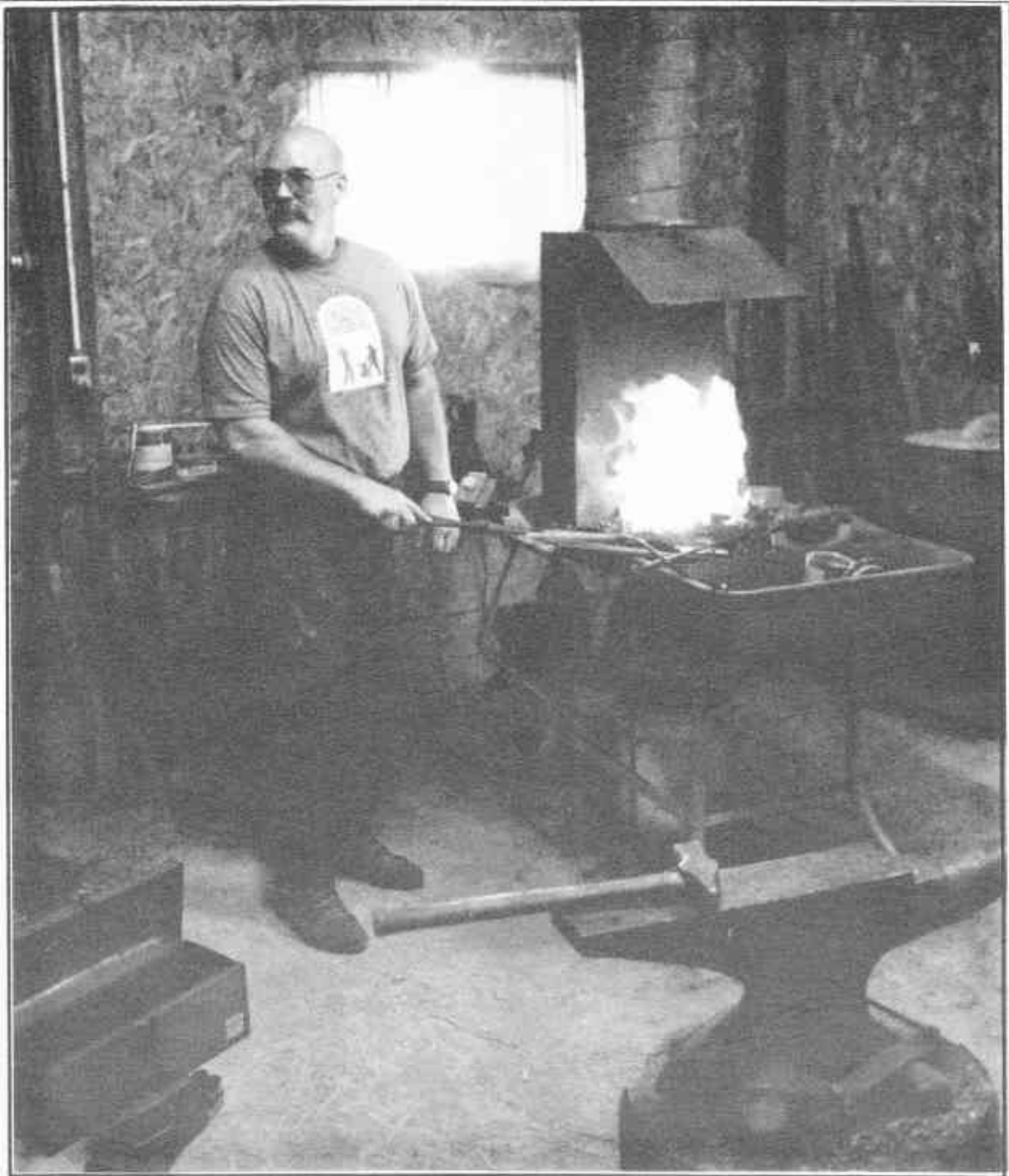


RAM



NEWSLETTER of the BLACKSMITHS ASSOCIATION OF MISSOURI

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Newsletter of the Blacksmiths Association of Missouri

Volume 9 No. 5

Our cover: Dr. Iron, Doug Hendrickson, prepares to pound at the last BAM meeting. Doug and Jerry Hoffmann teamed up on a poker demo.

