

RAM

NOVEMBER-DECEMBER 2008



© Herzog

Tom Clark 1932-2008

Contents

Editorial	5 From the Editor
Ham's Prairie, MO	6 Minutes from 8/20/08 meeting
The Prez Says	7 Ken Jansen's President's letter.
Rolla, MO	8 Minutes from the 11/1/08 meeting..
Tom Clark	9 Tom Clark obituary and remembrances.
Conference 2009	10 Conference, hotel information.
SOFA	11 Report from the SOFA conference.
Chain Braid	12 Jim Vandike demo.
Heat Treating	14 Dave Smucker article.
Damascus Knife	20 Matthew Burnett scholarship report.
Kate Dinneen	22 Kate elected to the ABABA board.
Boy Scouts 2009	22 Call for volunteers to help teach at BSA camp.
Classified Ads	24 Ads - Personal / Business
Scheduling	27 Upcoming Events
Membership	27 New Members



Cover Photo, copyrighted by Bruce Herzog. Do not copy or duplicate without written permission.



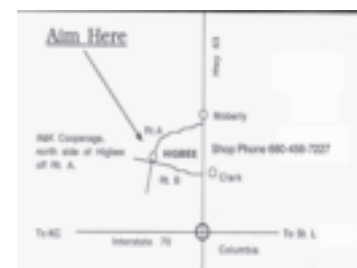
John Murray arrow head demo.



ABANA Page 23



COAL Map pg 26



Meeting Map pg 28

**Newsletter of the
Blacksmiths
Association
of Missouri**

*Volume 25 No. 6
November-December 2008*

Editor
Bob Ehrenberger

Contributing Writers
Don Birdsall
Matthew Burnett
Dave Smucker
Karen Bouckaert
Don Anders
Ruth Hull
Esther Digh
Ben Bradshaw

Photo Contributions
Bruce Herzog
Bob Ehrenberger
Ed Harper
Don Anders

President's Message
Ken Jansen

Mailing Labels
Bruce Herzog

The Newsletter of the Blacksmiths Association of Missouri is published six times a year and is mailed to members of BAM. The annual fee for regular membership is \$25/year; a portion of this amount is for a subscription to this newsletter for one year. Editorial inquiries should be addressed to: **Bob Ehrenberger 6192 Hwy 168 Shelbyville, Mo 63469;(573)-633-2010 or send e-mail to bameditor@centurytel.net** BAM membership inquiries should be addressed to: **Bruce Herzog, 2212 Aileswick Dr., St. Louis, MO 63129; (314) 892-4690 or send e-mail to bjherzog@msn.com.** Occasionally some material will be copyrighted and may not be reproduced without written consent by the author. BAM welcomes the use of any other material printed in this newsletter provided the author and this organization be given credit.

NOVEMBER-DECEMBER 2008

Membership Application

Name: _____
Address: _____
City: _____ State: _____
Phone: () _____ Zip: _____
E-mail: _____

New Member Renewal ABANA member?

How did you learn about BAM? _____

Memberships are for one year from receipt of dues. Dues are \$25, which includes a subscription to the bimonthly BAM newsletter. Please make checks payable to Blacksmith Association of Missouri.

ABANA Membership Application

Primary ABANA Chapter Affiliation: _____

Name: _____

Address: _____

City: _____ State: _____

Phone: () _____ Zip: _____

New Member Renewing Member

Includes a Subscription to the Anvil's Ring and The Hammers' Blow magazines

- Regular Member\$55 yr.
- Senior Citizen (Age 65+)\$50 yr.
- Full time student\$45 yr.
- Overseas airmail\$80 yr.
- Overseas surface mail\$65 yr.
- Contributory\$100 yr.
- Public library\$45 yr.

See reverse

Send this form in an envelope with your payment to:

BAM,
c/o Bruce Herzog
2212 Aileswick Dr.,
St. Louis, MO 63129

I _____ hereby apply for membership in the Artist-Blacksmith's Association of North America and enclose \$ _____ as my annual membership dues for one year.

MasterCard VISA Check/Money Order

Card Number

Exp. Date
(Required)

Checks must be in U.S. currency

SEND RENEWAL TO:

ABANA

15754 Widewater Drive, Dumfries, VA 22025-1212

Dues Distribution:

1 year subscription Anvil's Ring: 68.5 % \$24

Adm. offices & other ABANA projects (Conferences, etc.): 31.5% \$11



ABANA

Officers:

President
Ken Jansen

1st Vice President
Larry Hults

2nd Vice President
Ed Harper

Secretary
Don Anders
Fathom DeGrate Claxton

Treasurer/Membership
Bruce Herzog
Treasurer/Conference
Mike & Katy Camden

Web site
www.bamsite.org

Web Master
Ed Harper
aramed@grm.net

**Scholarship Chair/
Mobile Training Station**
Don Birdsall

Librarian
Karen Bouckaert

Conference Chair
Larry Hults

The Blacksmiths' Association of Missouri is an affiliate of the Artist Blacksmiths' Association of North America, and is devoted to the preservation and advancement of blacksmithing and to communication among blacksmiths in Missouri and surrounding areas. BAM's newsletter's goal is to support these aims. Letters to the editor, tech tips, tools for sale or anything else which furthers these ends will be considered for publication.

The Newsletter of the Blacksmiths' Association of Missouri and its members do not manufacture, distribute, sell, test, warrant, guarantee, or endorse any of the tools, materials, instructions or products contained in articles or features in the Newsletter of the Blacksmiths' Association of Missouri. The Newsletter of the Blacksmiths' Association of Missouri disclaims any responsibility or liability for damages or injuries as a result of any construction, design, use, manufacture or other activity undertaken as a result of the use or application of information contained in any articles or features in the Newsletter of the Blacksmiths' Association of Missouri. The Newsletter of the Blacksmiths' Association of Missouri assumes no responsibility or liability for the accuracy, fitness, proper design, safety or safe use of any information contained in the Newsletter of the Blacksmiths' Association of Missouri.

From the Editor

By Bob Ehrenberger

We had a beautiful day for the meeting at Don Birdsall's. I think that Don deserves the Joe Wilkinson "This shop is too clean to be true" award. Joe, you may have to host another meeting to get the title back. There was again, a nice selection of trade items, I'm glad to see so many members taking part in the trade item exchange.

Jan and I went to Rolla on Friday, it was the first BAM meeting she has been to that we didn't host, she had a great time. I think we will see her at more meetings, when the goats are dried up. Jan hopes to have a quilt in the frame in time to bring to the January meeting, Dale tells me you will have a warm room to work in. On the way to Rolla we stopped at a flea market in Mexico where I found a miniature post vice. It has 2 1/2" jaws and stands 6" high, there is a hole in the base to receive a support post. It was just too cute to pass up.

From what I hear, everyone had a good time at Ned's meeting in September. Dave Smucker is one of the better newsletter editors, and I regret not being able to meet him in person. He did send me electronic copies of his hand outs, which I will publish as space permits. The food bank was impressed with the collection of canned goods that BAM donated, good job guys.

I was concerned about our fall show season, with the national financial mess and the bank bailout, I thought the money might dry up. But, much to my delight, we sold as well as, or better than usual, at 4 of our last 5 events. It was a real life saver. As a special bonus, our booth won second place at the Hannibal Folklife Festival. Another positive note, the Blazer did a nice job and got us to all our events in good shape. I even needed the 4WD at one event to get out of a

muddy park. The Blazer doesn't hold as much stuff as the truck did, but it was nice to have all our product under cover, and not have to unpack it all every week when we were going out again in 3 or 4 days.

One disappointing thing was my new power hammer broke down with 4 big events left. I had to go back to the 25# trip hammer to finish the year. It is amazing how spoiled I had gotten using the air hammer. The trip hammer got the job done but boy is it slow in



Mini Post Vice

comparison. Tom had offered to lend me a hammer or if I wanted to come to his shop I could use his equipment (including his apprentice Ian Willie). But with a 5 hour drive each way that just wasn't practical. I know from my years at Mastercard that our most loyal customers weren't the ones that never had problems, but were the ones that we had worked with to solve major problems. If that principle holds true, I'm going to be a loyal Tom Clark customer, because Tom has gone above and beyond to help me out. With Tom's passing, I may have to figure out more of this on my own. Tom's staff tells me they intend to keep the school and tool

business going.

Tom finished his radiation treatments in September and was able to attend the SOFA conference. He pushed himself pretty hard to go, but given how long he had been down, it was a good thing to be able to attend one last conference. The trip wore him out and he never recovered his strength after it.

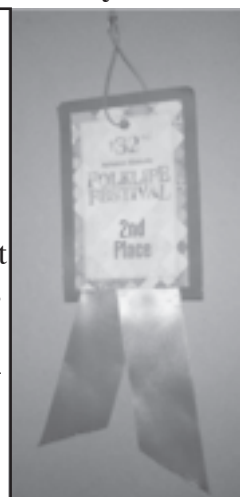
There was a mix-up on the roster published in the September/October newsletter. Somehow the 2007 roster got picked up instead of the 2008 roster. We apologize for the mix up. Larry Hults said that if you must have the latest copy, he can arrange to get you one.

Since I had written up the Jim Vandike rope braid demo, and the John Murray Bodkin arrow head demo, for the March 2005 newsletter, the articles in this newsletter are largely from the first one. I cleaned up the drawings and added some new information.

The BAM Board has given the go-ahead for me to get a new computer. Hopefully by the January newsletter, I will have a new system to write on.

The next Newsletter submission deadline is January 24th.

We got 2nd place at the Hannibal Folk Life Festival. The top three awards all went to close friends that demonstrate traditional crafts.



BAM SEPTEMBER MEETING

By Don Anders

Held September 20, 2008
At Ned and Esther Digh's'

Demo was given by Dave Smucker from John C. Campbell Folk School.

Dave prefers to use brine or oil to quench his tools, he is not a super quench fan, did not find out why, it was discussed after lunch. Keep brine covered, 10% solution, 4 lbs of salt per 5 gallons of water, any salt that is cheap, feed store salt ect. Remember to rinse your parts to remove the salt. Used hydraulic oil, motor oil etc, works fine, cut with diesel oil to keep viscosity down.

Most blacksmith items need only one normalization cycle, more is not better because it causes the tools to not harden properly and it affects grain structure of the metal. Normalization process heats the metal to critical temperature and then it is allowed to air cool to room temp. Most common carbon steel critical temp is very near to nonmagnetic but not so for exotic alloys. Critical temp for exotic alloys maybe far above the nonmagnetic temp.

Over heating in the hardening process causes a large grain structure in the metal which is not good.

STEPS FOR TOOLS

Forge to shape
Normalize
Rough grind
Heat slowly to just above critical temp
Quench
Temper-always temper and the sooner the better
Final grinding

Mark your steel (color code) when it comes into the shop
Yellow-oil blue-brine silver-air

Temper in toaster oven.
Don't trust toaster oven temp setting, use oven thermometers, get 2 and compare calibration, if different, get a third and see how it compares. When 2 read together, you have a spare and then you know the thermometer works.

