and as always lots of questions. As a club that our main goal is to educate the public about Blacksmithing I think we should look for opportunities to demo and educate. It was a blessing the last three days and I am looking forward to next year.

- Doug



# 2016 REGIONAL MEETING SCHEDULE

SE Region (1 <sup>st</sup> Sat)	NE Region (2 <sup>nd</sup> Sat)	SC Region (3 <sup>rd</sup> Sat)	NW Region (4 <sup>th</sup> Sat)
Jan 2 <sup>nd</sup> (Open)	Jan 9 <sup>th</sup> (Open)	Jan 16 <sup>th</sup> (Open)	Jan 23 <sup>rd</sup> (Monte Smith)
Feb 6 <sup>th</sup> (Open)	Feb 13 <sup>th</sup> (Bill Kendall)	Feb 20 <sup>th</sup> (Open)	Feb 27 <sup>th</sup> (Bob Kennemer)
Mar 5 <sup>th</sup> (Ronnie Smith & Bill Phillips)	Mar 12 <sup>th</sup> (Doug Redden)	Mar 19 <sup>th</sup> (Bruce Willenberg)	Mar 26 <sup>th</sup> (Mandell Greteman)
Apr 2 <sup>nd</sup> (Open)	Apr 9 <sup>th</sup> (Brendan Crotty)	Apr 16 <sup>th</sup> (US Cavalry Association/Chuck Ogden) SCABA Annual Picnic!	Apr 23 <sup>rd</sup> (Dorvan Ivey)
May 7 <sup>th</sup> (Open)	May 14 <sup>th</sup> (Ed McCormack)	May 21 <sup>st</sup> (JJ McGill)	May 28 <sup>th</sup> (Terry Kauk) (Cancelled)
Jun 4 <sup>th</sup> (Open)	Jun 11 <sup>th</sup> (Marshall Hager)	Jun 18 <sup>th</sup> (Ricky Vardell)	Jun 25 <sup>th</sup> (Don Garner)
Jul 2 <sup>nd</sup> (Open)	<b>Jul 9<sup>th</sup> (Terry Taylor)</b>	Jul 16 <sup>th</sup> (Open)	<b>Jul 23<sup>rd</sup> (Kelly Kilhoffer)</b>
Aug 6 <sup>th</sup> (Open)	Aug 13 <sup>th</sup> (Gerald Brostek)	Aug 20 <sup>th</sup> (Open)	Aug 27 <sup>th</sup> (Don Garner)
Sep 3 <sup>rd</sup> (Open)	Sep 10 <sup>th</sup> (Jim Carothers & Tom Nelson)	Sep 17 <sup>th</sup> (Jim Dyer)	Sep 24 <sup>th</sup> (Roy Bell)
Oct 1 <sup>st</sup> (Open)	Oct 8 <sup>th</sup> (Open)	Oct 15 <sup>th</sup> (Conference Weekend)	Oct 22 <sup>nd</sup> (Cheryl Overstreet)
Nov 5 <sup>th</sup> (Open)	Nov 12 <sup>th</sup> (Dan Cowart)	Nov 19 <sup>th</sup> (Anthony Griggs)	Nov 26 <sup>th</sup> (Cory Spieker)
Dec 3 <sup>rd</sup> (Open)	Dec 10 <sup>th</sup> (Open)	Dec 17 <sup>th</sup> (Open)	Dec 24 <sup>th</sup> (Merry Christmas)

Fifth Saturday Fun Day - Dec: 31st (Mandell Greteman)

The meeting hosting form can be found on the last page along with membership application form. Russell Bartling will now keep track of the monthly meetings. Regular monthly meetings are always open to anyone that wishes to attend.

If you want to host a meeting in your area please fill out one of the host forms on the website under the calendar section or in the newsletter and e-mail the information or mail the hard copy form in as soon as possible. E-mail is the most convenient for me but you can also phone in the information if you prefer. The sooner the meeting is scheduled, the more time there is to get the word out to potential attendees.

-Russell Bartling 918-633-0234 or [rbartling@ionet.net](mailto:rbartling@ionet.net)

# Regional Meeting Details:

## July

SE Regional Meeting July 2<sup>nd</sup> Open

**NE Regional Meeting July 9<sup>th</sup>:** Will be Hosted by Terry Taylor at the Will Rogers Birthplace Ranch in Oologah. From the intersection of Hwy 88 and Hwy 169, go two miles north then turn east and go two miles to the park entrance.

The trade item is tongs. Lunch will be provided but please bring a side dish or dessert to help out. Contact Terry Taylor 918-740-7682.

SC Regional Meeting July 16<sup>th</sup>: Open

**NW Regional Meeting July 23<sup>rd</sup>:** Will be hosted by Kelly Kilhoffer at the Route 66 Blacksmith Museum Shop in Elk City.

Trade item is anything made from a horseshoe rasp. Lunch is provided but please bring a side dish or dessert to help out. Contact Kelly Kilhoffer at 580-243-9355.

## August

SE Regional Meeting August 6<sup>th</sup>: Open

**NE Regional Meeting August 13<sup>th</sup>:** Will be Hosted by Gerald Brostek at his shop at 237 N. Crabtree Road, Muskogee, Ok 74403. (See Map on next page.)

The trade item will be anything you want to bring or make at the meeting. There will be one gas forge and one coal forge available. Anyone wanting to bring a portable set up would be great.

Anyone wanting to bring items for sale or trade are encouraged to do so. Gerald will have an assortment of power and hand tools and other metal working equipment for sale or trade.

Lunch will be beans and there will be plenty of cold drinks and coffee. Please bring a side dish or desert to help out.

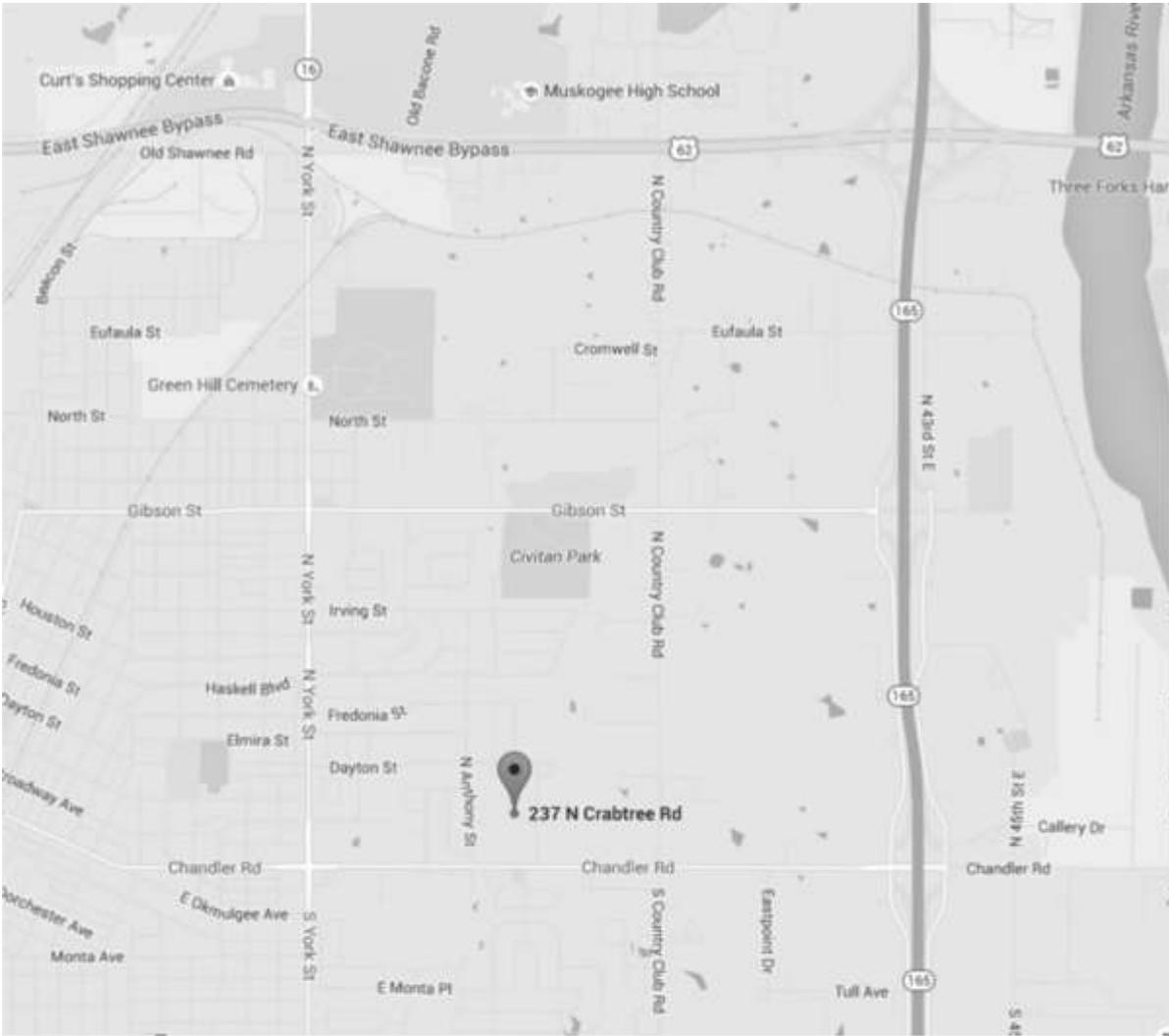
Contact Gerald Brostek at 918-687-1927.

SC Regional Meeting August 20<sup>th</sup>: Open

**NW Regional Meeting August 27<sup>th</sup>:** Will be hosted by Don Garner at his shop at 23713 E. 860 Rd. In Thomas, OK. Directions: Go one mile west, then one mile north of Thomas.

The trade item is a trivet. Lunch will be provided but bring a side dish or desert to help out. Contact: Don Garner 580-661-2607.

# Regional Meeting Details:

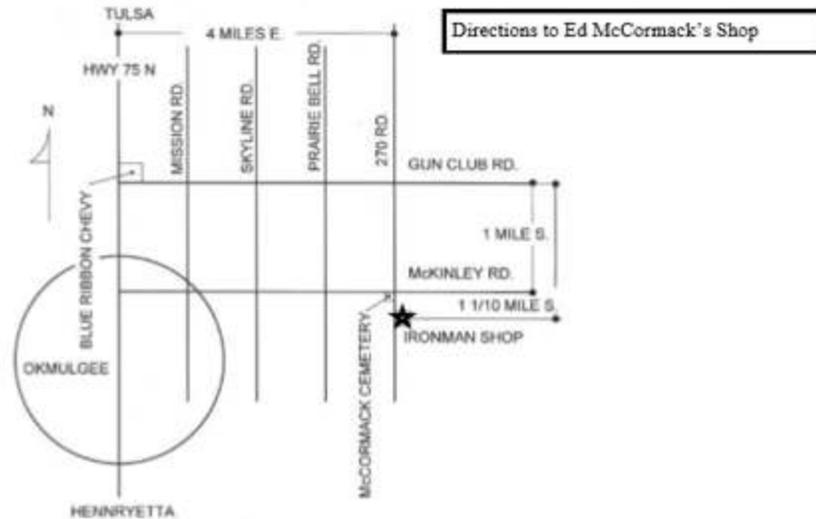


Map to Gerald Brostek's current shop in Muskogee:

237 N. Crabtree Road,  
Muskogee, Ok 74403

# Workshop Schedule

**July 30<sup>th</sup> Anvil Restoration Demo:** There will be an anvil restoration demo at Ed McCormack's place in Okmulgee on July 30<sup>th</sup>. This will be a demonstration of the process, not a hands on workshop. The process of preheating and repairing a sample anvil will be presented so that participants can apply the same techniques in their own shops. The demo will start at 8:00 AM and should be finished before the hottest part of the day. There is no charge to attend but, for insurance purposes, you must be a Saltfork member or join at the demo. Ed McCormack's address is 15100 N 270 Rd, Okmulgee, OK 74447.