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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 \$20/year; a portion of this amount is for a subscription to this newsletter for one year. Editorial inquiries should be addressed to: Jim McCarty, Rt. 1 Box 20, Loose Creek, MO 65054 (314-897-4111). BAM membership inquiries should be addressed to: Steve Austin, 44 N.E. Munger Rd., Claycomo, MO 64119 (816) 781-1512. 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.

BAM Membership Application

Name: _____

Address: _____

City: _____ State: _____

Phone: () _____ Zip: _____

New Member Renewal

How did you learn about BAM? _____

Memberships are for one year from receipt of dues. Dues are \$20, which includes a subscription to the bimonthly BAM newsletter. Please make checks payable to Blacksmith Association of Missouri.

ABANA Membership Application

Name: _____

Address: _____

City: _____ State: _____

Phone: () _____ Zip: _____

New Member Renewing Member

How did you learn about ABANA? _____

- Regular Member\$35 yr.
- Family Membership (One Vote).....\$40 yr.
- Senior Citizen (Age 65).....\$25 yr.
- Overseas Membership.....\$45 yr.
- Contributory\$100 yr.
- Library\$25 yr.

See reverse

Editor's Anvil

With a goose-bump raising creak the rust let go its hold on the old forge and the squirrel cage blower turned for the first time in years. A few well placed blows from a hammer forced loose the accumulation of mud dauber nests until my fingers could spin the fan on its worn bearings.

Finally I was ready to forge something. What a scary feeling for a beginner.

For three years I have sat on the sidelines at BAM meetings, scrounged tools at flea markets and soaked up information waiting for that moment to arrive. When it did and I had coal, forge, anvil and hammer, it scared me to death.

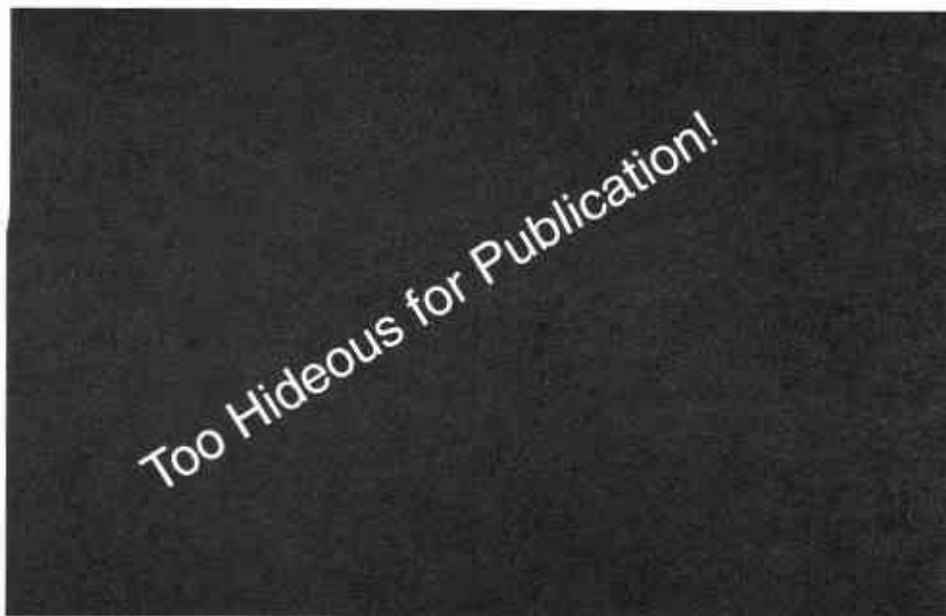
In retrospect, the difficult task of finding the tools, especially an anvil worthy of the name, was the easy part. I wasn't sure where to go from there.

So I put it off for a week, until I could find the answers to a few questions such as: How do I build a fire? What should I make first? How do I make this anvil sit still on a piece of elm with a crooked cut?

Finally after a Sunday evening working on this newsletter I could stand it no more. It was dark when I dragged the old forge out of the garage and parked the anvil next to it.

