

APRIL / MAY 1991

Newsletter ^{of} the Blacksmiths Association ^{of} Missouri

**STAN WINKLER
at Edwardsville**



VOL. 8 NO. 2

The Blacksmith's Association of Missouri is a chapter of the Artist-Blacksmiths' Association of North America, and is devoted to 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.

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Membership Renewals

Be sure to check the date on the label of your newsletter. This is your membership renewal date. We will include a renewal reminder in your copy of the newsletter when your membership is due to expire. If the date on your newsletter label is not correct, please notify Bernie Tappel as soon as possible.

ABANA Membership Application

Name: _____

Address: _____

City: _____ State: _____

Phone: () _____ Zip: _____

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- Regular Member \$35.00 yr.
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I _____ hereby apply for membership in
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_____ as my annual membership dues for one year.

MasterCard VISA Check/Money Order

Card Number

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Checks must be in U.S. currency

SEND RENEWAL TO:

ABANA

P.O. Box 1181

(812) 988-6919

Nashville, IN 47448

Dues Distribution:

1 Year Subscription Anvil's Ring: 68.5% \$24.00

Adm. Offices & Other ABANA projects (Conferences, etc.): 31.5% \$11.00

OF ARMS. ATTEND CONGRESS MAY 12 TO 18TH.
19TH VISIT HAGEN EARLY INDUSTRY MUSEUM AND VELBERT LOCK
MUSEUM. 20TH CONTINUE ON TO FRANCE: VISIT NANCY, TROYES,
REIMS, ROUEN, PARIS. RETURN TO NEW YORK MAY 26TH.

CALL ABANA TOUR COORDINATOR (OUR 5TH AND LAST TOUR)
LEONARD OR LILO MASTERS AT
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WE WILL TAKE CARE OF ALL ADVANCE REGISTRATIONS AND
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* AT CURRENT EXCH. RATE. INCL. R/T. AIR FARE FR. NEW YORK,
CONGRESS FEE, ALL HOTELS (TWINS), BREAKFASTS, SOME MEALS,
SOME MUSEUM FEES, ACCIDENT INS.
SEE ITINERARY FOR COMPLETE OFFERING.

Next Meeting

Tom Clark's meeting has been moved from May 11 to April 27th and 28th, to be a two-day, hands-on workshop on power hammers featuring Fred Caylor. I know this newsletter may reach you too late, so there will be (has been) a separate mailing.

Just in case I'm not too late, Here's the map. Tom's got a big one planned, including a barbecue, a wienie roast, and a house tour showing exceptional iron work, not to mention some serious blacksmithing. Fred Caylor will concentrate on the care and use of the 25# little giant and on the making and tempering of small tools.

The Edge of the Anvil

by Jack Andrews

Bert Elliot-Francis has copies of the new edition for \$13.00 plus \$2.00 shipping. Make checks to BAM and mail to:

The Velvet Hammer
Route 1 Box 212
Cobden, IL 62920

Power Hammer WORK SHOP

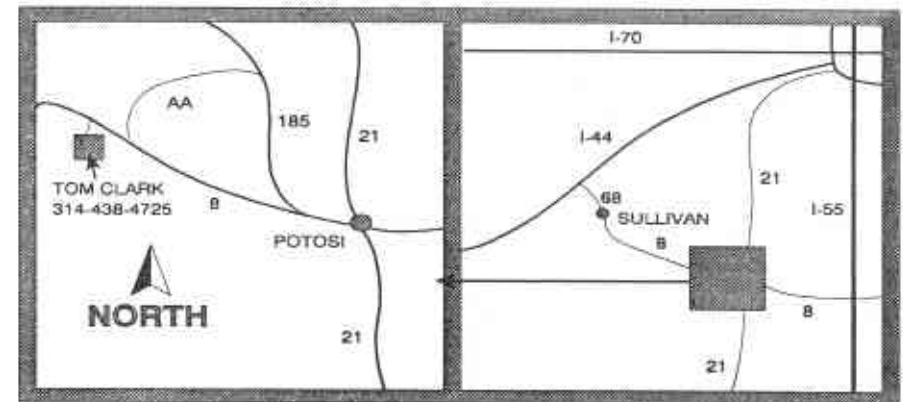
Bam's April meeting will feature a two day workshop led by Fred Caylor on power hammer forging and safety. There will also be a tour of Skip Sayers residence near Potosi, Mo. where a large amount of woodwork and forge work by Tom Clark will be seen. Please call Tom at 314-438-4725 so that he can determine how many people will be in attendance. Don't miss this one!

Time: Saturday & Sunday, April 27 & 28, 9am-5pm both days
Place: Tom Clark's shop (see map)
Lodging: Austin Court: 314-438-9002 (\$27-\$31/night)
Lake View Motel: 314-438-3928 (\$25-\$30/night)

Trade Item: Any fireplace tool

Events: Saturday
9-11am: Power Hammer demonstration
11am-1pm: Sayers tour; Lunch; Business meeting
2 pm-5 pm: Power Hammer Demonstration
5 pm on: Hot dog roast; Hands-on Forging; Bon fire
Sunday
9-12 am Power Hammer Demonstration
12-1 pm Lunch
1-5 pm Hands on Forging

Cost: \$15. two days; \$10 one day



Missouri Knifemakers

The workshop put on by the Missouri knifemakers at Edwardsville, Il. on March 9th and 10th was one of the best we've had. Who would have thought anyone you actually know could be that impressive? Al Dippold, V. J. McCrackin, Hank Knickmeyer, and Stan Winkler each had a great deal to show us, and most of the time there were several demos going at once. Consequently, our report on this workshop is to come trickling in over several issues. There was no way one person could take it all in.