**Possible Joinery Workshop???:** The idea of having a joinery workshop has been discussed, depending on interest level. Details of the workshop are not yet defined but this would be a workshop to learn how to make simple tenon joints and corresponding fitting techniques to make a small grille or similar item. This workshop would focus on good layout and fitting techniques as well as controlled punching and drifting. The date and location are to be determined and will depend on the availability of the instructor and facility. If you are interested in attending such a workshop, please let the workshop coordinator know. If there is enough interest, this workshop will be set up.

**Have an idea for a workshop or class?** If you have an idea for a workshop that you would like to attend (or teach), please let the workshop coordinator know so that details for time and place can be worked out.

**Workshops After the SCABA Annual Conference:** There will be hands on workshops by the demonstrators following the 2016 SCABA Annual Conference. Refer to the conference information elsewhere for details...

**Mandell Greteman is the SCABA Workshop Coordinator.**

**Contact Mandell at 580-515-1292.**

[mandell01@windstream.net](mailto:mandell01@windstream.net)

## Thanks from Gary Seigrist:

Gary Seigrist would like to express his heartfelt thanks to all of the blacksmiths who sent flowers, attended the funeral services and expressed their support and sympathy to the Seigrist family during the illness and recent passing of Ann Seigrist.

Both Gary and Ann have considered many Saltfork members among their closest friends and as part of their “extended family” and the support from the blacksmiths was a real comfort to the family during this trying time.

## Ed and Brian Brazeal Hammer Workshop:

Ed and Brian Brazeal are conducting a hammer and hot cut hardy making workshop the third weekend in September (September 17<sup>th</sup>.)

Some of the details of this workshop are to be determined (details to follow when available.) Location is planned to be in the Stillwell, OK area and possibly the Stillwell Park. This workshop would be to make a hammer and hot cut hardy in the Brazeal style. All needed tools and materials will be provided for use at the workshop by the instructors including forges and striking anvils. Feel free to bring any equipment or tools you like but it is not necessary to bring any forging tools. Students must provide their own safety equipment including safety glasses, ear plugs, sensible clothing and boots, etc. It is recommended to bring a full pair of leather gloves for protection from radiant heat while working with the hammer heads.



Cost of the workshop will be \$200 for the first day and \$100 for each additional day. The total time required for the workshop will vary based on the experience and ability of the student. Additional tools may be made depending on progress and the time available for each student. Additional days may also be worked out with the instructors as schedules allow so this is a flexible workshop that may be adjusted to each student’s specific needs.

Registration is first come first served and requires a \$50 deposit which will be refundable for cancellations up to two weeks before the workshop. The current plan is to have five stations so space is limited. Register as soon as possible if you want to attend.



If you are interested in attending, please contact **Ed Brazeal** directly at **918-506-3438**

to make arrangements for registration. This event is not being produced by Saltfork so you will need to contact Ed Brazeal to register.

## Demo Opportunity:

The Murrell Home in Park Hill, OK is looking for demonstrators for their Antique Ag Expo to be held on Oct 7, 8 and 9.

You may sell your wares during the demo. You don't have to be dressed in "period correct" clothing but T-shirts, ball caps, and/or sneakers would not be appropriate attire.

Point of Contact is Jennifer Frazee at 918-456-2751 or you can call Gerald Franklin at 580-467-8667 for more info.

## Board of Directors Meeting Election Results:

Votes were opened and counted at the recent Board of Directors meeting on June 5<sup>th</sup>. There were three director terms expiring this year. David Seigrist, Diana Davis and Terry Jenkins were up for re-election. Diana chose not to run again at this time. There were five nominations to fill the three positions. Dan Cowart was originally on the ballot and received some votes but he dropped early from this round due to health concerns which left four valid nominees. Even though he is a current director and his term is not expiring this year, Mandell Greteman received a write in. Thank you to all the members who took time to vote. Voting results were:

<u>Nominee</u>	<u>Votes</u>
Russell Bartling	33
Terry Jenkins	26
David Seigrist	21
Chuck Ogden	14
Dan Cowart ( <i>Dropped</i> )	4

During the meeting, the following director or assigned positions were nominated and voted on by the BOD:

President - Byron Doner

Vice President and BOD meeting record keeper - Doug Redden

Secretary - Teresa Gabrish

Treasurer - Teresa Gabrish

Workshop Coordinator - Mandell Greteman

Swage Blocks - Bill Kendall

Cones - Byron Doner

Newsletter Editor - Russell Bartling

*(Please note that the address on membership forms and on the back of the newsletter is revised to be directed to the current secretary (Teresa Gabrish.)*



# 2016 SCABA Conference



## October 15<sup>th</sup> and 16<sup>th</sup>

### Sulphur, Ok

**Demonstrators: Peter Ross and Jymm Hoffman**

The 2016 SCABA Conference will be here soon. This year, we will have two demonstrators, after conference workshops, and several family classes. Look for additional details and conference registration in the August newsletter.

### **\*\*ATTENTION\*\***

#### **Conference Workshop Registration:**

Doug Redden has set up on site workshops with the demonstrators - Peter Ross and Jymm Hoffman - *after* the conference. Each demonstrator will conduct a 10 student workshop over three days following the conference (Monday through Wednesday). The workshops will run concurrently so you will only be able to register with one instructor. This is an amazing opportunity to receive hands on instruction with instructors of this caliber.

Participants must provide their own (or arrange to borrow) safety gear and forging stations including anvil, forge, vice, and basic forging tools such as hammers, tongs, chisels, and punches etc. Specific tooling requirements for any tools that will not be provided will be made available before the workshops.

These will not be beginner classes and basic forging abilities including some forge welding will be required. (You do not have to be an expert, there will always be others to help you through challenges. And stretching our abilities is part of the point of these workshops. But if you are just learning to forge, these workshops may be difficult.)

**Participants will be first come, first served and must call or e-mail Doug Redden the morning of July 19<sup>th</sup> at 9:00 AM. Registration will not open until that time. Doug's e-mail: [Doug.redden2@att.net](mailto:Doug.redden2@att.net)**

Cost for a workshop is \$300 per student. Registration fee will need to be paid in full within 21 days of registration or you may lose your place in the workshop.

Cancellations will be accepted for a 50% refund up to September 19<sup>th</sup>. After that, the registration fee will be non-refundable.

If you have any questions, contact Doug Redden at 918-230-2960.

## **Conference Location and Lodging:**

The conference site this year is the Murray County Antique Tractor Association show grounds north of Sulphur, OK. The location is 7 miles north of Sulphur on Hwy 177 then east  $\frac{3}{4}$  mile on Tractor Road.

From JJ McGill, the two lodging options in Sulphur are the Super 8 Hotel and the Chickasaw casino. This is the contact info JJ provided:

Super 8 Sulphur: 2116 W Broadway Ave, Sulphur, OK 73086, Hitesh Patel, Manager. 580-622-6500. Rates are \$65.00 per night for single, \$75.00 per night for double. Manager says start booking now.

At the casino, there is supposed to be a block rate for Saltfork. Contact the General Manager's office, Bryce Chitwood, 580-622-8100, Ext. 111. Oct. 14<sup>th</sup> and 15<sup>th</sup> rate is \$149 per night (standard is \$209). For October 15<sup>th</sup> and 16<sup>th</sup> rate is \$109 per night (standard \$149). (I am not sure how the overlap applies for October 15<sup>th</sup>.)

JJ said there are 30 RV hook ups with 110V electric only and there are a few with 220V electric and water by the food vendor area. RV hookups are \$10 per night. There is an RV dump station.

There is also primitive camping and JJ said that showers are available.

**Contact JJ McGill if you have any questions of want to reserve any camping spots. 580-369-1042.**

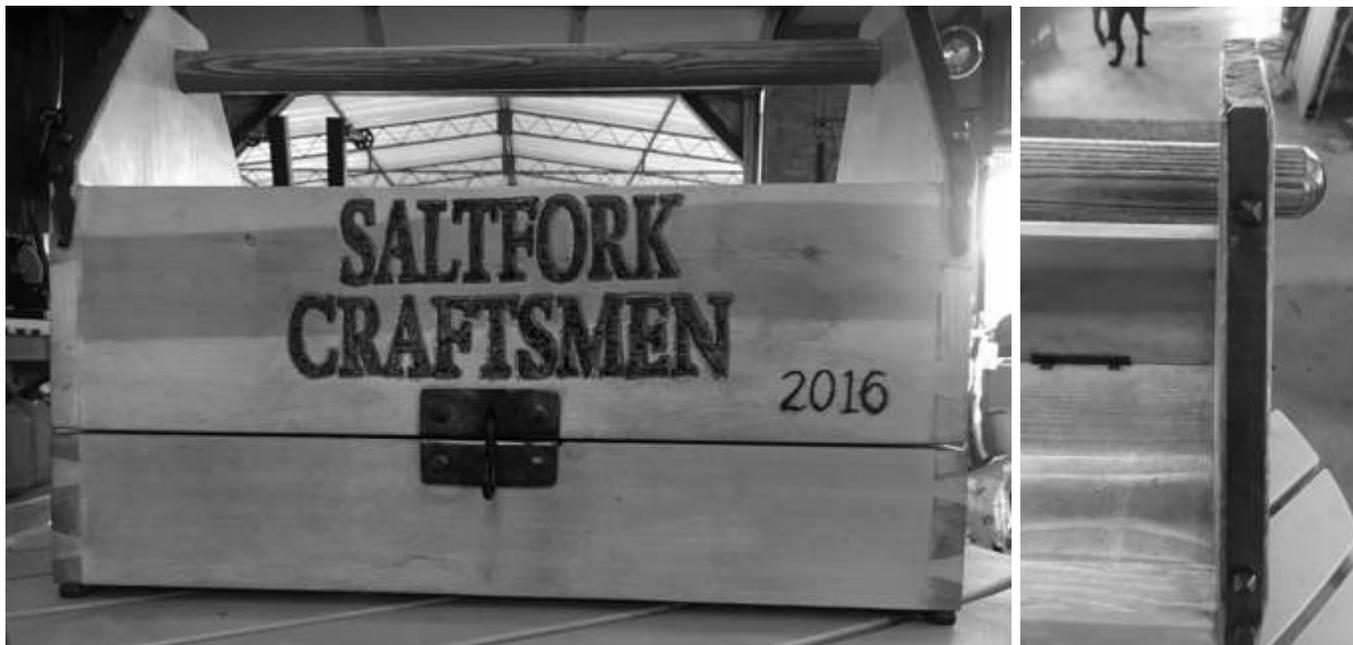
***Additional details and Conference registration form will be provided in the August newsletter...***

## 2016 SCABA Conference Toolbox

The 2016 SCABA Conference is only a few months away. If you would like to donate an item for the Conference Toolbox, it is time to start thinking about what to make. The list on the following page shows suggested items. This list is only a suggestion and a way to track the items for a more well rounded collection of tools. Feel free to make (or purchase) anything you think is appropriate. Think about tools and items you would like to win and it will probably be a good item. Any donation is appreciated but hand made tools will generally be more cherished by the box winner.