I had an old copy of a BAM newsletter with a Jerry Hoffmann piece on building a fire. It said to crumple up newspaper (three sheets is the operating number) and cover it with coke. Jerry, you left one thing out. When you build your first fire you don't have any coke. I thought about going to the nearest BAM'er with a cup and beg some fuel. Instead I added the newsletter to the pile and touched it off.

Ten matches later I was still fireless, but I had some tips to share with other beginners. First of all, Kmart ads don't burn well (neither does *Rural Missouri* — soybean ink). Second, if you don't have a fire pot use a coffee can with the bottom cut out to contain the fire. Add some wood chips, then the coal in small quanti-



My first blacksmithing project.

ties. I think that's what finally got my fire going. I suspect the things I stuffed in there would have been suicide for a forge weld, but I'm a long ways from that.

With a healthy blaze rising before me, I realized I wasn't quite ready to forge. I had a hammer nearby, but no iron. I ran to the other garage where the previous blacksmith held court. (Since the last issue I have discovered that nearly everyone who lived in my house was a blacksmith.) He was kind enough to leave behind a small pile of various shaped scrap.

I also had nothing to quench my work in, so I seized a drywall bucket and pressed it into service.

Now what to make — a gate? a shotgun barrel? damascus twist knives?

I settled for a tool to rearrange my fire, freeing up the offset tongs with the broken jaw for other purposes. For this project I selected an 18-inch length of 3/8 stock.

It slowly came up to what I judged was a nice color to forge under the straining pumps from my left arm. It met Peter Wright and a 2 1/2 pound hammer and for what must have been the first time in decades the sound of iron being hammered echoed through the streets of Loose Creek, Mo.

I know there were ghosts lurking about for the night was clear and oth-

erwise quiet and occasionally I could hear them laughing at my fumbling efforts. I missed the iron almost as much as I hit it, and the anvil sent the hammer flying dangerously close to my face with each glancing blow.

Before my arm wore out I managed to forge a pretty serviceable tool with a flared end for digging in the fire and a scroll at the other end. then I decided to get fancy and put a twist in the middle.

That's when I discovered the piece I was working was wrought iron, and the little pump forge wasn't getting the iron hot enough. My twist resulted in the metal splitting raggedly leaving a strange looking polygon hole. I beat it flat, and if anyone asks I was trying to do that and will demonstrate the technique when I have more time.

I burnt up a lot of coal that night, made many mistakes and mangled some more iron. I have some questions for the masters when I see them next, and a burning desire to get back out there and stay with it.

For the many beginners who have just joined BAM, I pledge to devote space in this newsletter to helping you get started.

That, of course, is one reason you joined.

—Jim McCarty

Dear BAM

Dear Friends,

Thank you for the lovely basket of flowers you sent for Joe's funeral services. Our family was very touched by your thoughtfulness

Loraine Humble

(Editor's note: Loraine's address is 5029 Montcrest Drive, Chattanooga, Tenn. 37416 if you want to send a card. It is my understanding a blacksmith scholarship has been set up in Joe's name.)

Dear Jim,

Thanks for a dynamite newsletter! I was delighted (though not surprised) at how good it looked, but I was more delighted at how much I enjoy reading a new point of view on blacksmithing. It is one of the main joys of this craft of ours that it is complex enough that no two of us will ever see it quite the same, and that's one of the main reasons for having an association in the first place. I had got in the habit of receiving the newsletter already knowing what was going to be in it. That's a habit I'm glad to break.

Thanks again,

Walt Hull

Dear Blacksmith Group,

I would like to formally invite you and your members to NOMMA's annual convention and exposition, which will take place March 2-6, 1993 at the Lexington Hyatt Regency in Lexington, Ky.

As you know, blacksmithing is an important part of our association, and the convention will feature many programs of interest to the blacksmith-artist. I would be most grateful if you could publicize this information in your newsletter or at meetings. We need all the help we can get in getting the word out about this major event. Also, why not consider renting a bus or getting a bunch of cars together to make this a group event? I'll be glad to provide you with any info you might need on parking and accom-

modations.

Here are a few things I think would be of particular interest to your members.