As always, Tom Gipes studio was an excellent venue, large, open and well equipped, with several coal forge, anvils, welders, torches, and two power hammers. Hank Knickmeyer also brought his gas forge, detailed elsewhere in this issue, and other knifemakers provided belt grinders/sanders and other equipment. Subjects covered included blade design (John Dearing) forging (Winkler, Knickmeyer, McCrackin) Heat treating (Dearing, Miller, McCrackin) testing (Dearing, Miller) grinding (Dippold, Miller) pattern welding (Winkler, Knickmeyer), sheathmaking (Warden) file work, guards and handles, and safety. And surely, some things I'm leaving out. Not only do these people do nice work, they talk about it well, and are generous with their knowledge and patients in sharing it.

This time I'm going to give you V.J. McCrackin on forging a blade from a car leaf spring, which, he says is generally a 5160 spring steel (5160 means a low chromium steel with 60 points, or .60% by weight, of carbon).



Al Dippold



Hank Knickmeyer

V.J. starts forging at around 1800 degree F., or a good orange color. He says forge to shape as close as possible, but leave enough grinding to make sure there are no scale pits in the finished blade. Then "pack" the edge: get the steel hot and hammer edge with small hammer until steel turns black. This makes grain structure small in cutting edge.

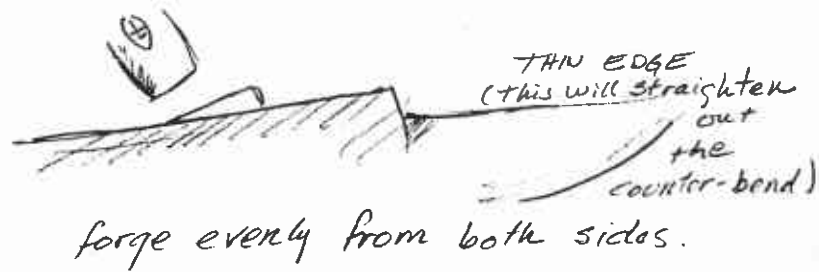
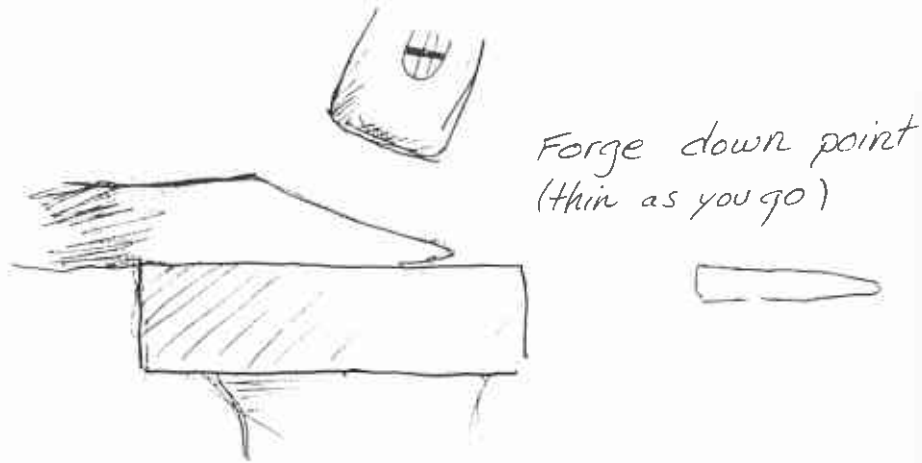


FIG 1



John Dearing lectures on blade design.



Roy Warden and Tom Clark

Bring steel to 1450 - 1550 degree F., or above the point where it becomes nonmagnetic. Anneal in ashes for 4 to 5 hours.

Grind with a coarse (36-80 grit) belt, then with 120 grit, then 240. The blade is now ready to heat treat. Put the blade in the forge and heat it to the nonmagnetic temperature. Quench in warm (about 120 degree F.) motor oil. Hold in oil til blade is cool. Check for hardness with a used file. Sand off the oil with a 240 grit belt. Put the blade in an oven and hold at 375 to 400 degree oven for about 1 hour. This should bring the blade to a light straw color and a hardness of about Rc 58.