Tickets for a chance to win the box will be available up until the drawing at the auction on Saturday night. If you will not be able to attend the conference and want a chance to win the tool box while supporting the club, tickets may be purchased from the Secretary (Teresa Gabrish.)

This year's box is an original design made and donated by Don Garner. He did an excellent job. The box is made mostly of pine with a hickory handle. There is a bottom section that is removable for storing measuring tools, finishing wax, etc. The bottom tray is held on to the main box by a unique locking system. Don hand made all of the hardware for the box except for the pyramid head screws.



## 2016 Salt Fork Conference Tool Box

Suggested Items	Donor
Tool Box	Don Garner
1 1/2 lb. cross peen hammer	
2 1/2 lb. cross peen hammer	
Rounding hammer	
Handled hot cut	
File flat bastard cut	
File, half-round bastard cut	
Farrier's Rasp	
Hacksaw	
Rivet backing tool for 1/4"	
Rivet setting tool for 1/4"	
Rivet backing tool for 5/16"	
Rivet setting tool for 5/16"	
Rivet backing tool for 3/8"	
Rivet setting tool for 3/8"	
Scribe	
Center Punch	
Center Finder	
Dividers	
<b>Tongs</b>	
1/4 V-bit	
3/8 V-bit	
1/2 V-bit	
Scroll pliers	
Soapstone and holder	Already have
Abrasive block, small piece of grinding wheel	
Chisel, Large	
Chisel, small	
Metal folding ruler 24" or 72"	
Ball tool (round blunt nose punch)	
Hand held spring swage for tenons	
Hand held swage for necking down	
Set of monkey tools (1/8", 3/16", 1/4" )	
Adjustable square	
Bending forks	
Flux spoon	
Flux	
Twisting Wrench	
Hot cut hardy	
Hot slit chisel	
Bolster plate	
Finish wax	
<b>Fire Tools</b>	
Shovel	
Rake	
Poker	
Multi Square	
Nail Header	

# Around the State...

**NW Region May Meeting:** The NW Region May meeting was to be hosted by Terry Kauk but was canceled.

**SE Region June Meeting:** No meeting was held in June.

**NE Region June Meeting:** Was hosted by Marshall Hager in Sand Springs, OK. Good attendance, signed up several new members. Good food. Pig cooked in a box. - *Doug Redden. (Photos by Doug Redden.)*





**SC Region June Meeting:** The SC Region June meeting was hosted by Ricky and Nikki Vardell in Temple, OK.

There were about 30 in attendance including wives. There were some really

nice trade items made. JJ McGill displayed them on a board so they were nice and easy to see.

A wonderful lunch was served by Nikki and her girls and a lot of nice side dishes were also brought. Thank you for all who brought side items.





We would like to thank everyone for coming and enjoyed all who attended.

Ricky would also like to thank Nikki, Hassie and Hannah for all their help!

- *The Gretemans.*

*(Photos by the Gretemans.)*

# Blacksmith's Rules and the Line of Chords

Russell Bartling - June, 2016

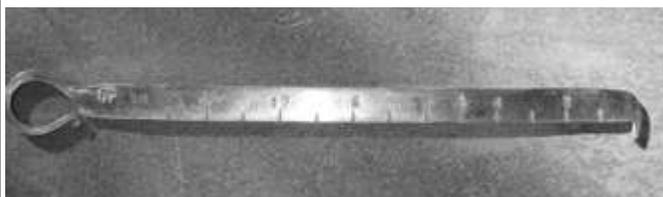
Many blacksmith projects do not require precision measurements. In fact, sometimes the best measurement is no measurement at all but rather just to transfer. However, there are occasions where there is no substitute for reasonably precise measurements, especially when angles are involved.

A 12" steel or brass rule can be a very convenient measurement tool for blacksmithing projects. The steel or brass is light enough to be easily handled and carried in a pocket (many overalls and work pants have a pocket tailor made for these) but they are not generally affected by the heat of metal being forged. A tape measure, by comparison, is vulnerable to having the paint burnt off fairly quickly which renders it basically useless.

There are many versions of these rules that are either still available as vintage items or that are still being produced today. Starrett used to offer a blacksmith's hook rule which has a hook on the end for fast and convenient positioning.



Gerald Fanklin has a quick project article on how to make a simplified version of a hook rule in the July 2015 Saltfork Newsletter. The newsletter can be accessed online at: [http://www.saltforkcraftsmen.org/Newsletters/2015 July.pdf](http://www.saltforkcraftsmen.org/Newsletters/2015%20July.pdf)



There are also many variations of folding rules that have two 12" sections hinged on one end. These

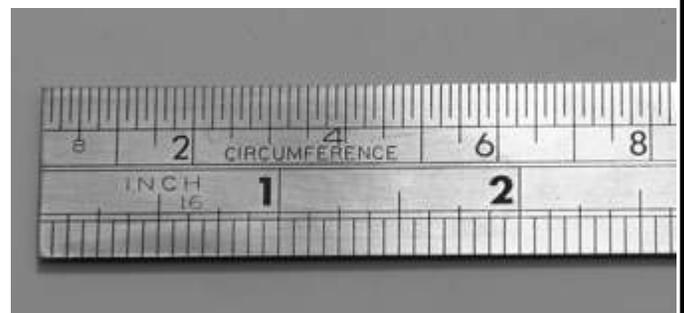
usually have various graduations on each side for more convenient use depending on the level of precision required. For example, one side might be graduated in 1/8<sup>th</sup> of an inch increments and the other side in 1/16<sup>th</sup> inch increments.

Some of these rules are listed as "Blacksmiths" rules and have a few additional features that are sometimes useful. Lufkin and Starrett still manufacture these today in the steel and vintage versions in both steel and brass can be found.

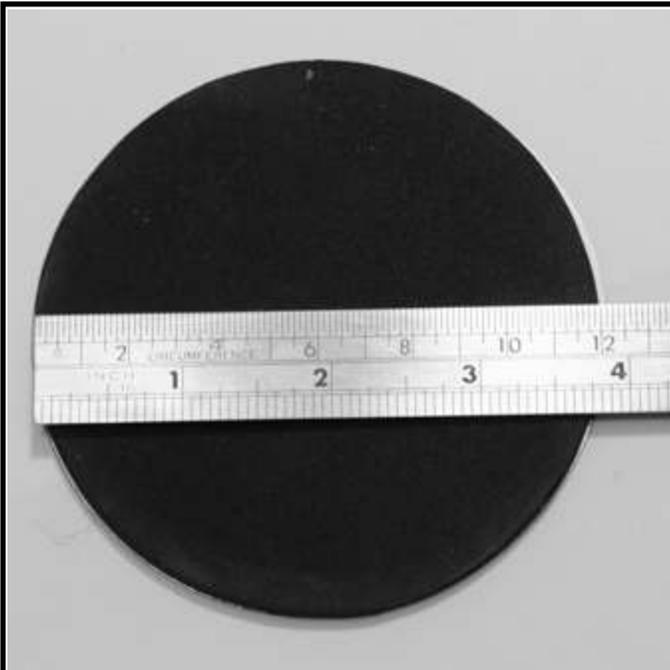
One of the additional features sometimes included on the "Blacksmiths" rules is a direct circumference measurement. You can sometimes find these online by searching for "Blacksmiths Rule" or "Circumference Rule."

Say you want to calculate the length of stock for a collar to wrap a given size of round stock. It is fairly easy to find the circumference for for a given diameter by multiplying by Pi using 3.14 in your head (some smiths just use 3). But on larger diameters, this can lead to a larger error. For a 4" diameter circle, for example, the difference between 3 and 3.14 would be over 1/2" which might mean the difference between a collar that works and one that adds to the scrap pile. On fractional diameters, the math can be less than convenient without taking time to grab a calculator or paper and pencil.

Enter the Circumference feature of the Blacksmiths rule. This is a graduated section that allows for direct reading by laying the scale across the diameter of anything that can be accessed from the end. (The end of a round bar or pipe for example.)



*A direct reading circumference scale on a Blacksmith's rule.*

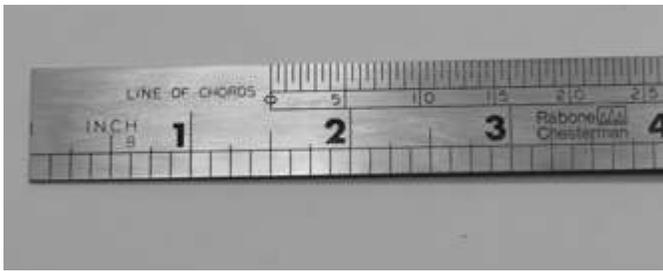


*This black circle is 3-13/16" in diameter. Not the easiest circumference calculation to do in your head. The direct reading from the circumference scale shows just slightly under 12" and can be read in an instant. The calculated circumference using 3.14 would be 11.98".*

Granted, it is also easy to round up some fractional dimensions to help offset using 3 instead of 3.14 for Pi and this method sometimes gets good results. But using the circumference rule, if you have one available, is more consistently dependable and often more convenient.

Another convenience feature built into some of these rules is called the "Line of Chords." This feature may be less well known but can be equally useful. This scale is a bit more rare.

The Line of Chords scale allows for very accurate (in blacksmith terms) angle measurements using only the rule and a set of dividers. These are two tools commonly used and available in most any blacksmith tool box.



*The Line of Chords scale. This particular rule is made by Rabone Chesterman and is made in England. Older rules may be marked Rabone and Sons.*

Using the Line of Chords is easy and will take much longer to explain the method than it actually takes to use. There may be easier ways to measure an angle, like a protractor, no tool is universal. In some instances, the Line of Chords method will be easier to use.

Say you need to measure an angle of a given piece. If you can open up the folding rule to match the angle, then it can be accurately measured. The Rule of Chords scale on the rule I have is graduated to 1/2 degree increments and is marked from 0 to 120 degrees. Once the angle is set, a pair of dividers is used to take a reading across a fixed mark on each leaf of the rule. This measurement is transferred to the Line of Chords scale to directly read the angle.