To reduce the risk of cracking, don't over heat

RECOMMENDED BOOKS

Machinist Handbook, older editions are better, they are cheaper and have info not in the newer books on power hammers and forging.
Bill Bryson: Heat Treatment, Selection and Application of Tool Steel
Daniel Brandt: Metallurgy Fundamentals

SHARPENING

Use granite floor tile with sand paper sheet glued to it. This is a poor man's whetstone. Start with 100 grit and work up to 600 or so. Use welders magnet attached to a piece of wood for a handle so that you are not sharpening your fingers excessively. This works well when sanding the back of a tool to flatten it.

HANDLES

For ferrules, use 3/4 inch EMT metal tubing. Step drill the hole in the handle and hot set your tool in the handle. Heat tip of tool with torch 1/2 in from end red and hammer handle onto it. Use sheet metal screw in side of ferrule, on handle to keep it from coming loose, and file or grind head of screw off.

BUSINESS MEETING

Thanks to Dave for the Demo
Thanks to Ned and Esther for hosting the meeting and lunch.

Conference committee meeting today after the business meeting.

Still need volunteers for the conference committee and for the conference.

Need site captains and workers.

Need people that maybe interested in learning this year and being more active next year, conference committee chairperson and such.

If people do not step up to help, there won't be a conference in the future.

BAM member Kate Dinneen running for ABANA board, it is a good reflection for BAM to have a member at that position. She will be helping with the next ABANA conference for sure and welcomes help from other BAM members.

Hammer-in Nov 28, Friday, after Thanksgiving @ Ken Jansen's shop.

There were a few concerns with the State Fair this year. BAM was not listed in the brochure put out by the State Fair. The tram did not stop in front of the BAM tent, the route was changed. This decreased the number of people that stopped by the BAM tent. We need to contact or send a letter to Fair Officials to let them know our concerns. BAM members need to support BAM at the State Fair; it's a good experience and a lot of fun. You have the opportunity to spend time with other BAM members over a day or several days. You always can learn something new from another member.

Membership 605 members now, wait a minute, we gained one today at the meeting, now our membership is 606, this is highest membership ever.

Ray County Park and Museum in Richmond is looking for demonstrators that will bring people in for the May Mushroom Festival, this is held the first weekend in May. (same as BAM conference)

There is a link on the BAM web site for Demonstrators and also for Demonstrators Needed, please use these sites. If you have something to add or would like to be a listed Demonstrator, please let Ed Harper know.

TRADE ITEMS

MADE BY

Don Anders
Ken Jansen
John Huff
Preston Williams
Dave Shepard
Fred Arnold
Ed Harper
Jack Nettleton
John Woods
Mike Gentsch
Dan J. Wedemeyer
Daniel P. Wedemeyer

WENT TO

John Huff
Dave Shepard
Fred Arnold
John Woods
Dan P. Wedemeyer
Ed Harper
Mike Gentsch
Preston Williams
Ken Jansen
Dan J. Wedemeyer
Jack Nettleton
Don Anders

IRON IN THE HAT

DONATED BY

Dennis Quinn
John Huff
Don Anders
Larry Hults
Tom Patterson
Tom Patterson
Fred Arnold
Ken Jansen
Arnold
Mike McLaughlin
Mike McLaughlin
Mike McLaughlin
Ed Harper
Don Forlow
Dan Wedemeyer
Ned Digh
Esther Digh
Chris Owen
Red Barn Crafts & Antiques
Demo item
Demo item
Demo item
Demo item

ITEM

hex bar & leaf spring
gear on shaft
turnbuckle
large wire brush
railroad spike
spring
Shaft
Drill Bit
1" square bar
large steel ball
Scotch bright wheels
2 large all thread and nuts
all thread
large wire brush
4 KBC tool catalogs
Multitool
Drill gauge
4 catalogs and supply books
3 hay rake teeth
S7 punch
S7 punch
wood chisel
center punch

WON BY

Joe Hurley
Joe Hurley
Daniel P. Wedemeyer
Doug Knight
Mike McLaughlin
Richard Kamp
Richard Kamp
Dave Smucker
Fred
Richard Kamp
Tom Patterson
Larry Hults
Tom Patterson
Don Anders
Kent Harbit
Larry Hults & Dave Smith
Larry Hults
Bernie Tappel
Larry Hults, Dave Smith
Dave Smith
Dave Shepard
Mel Williams
Dave Gavel
Fred Arnold

Thanks to everyone that donated something. This was a great Iron in the Hat.



Letter from the president;

Well, the meeting at Don Birdsall's was a complete success, They put on a real good feed. If you went away hungry, shame on you.

We had a good demonstration with some open forge time after the meeting, where I believe it was tried out by a member or two, and Bob Ehrenberger demonstrated a non-bending hinge? ☺

It was a beautiful day and as long as you were able to avoid the acorn barrage, you felt pretty safe. ☺ We had some tailgaters there and I spent more than I planned..... again.

The conference planning is moving right along. As of this morning we have two more demonstrators to add to the list Mark Aspery and Corrina Menshoff. We still need site captains and helpers for a couple of the demonstrators so please step up and help us out with the conference.

Also, we need people to volunteer to help with the cleanup on Sunday, there will be a reward for those who help us out. I need about 10 people who can stay until Sunday afternoon to assist. They will be assisted by most of the rest of the conference committee. The last demonstration will end at noon, but there will be some cleanup before that.

Conference t-shirts: we are having a contest to design the conference t-shirt graphic. The designs need to be submitted to myself or Larry Hults by the end of February. The conference committee will vote on the winner and it will be submitted to Ruth Hull to get them made. We would like to get a better idea of how many t-shirts we will need, so

if you would like to let us know in advance what size and quantity you will need, we would appreciate it.

We have a forging contest for Friday evening, we will have 2 classes, beginner and open. The contest will be what can you make from a 2' piece of 1/2 inch square in 15 minutes in a gas forge. (MTS forges will be used) you can make anything you want, use all or only part of the stock. Hand tools only. You may bring your own or use MTS tools. Time starts when you pull your hot stock from the forge the first time.

Remember, if you are interested I am having a hammer in at my shop the Friday after Thanksgiving and all are welcome to attend.

Remember, we need items for the boutique at the conference. They need to be in the 15 dollar or less price range and please price them so the ladies know what to charge.

Don't forget, we are attempting to do a gas forge buy and if you are interested contact me and I will put your name on the list. It is best if you send me an e-mail so I can capture your information. I think someone may have contacted me at the meeting over the weekend and I cannot find that note, so if you did, contact me again so I have it down on the list.

We now have a working library again, so make use of it. You can contact the librarian to use it. If you have a book that you are not using, or a duplicate, think about putting it in the library.

Well that is all I have for now.
Happy forging.

Ken Jansen
kjansen@msn.com

Bob's square
post corner
anchor. Not a
hinge at all.

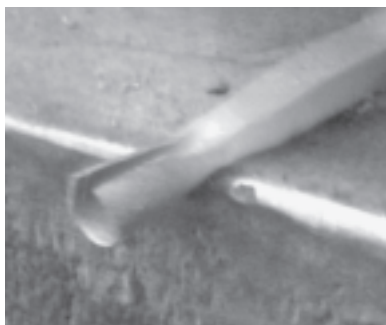


John Murray demo Making a Bodkin arrow head (armor piercing)By Bob Ehrenberger

Starting with 1/2" sq. stock, section off about an inch of material using the near edge of the anvil.

Spread with a cross pein hammer. You can't get it too thin, push it as far as you can. Trim into a fan shape with the shear. You could also cut with chisel, file, or grind to get the shape.

Start the socket on the step of the anvil, finish over a tapered mandrel the size of the arrow shaft.



Cut off on the hardy leaving about an inch of material to forge into the tip.

Make sure that the tip is lined up with the shaft. The tip can be case hardened in casite powder, which will leave it hard enough to pierce armor.



BAM MEETING NOVEMBER 1, 2008

By Don Anders

Meeting was held at Don Birdsall's.
Demo was given by Jim Vandike.

Jim explained and demonstrated how to do several different weaves made with round stock. He uses this weave to make things like handles, candle holders, fire place tools and other items. He designed a starting jig to help with the loop and circle that holds the second piece of round stock. He then walked us through making a weave handle.

John Murray demonstrated one of his arrow heads and discussed their history and functions.

After the meeting, Bob Ehrenberger demonstrated a square post corner anchor that he had seen Doug Hendrickson make several years ago.

BUSINESS MEETING

Thanks to Don for hosting the meeting and lunch, of course with Jeanette's help.
Thanks also to Jim for his demo.

BAM is looking to do a group Gas Forge Purchase. If you are interested, contact Ken Jansen. We are looking at Chili Forge and they are willing to work with us.

THE LIBRARY IS BACK AND RUNNING!!!!!! The current book list is on line now, the DVD's and VHS tapes are being checked for usage. As soon as these are checked and ready, they will be added to the web site. Please contact Karen if you want a particular book and it can be brought to the meeting. After everything is running, we will look into the possibility of mailing books and videos out. **PLEASE CHECK TO SEE IF YOU HAVE ANY BAM BOOKS AT HOME. WE WILL WAIVE ALL LATE FEES IF YOU BRING THEM BACK.** If you have a book

checked out and can't make the next meeting, call and let Karen know, you can mail it back or keep it for an additional meeting. We will try this as long as it is not misused.

Tom Clark is back in the hospital with pneumonia and some weakness. Ian and Thomas, the office manager, are keeping things going. Sales are continuing and classes are being planned.

Design Contest! There will be a Tee Shirt Design Contest for the Conference. The Conference Committee will pick the winner and present them with a Conference Tee Shirt. All designs are due by the end of February. Get them to Ken Jansen or Larry Hults. We will look into giving a \$1.00 off if you pre-order your shirt on the mail in registration.

The Gallery will need items. Start working on your pieces NOW. Last year we had items from other organizations, this year we will need more things from BAM members. If you need to ship a piece, contact Walt Hull or John Sherwood.

The auction is a major income source for BAM. We need a variety of items donated. Consider putting a piece in the gallery and then donating it to the Auction.

Karen Bouckaert is checking on prices and styles for hats. We had some other contacts, but they have not worked out. We will check on flame hats and some other style/color. Dan Wedemeyer is checking on window decals.

BAM Conference.

We need a Conference Chair(s) to run the conference in 2010. Ken and Larry have both worked and run the Conferences for four years and need a rest. A how-to guide is being assembled for future conference committees to use as a reference. The conference committee has been expanded, with new people helping out, which lightens the load for everyone. The Conference will start on Thursday, April 30th, at noon, with full days of demos scheduled on Friday and Saturday, it will end with a half day demo on Sunday, May 3rd. Flyers will be out in January. We have hotel rooms reserved already and will get the information on the web site shortly. Registration will be due by April 1st, must be post marked by April 1.