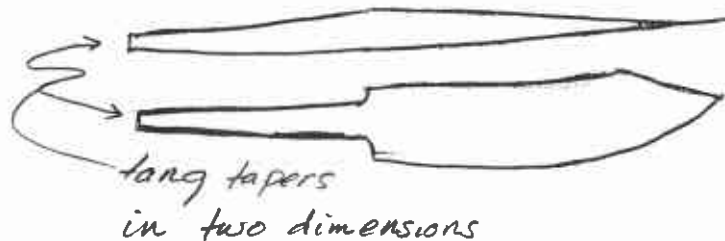
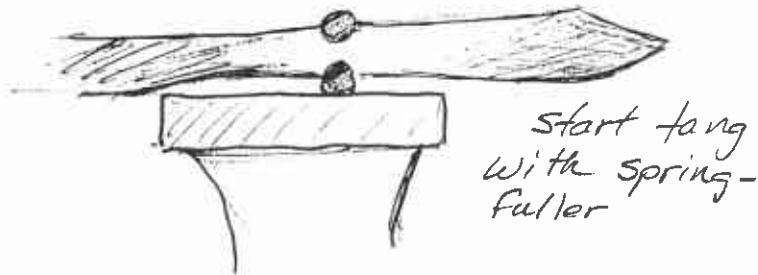


FIG 2



Members admire display of knives.

Now use a torch to heat the tang and the back of the blade to a blue. If the color moves toward the edge, stick the edge straight down in water and sand off the colors with 240 grit. Repeat twice. Now sand with 400 grit, sharpen and test. Be sure that the edge is sharp and stays sharp and does not chip or roll-over. If it does you'll have to do the heat treating all over.

The above is from V.J.'s notes, with occasional asides and sketches from my failing memory. V.J., if I got something wrong, let me know.

All the bladesmiths I spoke to agreed that heat treatment is more important than the choice of steel. Successful blades are made from cable, ball bearings, files, and other road-kill as well as from purchases tool steels. W1, O1, LG are popular. Good heat treatment however, depends on knowing your steel, and one manufacturer's files may not be the same as another's. Test pieces are a good idea.

Also all the demonstrators believe in differential heat treatment (i.e., drawing the tang and spine softer than the edge.) More next time, folks,. Now it's time to ship this thing.

Walt

S P R I N G
1·9·9·1

These programs are part of an ongoing series of workshops, conferences, and exhibitions sponsored by Sloss Furnaces National Historic Landmark. For more information on the metal arts program at Sloss, contact the director of metal arts, 205/324-1911. These programs receive generous funding from the Alabama State Council on the Arts.

IRONWORKING *at* SLOSS FURNACES NATIONAL HISTORIC LANDMARK

REGISTRATION

Please check appropriate box

Cast Iron Workshop
April 23-28, \$125

Knifemaking Workshop
May 26-June 1, \$150

Name _____

Address _____

City _____ State _____ Zip _____

Home Phone _____

Work Phone _____

Please make checks payable to the Sloss Furnace Association, Inc.

Please mail this completed form along with a check or money order for the registration fee to:

Ironworking at Sloss Furnaces
P.O. Box 11781
Birmingham, AL 35202

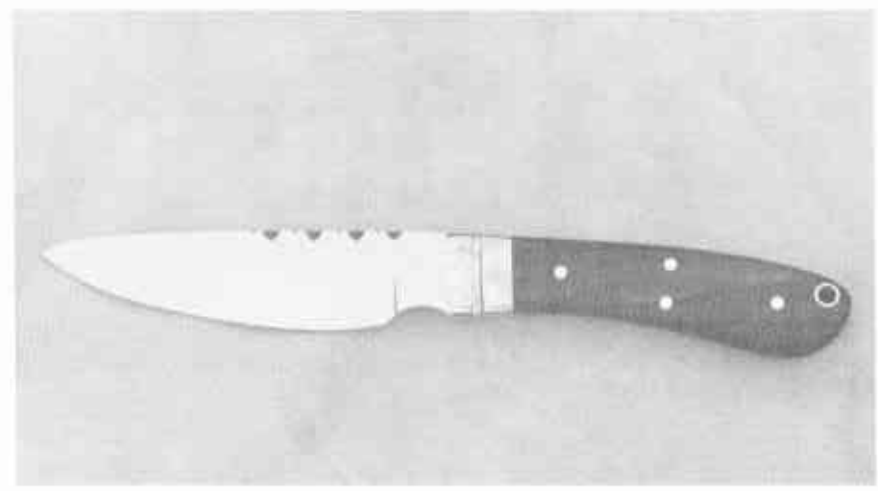


Photo by Kevin McCrackin

Dear BAM members,

This is a picture of the knife that all the knifemakers made at Edwardsville.

It is forged from 5160 steel. The blade is 4 1/2 inches long, overall length is 8 3/4 inches long by 1/4 inch thick.

It has a full tempered tang. The bolsters are mokume, ziricoti (spelling?) wood handle, nickel-silver fins. Decorative file work on back of blade. It will also have a sheath.

The knife will be auctioned off at Tom Clark's meeting. The money will be donated to BAM.

I hope to see you at Tom's place.

Sincerely,
D.J. McCrackin

Clifton Ralph Tapes

This is the updated shipping list for BAM's copy of the Clifton Ralph power hammer tapes. To keep them moving you must ship to the next person on or before the date under your name. PLEASE BE PROMPT. Remember, the next person loses if you ship late. Also remember to insure the tapes for \$200 when shipping.