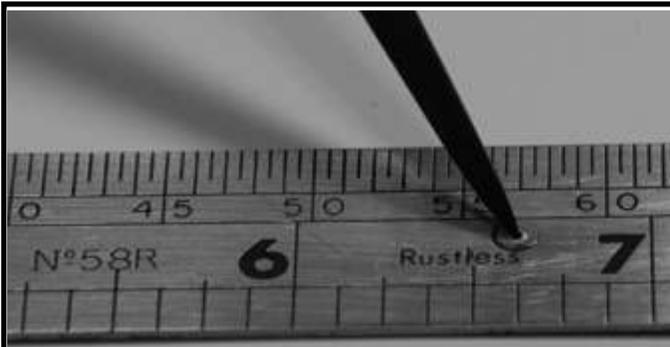
In practical terms, it is difficult to measure angles less than 5 degrees as the fixed marks need at least that much angle and larger angles require larger dividers to make the span.

Using the rule for layout work is also possible by the same procedure applied in reverse. Set the dividers to the required angle measure on the Line of Chords scale, then open up the rule so that the fixed measure points match the dividers. Then the angle can be marked.

This procedure is easier to follow with photos than text so the following sequence will probably be more clear:



*To measure an angle using the Line of Chords, first set the leaves of the rule to match the angle to be measured. In this case, a steel plate.*



Each leaf of the rule has a fixed mark for measuring angles using dividers and the Line of Chords scale.



After the angle is set, each point of the dividers is set to each fixed point on the leaves of the rule.



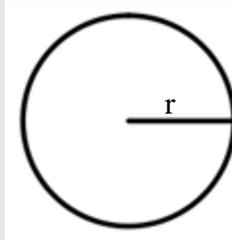
The divider setting is transferred to the Line of Chords scale to directly measure the angle. In this case, 49 degrees.

This may not be a tool that you will use very often. But when you need it, it can be just the solution you need for the job at hand.

- Editor

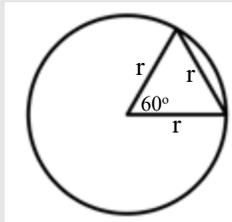
## How it works:

You don't need to know how the Line of Chords works to use it. (Unless you have a genetic disorder like me that requires you to find out.) But it would not be difficult to make your own rule when you know what makes this work. The scale graduations are arbitrary and only the relative measures are important.

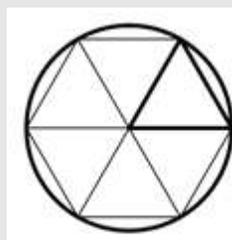


Take any given circle and draw a radius.

Next, draw another radius 60 degrees from the first and connect the ends that touch the circle with another line of the same length. This creates an equilateral triangle with the outer side being a chord of the circle.



There are 360 degrees in a circle and a full circle of chords makes a hexagon. This relationship is what makes it work. If you arbitrarily use any unit of measure on your scale to mark off 60 graduations, then place a fixed mark the same 60 units from the vertex of your folding scale, then you have created a Line of Chords rule that can measure in 1 degree increments. 60 units of length equals 60 degrees.



You don't have to make a scale that measures in single degrees if you want to use fewer graduations. It is only important that the length of scale you use to represent 0 to 60 degrees is the same as the distance you place the fixed marks from the vertex of your rule. Sixty units of length must equal 60 degrees.

You could make one of these rules any size you like. Just remember that a larger rule requires larger dividers to measure the bigger angles.

If you don't want to make one, at least maybe you can impress someone with another real world application for high school geometry!

# Making Mokume

By Tim Carr, a MABA member

Having won the MABA scholarship last year, I decided to take a class at the Appalachian Center for Craft, Exploring Mokume: Fusing and Patterns, with instructor David Barnhill.

Mokume is essentially like making damascus, only using non-ferrous metals such as copper, brass, nickel silver or even actual gold and silver. Some smiths have even fused ferrous metals with non-ferrous metals. For the purposes of this class, we stuck to the less precious metals.



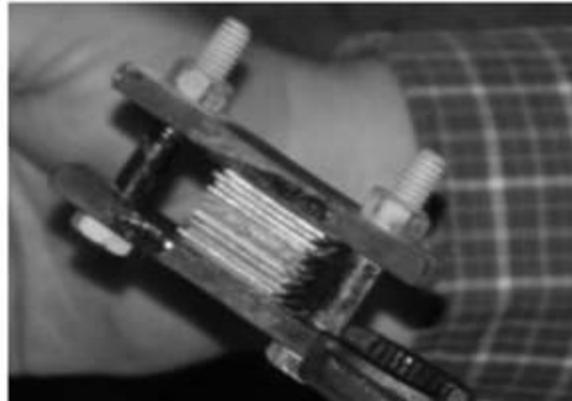
There are two different processes for making mokume—solid state and liquid state. We practiced both methods, concentrating more of our time on the solid state method, which commonly has a more consistent success rate, although it does take longer. Safety always being important, the use of Kevlar gloves while using the Tool Wrap and safety glasses while patterning the billet are a must!

In the solid state process, the layers are never really melted together, relying instead on fusion by atoms in the various metals wanting to trade places at a certain heat and pressure. This process occurs typically at about 50-100 degrees less than the lowest melting point of the base metals and requires use of a tool wrap— a thin layer of stainless steel used to form a “bag” around the non-ferrous metal layers. Proper preparation usually resulted in successful fusion of layers the first time. The proper preparation of materials prior to assembly is the same in

either process. The solid state process is discussed first, with discussion of the liquid state process to follow. Steps are presented numerically, with details of portions of the process to follow.

## Solid State:

- 1) First plan the order you would like to create your stack of metals. Our billets were  $\frac{3}{4}$ " W x  $1\frac{1}{2}$ " L x  $\frac{3}{4}$ " H— big enough to make a belt buckle or serving spoon from if worked properly. If doing any forming, you will want to use 16-18ga metal in order to have enough material to move around.
- 2) We used torque plates (clamps) and bolts-



they need to be painted lightly with Boron Nitride (releasing agent) and allowed to dry thoroughly.

- 3) It is most important that the layers of metal used be absolutely clean and free of deep scratches, oxides and oils. Prepare 3 tubs- 1 with mildly soapy water, 1 with clean water and 1 with water and a pinch of Citrix Pickle. Scrub the metals with Scotch Brite Purple (very fine grit), followed by immersion in tubs 1 and 2. At this point a water break test (clean water applied to metal will sheet off if it is clean and it will bubble or go around areas that are still dirty or oily) determines if it is truly clean. If any layer is not completely clean, repeat the cleaning process until it is. Once clean, the sheet of metal is placed into tub 3. Remember not to allow different types of metal sheets to touch each other during this process. When each layer has been cleaned, remove it from tub 3 and dry with a lint-free cloth.
- 4) Carefully clamp your stack of metal sheets in the torque plates and tighten assembly as tight as possible.
- 5) Create a “bag” with the Tool Wrap- be sure to wear Kevlar gloves while cutting and folding the Wrap.

6) Surround the entire billet (including torque plates) within your "bag" with charcoal and seal. The charcoal keeps the oxygen out, allowing fusion of your layers.

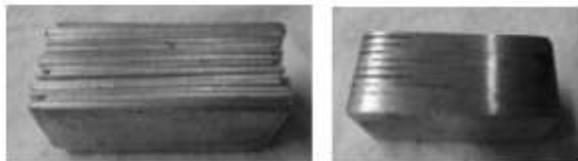
7) Fire the bag in a pre-heated kiln or forge to 50-100 degrees less than the lowest melting point of the alloys or pure metals you are using in the billet. Heat soak time will completely depend on the size of your billet- rule of thumb is approximately 2 hours for every cubic inch of material at the optimum temperature. Billets containing copper and gold alloys will bond at 1350-1800 degrees and silver and high silver alloys will bond at 1300-1400 degrees.

8) Remove your stack from the kiln while hot. You will later use the forge to keep the billet at forging temperature during the forging down process.

9) Let your billet cool after firing and detach the torque plates.



Remove approximately 1/8 - 1/4" from each edge of the billet.



This will reduce the possibility of stress cracking during successive forging and rolling.

10) Forge and roll your billet to working thickness. Billets containing silver must be forged at black heat (no red glow) or a maximum of 900 degrees. Nickel alloys may delaminate if not properly allowed to cool prior to forging. A reduction in thickness of 50% or more is recommended.

11) Begin your pattern development (details to follow) at this stage- only cut in or bump out a third the thickness of the billet, using rounded tools. NO sharp edges!

12) Continue to develop your pattern with files, burs, chisels, punches, etc, annealing often when rolling, especially when cross-rolling. Reduce the billet slowly, rolling often until it reaches desired thickness.

#### Liquid State:

1) Follow the same steps as with the Solid State process to plan your billet and clean your metal sheets. Clean sheets are a must in either case!

2) Paint your clamping (or torque) blocks and bolts with the Boron Nitride (releasing agent) as you did for Solid State.

3) Once clamped, apply fluxing agent over all sides of the billet, sealing it to prevent oxygen getting to it while heating.



Most high-temperature soldering fluxes work well at 1300-1500 degrees.

4) When thoroughly fluxed, heat the billet with a torch or in the forge until the billet starts to sweat on the outside,



making sure it is heated all the way around to assure a complete weld.

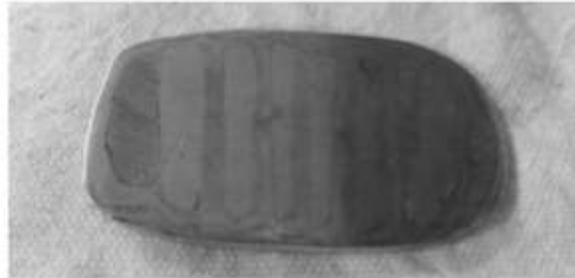
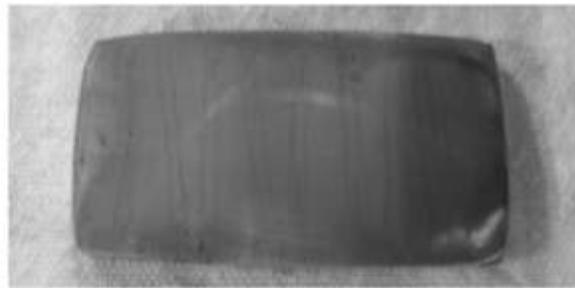


5) After billet is welded, begin reducing it in a press, roller, or by hand- hammering, annealing it after each reduction.

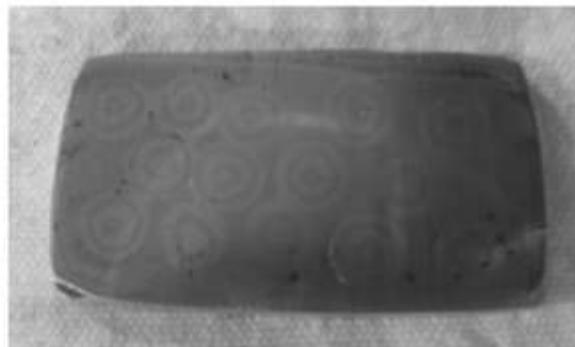
Basic understanding of the hot/cold working characteristics of your various metals is extremely helpful. Meticulous adherence to the cleaning and forging steps is required for the desired results. Forging is one of the most important parts of the process, requiring the most skill if any product de-lamination is to be avoided. Billets forged too hot may cause melting, with metal squirting out when forged. Those

forged too cold will work- harden and crack. Forge gently, taking care when forging the billet down, striking evenly on as much of the surface as possible. Anneal between rolling and forging of each side of the billet. Always work horizontally, working each side of your billet 3-4 times. Once allowed to cool down completely, saw off 1/8-1/4" from each edge evenly- uneven edges may cause formation of stress cracks and de-lamination. Non-laminated areas (those not fusing) will show as dark lines between sheets. Should those occur, you must cut back and remove metal until these lines are no longer present, reheating and forging down until desired dimensions are achieved.