Top Job Jamboree -- Each year about 150 fabricators submit color photos and slides for the Top Job contest. This work is displayed in a gallery and then voted on. However, the fun part is that before final voting, there is a two-hour Top Job Jamboree where the fabricators talk about their work and answer questions from the audience. Top Job entries include railings, gates, furniture, and sculpture, and most entries contain forge work. (The Jamboree is my favorite event.)

Education Program — This year we are featuring 23 education programs. These programs would be especially ideal for an artist-blacksmith who desires to learn the business end of metal fabricating. A sampling of courses includes: marketing, measuring tips, forging and abrasive finishing.

Exposition — We expect about 70 exhibitors who will be showing off their latest products in the exhibit hall. Many firms, such as the Centaur Forge, carry items of interest to the blacksmith/artist. Here are a few items you can expect to find: Air hammers, paints/finishes, welding equipment, ironworkers, punching and notching machines, hand tools, forgings, painting equipment, components, forging equipment, saws, shearing and cutting machines, computer software and gold leaf. This event is free.

If your group would like to see a copy of our magazine — *Fabricator* — please let me know. We feature at least something that relates to forging in every issue. Also, if you have any members who run a small business they will likely benefit from a NOMMA membership. I would be glad to send a membership kit to anyone who's interested. For a convention packet call (404) 363-4009.

Thanks and see you in Lexington.

Todd Daniel, Assistant director, National Ornamental & Miscellaneous Metals Association.

BAM meeting schedule for 1993

As promised at the last meeting, BAM President Tom Clark has planned, plotted and arm twisted us a schedule of next year's meetings so you can put them on your calendar. Locations are set, but dates may be subject to change, so watch this newsletter for the latest.

Jan. 30, Jerry Hoffmann, Lonedell, Mo.

March 17, Colin Campbell, Union, Mo.

April 24-25, Ozark Conference, Potosi, Mo.

May ??, Walt Hull, Lawrence, Kansas.

July 10, Doug Hendrickson, Lesterville, Mo.

Sept. 18, John Murray, New Melle, Mo.

Nov. 6, Todd Kinnigan, House Springs, Mo.



Tom's Turn

October saw another good meeting at Ken Markley's. Sorry I had to leave early, but not before seeing the great demo by Jerry Hoffmann and Doug Hendrickson. They made a poker from one piece of steel which required cutting & two forge welds (one of them several times). The result was a unique new design bought at auction by yours truly.

Come to Pat's meeting (Nov. 28) and I'll show it to you. Thank you Ken for a good meeting.

Blacksmithing lost a good friend with the death of Joe Humble. Joe was a charter member of ABANA, served on the board and was president. He helped many chapters get started including BAM. He will be missed but his mark will remain on blacksmithing forever.