Ken Markley
R 1 Box 346 C
Sparta, IL 62286
618 443-5284
April 13

Emil Bubash
3151 Lin-Tel Rd.
St. Louis, MO 63125
314 892-4086
April 27

W. C. Stauss
1651 Burley Rd.
Festus, MO 63028
314 937-7585
May 4

Pat McCarty
Rt 1 Box 247 A
Washington, MO 63090
314 239-3814
May 25

Steven Baker
519 N. Locust
Monroe City, MO 63456
314 735-2758
June 8

Gary Tash
3229 Tennyson Sq.
St. Louis, MO 63143
314 644-2599
June 22

Walt Hull
2043 Massachusetts
Lawrence, KS 66046
913 842-2954
July 6

Bill Miller
810 Oerhake
Florissant, MO 63033
July 20

Lou Mueller
224 Benton St.
Valley Park, MO 63088
314 225-3252
August 3

Kenneth Rehmer
Rt 3 Box 284
Cole Camp, Mo. 65325
August 17

Doug Hendrickson
R. R. 1 Box 16 D
Lesterville, MO 63654
314 637-2576
August 31

Machine Shop Tips

Selecting A Tap Drill

Did you ever have to drill and tap a hole and wonder what size drill to use? Well, if you have a tap drill chart you won't have to read any further, but if you don't, here is a formula that may be helpful.

Using 1.299 as a constant, divide 1.299 by the number of threads per inch of the tap you plan to use. This will give you the double depth of thread (2 times the single depth.) Subtract the double depth from the outside diameter of your tap and add 5% to your answer. This is the size of the drill you will use.

Example; to find the correct size tap drill for a 3/8 - 16 thread take 1.299 and divide by 16. $1.299 \div 16 = .081$.081 is the double depth of a 16 thread. Take 3/8 (.375) and subtract .081. This = .294. $.294 + 5\% = .308$.308 will be your tap drill size. Now you find that you don't have a .308 drill. That's because there is no such thing. So go to a 5/16" drill which is .312. As with all machine shop formulas this one is not perfect so you have to use your head too.

Let's try a 5/8 - 11. $1.299 \div 11 = .118$
 $5/8 (.625) - .118 = .507$ $.507 + 5\% = .532$
 $.532 = 17/32$ 17/32" will be your tap drill size.

This formula will work for all 60 degree sharp V threads, right or left hand, coarse or fine. About the only kind you are likely to come across in ordinary work. It will give you about 75% thread contact and still be fairly easy to tap. Easy tapping means less tap breakage.

So get busy and don't forget the cutting oil.

Harley Larson

ABANA

Artist-Blacksmiths' Association of North America



P.O. Box 1181, Nashville, Indiana 47448
Executive Secretary, Janelle Gilbert

Office Hours: 7:30-11:30am & 1:30-4:30pm
Phone: (812) 988-6919

PRESIDENT'S MESSAGE TO THE CHAPTERS MARCH 1991

Dear friends,


The Spring Issue of The Anvil's Ring is going to print two weeks ahead of schedule this time. Editor Pro Tem, Robert Owings is working hard to make this issue reach you right on time. We have a delay in getting the mail forwarded from past editor Al Anderson, so I encourage anyone who submitted an article to him in the past 6 months to check with Robert Owings and resubmit, if necessary. Robert is most anxious to see that every article is placed in print and we apologize for this inconvenience to you. Robert's address is:

Editor, The Anvil's Ring
230 Keokuk Street
Petaluma, CA 94952

Phone: 707-778-6562 or 778-8261

We have a gallery opportunity. If anyone is interested, act quickly. Mr. Yuri Simin, head of The Russian Forgers Association, has invited American smiths to take part in their annual competition and exhibition of forger's work. It will be held on June 8 and 9, 1991. In addition, in August 1991, they will be organizing an iron forging festival and exhibition. They invite us to participate in these events. They are also interested in organizing an exhibition in the future, dedicated to the history of iron forgers in America. Contact: Mr. Yuri A. Simin Moscow 109428, USSR Ryazanski, Prospect, 8-a 171-02-47. Telex: 411023 Communications with The Soviet Union are difficult. Mr. Lawrence H. de Bivort Evolutionary Services Institute 5504 Scioto Road Bethesda, Maryland 20816 (301) 320-3941 has agreed to help if you need him.

Warm regards,


Dorothy Seeger
ABANA President

NORTHWEST OHIO BLACKSMITHS

Fifth Annual Hammer-In
May 3, 4, 5, 1991

at AuGlaize Village, Defiance, Ohio



Demonstrators:

Gary Ameling, from Elmor, Ohio.
Ken Scharabok from Dayton, Ohio
Bill Hahn from Collins, Ohio
Don Witzler from Perrysberg, Ohio

SCHEDULE

Registration begins at 1:00 pm Friday, May 3

Demonstrations 9:00 am - 12:00 pm; 1:00 pm - 4:00 pm both Saturday and Sunday

Buffet 5:30 pm Sat. in the barn. Pre-registration for this meal must be in by 4/15/91. **Menu:** Swiss steak, Turkey, Potatoes, Vegetable, Assorted Salads, Dinner rolls & butter, Pie, Coffee, Milk & Punch. **Cost:** \$7.00/person.