Patterning your billet is done by either carving or bumping, much the same as you do with damascus. Carving is done with chisels, burs or any other method that removes material.

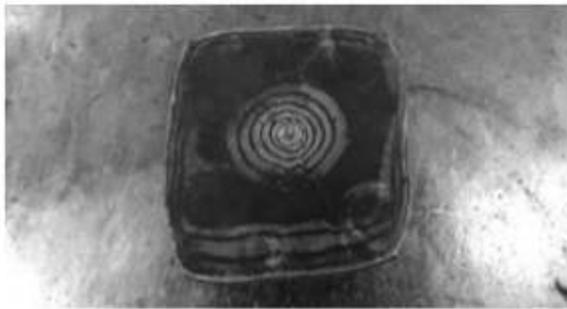
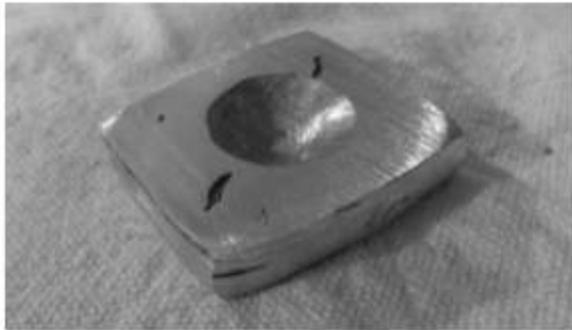


Bumping is what happens when the material is bumped from the back to form hills that are then filed off the surface, allowing the different layers beneath to be exposed. This may be done with chasing tools, snarling irons, or various hammers, as when doing repousse. Bullseyes in





the metal may be created using drills or round burs. When using a drill, drill no deeper than



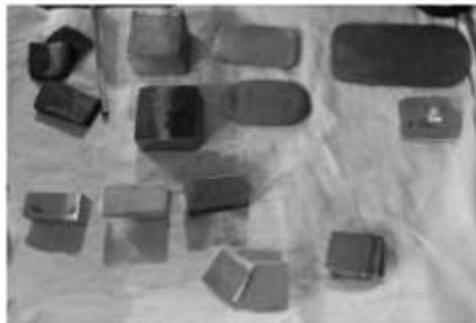
the point. Lines in the pattern can be created with files or round-edged wheel burs. Removing more than 1/3 the thickness by either method runs the risk of cold shunt holes forming as the billet is reduced by forging. Any burs that form on the edges of carved or bumped areas need to be removed prior to reduction, or they will fold and create tags that flake off later.

It is a good idea to always keep notes on each billet produced. This allows you to know what works well, or what may have gone wrong if the process fails. For me it was easy to over-heat the billet or work it too fast. It is also important to remember to anneal the billet often when reducing. Non-ferrous metal is the opposite of ferrous metal: Heat to about 900 degrees (less than a red heat, or it will melt) and quench it to anneal. This keeps the metal from work-hardening and cracking. When using a forge or torch, I suggest using a heat pencil to start with, as it will help you determine when the billet is ready to work.

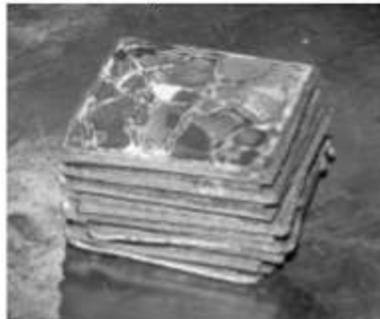
Alternatively, you can use a kiln to control your setting at the proper temperature.



In conclusion, I would like to thank MABA for sponsoring my attendance to this class. It was a great experience and introduced the ideas of the process of mokume. This is a process that will require practice (and some failures!) to perfect. Once the process of making mokume is familiar, various coloring solutions or patinas can be used, making your pieces even more unique. Once made, the billets can be used to create jewelry, buckles, butt caps and guards on knives, etc. The only limit is your imagination!



*(Editor's note: Pieces Tim had on display at the demonstration)*



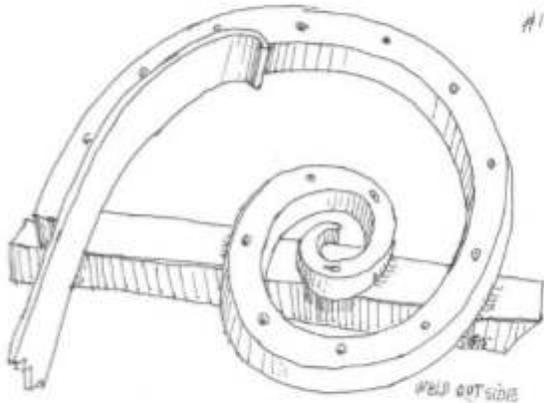
The billet of Mokume Tim made during the demonstration.

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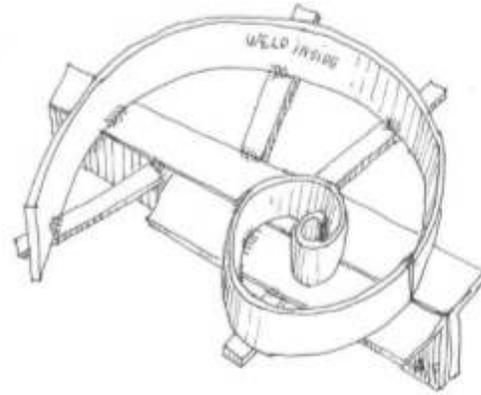
# Scroll Jigs—

by Steve Alling, a MABA member

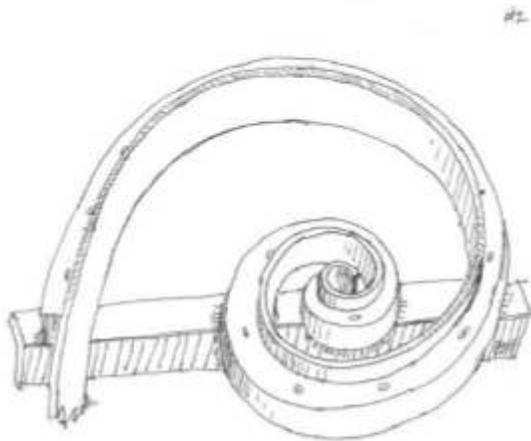
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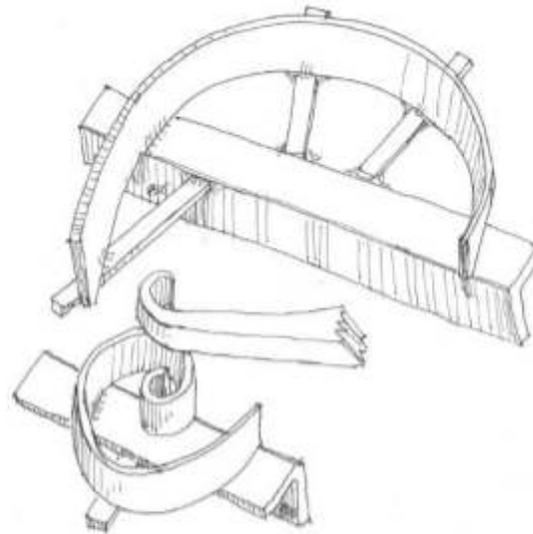
Master scroll jig welded to the angle iron with the scroll jig stock starting to be driven into place.



Scroll jig welded to angle irons with appropriate bracing and cut to separate.



Scroll jig stock completely driven into the master scroll.



Scroll jig separated and the hot iron ready to be scrolled.

## Feet For Portable Forge Legs

By Joe Raeacz, a MABA member

To keep your forge legs from sinking into the dirt, add feet to them. Weld a 6 inch (or longer) loop of 1/8" or 3/16" steel cable to a 2-3 inch washer. Make sure the outside distance between the loop welds are the same,



or smaller, that the inside diameter of the forge leg pipe. Make a foot for each forge leg then push the cable up into the ends. The feet are held in place by the cable loop gripping the inside of the pipe leg – this allows them to pivot with the terrain and stabilize the forge.

# Lud's Scrolling Jig Holder from a Pipe Threader

Write up by Steven Spoerre, a MABA member

If you have a small shop or limited "swing" area around your vise, mount your scrolling jig into a modified ratcheting pipe threader. When this combination is clamped into the vise, long pieces of stock can be wrapped around the scrolling jig while standing in one place. Lud Lazarowicz showed this set-up at a Mankel Blacksmith Shop open house years ago.

Replace the thread cutters with spacer blocks that let you drop the scrolling jig into place like a bottom tool falls into the anvil's hardie hole. Clamp the pipe threader handle in the vise and initially set the toggle so the jig will ratchet away from you. Now, while you stand in a one place, hold the end of the stock at the starting point on the jig, pull the stock towards you until you reach the shops/areas "swing" limit, then ratchet the jig away from you and form the stock around another portion of the jig. At some point the



ratchet toggle will need to be flipped to keep the stock pull direction the same – repeat until the scroll is finished.

The scrolling jig pictured was originally made to clamp in the vise jaws, so it orbits the pipe threader as it's moved for better stock alignment. Ideally the scrolling jig tail should be bent under the scroll, then bent down 90 degrees so the jig would be centered over the ratcheting head.

This article is re-printed courtesy of the Michigan Artist-Blacksmith Association, The Upsetter Newsletter, May-June 2016

## Shop Tip: Cleaning Scrolls

By Jim Carothers

Cleaning fire scale out of a blacksmith made scroll can be difficult. Paint or other finishes applied over scale often flake off later making your work look bad or making more work for you.

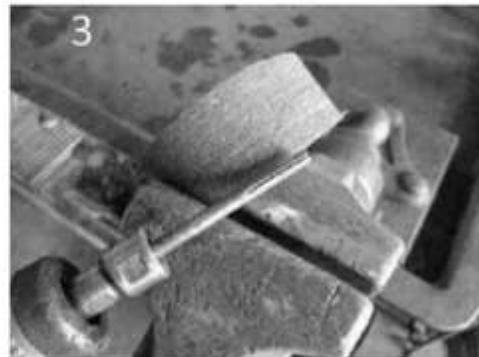
Photo 1 and 2:



I use a die grinder and a shop made mandrel to remove scale from the inside of my scrolls. A piece of emery cloth or sand paper is put in the mandrel slot; the free end of the emery held and the mandrel rotated in the same direction the tool turns to form a flapper type roll.