The best way to be able to have lunch and not miss any of the demos in the one hour lunch break is to try the catered lunches. There will be lunches available on Friday and Saturday for \$8.00. These must be pre-paid with your registration. You will not be able to purchase the catered lunch on-site. Your other options are the lunch wagon or town, if you don't pack your lunch. Help to break down and clean up is always needed and appreciated on the last day of the conference, please if possible, plan to stay and help, it is always a good time to get to know the other BAM members.

We will offer Beginning and Intermediate Blacksmithing Classes along with the Family Programs, Basket Making, Finger Weaving, Broom Tying, Tatting and Spinning. All classes will be first come, first served. Forging Contest will be on Friday, send ideas to Ken Jansen. There will be a Beginner Level and Open Forging.

Please don't forget Mike and Katy Camden are doing Registration for the first time this year and will need help. Please consider helping, especially if you have experience at this job.

MTS will have workshops in January at William Toby's shop, this is a Saturday and Sunday workshop and in March at Ray Scott's.

Boy Scout Camp will happen next year. They

have been in contact with Don Birdsall. Don is still in need of help, this is a four week camp. If you have a trailer, there is a place to park it. Let Don Birdsall know if you would like to help any or all of the weeks. Dates will be announced and the camp is close to Lake of the Ozarks.

Doug Henderson Scholarship Update. We have not had any ideas for a demonstrator. Bob Alexander will check with Bonnie and see if she has an idea of who Doug would have liked to have demonstrate. We are open to where to have this, but would like a place central, either a shop or we will rent someplace.

Coal. We need to buy a load of coal. Current prices are about \$200/ton higher right now. This is due to China buying coal here. Bob Alexander checked around and this is the going rate. There was a vote and coal prices per bag will be increased to meet this increased rate. We knew coal was probably going to be higher this time. Hopefully it will come back in line next time. When coal goes down, we will again adjust prices. Effective today, Coal per bag will be \$17.00 for BAM Members and \$18.00 for Non-BAM persons.

Treasurer's report was given by Bruce Herzog as well as membership update.

TRADE ITEMS

MADE BY

Dennis Yates
Ken Jansen
Chris Miller
Karen Bouckaert
Don Anders
Don Nichols
Pat McCarty
Don Birdsall
Bob Ehrenberger
Tom Winzer

WENT TO

Don Birdsall
Don Anders
Bob Ehrenberger
Pat McCarty
Tom Winzer
Chris Miller
Dennis Yates
Ken Jansen
Don Nichols
Karen Bouckaert

IRON IN THE HAT

DONATED BY ITEM WON BY

Don Nichols	Bearing Material	Karen Bouckaert
Don Birdsall	Bearing	Don Anders
Bruce Herzog	Travelers Catalog	Chris Miller
Don Birdsall	Bolts	Don Anders
Larry Hults	Scrimshaw Kit	Don Nichols
Don Nichols	Bearing Material	Don Anders
Dan Wedemeyer	KBC Catalog	Don Nichols
John Sherwood	4" Post Vise	Bob Alexander
Dan Wedemeyer	Coil Spring/Plow Share	Richard Kamp
Don Anders	Turn Buckle	Scott Woods
Chris Miller	Pillow Block	Don Anders
Ozark School of Blacksmithing & Ian Wille	Hot Cut	Hardy Dave Shepard
Ken Jansen	Welding Clamp	Karen Bouckaert
Ozark School of Blacksmithing & Tom Clark	Mini Anvil	Chris Miller

Tom Clark

Obituary, written by Ben Bradshaw,
Tom's friend and student

The blacksmithing craft has lost a part of it's heart and soul. On November 8, 2008, Tom Clark, of Potosi, Missouri passed away. For the past 35 years Tom had been an important part of our blacksmithing community. He was an enthusiastic and active member of the Artist Blacksmith Association of North America (ABANA) as well as the Blacksmith Association of Missouri (BAM). In 2008, Tom was awarded the prestigious *Alex Bealer Award* from ABANA. The *Alex Bealer Award* is the most significant and prestigious award given by ABANA. Tom said that the award meant more to him than any of the trophies that he had won, from his past, motorcycle racing days.

Before blacksmithing, Tom was in the firewood business for many years supplying firewood to many restaurants and homes in the southeastern Missouri area. During that time, Tom saw blacksmithing as a hobby, until one day when he realized he could make a far better wood splitting axe than what was available commercially. Tom designed and perfected the axe that he later patented. That was the start for Tom's passion for tool making and it did not stop there.

Through the years Tom worked to per-

fect his craft by studying under some of the most noted blacksmiths in the world, Alfred Haberman, Uri Hoffi, Bob Patrick and Clifton Ralph to name a few.

Tom eased out of the firewood business and began designing and making blacksmithing tools. He designed and developed the SAY-MAK air forging hammer; what many have called the best power forging hammer in the world. Tom also had a line of blacksmithing tongs he developed that goes by the name of TOMTONGS®. But Tom's tool making didn't stop there. Tom, over the years, perfected the Czech style of hand forging hammer, most blacksmiths know this type of hammer as the Haberman- Hoffi forging hammer.



Through the years Tom had served on the board of many blacksmithing organizations. He served twice on the ABANA board of directors and for six years on the *Bealer Award* Committee. Tom also founded the Ozark Blacksmith Conference, which has been held annually in Missouri for many years.

The passion for blacksmithing led Tom to found the Ozark School of Blacksmithing, in Potosi, Missouri. The school teaches a variety of blacksmithing classes; taught by some of the best blacksmiths in the world. The school is also the headquarters for Tom's tool business.

Tom demonstrated his blacksmithing talents all over the United States at various blacksmithing conferences such as Quad State, California Blacksmith Association, BAM and the American Blade Smith Society to name a few. Tom's energy and enthusiasm were well matched to the entertaining and informative method he used to teach by. That is why his demonstrations were always a large draw. Tom's earnest desire was to help you, me, and everyone, a better blacksmith.

Tom's legacy will live on, through The Ozark School and the tools that he developed. Tom was 75 years old and is survived by his wife of 56 years, Thelma, son and daughter, three grandchildren and three great grandchildren.

Reflections of Tom Clark

By Bob Ehrenberger

I have known Tom as long as I have been in blacksmithing. At the very first BAM meeting I attended, Tom was the striker for John Murray as John made a hammer head. Not leaving anything to chance, Tom had brought his own striking hammer. A month or so later, when Daniel took the beginner's class, we were lucky enough to have Tom as our coach. He kept our fire burning clean so Daniel could concentrate on his work. At one point, Tom commented on Daniel being careful and that he liked that because it showed he cared about his work, it was a great encouragement to both of us. When we were at the treadle hammer workshop that Tom organized, Daniel had tried to manipulate things so we would end up with one of the two treadle hammers that had chrome plated anvils. Tom caught him at it, and put a stop to it so everyone would have an even chance of getting them. As it turned out Tom ended up with one of the chrome treadle hammers, he later called us and offered to trade, we turned him down, but appreciated the offer.

I was talking to one of the old timers a few years ago, and he told me that BAM was a very different organization before Tom

Clark hit the scene. BAM used to be a small closed group of guys that got together to shoot the breeze and share what they were learning about the craft. Tom, with his energy, enthusiasm, and organization skills, transformed BAM into a major force in the blacksmithing world. Tom's competitive nature drove him to excel, he always had to be the best, and wanted BAM to be the best too. So, whether you love it or hate it, you can thank Tom for the BAM we have.

Tom not only started the Ozark conference, but every year has loaned BAM lots of equipment. It is no small task to bring several power hammers to a conference. Whatever was needed, Tom would provide, if he could.

When I got the job as editor, Tom would call me up on a regular basis to discuss the direction of BAM, he always wanted what was best for BAM. He also showed his appreciation for the job I was doing by giving me a scholarship to his school.

After I bought my power hammer from him, he just felt awful when I was having trouble with it. He made a house call to check it out and sent me the tools I needed to get me going.

BAM will have a huge hole in it where Tom used to be.

Here is some of the conference information. Watch the website for the latest updates.

**18th Annual
BAM Ozark Conference**

April 30 – May 3, 2009
(1/2 day Thursday & 1/2 day Sunday)

LODGING information:

154 rooms at 4 hotels.

ALL ROOMS RESERVED under Blacksmith Association Of Missouri, JOE HULEY

ALL RESERVATIONS must be made by March 31st to get the BAM discount.

COMFORT INN
Sedalia, MO. (660) 829-5050

34 Double Rooms \$72.86
Includes a cont. breakfast

* Mention Blacksmith Association Of Missouri

SUPER 8 MOTEL
Sedalia, MO (660)827-5890

Double Rooms \$53.00
35 Doubles
5 Singles

*Mention Reservation #P39075 BAM

RAMADA INN
Sedalia, MO (660) 826-8400

40 Double Rooms \$59.95

* Mention Blacksmiths #P54733-00

BESTWESTERN STATE FAIR INN
Sedalia, MO (660)826-6100

40 Double Rooms \$72.99-\$77.99
Has a full breakfast bar.

* Mention Blacksmiths

MTS WORKSHOPS

On September 13th and October 11th the MTS Program was held at my shop in Rolla, MO.

Three Bam members were taught to forge a leaf hook and a heart hook. Bam member, Larry Powitzky, assisted me, thanks Larry. With help, the workshop went very smoothly. The members taking the workshop had a lot of close supervision, so we could help them before they could develop bad habits.

On October 1st, I underwent shoulder surgery on my right shoulder, I had torn a biceps tendon while tilling up our garden. My arm has to be in sling for four weeks.

BAM member Scott Woods came from Strafford, MO. to help me by doing the demonstrations and helping with the teaching. Thanks again Scott for all your help. The second workshop went very well with the help. The members started out by making a coal forge

poker in the morning, it had a pineapple twist included in the handle and everyone did a great job. In the afternoon we taught how to make a square shoulder jam hook with a ball on the hook end.

Scott donated a 4 inch post vise to the program. We now have four. We still need one more. Scott also has a very good idea for the stands that can be folded up.

When I get full use of my arm, I will make a stand and try it out. If it works, look for the plans in a future issue of the news letter.

Don Birdsall

SOFA Conference

By: Karen Bouckaert & Don Anders

For a newer blacksmith, it is always an exciting time to be off to a demo or conference. Other than the BAM conferences, and our demos, this was a first time to be off on an adventure, to see a conference other than our own. We left early in the morning, even before the break of dawn and I learned a valuable lesson; always remember time changes when traveling across states. Needless to say, Ohio is an hour ahead of Missouri. We still managed to make good time and were just a little late arriving. We missed only about twenty to thirty minutes of the beginning demos. I was excited, just to be there, and had heard so much, about the tailgaters, the conference and everything else. I didn't know where to start. Of course, being a beginner and reading Lorelei Sims book, I was off to her site to see the person who made everything sound so easy and interesting.

When we got there, I felt like I was meeting someone really important, because that was the first blacksmithing book I had read. She was teaching some beginners a class, so after watching her a while we decided to move on to a demo site. Later I got a chance to talk with her and she was very pleasant and took the time to talk with me. Just so you all know, we got

her to sign her book for the BAM conference auction in 2009. Be prepared to bid on it.