The concession stand will be open both days for breakfast and lunch. There will be activities for spouses. Please bring your own craft specialty to share.

Camping is available at AuGlaize Village. Primitive, no hook-ups. Ground fire with fire ring is allowed. Bring your own wood or charcoal for campfires. Fee is \$6.00 per camp per night.

Registration: per smith, one day \$15.00; two days \$20.00.

Basic hands-on workshop: per day \$5.00

As part of the registration fee, each participant will be required to furnish a forged item, of their own making, to be used in the raffle held Saturday night after supper. The raffle is open to all registered participants and their families.

For more information call:

Duff Raker - 313/847-124
Butch Sheely - 419/352-5864

THE BLACKSMITH'S ART

On Exhibit at the Madison-Morgan Cultural Center
February 23 - May 19, 1991

The Madison-Morgan Cultural Center in Madison presents THE BLACKSMITH'S ART, an invitational exhibit of original work by artist-blacksmiths from eight Southeastern states, curated by nationally-known Georgia blacksmith Stan Strickland. This exhibit will be on view in the Center's galleries, February 23 - May 19.

The exhibit features work by sixteen blacksmiths, including Georgia blacksmiths Elizabeth Brim from Columbus, Ron Howard from Canton and Bo Weaver from Atlanta; Alabama blacksmiths Jim Batson and Clay Spenser from Madison and Gavin Harris from Gallant; Florida blacksmiths John Dittmeier from Casselberry and Jerry Grice from Tallahassee; Kentucky blacksmith Craig Kaviar from Louisville; Mississippi blacksmith Robert M. Heath from Ridgeland; North Carolina blacksmiths Johnny Kierbow from Murphy and Daniel Miller from Hazelwood; Tennessee blacksmith Charlie Fuller from Pigeon Forge; and Virginia blacksmiths Claudia McCue and Nol Putnum from The Plains and Elmer Roush from Cleveland.

The fluid, flexible look these artisans manage to achieve in their work displays an extraordinary expertise in the field of contemporary blacksmithing. Bo Weaver's forged, brass plated flower-like fireplace tools rest in a curved nest of leaves. Elizabeth Brim's steel "apron" looks like a delicate voile apron fluttering the wind. The contrast of flowing lines formed in rigid steel is startling as well as beautiful.

The work features a wide range of functional pieces from glass topped tables and candleholders to cooking utensils, a vase and clock, in addition to both abstract and representational non-functional sculptures. The center offers a display of typical blacksmithing tools on loan from Madison blacksmith Floyd Daniel as an adjunct to the exhibit.

As former president of the Artist-Blacksmiths' Association of North America (ABANA), exhibit curator Stan Strickland knows the state of blacksmithing in America today and maintains close contact with blacksmiths throughout the country. Well-known for his mastery of the craft, Strickland makes his living as a blacksmith-artisan at his own forge in Stone Mountain.

The exhibit is co-sponsored in part by the Tullie Smith Blacksmith Guild, Florida Artist Blacksmith Association, the Alabama Forge Council, North Carolina & Appalachian Area Chapters of the Artist/Blacksmiths' Association of North America, and in part by a grant from the Georgia Council for the Arts through the appropriations of the Georgia General Assembly and National Endowment for the Arts.

The Madison-Morgan Cultural Center is open to the public Tuesday-Saturday, 10:00 am - 4:30 pm, and Sunday 2:00 - 5:00 pm. Admission to the building is \$2 for adults, \$1 for students and FREE to members of the Center. The Center is a non-profit organization which welcomes membership participation from all interested persons.

The Center is located in an 1895 historic school building at 434 South Main Street in Madison. For additional information call the Madison-Morgan Cultural Center at 404/342-4743.

More Shops Available

Add to the list of those willing to make their shops available to the shopless or host local "mini-meetings"

Al Dippold
RFD #3
Perryvillee, Mo. 63775
Phone 314 547-1119

Earl Hawkins
3 Deepwoods Lane
Barnhart, Mo. 63012
Phone 314 942-4251

If interested, pick up the horn and check it out. See previous issues for other willing types.

SOUTHEASTERN REGIONAL BLACKSMITHS CONFERENCE

LION'S CLUB FAIRGROUNDS, Madison, Georgia
May 17 - 18, 1991

We would like to invite you to attend the fifth blacksmithing conference to be held in Madison, Georgia. This is an opportunity for blacksmiths and their families to see and learn from some of the top professionals in the field. As in the past, there will be demonstrations of interest to the blacksmiths as well as their families and anyone else interested in MADE IN THE USA objects of beauty.

This conference is organized by the Tullie-Smith House Blacksmith Guild, the Appalachian Chapter of ABANA, the Florida Artist Blacksmith Association, the Alabama Forge Council, and the North Carolina Chapter of ABANA.

Madison is a beautiful town located 50 miles east of Atlanta on Interstate 20. All motels and eating places are located within 4 miles of the conference site. The conference site itself is fenced with ample parking space for campers. A large, covered barn is used as the blacksmith demo area, with the Family Program being held in an adjacent large building, which is also used as the location for the ironwork display area. There will be a snack bar at the conference site.