Photo 3:

The mandrel is a piece of 1/4" cold finished round bar. It has a band saw or hack saw slot cut in one end.



This flapper type sander is also good for cleaning the inside of candle cups, tubing, etc. Be sure to wear safety glasses and a face shield when using this set up; a reduced air pressure and speed of the tool are good.

You really don't need 10,000 rpm to clean off scale and rust.

# String of Pearls as demonstrated by Allan Kress

Editor Jim Maness  
By Bob Hungerman



The following is a description on how to forge a "String of Pearls" as demonstrated by Allan Kress at the 2015 Gichner Memorial Hammer-in held at Dave Hutchison's farm. The string is a set of decreasing spheres with a drawn out and curled end. Allan uses Schedule 40 pipe to reduce the overall weight of the finished piece. He has found that forging this piece from solid bar stock results in the end having too much weight/mass which leads to cracking in the necked down sections between the larger "Pearls".

Start by necking down the pipe with a Smithin' magician or appropriate tool. (Fig1).

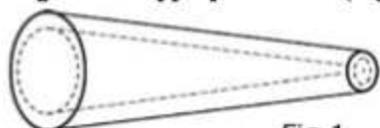


Fig.1

Draw out the end to represent a vine or finial; (Fig 2).

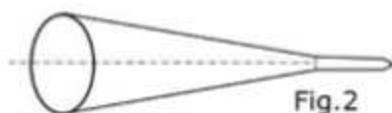


Fig.2

The final step will be to place a curl or corkscrew twist in the end. Be careful not to draw out the end too much. Allan does not weld the end shut and therefore thinning too much will result in a crack or split at the end.

Next begin separating each "pearl" using a set of "V" dies in a Smithin' magician. The "V" dies are fairly acute but not sharp, the working end has a slight radius. Rotate the piece while you neck down each section to achieve a round indentation (Fig 3).

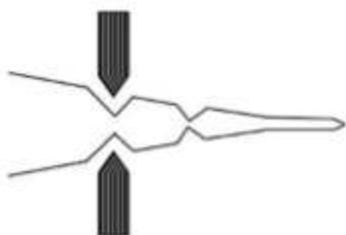


Fig.3

Progress back from the tapered end through the pipe allowing slightly more space between each pearl so each becomes bigger than the last (Fig 4).

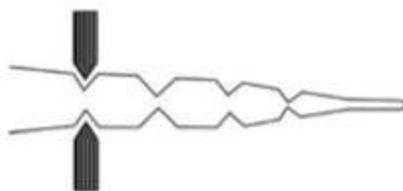


Fig.4

Allan had originally tried to forge each pearl as a complete round ball using different sized fullers, but has opted for this method as being faster and requiring one tool instead of many.

When all the sections have been made you will notice they are not complete spheres; the flat taper from step one is still present. Finish each with a file, or on the slack section of a belt sander (Fig 5).

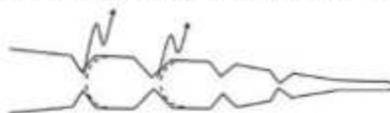
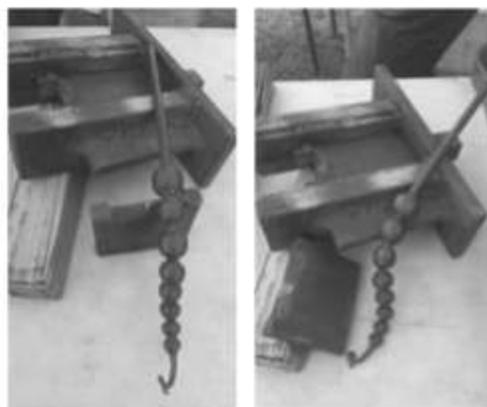


Fig.5

There is enough wall thickness from the initial tapering of the pipe that you will not file a hole into the pearl. Finally heat the entire piece and put a curve or corkscrew throughout its length (Fig 6).



Fig.6



# Power Hammer Demo

With Rick Dyer - June 4, 2016

On Saturday, June 4<sup>th</sup>, Rick Dyer held a power hammer demonstration at his shop in Tulsa. This was a demo of various power hammer techniques and tooling rather than a hands on participation workshop. Around twenty SCABA members attended the demonstration.

Rick started off with a general discussion about the power hammers in his shop followed by a discussion on safety. He said to always hammer hot metal as hammering cold metal on a power hammer can get you hurt.

The hammers in Rick's shop are a 25 Lb Little Giant, 100 Lb Little Giant, and a 34 kg Sahinler air hammer.

Rick said that oil is the power hammer's friend and started off oiling before actually using the hammers.

Rick showed a variety of specific tooling that he has made over time for different projects. He said that most of his tooling that needs to be used for production work is made from S7 or H13. He also said that spring steel will not hold up. And he noted that it is controversial but he does quench the S7 and H13 tools as needed while using them. Rick also used a ball pein hammer to do some texturing under the air hammer.

(No we did not discuss whether the struck face was annealed or not but the hammering was controlled and the steel being textured was always hot. As always, heat treat/quench your tools or not at your own risk and your own discretion. You are the best judge of how they are to be used and whether or not that specific use is safe.)



*"Oil is the power hammers friend..."*



*Texture tools made by MIG welding and grinding.*



*Rick showing some shop made power hammer tooling.*



*Tools made from simple common elements can produce some interesting shapes.*



*Shape made by rotating the piece in a profile swage.*



*Some power hammer tools can be made from simple tools already available. You might recognize this one as a ball pein hammer.*



*Tenon swage tool with a die mount base and a quick opening handle.*



*A leaf element textured with the ball pein hammer.*



*Miscellaneous power hammer tooling.*



*This profiling tool and its mate are designed to be mounted on the front of the dies rather than the face. This allows more space between the tooling than would otherwise be available.*

Rick said that he usually handles textures with either a full saddle or handled tool and he makes a lot of textures by MIG welding and then grinding to achieve the desired result.

For production work, Rick uses a wide propane forge with several burners to keep enough pieces warming up in the forge as he cycles through forging each one. During the demo, he jumped



*Rick's multi-burner propane production forge.*



*A wall lamp prototype.*

from one piece to another to illustrate different techniques as each piece was hot enough to work. Some of the work was also done on the anvil with a hand hammer as a compliment to the power hammer work.



*Solving a power hammer challenge during a short break.*



*Rick working on a sample element using a combination of power hammer and hand hammer techniques.*



*Sample of reproduction gate hinges made by Rick (above) and the original from the side view (below). The thick base of the taper is around 1 1/4" square.*

Rick ended the demo around noon and showed some photos of representative finished work that shows what some of the end results look like.



*Example of commission work using some of the techniques in the power hammer demo.*



*Residential stair railing Rick was involved in producing.*



*This bench-in-progress was a real attention getter at the demo.*

These were commissioned works from all all around the country and were very impressive.

Thanks to Rick Dyer for opening up his shop and sharing some of his techniques with the group.

*- Editor*

# Early Innovations Drove Forging Forward

Lou Kren - *Forging* - Feb 15, 2013

***Essentially an art for centuries, forging benefited from numerous technology advancements during and after the Industrial Revolution. The modern forge shop is the result of those advancements.***

The Forging Industry Association (FIA) celebrates its centenary in 2013, 100 years of remarkable change for the forging industry. When the Association started, forging was more of a craft than an industry, and even now it is frequently described as “heating and beating.” But in fact the metallurgy and engineering of forging have evolved to encompass various sophisticated processes involving computer modeling, PLCs, exotic materials, and other state-of-the-art methods for developing net-shape finished products. How did we get here? The FIA archives highlight numerous innovations prior to World War II that shaped the modern forge shop.

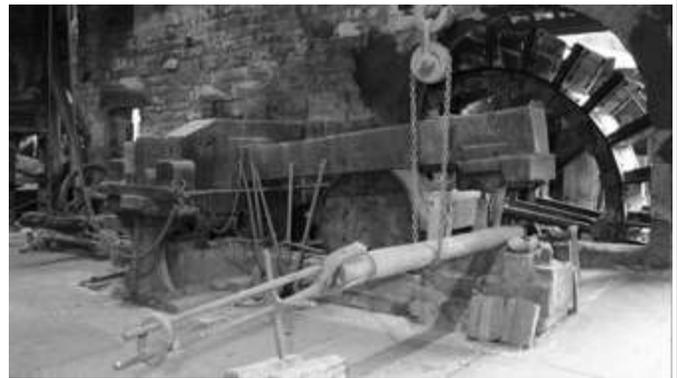
## The ancient art

The origins are ultimately obscure, but forging can be traced to the intersection of fire and metals. With the mastery of both, it was not long before ancient people attempted to heat metallic compounds and pound them into simple shapes, for hunting, fighting, and later farming. Most famous



*A water-powered hammer in the forge at Fontenay Abbey, near Montbard, France. There, Cistercian monks devised this forging system as early as 1220, to produce iron tools.*

of early forgings are the Toledo blades, fired in Spanish territories from natively produced steels considered superior to those of other lands. More than 2,500 years ago, Iberian blacksmiths were forging uniquely designed, high-quality swords. The quality was such that users included Hannibal: Defeated at the point of those weapons, Roman legionnaires would also become customers.



At Wortley Top Forge, near Sheffield, England, this “belly helve hammer” was a 16th-Century water-powered system used to form iron into forgeable bars.

Though forging was an art, primarily, the way it was done centuries ago incorporated some unique methods to ensure quality and repeatability. From antiquity through to the Middle Ages, in order to determine the correct time to place a sword blade in a furnace, blacksmiths would recite prayers and psalms in rhythm. Improvements in chemistry brought stronger materials and refined means of production. Family and regional recipes for metallic compounds, as well as firing and hammering times, yielded to more scientific expertise during the Industrial Revolution.

Many inventions of the Industrial Age depended upon forgings, including the cotton gin, locomotive, sewing machine, textile machinery, reaper, and artillery.

Until the mid-19th century, most forging work employed a flat hammer and die faces with simple impressions. Tilt hammers used for big jobs consisted of a beam with a weight on one end and pivoted in the middle. The weighted end was lifted by water working through a crude ratchet and fell

free as the ratchet cleared the beam. Smaller jobs were performed using the English Oliver, an upsetting machine operated by human foot power.

According to contemporary reports in early-20th Century trade journals, the first breakthrough in industrial forging was precision forging dies, developed at the forge shop of Samuel Colt. This innovation enabled high-speed production of duplicate interchangeable parts. A second breakthrough was the invention of the steam drop hammer, patented by James Nasmyth in 1847. Nasmyth's original patent drawing hangs now in FIA's headquarters. The 1860s brought another American invention, the board drop hammer, followed by the hydraulic forging press in the 1880s.

With these developments, blacksmithing — America's first industry — gave way to drop forging, involving machines designed with a guided weight pulled up on a rope and then dropped on dies to shape heated metal alloys. Advancements in chemistry and alloy production in the late 19th century, along with the invention of more sophisticated hammer technology, are the seeds of today's modern forging industry.