We moved on to a demo site, and when we looked at our choices, I was more than proud to be a BAmEr because we had two of our own doing demos at the SOFA conference. Bob Alexander was there and did a great job demonstrating how to make all the hardware for a BAM box, and Phil Cox was doing power hammer demonstrations. We decided to watch Bob Alexander first. I was happy that I wore one of my BAM shirts and I felt proud to be there with Bob and Phil and to show them support. Bob's demo was very interesting and it kept Don and I involved all day, watching both his morning and afternoon session. He inspired us and it then became our mission to someday try our hand at making a BAM box. Don could

hardly wait to get home to start working on hinges. We spent some of the second day watching Phil Cox and his power hammer techniques. Sorry Phil, I still am a little to wary of them. Someday I will start to use them, but right now I will stick to my treadle hammer. Phil did a great job showing some interesting techniques with the power hammer, things I didn't even think they could do. It was a very informative and interesting session. I am sure Don got more out of it than I did.

Of course the other BAM member that was there and made his presence known was Tom Clark. You know that saying, you can't keep a good man down. Tom made the trip up with Ian and Tom (from the office) from Missouri. He had just finished his radiation treatments, and other than sitting down a few times, he was rearing to go. You had to look quick, to catch him sitting down, but I have a picture to prove it. He was on the move, selling and giving instructions on how to work his power ham-

mers. They had brought the full set up, tools and blacksmithing items, and everyone was busy selling. It was good to see Tom out and about and, being the Tom that we all know.

Yes, we also had the time to shop. Of course, I am a girl at heart, and shopping was on my mind. There were

blacksmithing tools and gadgets everywhere. There were not a lot of bargains with the tailgaters, but they had everything under the sun you could imagine and then some. The usual vendors were there and we got a chance to catch up with them. Don and I both came home with a few things but I now have an official, all to my own anvil. I really feel like a blacksmithing chic now. Don keeps me in line though, but not for long, we are soon to pack up and head to John C. Campbell Folk School for my first blacksmithing class too. Boy, am I in the mood for our BAM conference. May won't come soon enough to suit me. I am in the mood for some blacksmithing.



Chain Braid Handle

a Jim Vandike demonstration Article by Bob Ehrenberger

Jim uses this handle style on fire place tools because they have a nice feel in the hand and are attractive to look at. He calls them a chain braid because at first glance they look like a chain. You can use any size stock to start with, the rule of thumb is that the handle will come out approximately 4 times larger than the original stock. For his demo, he used 1/4" round which yielded a 1" square handle. Because the eye comes out of only one of the bars, that bar needs to be longer. Jim used two pieces of 1/4" rd, one 30" long and the other 34" long. Another guideline is that it takes about 4 inches of stock for each inch of handle, this holds true no matter what size stock you are using. The larger stock will just have fewer braids per/inch than the small stock.

Getting started is the hardest part, for that Jim has a special jig made that makes the eye and the first loop. This jig has a mandrel the size of the eye you want and a stop the same size as the stock you are using and offset the distance of the stock thickness.

Wrap the longer piece around the mandrel, slide down behind the stop. Heat with a torch and then bend back over the stop. The result is a shape like a lopsided figure-8.

Drive off the jig and lock the large loop in the vice. Run the second bar through the small loop, heat with a torch and bend back over the first bar. At this point it looks like a big X, like in the picture below.

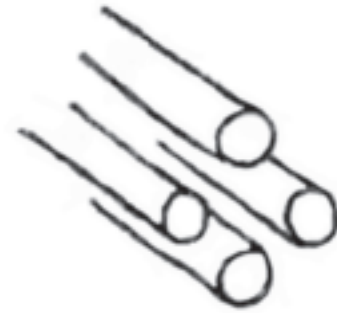


Continue the braid by heating the bottom bar and folding it back over the one on top of it. Jim said that if you heat behind the bend it will be easier to keep the bends tight. If the bars get so hot you can't keep the bends tight, just take out of the vice and cool the whole thing.

Chain Braid Handle continued...

When the bars get too short to hold by hand, Jim uses a tool made by drilling a 1" deep hole in the end of a rod to bend them back. You could also use piece of pipe.

When the bars get to 1 1/2" or so, you need to bend them straight up to get ready to connect them to the tool. The bottom bars are pretty easy to bend up, you just stop bending half way. The top bars which are unsupported are a little tougher, Jim would bend them up as best he could and then hammered on the tool to square up the bend. He then trims them all the same length, as in the drawing to the right.



finished handle on tool

To prepare the tool to accept the handle, he upsets the 1/2" sq. bar until it was approximately 1" sq. He then makes a 1/2" sq. tenon on the end of it. The handle is slid over the tenon and welded in place. Jim arc welds it, and fills in the gaps to match the upset. Jim said that if you square up the handle it tends to stretch out and loosen up the weave. So after hammering square you need to put the loop over the tip of the horn and upset the braid to tighten it up again.

Editor note: Pat McCarty and Bob Alexander said they would work on a method of forge welding the handle to the tool. So look for their solution in an upcoming newsletter.

Heat-Treating Tool Steels

by Dave Smucker

In the article “Steels Useful for Tools”, we have detailed a number of tool steels that could be useful to the blacksmith. In this article, we will look at ways to heat-treat those steels and try to understand a little about what is happening with the steel as we go through the heat-treating process.

Do you need to heat-treat all of your tools?

The simple answer is No. Depending on what steel is used and how hot you get the tool in use there may be only a small benefit from heat-treating the tool. For example, Dan Tull likes to use 5160 spring steel, either from coil springs or leaf springs for almost all of his tools. This includes hot cuts, punches, drifts etc. For all of the applications where you are going to get the tool very hot – Dan’s experience is that there is no reason to heat-treat these tools. This is because in the process of using the tool and thereby heating the tool you are most likely to fully draw the temper of the tool anyway. His suggestion is to let the tool air cool after making and, thereby, normalizing it.

I agree with Dan on this point for tools made of 5160 that you are going to get very hot such as a hot cut or punch. I also have found in my experience that 5160 is a good material for such tools. To quote Dan “why would you use anything else – it works, doesn’t it?”

Well, yes, but here I think that for some of the very toughest applications in blacksmith work S7 and H13 work even better, really hold up and are worth the effort. Tom Clark, for example, makes his hammer drifts out of H13. I love hot cuts out of S7 or H13. I always heat treat these steels. By heat-treating these tools, you will obtain a tool with a very high life.

For items that you are not going to get above the tempering temperature, such as cold cuts, eye punches, center punches, drifts, hammers, etc. then a full heat treat is very worthwhile. Remember all of these steels, (4140, 4340, 5160, 1080, W1, S7, A2, H13) are designed to be heat-treated. I am getting a little ahead of myself here, talking about tempering temperatures when we haven’t even talked about what is going on

in the heat treat process itself yet, so bear with me for a bit if the above doesn’t really seem to make complete sense to you.

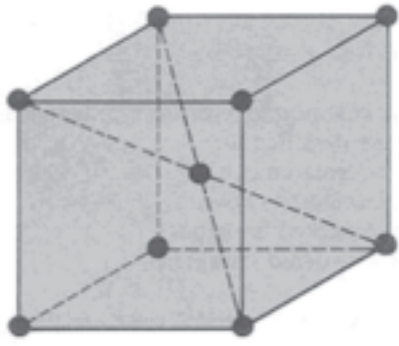
Do I need to be a Metallurgist to do

Blacksmithing? I think that it can be helpful to the blacksmith to understand some of what is going on inside the metal as it is heat treated – but you don’t have to. Many blacksmiths have produced outstanding work, including making all of their tools, without a deep understanding of what is happening inside the metal. Later in this article, I will give you some specific steps for heat-treating S7, H13, W1, O1, 4140, 5160, and 1080, but for now I would like to give a shot at trying to explain some aspects of the metallurgy of heat treating. If you want to learn more about this a basic book, that I would highly recommend is *Metallurgy Fundamentals* by Daniel A. Brandt ISBN 0-87006-922-5. Norm Larson has this book. It is written by a mechanical engineer and provides information on the basic principles of metallurgy without trying to turn you into a metallurgist. It’s text is clear, simple, and very well illustrated. Again, it is just a great book for the average blacksmith. By the way, I am not a metallurgist either, but rather a mechanical engineer, so for the metallurgists out there that is my excuse for anything I get wrong in this article.

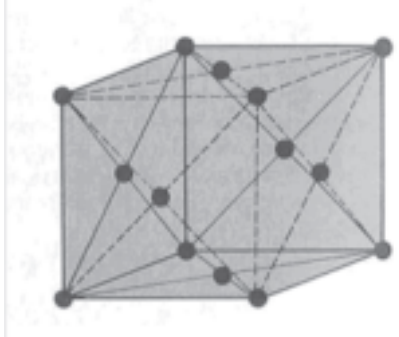
Carbon steel is a remarkable material. Depending on how much carbon it contains, its process and thermal history, steel can be “soft and ductile” or “hard and strong” and many points in between. We can also change its performance by adding other metals to the basic carbon and iron and further enhance its properties. The reason that we can control so many of the characteristics is that steel is one of a limited number of materials that changes their crystalline structure as we change the temperature – even while it remains in a solid state. It is not just the temperature of the steel that is important – it’s the temperature change vs. time that is also critical. It makes a difference how fast we heat the steel and especially how fast we cool (quench) the steel.

Three crystal structures of steel are important to us. The first of these is the **body centered cubic** space lattice, a crystal that has an iron atom in each corner and one in the center of the cube. We call this ferrite and it is the normal structure of annealed (soft) carbon steel at room temperature. A single cube contains 9

iron atoms. It is also magnetic in nature. The second crystal structure is a **face centered cubic** space lattice. This is called austenitic iron. It is the normal structure above the “transformation temperature”, and as you might have guessed, is non-magnetic at this temperature and in this structure. A single cube contains 14 atoms.

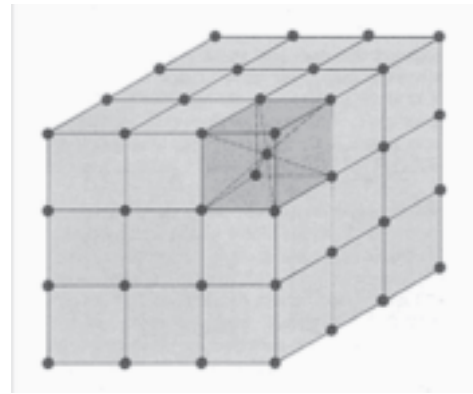


Body Centered Cubic



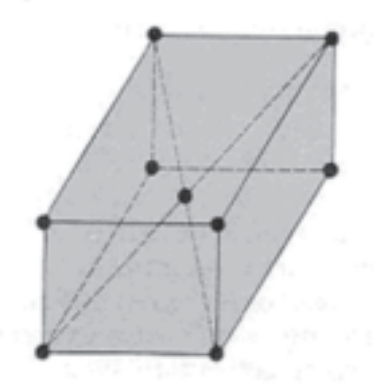
Face Centered Cubic

Now here is where it gets interesting, at least from my viewpoint. If we take those 14 iron atoms and rearrange them from face centered cubic to body center cubic – we get two body centered crystals. What? How do you get from 14 atoms to two cubic with 9 atoms each – that would be 18, right? But the two cubes are next to each other, and share the same 4 atoms – so it only takes 14 to make 2 body centered cubic crystals. What good is all of this? I had trouble understanding this until I made a sketch and counted all of the atoms in the two forms. Well here is one of the things that create problems when we heat treat – because the volume of the body centered cubic is greater than the face center. This means that as we cool through the transformation temperature we actually expand the steel. More on this later.