The conference is a great place to sell those extra tools, etc., which are lying around collecting dust (but, just remember, we can also sue some of them for the auctions Friday and Saturday night). Tool sales will be in a reserved area only.

There will be an ironwork exhibit on site, as well as one at the Madison-Morgan Cultural Center, a dinner honoring the demonstrators (dutch treat), auctions, an anvil shoot, tall tales, and a host of other fun activities for everyone.

In addition to the Blacksmith demonstrators and the Family Program, we also will have an extra forge area set up for use by beginners to get help from the more experienced blacksmiths.

WE HOPE TO SEE YOU THERE!

For more information contact: Joe Humble, 5029 Moncrest Drive, Chattanooga, TN 37416 615/344-9649.

Letter to the Editor

Dear Editor and BAM members,

The blade smithing seminar in Edwardsville was a huge success. Everyone I talked to said they got a wealth of information on blade smithing and leather craft.

I feel the class was worth alot more than \$40. We have some of the finest craftsmen in the world right here in BAM. A few of them proved it at Edwardsville.

We must remind ourselves "There is no free lunch." We must all give as much to BAM endeavors as we can to keep the art of blacksmithing alive.

I wish to project some food for thought for the next meeting at Tom Clark's. We pay other artists to come to our meetings and teach us new tricks of the trade. I think it is only fair to reimburse our fine teachers of the art, their expenses and something for their time.

Sincere thanks to all of you, for all you give. You make my day,

Big E

Earl Hawkins

P.S. My shop is open to anyone, anytime, for get togethers. Hickery-smoked BBQ with notice.

Some Thoughts on Anvil Repair

by John Murray

Old anvils are most commonly found used and abused to the point that the working edges and face are chipped and broken. Generally, this damage can be successfully repaired by arc welding with an appropriate filler rod. Many people automatically think of "hardfacing" rod for this purpose, but a couple of points should be considered here:

1 True "hard-facing" welding rods and filler wire are meant mainly to counteract abrasion, and to some extent corrosion and heat, and to a lesser extent, impact. That is the key word - for anvils, we are concerned with impact.

These "hard-facing" alloys usually contain significant percentages of chromium and/or tungsten. While the weld deposits are extremely hard, they have little ductility and resistance to impact. They tend to crack and spall, and in fact some are meant to check and crack as the weld bead cools down, thus providing instant stress - relief. This is ok for gravel buckets & ripper teeth, not so hot for your beloved anvil.

2. Impact resistance calls for what are typically classed as "build-up" alloys. These are often used to deposit heavy layers of weld metal, sometimes several inches thick, on such items as ore crushers and railroad track switch gear. This thick, ductile, "cushioning" layer is often capped with a thin layer of hard abrasion-proof material.

"Build-up" alloys typically contain a lot of manganese and molybdenum, and it is important to note that they are definitely work-hardening; intentionally work-hardening, in fact.

Now a few words about the practical application of build-up alloys, but first a word of caution is in order. The anvils we are talking about here are forged from wrought-iron with a faceplate of hard steel forge-welded on top. It is possible for this face plate to separate from the wrought-iron body of the anvil. Before any welding is considered, tap the faceplate all over with a hammer. Listen for dull-sounding spots which might indicate a fault or void in the critical forge weld. Examine the sides of the anvil for splits in the seam. Welding on an anvil with a defect in the face-to-body weld may cause the face-plate to partially "lift," so check it out carefully.

If everything looks ok, then it's probably safe to commence a repair by arc-welding.

I've used and experimented with a number of "build-up" alloys rods, and the one I most prefer is a Stoddy Welding Company product called "2110". It is a high manganese iron-based rod, with a tensile strength of about 135000 P. S. I. It welds easily on AC or DC, the weld deposits are smooth and clean and not too hard to grind down. It work hardens to about 56 Rc.

My welding procedure is pretty simple. A little pre-heat on the anvil is ok, especially in a cold shop on a winter day, but not too much - about 200 degrees F max. This is important, as too much preheat causes embrittlement on manganese steels. Too much preheat may also lead to porosity in the weld deposits.

Weld with a short arc at fairly low amperage. Use stringer beads or a slight weaving motion. You want lots of extra height and mass in the weld deposit.

Stagger the welds to keep to heat down, especially when welding long areas on the edges.

The next step is stress-relief and work-hardening. As soon as you've run a bead, immediately put down your hood and stinger and grab your hand-hammer. As the weld starts to cool, peen it down. Hit it hard. Forge it down, hammer it until it barely deforms at all under heavy blows. You'll feel the weld work hardening, becoming more and more resistant to the hammer. Now go ahead and weld another bead somewhere else.

After all the welding and peening is done, grind, sand, and polish to your satisfaction. That's it.

Any questions, feel free to call me. Good Luck.

For Sale

152 # Armitage Anvil \$150.00

142 # Peter Wright \$140.00

Would trade for Stanley woodworking tools, planes, spokeshaves, large chisels, scrapers, etc.

Contact: Colin Campbell
1350 West Springfield Avenue
Union, Mo. 63084
Phone 314 583-3512

More on Anvil Repair

by Walt Hull

I have done repair welding on three old anvils, including one Peter Wright which required complete resurfacing and a build up as great as 3/8" in the center of the face. My experience has been similar to John's, but I would like to add to his comments.