In a 1921 publication, *What is a Drop Forging? (and Why People Care?)*, the American Drop Forging Institute boasted: "The development from the crude iron of ancient times to the perfected Bessemer, open-hearth and electric-furnace steel of today, has made possible our railroads, steamships, automobiles, tractors, farm machinery—every one of our modern necessities and comforts in business and home life."

## **Harnessing energy**

Proceedings of the American Drop Forging Assn. (the organization that would become today's FIA) detail technology innovations. For example, ADFA conferences in the 1910s focused on advances in electric motors and applications in the forge. At the time, the industry debated whether the flexibility of individual machine drives and motors outweighed the efficiencies of a group drive, where several machines linked to a single driveline. The problem with a group drive: a motor failure would disable many machines at once, while a motor failure on

individual machine drives would take down only that single unit.

During World War I, energy savings emerged as an industrial concern. Once a low-cost resource, scarce fuel supplies and transportation difficulties made energy difficult to procure at almost any price. ADFA meetings and presentations focused on methods to use less energy and maintain reliable, less costly supplies. Also, the new process of thermite welding, used commonly in later years for railroad-track joining, was a hot topic in the 1910s.

The association chronicled industry news, events and technology in its own magazine, *American Drop Forger*. In the August 1916 issue, "The Importance of the Keller Automatic Die-Sinker to the Drop Forge Industry," described what was essentially an automatic milling machine supplied with a hand feed. The machine addressed the lack of skilled human die-sinkers (even then, the lack of skilled workers was a hot topic, driving innovation), and promised a series of benefits related to automation.

"Undoubtedly, there will, for a time, continue to be some skepticism, as there always is to a new labor saving method," the article concluded, "but the fact is that thousands of dies have and are being produced by this method."

By the early-1920s, forgers were poised to capitalize on tremendous technological advances that had occurred over only a few decades. These included a rise in the use of dedicated upsetters and forging machines, and in the development of furnaces. One critical factor to heating advances was the arrival of fully automatic, electronically ignited oil burners in 1917: this spelled the decline of the dirty, laborious and inexact process of starting and tending coal and wood fires. Instead, operators needed only to set a thermostat.

"More advancements have been made in the last five years in the construction of furnaces than from the time of the Village Blacksmith as immortalized by the poet, Henry W. Longfellow, to this particular date," noted Dr. W.N. Best in his presentation, *Illustrated Lecture on Modern Furnaces Using Oil as Fuel*, at ADFA's Annual Convention, in 1920. "Oil as a fuel is a necessity in drop forge plants, for by its use you can increase

your output 100 percent. ... Your dies last longer, and you have every advantage over your competitor who uses coal as a fuel because of greater and superior quality of output.”

Advancements like this transformed the industrial landscape after World War I. “If one were to plot a diagram of human progress, with centuries for abscissa and important discoveries and inventions for ordinates, the resultant curve would rise but little until after the eighteenth century. It would then sweep gradually but firmly upward until 1900, when it would mount sharply and with a sustained abruptness,” claimed an industry professional in the January 1922 issue of *Forging and Heat Treating*. “I would rather purchase a drop forging plant today than at any other time during our most recent history.”

## Supplying modern society

Growth continued through the 1920s as the forging industry adapted to peacetime needs. An increasing population demanded more goods and services, with transportation, oil-and-gas, and construction industries needing forgers’ products. Electrification also benefitted forgers, with the process in high demand to meet electrical-equipment and line-pole needs. Old ways rapidly gave way to new, forever changing the perception of forgers as blacksmiths.



*Workers drive a die key on a forging hammer producing heavy hydraulic fittings, to produce boilers for a U.S. military contract.*

For example, in a 1928 speech, one forger recounted: “I have just returned from a vacation on the eastern shore of Chesapeake Bay, near the small town of St. Michael’s,” he began to describe meeting a blacksmith of the horseshoe and wheelwright variety. “During one of our conversations ... he told me that in 1917 he shod

1,800 horses; in 1922, 884 horses; and in 1927, 218 horses ... and he doubts that he will shoe 100 horses this year.”

The 1930s saw expanding use of new alloys, courtesy of advancements in metallurgy. Aluminum, stainless steel, and brass were all incorporated into forgings during this period. Forging machinery also advanced between the World Wars, as explained in the September 1968 issue of *Precision Metal* by its editor, Philip R. Kalischer:



*A photo taken in the mid 1950s shows workers positioning an ingot in 10-ton, double-column steam hammer to forge a locomotive connecting rod.*

“Newer, faster, bigger machines were built,” Kalischer wrote. “Included were bigger, more accurate, more sensitive steam and air drop hammers. Bigger hot and cold headers with multiple stations and with more accurate wire drawing and cut-off equipment. Upsetters were improved and larger ones built. Mechanical presses grew to 6,000- and 8,000-ton giants and hydraulic presses were even larger.”

By the start of the Second World War, forging had matured from mainly a supplier to agricultural and horse-drawn-carriage makers to an industry that—with no exaggeration—would change the world during and after the hostilities.

*Lou Kren is a freelance writer and former editor of FORGING. Contact him at LouKren@gmail.com*

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<http://forgingmagazine.com/forming/early-innovations-drove-forging-forward>

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# An Epic Tale Of Survival and Upset Forging

Robert Brooks - *Forging* - April 25, 2016

*"Largest machine of its type" is returned, restored, and gets ready to forge again.*

Upset forging is a process that's been around for centuries and it remains the most common forging process, as calculated by the number of parts produced by that method – which uses mechanical force to compress a long product into a part with smaller dimensions and greater density. Relatively common products like valves, couplings, screws and so forth are manufactured this way.

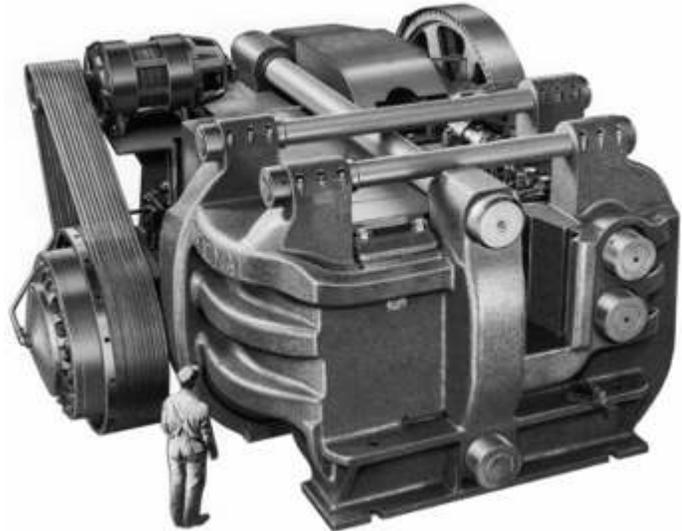
But while there is nothing particularly intriguing about that description, it fails to capture the scale of the 9-in. upset-forging machine once described by National Machinery Co. as being among the largest ever built. Weighing 533,000 lbs., it was completed in 1941 and shipped by the Tiffin, OH, designer and manufacturer to a forger in the Soviet Union.

One can imagine the machine's perilous journey across submarine-infested seas, then by rail across 1,000 or so miles to a plant well east of Moscow and (then) Leningrad, where it was installed to manufacture parts needed to defend that country against invasion. The story would be pretty fascinating if it ended there.

But 75 years later the machine has arrived "home" in Ohio. The return trip actually started in 2014: TrueForge Global Machinery bought the machine late that year, and the disassembly and relocation process began. Situated at the center of that remote Russian plant, it was removed from its foundations and transported in pieces to a rail spur. The two large frame sections (200,000 and 130,000 lbs.) were sent by rail, and seven more containers full of other parts were trucked to St. Petersburg, and from there the entire inventory was shipped to Antwerp, Belgium.

Waiting out the winter there, the materials were shipped again, across the Atlantic, and arrived in Cleveland in mid-March

In Cleveland, Henry & Wright Corporation has been retained to rebuild and update the forging machine. The distance of about eight miles from



*The 9-in. upset-forging machine designed and built by National Machinery Co. in 1941, as illustrated by the manufacturer in a vintage catalog.*

the Port of Cleveland to the Henry & Wright plant will require another round of logistical and tactical skill: special haulers will be used to place the machine's front frame atop a 205-ft. long, 19-axle twin trailer; the smaller rear frame will ride an 11-axle trailer. Interstate 90 will be closed to allow the caravan to make the next short trip of this long journey.

Henry & Wright will restore the machine's bearings and liners to original running clearances and specifications. Then, it will install its own System 4005 Forge Safety Control Package, including the modern-standard air-clutch machine control.

Interested buyers may have the chance to acquire like-new machine in months, rather than the years necessary to design, plan, and manufacture needed to build a new upset-forging machine of comparable power and scale. Even so, it's unlikely that the details yet to be revealed can improve on this epic tale.

This article is reprinted from the *Forging* website with permission. The original article can be seen at:

[http://forgingmagazine.com/picture/epic-tale-survival-and-upset-forging#slide-0-field\\_images-11331](http://forgingmagazine.com/picture/epic-tale-survival-and-upset-forging#slide-0-field_images-11331)

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# SCABA Shop and Swap

## Anyang 88 Air Hammer for sale:

2012 model, 88 lb. ram, self-contained with flat dies, 3-phase. I bought it for a large railing job but am slowing down and rarely start the hammer. Excellent condition, only slightly used, very controllable and easily works 1-1/2" bar or small stock.

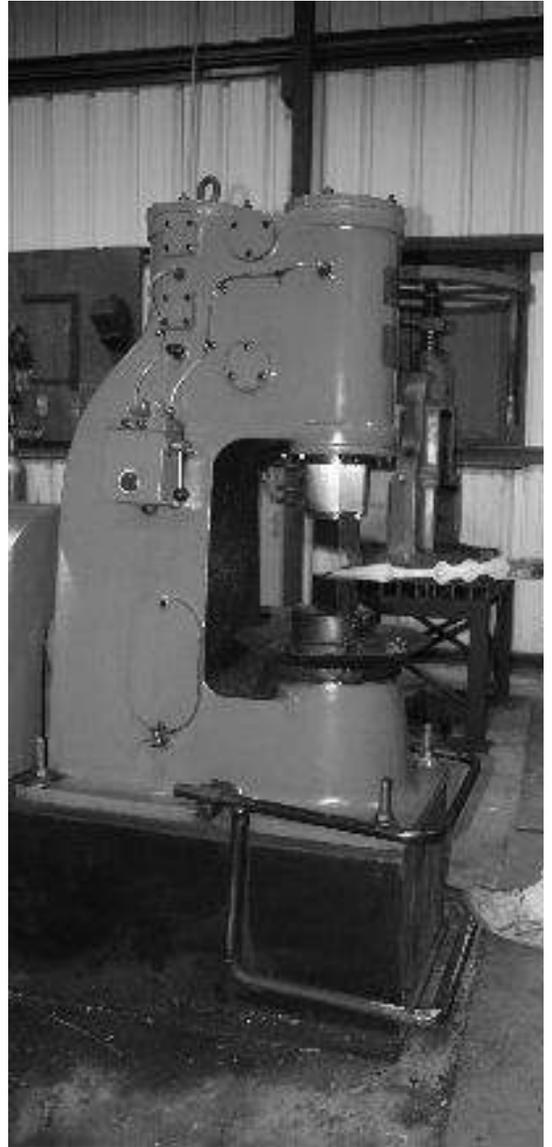
\$7200 cash, loaded on your truck.