Count them - 14 right?

I commented that there were three important structures, and yes, there is one more – the **body centered tetragonal** space lattice, it is almost the same as the body center cubic. Instead of the faces of the structure being square, they are rectangular. We call this martensitic iron. Where does this one come from? If we cool our austenitic iron, that face centered cubic, slowly we get the body-centered cubic that is ferric iron. It is soft and ductile, but if we cool this very rapidly we obtain the martensitic structure that is much harder and stronger – it is also highly stressed and quite brittle.



Body Centered Tetragonal

If we reheat this highly stressed martensitic structure, body centered tetragonal, we release a great deal of the stress, without removing all of the hardness and strength. If we heat it high enough, back above the transformation temperature, and slow cool it we will get a fully annealed structure.

When Heated Carbon Steel becomes Non-Magnetic at 1420F. For many blacksmiths, one of the key indicators that they use in heat-treating is that when heating plain carbon steels they become non-magnetic at just below the transformation temperature. This works very well to tell when we are at the

transformation temperature (critical point) for plain carbon steels. For these steels, it can tell us we are ready to quench the steel. **One major caution here, this does NOT WORK for the high alloy tool steels.** For them, the transformation temperature is quite a bit above the non-magnetic point.

High temperature means larger grain size. Why not just heat it up good and hot, and know for sure we are above the transformation temperature before we do our quench? Well, the reason is that if we do this we will get a very large grain structure, something we generally don't want to have in our finished product. I also think quenching from too high a temperature leads to "quench cracks" in steels such as W1.

OK, that makes sense, but why don't we have the grain size problem when we are heating our material for forging? We do, but one of the major things that happen in the forging process is that we generate a fine-grained structure by the work of forging. So if we have made a tool by forging it, and now want to heat-treat that tool, we don't want to overheat the tool and drive it to a larger grain structure. Grain size change is not just a function of over heating, but also how long we are at those elevated temperatures.

What is the Carbon doing? In the above discussion of ferrite, austenite and martensite, we have left out an important part of the final structure of our steel – the carbon and what it is doing. What we have left out of this discussion is that we can form a compound of iron and carbon that is called cementite – or iron carbide (chemical formula Fe_3C). Like other carbides, iron carbide is a very hard material, and at room temperature is magnetic. In steel such as 1080, with 0.8 of 1 percent carbon (80 points carbon) we get a mixture of the cementite and the ferrite that forms a structure that is called pearlite.

Pearlite gets its name from the way the structure looks under the microscope – looks like mother of pearl, or others describe it as looking like an aerial view of many newly plowed fields. Pearlite looks this way because it is made up of layers of ferrite and layers of cementite adjacent to one another. Below this 80 points of carbon, we get a mixture of ferrite areas and pearlite areas and above this 80 points of carbon; we get a mixture of pearlite and cementite.

These structures all depend on the thermal processing history of our steel. We can obtain other struc-

tures, such as martensite, from a very rapid quench, bainite and mixtures of these structures. They vary depending on our rates of cooling, and depth within the steel. (We can't cool the inside of the steel as quickly as we can the material near the surface.)

All of these structures depend on the alloying, carbon content and thermal processing (heat-treating) used to make the finished product. Ferrite, martensite, austenite, cementite, pearlite, bainite, do I need all of that? No. Just remember that the information on this is out there and you can get into it in any depth you want or need. For example, the knife makers among us often go into this in great detail because they are working very hard to get very high and consistent performance out of their heat-treating.

Volume change in Heat-Treating. There is one area that I want to again talk about and that is the volume change as steel goes through structure changes as it is quenched or cooled. As we quench steel, we have two volume change things happening. One that we are all very familiar with is that as we heat a metal it expands, as we cool it the metal contracts. This by itself can create major stress in a part that is being quenched. The outside of the tool is shrinking while the inside, since it is still "hot" is still larger than when cool. This means we want to stretch the outer section of the tool. Now to this, we also add the effect of the transformation, – where we get a volume increase as we cool – the outside of the part has gone through this expansion, and now starts to shrink as it cools more, and then the inside reaches the transformation point and expands, before it then also starts to shrink. If the stress in the material becomes greater than what the material can hold it must do one of two things or both – it must yield and / or crack. If it cracks, we usually call that an "oh no".

If we step back and think about this a bit we will also see that the rate at which we quench an item will also greatly affect the stress in the part. This means that the slower we can quench an item the less likely we are to have cracks or failure. Now when we talk about quenching we can think of a number of different quenches – from very fast to slow – Caustic solution, brine, water, oil, air. Yep air can be a quench; it is just a rather slow one. Ok, then why not just quench everything with air, and have little or no problems with cracks? We can't do that because the Good Lord said, "For some steel you must have a very very fast

quench, and for others a medium speed quench and for still others you can have a very slow quench and still get a hard, strong, and brittle material". In general, the plain carbon steels, 1045, 1080, W1, 1095 all require a rapid quench. Hence, we think of them as water hardening steels. In general, the medium alloy steels such as 4140, 4340, 5160, O1 require a medium speed quench and we can use oil or they become oil-hardening steels. We can also quench these steels in water, (they may crack) and this is done especially where a much deeper depth of hardening is wanted. The third class of steels here are generally higher alloy steels and we can use air as the quenching fluid. Examples would be H13, A2, and S7. The size of the part also has a lot to do with what quench we use, because it is not the quench material that counts but rather the rate of cooling. Very large industrial parts, for example, made of H13 are water spray quench – because they hold so much heat that air would not be fast enough.

There is a great deal more to this area of quench speed, alloys, depth of hardness and the structures formed in the steel than we could cover in this article. For more information, I suggest you start with the Daniel A. Brandt book *Metallurgy Fundamentals*.

How to Heat-Treat Your Favorite Tool Steels.

Ok, the time has come in this article to talk about just how to heat-treat some of our favorite tool steels. To start with, I am going to recommend another book, if you are looking for complete, straightforward detailed heat-treating directions for tool steels. It is *Heat Treatment, Selection and Application of Tool Steels* by Bill Bryson, ISBN 1-56990-238-0. I believe Norm Larson also carries this book. It is expensive at \$ 40 for a 200-page paperback but a very good book. It is written for the "tool maker" in a machine shop or manufacturing operation – but the blacksmith can use it even if he doesn't have a heat treat furnace, and other "professional" heat-treating equipment.

In our basic heat-treating procedure, we are going to do the following.

1.) Normalize After you have finished your forging and before you start the heat-treating normalize, your piece. When done forging, take your work back up to just above the critical temperature and let it slowly air cool. This helps reduce stress in the piece and gives smaller grain size.

2.) Slowly heat your work piece or at least the working end, to above the transformation temperature (critical temperature), depending on the tool steel you are using. **Do NOT over heat.**

3.) Quench the tool in water, oil, or air depending on the type of tool steel.

4.) Quickly temper the tool by reheating to the tempering temperature depending on the desired hardness vs. toughness and the intended end use. A second temper cycle is often used for critical industrial parts.

Quickly is important. I didn't used to pay much attention to the "quickly" part of this last point – going directly to the tempering operation – but it is important. After we have quenched the part, it is in a very high state of retained stresses and wants to relieve those stresses by, you guessed it, cracking. If we move quickly to lower those stresses by tempering, we decrease greatly the level of residual stress in the part and the likelihood it will develop stress relieving cracks. These cracks of course lead to failure of the tool. More on tempering temperatures and methods at the end of this article.

Slowly is important too. The suggestion to slowly heat our work piece in the 2nd. step is the blacksmith's answer to a stress relieving hold in the industrial practice. In industrial practice, the piece is heated to 1200 F and held for 10 to 20 minutes, before heating to the critical transformation temperature. With our small parts, we can accomplish the same thing by heating slowly. It doesn't have to be dead slow, just don't rush it. Because we are used to being able to quickly heat low carbon steel such as A36 for lots of items we make we may tend to heat tool steel too fast. It is just not as forgiving as mild steel. Do Not Over Heat. I have seen students with cracking problems especially in small sizes of W1 because they over heat. Start on top of your fire and work slowly and carefully.

Knowing the temperature at which you have completed transformation is not easy with the higher alloy steels. The reason for this is that these critical temperatures are above the magnetic / non-magnetic point especially for the A2, S7 and H13. You will have to use metal color as your guide.

Heat-Treating Steps for Various Steels

Steel	W1 - 1095 1080 (railroad rail)	O1	4140 4340	A2 S7	H13
Slowly heat to the critical temperature. Slowly means 10 to 15 minutes.	1420 F magnet is good test cherry red	1500 F must be a little above non-magnetic	1575 F must be above non magnetic bright cherry / salmon	1750 F magnet can't be used beginning orange heat from bright salmon	1850 F magnet can't be use lemon yellow
Hold at critical temperature for X minutes per inch of thickness	3 to 5 minutes soak time	3 to 5 minutes soak time	3 to 5 minutes soak time	10 to 30 minutes soak time	10 to 30 minutes soak time
Quench in the following.	Water; keep the part moving to prevent formation of steam layer.	Quench Oil, keep part moving	Quench Oil, keep part moving	Still Air -- set part on a fire brick and let it cool, yes this is a quench	Still Air -- set part on a fire brick and let it cool, yes this is a quench
Temper by heating to draw temperature in oven for 2 hours and let part slow cool. See table 2 for hardness vs. tempering temperature	Tempering Temperatures 300 F to 600 F	Tempering Temperatures 300 F to 600 F	Tempering Temperatures 300 F to 800 F	Tempering Temperatures 300 F to 1000 F	Tempering Temperatures 1000 F to 1100 F

What do you mean by soak time at critical temperature? After we have brought our tool to the critical temperature, we should hold it there for the time noted per inch of thickness. That means if your tool is 1/2 inch thick you only need 1/2 the time. For the high alloy complex steels like A2, S7 and H13 the handbook values are actually 1 hour per inch of thickness and that is a very long time at a forge. No one is going to do that. Being a little hotter helps a lot, the heat transfer in the forge is much high than in a heat treat furnace so we get by with a shorter time. In addition, we may just not get the maximum results in the steel.