1. Preheat: This is often a compromise between what's best for the filler material. Old anvils faces are usually plain carbon steels and may be very hard. Hardness may vary from anvil to anvil within the same make. My two Peter Wrights were relatively soft; a Trenton I worked on is so hard that it shows no hammer marks after decades of service. High carbon steels should usually be preheated to around 400 degrees before welding, and more won't hurt. If the manufacturer of the welding rod says no preheat, I would compromise. Try to avoid cooling stresses on the parent metal. Cracks, once started, will propagate themselves.

If you preheat do it slowly and thoroughly. A charcoal briquet fire works.

2. Welding sequence: I start at the middle and work out, as though tightening head bolts, on the theory that it works stresses out to the edges and ends, rather than trapping them. This may not be right, but it's worked so far. Don't hurry. Run short beads (1" to 2" max). Have a cup of coffee.

3. Procedure: Keep welding heat low. Set your machine as cold as you can and maintain the arc. Keep rod angle to work high. You want to increase the deposit rate and decrease penetration.

4. Cooling rate: As slow as possible. A little postheat with the rosebud helps here. Consult your supplier.

5. Holes: Fill your hardy and pritchel holes with fire clay. Shape the clay to suit and weld right up to it. Otherwise you'll either end up with weld metal in the hold or with a sloping, ragged edge.

Future Meetings

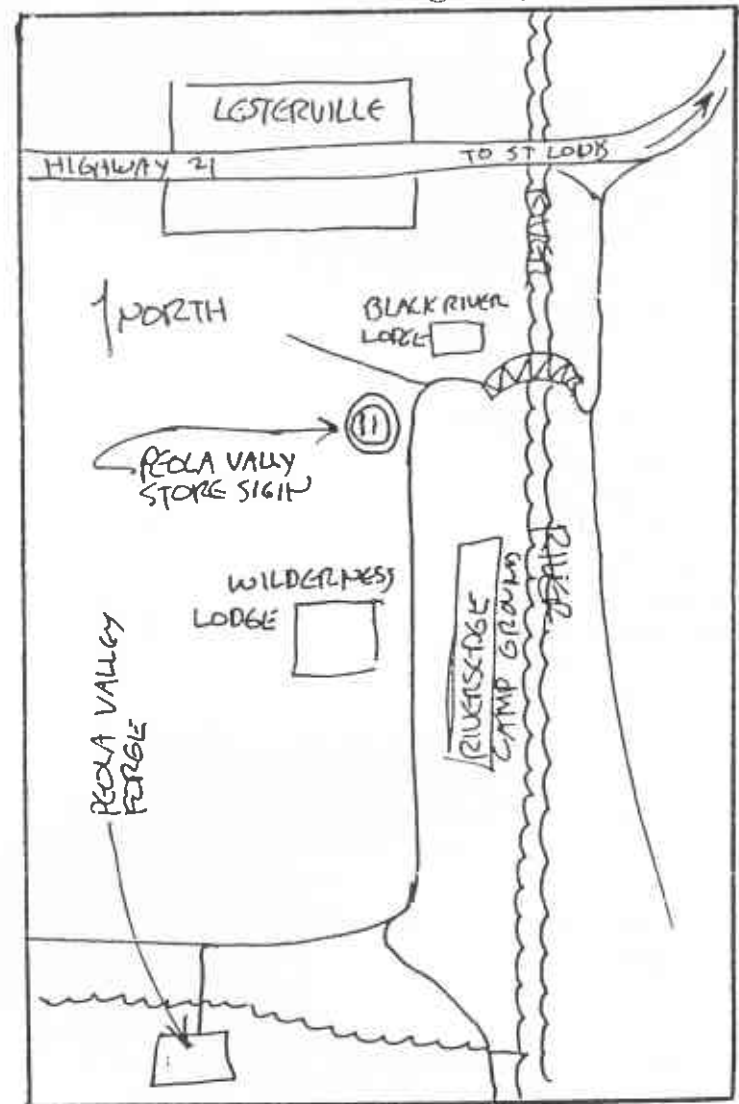
JULY MEETING

Blacksmithing on the Black River is back. The date is July and the place is Doug and Bonnie Hendrickson's at Lesterville. Doug plans a multi-forge beginners' workshop and of course, the usual manic misbehavior. Doug's at 314-637-2576. Plan to camp over and join the float trip Sunday. I'm going to print the map in this issue JUST IN CASE the next one hits a snag.