\$500 additional buys the Siemens Variable Frequency Drive (VFD) and Square D electrical disconnect. The VFD controls all aspects of the motor including start time, amp draw, stop time and motor speed. Speed can be adjusted while motor is running. (VFD purchase not required.)

See under power in my shop.

Call for appointment. No phone calls after 7 pm CST, please.

James Allcorn  
33 1<sup>st</sup> NE Street  
Paris, TX 75460  
903-517-1667  
jallcorn@suddenlink.net



## For Sale:

### Tire Hammer Plans by Clay Spencer

Send a check or money order for \$30 US to Clay Spencer, 73 Penniston Pvt. Drive, Somerville, AL 35670-7013. Or send \$32 US to Paypal.Me/ClaySpencer. E-mail me at clay@otelco.net. PDFs will be e-mailed outside US. Phone 256-558-3658

### Beverly shear blades sharpened

Remove your blades and send in USPS small flat rate box with check for \$41 US to 73 Penniston Pvt. Drive, Somerville, AL 35670-7103.

# SCABA Shop and Swap (Continued...)

## SCABA Embroidery Available

Saltfork member Larry Roderick has setup a source for SCABA logo embroidery on shirts or embroidery compatible items. Larry presented an embroidered tan Wrangler western shirt at the recent Board of Directors meeting and the quality of the embroidery is excellent. The design is based on the new SCABA T-shirt design on the back with the classic SCABA logo above the front left pocket. Your name can also be put on the right side opposite from the logo if you would like.



If you would like an embroidered shirt or other item, find an item that fits you properly and mail it to Larry.



Compatible items must be flat. Pleats cannot be embroidered. The cost for the embroidery applied to your item is \$80 each including return shipping and handling. Heavy coats might add a few dollars more for shipping.

Mail to: Larry Roderick  
500 S. FM 369  
Burkburnett, TX 76354

If you have questions, contact Larry at 940-237-2814 or [roderickwaterwells@gmail.com](mailto:roderickwaterwells@gmail.com)

*(Photos by LaQuitta Greteman)*

### For Sale:

I have for sale several metal working tools and machining tooling.

Antique bellows \$425

Sheet metal roller \$175

Sheet metal shear \$175

Little Giant tap and die set \$50

56 assorted chisels and punches. Price may vary depending on piece.

Assorted machining tooling. Price may vary depending on piece.

For pictures or questions contact Brendan Crotty by phone call, text, or email.

Phone number: 918-910-0384

E-mail: [brendancrotty246@gmail.com](mailto:brendancrotty246@gmail.com)

If calling please leave a message and I will call back.



# SCABA Shop and Swap (Continued...)

## For Sale:

I have numerous old tools and collectible items of various kinds including blacksmith related tools and equipment. Too many tools to list them all.

## Contact:

Craig Guy (SCABA Member)  
Piedmont, OK  
Cell Phone: 405-630-7769  
Call or Text



4" Post Vice (Very Good): \$125



Rare Wagon Tongue Vice: \$300



5" Post Vice (needs spring): \$135



Bench Top Anvil/Vice (1912 Patent Date): \$85

# SCABA Shop and Swap (Continued...)

## SCABA Library DVD's Available:

This is a partial list of the DVD titles available to members from the SCABA Library. Contact the Librarian (Doug Redden) if you would like to obtain a copy of any listed title or if you have questions on any other titles that may be available. Additional titles are listed on the website. DVD's are available for a very minimal cost to offset the blank disc and cases or sleeves. Shipping cost applies if you need these delivered by mail.

- Robb Gunter Basic Blacksmithing parts 1,2,3 and the controlled hand forging series
- Clay Spencer SCABA conf.2013 pts. 1,2 and 3
- Jerry Darnell 18th century lighting, door latches and hinges
- Brent Baily SCABA conf. 2011
- Mark Aspery SCABA conf. 2011
- Robb Gunter SCABA conf. 1998
- Robb, Brad and Chad Gunter 2009 joinery, forging, repousse, scrollwork, etc.
- Bill Bastas SCABA 2002 pts. 1 - 6
- Jim Keith SCABA conf.2007
- Power hammer forging with Clifton Ralph pts. 1 - 5
- Doug Merkel SCABA 2001
- Bob Alexander SCABA 2008
- A. Finn SCABA 2008
- Bob Patrick SCABA 2004
- Gordon Williams SCABA 2010
- Daryl Nelson SCABA 2010
- Jim and Kathleen Poor SCABA 2001
- Ed and Brian Brazeal SCABA 2006
- Ray Kirk Knives SCABA 2002
- Frank Turley SCABA 1997
- Frank Turley SCABA 2003
- Bill Epps SCABA 2003
- M. Hamburger SCABA 2007

### **For Sale:**

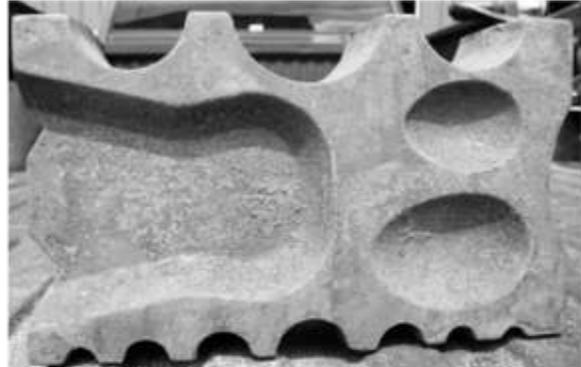
6" round nosed pliers (great for putting scrolls on small items) \$5.00 each.

Brooms tied, \$20.00 on your handle Please contact me for help with handle length.

Contact Diana Davis at  
Diana.copperrose@gmail.com

## **SCABA Swage Blocks**

\$150.00 plus shipping.  
(Same price to members and non-members.)  
Contact Bill Kendall for more information.



## **SCABA Floor Cones**

\$200.00 plus shipping.

(Same price to members and non-members.)

Contact Bill Kendall,  
Byron Doner or Gerald  
Franklin for more  
information.



# SCABA Shop and Swap (Continued...)

## **Club Coal:**

Saltfork Craftsmen has coal for sale. Coal is in 1-2" size pieces. The coal is \$140.00/ton or .07 /pound to members.

**No sales to non-members.**

## **NW Region coal pile located in Douglas, OK.**

If you make arrangements well in advance, Tom Nelson can load your truck or trailer with his skid steer loader for a fee of \$10 to be paid directly to Tom. Tom has moved his skid steer and must now haul the loader to the coal pile to load you out, hence the \$10 charge. You may opt to load your own coal without using Tom's loader. The coal can be weighed out at the Douglas Coop Elevator scales. Contact Tom Nelson (580-862-7691) to make arrangements to pick up a load. Do not call Tom after 9 PM!! Bring your own containers and shovels. Payment for the coal (\$.07 per pound) should be made directly to the Saltfork Treasurer.

## **NW Region Coal Pile in Thomas:**

Don Garner now has a new pile of club coal available for sales to SCABA members. The shop is at 23713 E 860 Rd in Thomas, OK. (One mile west, then one mile north of Thomas.) Contact Don at 580-661-2607 to arrange details for purchases.

## **NE Region coal location: Charlie McGee**

has coal to sell. He lives in the Skiatook, Oklahoma area. His contact information is: (Home) 918-245-7279 or (Cell) 918-639-8779

Please text his cell phone number if you would like to make arrangements to get coal.

**S/C region coal location:** Club coal is now available at Norman at Byron Donor's place. Call Byron to make arrangements to come by and get coal.

## **For Sale:**

24"(wide) x 1"(thick) Ceramic fiber blanket (similar to Kao-wool) \$1.00 per inch of length. Twisted solid cable 1/2" diameter \$2.00 per ft. Contact Larry Roderick at 940-237-2814

## **Show Your Pride in SCABA!**

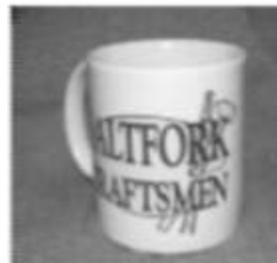
License plates - \$5.00 each.

Ball Caps - \$10.00 each.

We also have coffee cups.



We still have some of the old SCABA t-shirts available while the supplies last. They are a gray pocket "T" with the SCABA logo on the pocket. Contact Diana Davis for information.



## **Wanted:**

Advertising Coal Hammers, Contact Mike George at 1-580-327-5235 or

## **Have an Item for Sale? Item Wanted?**

If you have any items that are appropriate for Blacksmiths that you would like to list in the Swap and Swap section (or items you are looking for), please send me your description, contact info, and any photos that you have

# The SCABA Shirts

are now available with a bold new look...

The latest SCABA T-shirts are now available with a new custom design by a professional artist. We also have new long sleeve denim shirts now available with the same new design. Each shirt has the main design on the back with the SCABA logo on the front pocket. T-shirts are available in black and gray. Denim shirts are \$25 and T-shirts are \$15 (plus shipping if applicable.) If you would like to purchase shirts, contact Doug Redden (918) 230-2960:



# SCABA Membership Application

January 1, 2016 to March 31, 2017

New Member _____
Membership Renewal _____

**Please accept my application**

Date: \_\_\_\_\_

First Name \_\_\_\_\_ Last Name \_\_\_\_\_

Married?  Yes  No Spouses Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Home Phone (\_\_\_\_) \_\_\_\_\_ Work Phone (\_\_\_\_) \_\_\_\_\_

E-mail \_\_\_\_\_ ABANA Member?  Yes  No

I have enclosed \$20.00 for dues for the period ending March 31, 2017

Signed: \_\_\_\_\_

**Return to: Saltfork Craftsmen, P.O. Box 18389, Oklahoma City, Ok. 73154**



## Saltfork Craftsman Regional Meeting Hosting Form

Region  SE  NE  SC  NW

Date: Month \_\_\_\_\_ day \_\_\_\_\_ [correct Saturday for region selected above]

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone/email \_\_\_\_\_

Trade item \_\_\_\_\_

Lunch provided  yes  no

Please provide directions or a map to the meeting location along with this form.

\*\*All meeting are scheduled on a first come basis. Completely filled out form MUST be received by Regional Meeting Coordinator no later than the 15th of the month TWO months **PRIOR** to the meeting month.

Completed forms can be mailed or emailed.

You will receive a conformation by e-mail or postcard.

A form must be filled out for each meeting.

If you don't receive something from the Regional Meeting Coordinator within 10 days of your sending in your request, call to verify that it was received.

An online form is also available on the website in the top banner of the Calendar Tab:

[www.saltforkcraftsmen.org/Calendar.shtm](http://www.saltforkcraftsmen.org/Calendar.shtm)

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Oklahoma City, Ok. 73154

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