Hardness vs. Tempering Temperature for Various Steels

Steel	W 1	1080	O1	4140	5160	A2	S7	H13
	1095			4340				
Tempering Temperature	Hardness Rc	Hardness Rc	Hardness Rc	Hardness Rc	Hardness Rc	Hardness Rc	Hardness Rc	Hardness Rc
As quenched	67	60	66	56	62	64	60	53
300 F	64	59	63	53	60	62	59	52
400 F	61	57	60	52	59	60	58	
500 F	59	55	57	48	57	56	56	
600 F	55	51	54	46	54	56	55	
700 F				43		56	54	
800 F				40	49	56	53	
900 F						56	52	53
1000 F					38	56	51	54
1100 F						50		54

Hardness vs. Tempering Temperature. The chart on the previous page shows the approx. hardness you will obtain using various tempering temperatures after quenching. Use the highest tempering temperature that makes sense for your tooling application. Remember that high hardness values will mean you have a strong but brittle material. The lower hardness material will be softer and somewhat weaker but much tougher. Also, if the tool will get hot – then your tempering temperature needs to be at or above the temperature that you will get the working end of your tool to in use.

Let me use an industrial example from my old day job. In the aluminum industry hot mill work rolls (H11) are tempered at 1000 F because we would get them to that temperature in operation. Foil mill work rolls (52100 bearing steel) were tempered at 212 F because they don't reach that temperature in normal service.

For tools made from W1, 5160, 4140, 4340 you can cool them in use to keep them from getting too hot. Now this doesn't work if you get them to a red heat, but as long as you stay below that, it helps retain their hardness and edge. The great advantage of the S7 and H13 is that you can get them into the low end of the red heat without much damage.

Oven Tempering vs. Color Tempering. The chart shown assumes you use an oven to do your tempering. I think this is the best way to temper because it is very repeatable and almost no work. You can use your kitchen oven for many of these temperatures or pick up a used toaster oven for your shop. In either case, buy an oven thermometer at Wal-Mart to check your oven temperature. Go by the oven thermometer, not by the dial settings especially on a toaster oven. You can pick up toaster ovens for about \$ 5 at the local thrift shops.

The oven works well to temperatures of 550F. For temperatures above this, you will need to use either the forge or a torch unless you build or find a special heat treat furnace. We again have to turn to the heated color of the steel to judge the tempering temperature for the high alloy tool steel such as H13. In reduced light you can judge 900 to 1000 F as a very faint red, 1000 to 1100 F as dark red.

You can also temper tools at the forge or by using a torch and watching the temper colors. Blacksmiths did this for centuries. If you use this method, you will need to pick a temperature 50 to 75 degree hotter than

those shown in the chart above. The reason is that these values are based on time at temperature and with the color method; you stop the process by quenching when reaching the desired temper color.

To judge tempering temperatures you can use the color on a bright surface, (polish with emery cloth) and watch the color run from the heat source to the critical working surface of your tool. There are a number of good charts showing those colors and descriptions. See the article on "Break-Testing" in this issue for a listing of colors vs. temperature.

I never Temper, it works for me. (Sometimes) I hear some blacksmiths brag that they "Never temper" or they may mean I never temper air hardening tool steels. "Just get them real hot after forging and let them air cool."

Well as the saying goes, there are two types of Blacksmiths in this world, those who have had tools break and those that are going to have tools break. Not tempering just increases the number of tools that we will have fail in use.

Remember, if you want fewer tools to crack, heat slowly, get to above critical temperature, don't over heat and always temper. In fact, always temper right away when finished with your quench.

Copyright 2001, 2005 by David E. Smucker Note to other editors of blacksmith newsletters. You are free to use this article in your publication provide you used it in its entirety and credit the Appalachian Area Chapter of Blacksmiths and author. I can provide you with an electronic copy by contacting me at davesmucker@hotmail.com It may not be reproduced in any form for commercial use.

Damascus Knifemaking

By Matthew Burnett

Through the help of a BAM scholarship I was able to take a blacksmithing course that I had been looking forward to for some time. Like many of us, I find blacksmithing a fascinating process and something I am always eager to learn more about.

The class that my scholarship made possible consisted of five days of hands-on instruction from Guy McConnell. Guy lives and practices his craft near La Plata, Missouri. He helps to keep a tradition alive that is thousands of years old. Throughout the class I learned the basics of Damascus knife-making and some of the more complex Damascus processes.

For my first two knives, I started with a six inch piece of super-improved plowshare cable (1085). After forge welding the cable, then folding and forge welding again, a design for the finished knife was drawn with soapstone. The bar of steel was forged to shape using the soapstone drawing as a guideline. After grinding, polishing, and fitting the handle slabs, these efforts resulted in a 7 ¾ inch knife with an Osage Orange handle and a 6 ¼ clip point with an African Bloodwood handle.

My third knife was comprised of three pieces of 15N20 and two pieces of 5160. These were forge welded together, then folded. This process was repeated a total of six times, resulting in 320 layers. We forge welded two more blades in a similar fashion. For the final project of the class, I forge welded three pieces of 15N20 and two pieces of 01 steel together. The end product became a 10 inch Buffalo Skinner with a Rosewood handle. I came away with

three finished knives and three in progress.

One area of knifemaking that I was previously unfamiliar with was the process of grinding the blade. This is one of the most important steps in creating a finished knife. It is a good idea to wear old leather gloves for grinding. First, the majority of the heavy scale is taken off using an older coarse grit belt (50-80). Next, the profile of the knife blade is ground to shape. When beginning knifemaking, it might be a good idea to forge the blade wider than desired or



Matthew and Guy with his Buffalo Skinner

not grind the profile quite as much. At this time the spine of the knife is ground flat, if this is what the design calls for. It is easiest to do the profiling on the wheel end of the belt, with the flat side up and the spine of the knife facing you. Then the edges are smoothed by grinding the opposite direction. Now the knife can be ground full length, parallel to the belt. By this time, there should not be any spots of scale remaining.

At this time, the belt is changed to a new coarse grit (50-80) to begin grinding down the edge. The edge that will become the blade is laid down on the belt and is twisted so that it is at a 20 to 30 degree angle. It is ground this way with the edge side facing the oncoming belt until the center of the steel on the edge side is reached. There should be an evenly ground area from the ricasso to the tip. To establish a step from the thickness of the knife to the cutting edge, the blade is pressed down firmly, just slightly ahead of 90 degrees to the belt. This gives a definite transition point on the knife that can be felt from the other side while grinding. Although it should be stated, that beyond this practi-

cal purpose it is purely a stylistic element.

The blade is pressed into the belt until the flat rests fully upon it. The knife is then twisted slightly to apply the majority of the pressure onto the back part of the grinding area. The blade is cooled frequently in water so it won't get too hot to handle. One must



Making Damascus with the forging press

be careful not to over grind the edge and thus narrow the blade. Throughout all of these steps each individual must discover what technique works best for them. The blade of the knife should now have a triangular cross-section, the spine and handle remaining



Forging blade with trip hammer

the same thickness lengthwise and the blade tapering to the edge. Now the grinder is switched to a 120 grit belt to remove the rougher scratches. It is slightly easier to watch the progress if the angle of the knife is changed slightly so the grinding runs at a different

angle than it did before, always being careful to not mess up the step.



Lots of grinding

After drilling rivet holes, then hardening and tempering, the scale is removed using a 50-80 grit belt. This process is repeated using the 120 grit belt. The knife is then taken to the buffing wheels. First the red buffing compound, then black, gray, and finally white. With each of these the knife will look like it can't be finished any smoother, but as soon as the blade is run under another color the previous scratches will jump out. For even greater clarity, the blade could be angled differently then before. Care should always be taken to place the blade below center and wear leather gloves when using the buffer.

I greatly appreciated the opportunity to learn from an experienced knifemaker such as Guy McConnell. I would like to thank BAM for making this opportunity possible through a scholarship. I would also like to thank my many friends in BAM who have helped me out many times and for always being generous with their time and knowledge.



Finished knives

A BAM Community Service Project Food Drive for the Local Food Pantry

By Esther Digh

The BAM meeting on September 20th had a community service project purpose as well as blacksmithing. BAM members donated 87 pounds of canned meat items and \$150.00 in cash to donate to SERVE, Inc, a local privately funded organization to assist those in need. SERVE was originated by a group of local churches, and became independent and incorporated as an umbrella service organization, funded by donations and serving the whole county. Ms. Lisa Brown, the Executive Director of SERVE attended the BAM meeting and stated that the demands on the food pantry are especially high now and meat food items are always needed. Ms. Brown sends thanks from SERVE and we (Ned & Esther) thank those who donated to make this community service project a success.

Kate Dinneen At ABANA

Local Blacksmith Elected to National Board
Kate Dinneen of Walt Hull Iron Work, Pleasant Grove, has been elected to the board of directors of the Artist-Blacksmith Association of North America (ABANA), an organization dedicated to preserving and perpetuating the art and craft of blacksmithing. ABANA has over 5,000 members in more than 60 affiliates throughout the United States and Canada, as well as numerous individual members in countries around the world. It promotes education and skill-building by sponsoring national conferences every two years with emphasis on demonstrations by nationally and internationally known artist-blacksmiths. Overseen by the board, ABANA also publishes two quarterly journals, The Anvil's Ring, devoted to promoting the craft and showcasing current work of its members, and The Hammer's Blow, which emphasizes design and technique.

Dinneen began her career in blacksmithing with Walt Hull Iron Work in 1994 and, along with Hull, has been active in the Blacksmith Association of Missouri (BAM), an ABANA affiliate, ever since. She has frequently assisted other smiths with demonstrations, travelled to national conferences in the US as well as Britain and studied in Israel with internationally know artist-blacksmith, Uri Hofi.

Dinneen played a major role in organizing the BAM-sponsored 2008 Ozark Blacksmith Conference held in Sedalia in May, 2008. Among other things, she coordinated logistics for the British, German and Czech demonstrators. She will attend her first ABANA board meeting at the National Ornamental Metal Museum in Memphis in November.

Ruth Hull
Walt Hull Iron Work

Thank You

I would like to thank everyone who came to the BAM meeting on November 1st at my shop. A special thanks to those that came early to help Jeanette and I get ready for the meeting.

A "thank you" to Bob Bruton for the donation of two post vices and stands for the MTS trailer. Thank you, Ken, for picking them up and hauling them to me.

The program now has four vices and two stands, we need one more post vice and three stands. If any one has a three leg pipe vice stand that they do not need please consider donating it to the MTS program.

Thank you
Don Birdsall

Boy Scout Camp 2009

The dates for the Camp Hahn Boy Scout Merit Badge training is: June 14th though July 11th, 2009. This is a four week period of time.

We need volunteers to help teach the blacksmith option for the Metal working Merit Badge to the Boy Scouts attending summer camp.

The camp and our training runs for the full four weeks, we need volunteers that can stay with us for one week at a time, you do not have to spend the whole four weeks unless you want to.

The training is from Monday morning though Friday morning. If you arrive before 6 pm on Sunday, you can have supper in the lodge or before 8 am Monday morning you can eat breakfast in the lodge. Three meals a day are furnished in the air conditioned lodge.