WH

July 20-21 Meeting

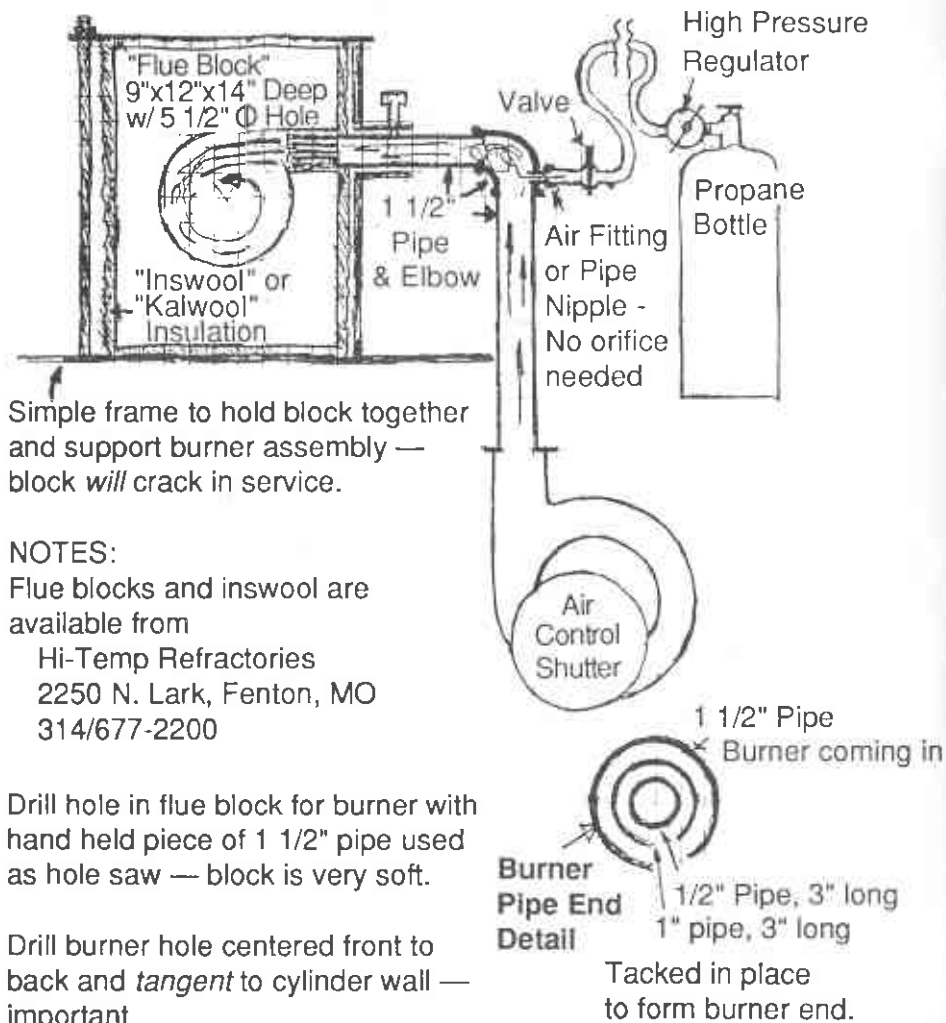
Doug & Bonnie's Peola Valley Forge
is 3 miles off Highway 21.



RR1 Box 160, Lesterville, MO 63654
314/637-2576

Plans for Gas Forge

(No scale)



Simple frame to hold block together and support burner assembly — block *will* crack in service.

NOTES:

Flue blocks and inswool are available from
Hi-Temp Refractories
2250 N. Lark, Fenton, MO
314/677-2200

Drill hole in flue block for burner with hand held piece of 1 1/2" pipe used as hole saw — block is very soft.

Drill burner hole centered front to back and *tangent* to cylinder wall — important

Brick up ends with loose fire brick leaving openings as needed.



National Ornamental Metal Museum

February 21, 1991

"HIDDEN SPACES"

(on view in all galleries)

March 12 - April 28, 1991

This intriguing exhibition explores the role metal has played in the design and construction of containers. The survey begins with rare 16th Century coffers and chests which once held the jewels and fortunes of royalty. Secret compartments and hidden springs and catches combined with intricate hand-forged locks and keys to insure the safety of the contents. A Gothic alms box in iron is equipped with a chain mail baffle to prevent pilfering.

"HIDDEN SPACES" will delight the mind and eye with objects made to hold secrets, precious objects, or simple mementos. Other function-specific containers are a 19th Century Scottish mull for snuff, a pewter tea cannister, a spice box in silver with amethyst, and a "cricket box" in nickel-plated copper.

In addition to the historic containers, the exhibition includes works by twenty American metalsmiths, invited to participate as a result of their interest in the form. Many of the new works are for sale through the artists, and a price list will be maintained at the front desk for interested collectors.

The exhibition will open with a preview reception for Museum members and the press on Sunday afternoon, March 10 from 3:00 - 5:00 P.M. "HIDDEN SPACES" opens to the public on Tuesday, March 12 and will remain on view through April 28, 1991.

The Metal Museum is open Tuesday through Saturday from 10:00 A.M. until 5:00 P.M. and on Sundays from Noon - 5:00. Admission is \$2.00 for adults; \$1.00 for senior citizens 62 and older; 75¢ for students and for children 5 - 18; free for children under 5 and Museum members. Admission is free for all visitors on Wednesday mornings from 10:00 - Noon. First floor galleries, giftstore, restrooms, grounds and Smithy are handicapped accessible. Staff guided tours and metalsmithing demonstrations are available for groups with advanced scheduling.

CONTACT: JUDY WALLACE
(901)774-6380

KILL DATE: APRIL 28, 1991