Hot showers and clean restrooms are located next to our training area.

There will be room for two trailers or campers at the lodge every week. If you want to stay in a tent or the bed of a pickup truck etc., you can stay on the training site.

For more information please contact me:
Don Birdsall
573-364-7223
donbirdsall@embarqmail.com



Artist-Blacksmith's Association of North America, Inc.
ABANA Central Office
15754 Widewater Drive, Dumfries, VA 22025-1212
Phone: 703-680-1632 Fax: 703-680-6222
abana@abana.org · www.abana.org

To ABANA Affiliates and Affiliate Members, September 2008

The ABANA Elections have concluded and we have 5, going on 6, new Board Members. The ABANA board is making preparations to meet for the annual face-to-face meeting and we're working on 2 new programs for members.

ABANA Election Early Results

Jim Masterson, the ABANA Election Committee Chair has declared a result in the Bylaws referendum -- the Bylaws revision passed by a wide margin! The board members results will be announced after Chris Winterstein talks to each of those that ran for the board. So if you ran for the Board, contact Chris. The new board members will be announced on the ABANA Web Site and in the "Anvil's Ring" scheduled to be in your mailbox in early November. The 6th highest vote getter will take over Elizabeth Brim's seat, Elizabeth is stepping down to focus on a book on blacksmithing and other projects.

Board meeting date and location

The annual ABANA Board meeting will be held at The National Ornamental Metal Museum, 374 Metal Museum Dr, Memphis, TN 38106, October 31st 8AM, through November 2nd. All ABANA Members are welcome. Time to talk to new and old board members can be arranged during breaks.

Bookmasters closed, ABANA goods moving to VA Central office

The ABANA store is moving to the new Central Office and will be open for business again in mid October. Once that happens ABANA merchandise, books, plans and back issues will be available again. In the meantime you can call the central office and discuss your needs (703-680-1632) or email abana@abana.org.

Report from SOFA

ABANA Board Member and Treasurer, Linda Tanner reports from the recent SOFA conference held in Troy Ohio: "We couldn't have asked for better weather for this event and this has gone down as the biggest SOFA Event ever. They had over 1000 in attendance. Lots of tail gating for you to get and find any thing you could possibly want or need." ABANA Board Members Kim Saliba, Peyton Anderson and Linda were in attendance. Kim donated a box of Anvil's Ring back issues for their auction and it brought in \$100.00 for SOFA. Linda says, "I would say if you haven't attended a SOFA Event it is well worth the effort to go. It was fun times to get to see old friends and make the acquaintance of some new folks."

New Australian Affiliate

The Australian Blacksmiths Association (Victoria) is ABANA's latest Affiliate Group. This group is well established with roughly 110 members. They meet twice a month in the Melbourne, Victoria area. They have been established since 1989 and run basic blacksmithing, wrought iron, power hammer and knife making courses for members. If you visit Down Under, look them up, you are sure to receive a warm welcome. Check them out at <http://www.abavic.org.au>

Progress on the ABANA 2010 Conference

From Jill Turman, Conference Division Chair: "I am VERY happy to announce that Kate Dinneen has agreed to be the Chair for the 2010 ABANA Conference!!!! Many of you know Kate from her work on the 2008 BAM Conference. She brings lots of conference planning experience, great organizational skills and enthusiasm to this project." She is also a candidate for the ABANA Board and has agreed to serve as Conference Chair regardless of the election results. The theme of the 2010 conference will be "ABANA's Greatest Hits"

Best Regards and please be in touch (pboulay@abana.org).

Paul Boulay

ABANA Affiliate Relations Board Member

Buy, Sell, Trade

Individual Classified ads

I have a 200 pound swage for sale asking 350.00 e-mail me at tad.green@fabickcat.com for more info.

FOR SALE: One 5-inch post vise in good condition (no missing parts) for \$125. One 6-inch post vise in good condition (no missing parts) for \$150. Contact Maurice Ellis, 12486 Sutton Road, Belgrade, MO 63622, 573-766-5346, mauriceellis@centurytel.net

For Sale Two forced draft gas forges. BAM first generation style. Includes regulator. \$300. each. One venture style gas forge. BAM second generation style forge. Includes regulator. \$300. Gary Kobermann 314-892-2527

For Sale: Old Kohlswa, 553 lb. English pattern anvil. One inch factory forge welded face. Beautiful! \$1500. Excellent six inch leg vise. \$250. Large Buffalo 3E heavy duty electric blower w/ π HP. Single phase motor--\$150. Good Buffalo Heavy Duty Vulcan forge pot, complete, NO CRACKS. \$75. Roy Plumlee, Tamaroa, IL 618-496-3198. rplumlee@frontiernet.net

Crucible for sale. \$100. Approx. 18" depth and 32" from lip to lip. Has been in protected storage. Contact cranegirl2@yahoo.com for pictures or questions. KCMO area location. Beverly Hof-Miller (816) 931-2770

Commercial / Resource ads

Services:

Beverly Shear Blades Sharpened. Remove blades from shear and ship to Clay Spencer, 934 Partridge Lane, Murphy, NC 28906. \$35 plus postage, additional cost for deep notches or blades previously sharpened at angle.

Custom spinning in copper, brass, pewter, and steel. Contact Ken & Kathy Markley, 7651 Cabin Creek Lane, Sparta, Ill. 62286. Phone: (618) 443-5284 Fax: (618) 443-5284

Little Giant-- We can do repairs on any or all components of your Little Giant front assembly. Contact H. "Sid" Suedmeier 420 4th Corso, Nebraska City, NE. 68410 (402) 873-6603

Roller Blade Treadle Hammers (Clay Spencer design) for Sale or Workshops led to build hammers. Bob Alexander, e-mail to scruboak4@netzero.com, or call 636-586-5350.

Information / Education

Tong Making Class--Weekend Course 4 people per class - \$125 per person Contact: Charles Comstock Rt.1 Box 20, Deerfield, MO. 64741 (417) 927-3499

Ozark School of Blacksmithing - Tom Clark

Tom: tomclark@centurytel.net
School: www.ozarkschool.com
(573) 438-4725 Cell-(573)-747-8648

Subscribe to Jerry Hoffmann's **Blacksmith's Journal**, a monthly publication for blacksmiths. Call 1-800-944-6134 for more information.

Classes offered, The Ornamental Iron Shop
Contact the instructor to register and customize your class.
John D. Thompson – Metalsmith
3923 Hwy 25; Hodges, SC 29653 864-374-3933

Classes at Pieh Tool Company, Inc. - Camp Verde, AZ
The Bill Pieh Resource for Metalwork.
Call now for more information and to enroll:
(928) 554-0700 or (888) 743-4866. www.piehtoolco.com.

George Dixon edits a blacksmithing publication called "**The Artist-Blacksmith Quarterly**". For \$28 you will get four issues of how-to information. Contact him at 1229 Bee Tree Lake Road, Swannanoa, NC 28778.

The Upper Midwest Blacksmiths Assoc (**UMBA**) **video library.** An index list can be viewed at www.umbonline.org
They are VHS or DVD-R Cost is \$5 each with \$2 per order shipping There is no return date, you keep the video for this price. All videos are made at group demos, no commercial titles.

Blacksmithing E-books on CD

Now eight titles are available on CD, \$4/each, or all eight books, \$24 postpaid. More books are in production and will be available soon- order on-line at www.blacksmithingebooks.com, or check/MO to Brian Gilbert, 3404 Hartford Dr., Chattanooga, TN 37415.

Ray Joe Hastings' new book on "Bow and River Gigs" has just been published. http://www.acclaimpress.com/catalog/product_info.php?products_id=67

Ray Clontz Tire Hammer Plans by Clay Spencer

Price is \$30US including postage to US and Canada, \$32US to other countries. Send check or money order 73 Penniston Private Drive, Somerville, AL 35670, Also, lead workshops for chapters or groups to build 15 to 20 hammers. phone 256 498-1498, cell is 256 558 3658, email is clay@tirehammer.com

New England School of Metalwork

www.newenglandschoolofmetalwork.com
1-888-753-7502

Blacksmithing classes, Arrowhead Forge, Buffalo, Wyoming.
David W. Osmundsen 47 N. Lobban, Buffalo, WY. 82834
www.arrowhead-forge.com

Buy, Sell, Trade, Continued

Products

Heavy duty **Frying Pan Blanks**: Steel, approximately 9 inch in diameter with 2 inch sides. 12 gauge (2.5 lb.) or 14 gauge (1.75 lb.) thickness. Contact: Bob Tuftee, 3855 Aspen Hills Dr., Bettendorf, IA 52722; bobforge@hotmail.com; (563) 332-4800.

The **Ozark School of Blacksmithing** carries a complete line of hand forged Hofi style hammers, punches, drifts, tongs, shears, belt grinders and gas forges. He's also importing the Sayha air hammer from Turkey. For more info on the tools contact him at Phone (573) 438-4725. Fax (573) 438-8483.

L Brand Forge Coke now packaged in 50 pound bags, 1,000 pound bulk sacks on pallets and 2,000 pound bulk sacks on pallets. Send your zip code for a quote on price including delivery. 1-800-441-0616 or LBrandForgeCoke@aol.com.

D.L. Schwartz Co. **Blacksmith and Farrier supplies**.
2188 S. US 27, Berne, In. 46711, 1-800-955-3064

Kayne and Son Custom Hardware, 100 Daniel Ridge Road, Candler, NC 28715. (828) 667-8868 fax (828) 665-8303, e-mail: kaynehdwe@charter.net, web site: www.blacksmithsdepot.com. Offering a full line of blacksmithing equipment. We ship and accept Visa and Mastercard.

Persimmon Forge **PEDAL HAMMER** sit down treadle hammers for sale. Contact Dave or Betty Edwards by e-mail at djedwards@cableone.net, or write or call the manufacturer, Daystar Manufacturing at 3701 West 6th, Emporia, Ks., 66801, (620) 342-4440. For more information, go to www.persimmonforge.com and click on both "Pedal Hammer" and "Video Demo of Pedal Hammer."

SOFA fire pots are once again available. For information contact Bob Cruishank, 1495 W. Possum Rd., Springfield, OH. 45506 Phone: (937) 323-1300 or www.creativeironforge.com or www.sofablacksmiths.com

Chile Forge- Next generation **gas forges**
www.chileforge.com
David Starr 520/360-2141

USA Dealer for **REFFLINGHAUS ANVILS**, 77 to 1250 lb. European 2 horn with or without upsetting block & side shelf. Over 100 sizes and styles available. Guaranteed face @ HRC59 Dick Nietfeld www.blksmith.com Phone (308) 384 1088

Wanted:

I'm looking for an 8" post vice. Prefer Columbian, Peter Wright, or Indian brand. 573-859-3849

The **MTS Program** needs one more **four inch post vice**. Donations welcomed. Does any one have a idea how to make a stand that has legs that will fold up to hold a post vice? When open to use, they need to be steady and solid. We set up on unlevel surfaces and the vice we have now takes three people to use, two to hold the vice for the one using it. The space in the trailer is limited, so to haul five vices, the legs need to fold up. Please send your ideas and offer for vices to: Don Birdsall 573-364-7223 email donbirdsall@embarqmail.com

Demonstrator List

Fred Weisenborn has started a list of members available for demonstrations, fairs, historic events, and festivals, etc.
417-589-2497 e-mail: jweisenb@llion.org

Around the Anvil BAM has it's very own E-Mail news group. If you would like to participate send an E-Mail to Ed Harper at aramed@grm.net and he will get you signed up.

BLACKSMITHING IN WINE COUNTRY CBA Spring Conference April 23-26, 2009

The 2009 CALIFORNIA BLACKSMITHING ASSOCIATION Spring Conference will be held at the Sonoma Marin Fairgrounds in Petaluma, CA about 50 miles north of San Francisco on Highway 101 in Sonoma County. Mark your calendars for April 23-26, 2009, and plan to attend our conference of blacksmithing, fellowship and enjoying the Sonoma County wine country and coastline! Demonstrators include Italian Blacksmiths, Claudio Bottero (Venice, Italy), Jadron & Martino Stenico (Rome, Italy), and American Blacksmith's Tony Standteiner, Eric Clausen, Jill Turman and Andrew Kyte.

Sonoma County has many excellent opportunities for smiths and families as well. Local attractions include, excellent dining, shopping, the scenic Sonoma County coastline and the Sonoma Wine Country for winery visits and food tours.

Contact Lowell Chaput at lowell@sonic.net or visit our web site at www.calsmith.org.

Need Coal ?

Check on Availability

Coal Captain: Bob Alexander



1. Bob Alexander (636) 586-6938
14009 Hardin Rd,
DeSoto, MO. 63020

5. Jeff Willard, (417) 742-2572
P.O. Box 416,
Willard, MO. 65781

2. Ken Jansen, (636) 366-4353
2257 Charter Rd.,
Moscow Mill, MO. 63362

6. Denis Yates, (573) 286-5316
343 Lamp Dr.
Sunrise Beach, MO. 65079

3. Doug Clemons, (660) 595-2257
RR1 Box 124,
Malta Bend, MO. 65339

7. Joe Hurley (660) 379-2365
Rt1 Box 50
Downing, MO. 63536

4. Jerry Rehagen, (573) 744-5454
390 Bozina Valley Trail,
Freeburg, MO. 65035

9 Paul Lankford, 573-473-7082
25849 Audrain Co. Road 820,
Mexico, MO 65265

Price \$17.00 per bag BAM members, \$18.00 per bag Non-members, \$14.00 per bag at Bob Alexander's
Coal keepers earn \$4.00 a bag. NOTE: PRICE INCREASE

8. Non BAM coal. \$15.00 per 50#s. The coal is located in Camden Point, Mo. I can be reached at 816-992-3352
Thanks, Vernon Adkins, adkinsfarms@gmail.com

Upcoming Events

November 28 - Hammer-in Ken Jansen, Moscow Mills, MO (636- 295-5844)
January 1 - Application deadline for February Scholarship awards.
January 17 - BAM meeting, Dale Kirby, Higbee Mo. 660-456-7561
January 17,18 - MTS #1,#2 Workshop (Basic BS) William Tobler. Drexel. MO 816-619-2296
February 21,MTS Workshop Number one. Ray Scott Eminence, MO 573-226-5541 evenings only
February 28,MTS Workshop Number two. Ray Scott Eminence, MO 573-226-5541 evenings only
March 21- BAM meeting Doug Clemons, Malta Bend, MO. (660-595-2257)
April 1 - Application deadline for May Scholarship awards
April 23-26, 2009 CBA Spring Conference April 23-26, 2009 Contact Lowell Chaput at lowell@sonic.net
April 30-May 3 BAM Ozark conference, Sedalia, MO
May - 2009 BAM meeting TBD
June 14-July11 Boy Scout Camp, Metal working merit badge classes
July 1 - Application deadline for August Scholarship awards.
July 11- BAM Meeting Bob Ehrenberger, Shelbyville, MO. (573)-633-2010 Trade Item - Pair of tongs
September 12 - BAM meeting, Matthew Burnett, Cameron, MO (816-575-2798) Trade Item TBD
October 1 - Application deadline for November Scholarship awards.
November - 2009 BAM meeting TBD
March 27 2010- BAM meeting, Boy Scout Camp
Note: For all MTS (Mobile Training Station) classes contact Don Birdsall for information (573)-364-7223

MTS WORKSHOP

BASIC BLACKSMITH TRAINING

Location: Ray Scott
HCR 2 Box 196, Eminence, MO. 65466
Telephone 573-226-5541 (evenings only no day time number)

From the intersection of Highway 19 and Highway 106 in Eminence, Mo. Go east on Highway 106 to Highway V. Go North on V two miles. On right side of highway is a white wooden fence turn into drive way.

February 21, 2009 Workshop Number one.
February 28, 2009 Workshop Number two.

Must be a BAM Member to take the workshops.

Send registration and payment for workshops to:
Ray Scott at above address.

For information on workshop, send enquires to:
Don Birdsall 573-364-7223
Email donbirdsall@embarqmail.com

Workshops start at 8 am and end at 5 pm. Please be there by 7:30 am. Bring lunch and drinks.

Safety glasses (To be provided by students) must be worn at all times while work is going on.
Aprons and gloves optional (must be provided by students).
Cameras and tape recorders are allowed (Encouraged).

New Members

If you have a new member near you, welcome him to the group and show him the ropes.

Bax, Rebecca
901 St. Paul Lane
O'Fallon, MO 63366
buddhas_girl@hotmail.com
314-402-7095

Farnsworth II, Ashley P.
11050 Private Drive 5316
Rolla, MO 65401
abfarn@embarqmail.com
573-364-1571

Luebbert, Alan
7975 Co Road 405
Fulton, MO 65251
alan.luebbert@jcps.k12.mo.us
573-544-4203

Riley, Troy
P.O. Box 772
Morehouse, MO 63868
triley001@charter.net
573-703-5377

Urness, Mike
705 Walfield Lane
St. Louis, MO 63141-6036
hd1933vle@aol.com

Campbell, Dave
22873 McKean Street
Pleasanton, KS 66075
docc3249@ckt.net
913-352-8561

Hill, Larry
10997 Eldorado Road
Green Ridge, MO 65332
660-527-0109

Matlock, Dan
18954 Co. Road 3460
St. James, MO 65559
danmatlock@yahoo.com
573-265-0908

Roberson, Elmer
HC 3 Box 3095
Theodosia, MO 65761
hipoint@fidnet.com
417-273-4748

Watson, Tom
2800 E. Gans Road
Columbia, MO 65201
573-864-8005

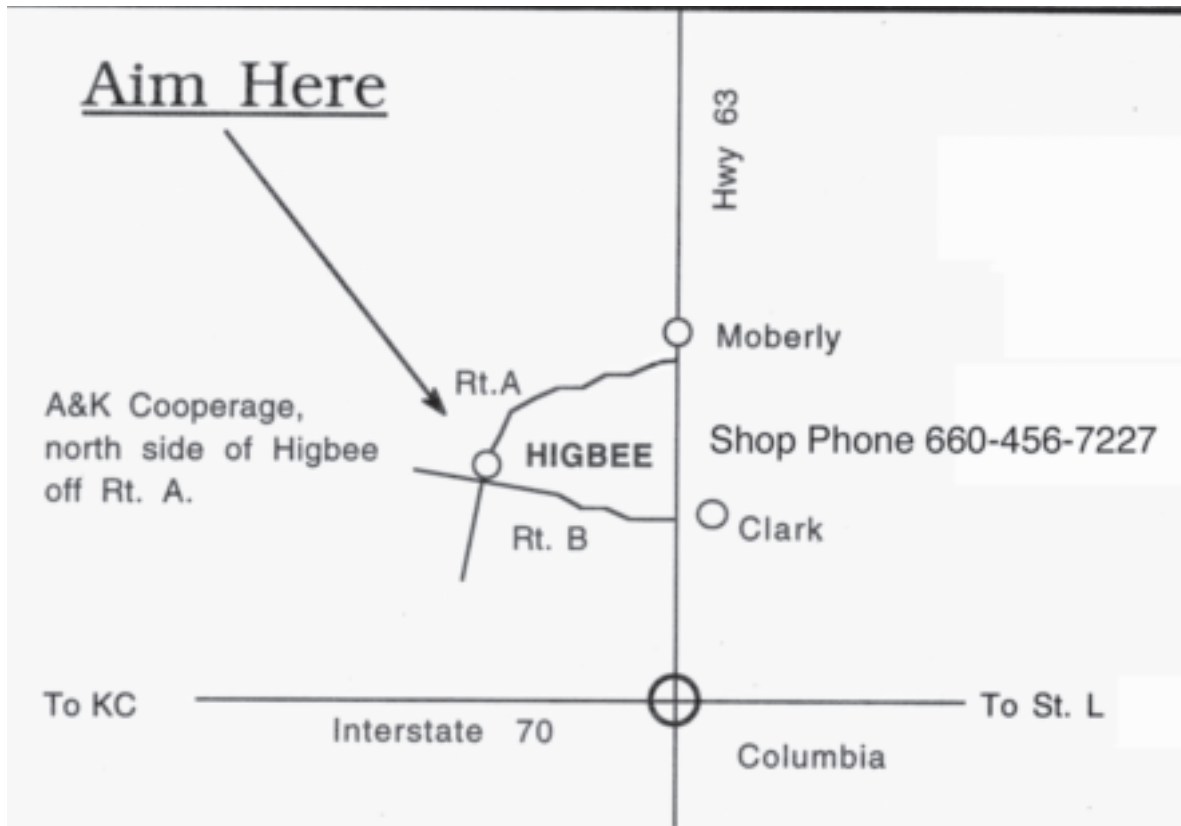
Dodd, James
99 Canon Ball Lane
Winfield, MO 63389
636-544-3804

Knowles, Jerry Paul
P.O. Box 104
Rolla, MO 65402
573-364-3765

Nansel, Steven
5944 Hwy B
Hillsboro, MO 63050
neon5944@earthlink.net
636-797-40177

Tucker, Bennet
202 Reliance Road
Foristell, MO 63348
terr.reclov@gmail.com
425-280-8295

Next Meeting: January 17, A&K Cooperage Higbee, MO.



Host: Dale Kirby

Phone: 660-456-7561

Trade item:
Corkscrew

Demonstration:
Barrel making

Food:
Provided by the Lions Club

Directions: Take Highway 63 to Rt. B near the Clark exit. Turn West on B and stay that way until B turns into A. Keep going North on A until you see the cooperage on the North side of Higbee.

BAM

2212 Aileswick Dr.,
St. Louis, MO 63129

Please send changes to Bruce Herzog, 2212 Aileswick Dr., St. Louis, MO 63129 or e-mail to bjherzog@msn.com