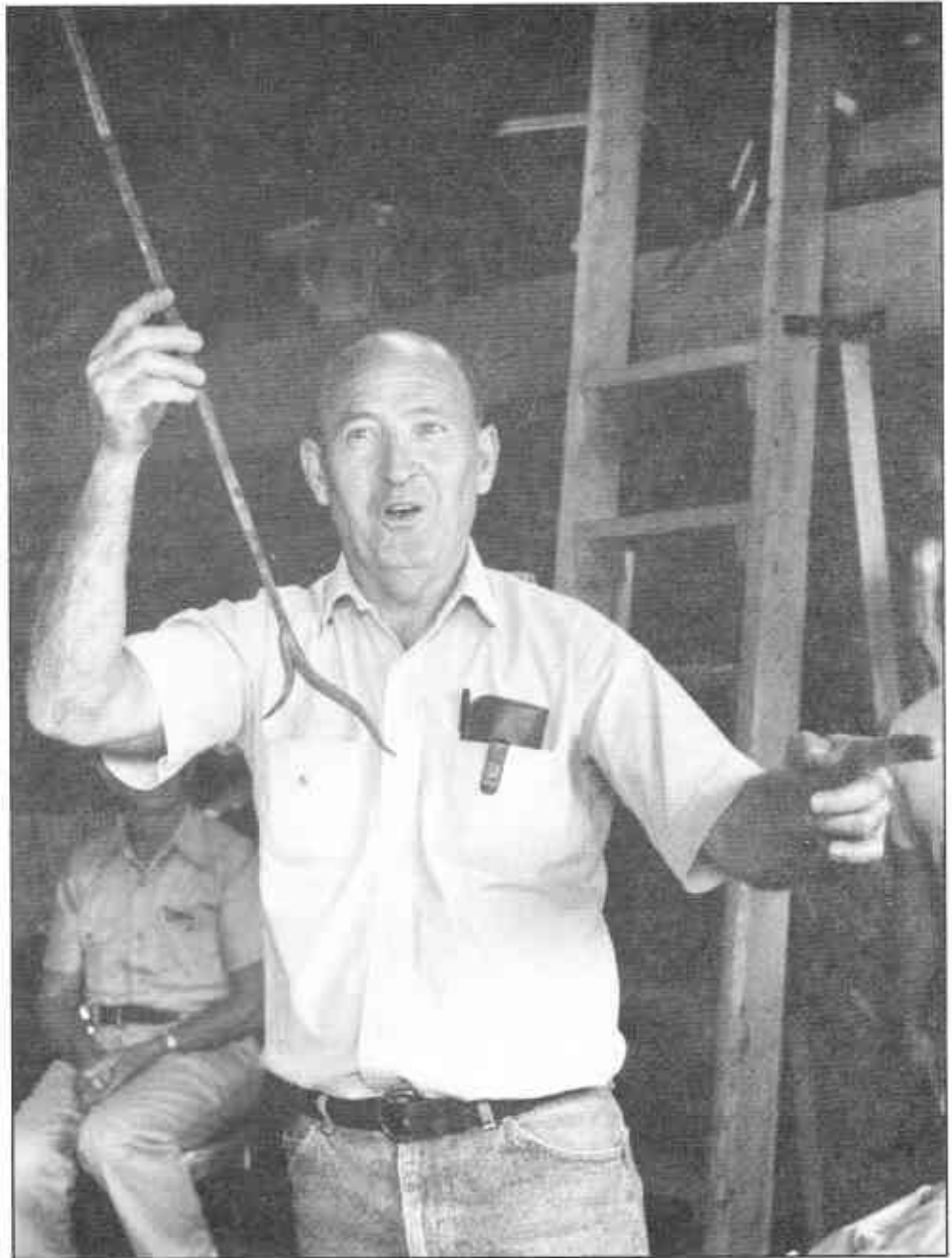
The work shop to build treadle hammers with Clay Spencer and Bob Woodard is all set for Jan. 15, 16 & 17 at Stan Winkler's shop. There is room for two more people. If interested contact Bob Woodard (314) 334-9406, or me (314) 438-4725.

Lou Mueller has plans moving well for the 1994 ABANA Conference. The Anvil's Ring did not run our first planned announcement as promised. This will be discussed at the board meeting in November.

Doug Hendrickson has a good head start on the 1993 Ozark Conference set for April 24-25 at the Potosi Lions Den. Mark your calendar and start thinking about something for the auction. Our auction in 1992 was a great success. This year's auction will be covered big time in our newsletter so thanks in advance for your participation.

By the time you read this I will have attended my first ABANA Board Meeting. Clay Spencer, Elizabeth Brim, Hans Peot and Tim Ryan also made the board. I'll have a report at Pat's meeting.

Bob Patrick had his hip replacement and is recovering in southern Missouri at Bob & Mickey Leake's home. Drop him a note at Dogwood



Tom auctions a poker made by Jerry Hoffmann and Doug Hendrickson at the last meeting.

Hill Farm, HCR 85, Box 457, West Plains, Mo. 65775 (417) 284-3864.

A reminder that my shop is open for all the first Sunday of each month. Several forges are available for hands-on activity. I plan a beginner's demo for any of our new members for the first few dates or as long as is needed. Bring your own tools if you have them, if not come anyway.

We like hearing about what you are doing. A letter to the editor will let us know. Did you take a trip? Forge something interesting? Have someone over? Or just have a question?

— Tom Clark

BAM SEPT MEETING

by Jim McCarty

On October 3 BAM headed east to Ken Markley's shop in Sparta, Ill. Ken scheduled beautiful Indian Summer weather for the day, and no one minded the scenic drive.

I got there early but the forge fires were already burning and Doug Hendrickson (Dr. Iron) and Jerry Hoffmann were hard at work demonstrating the poker they made in competition at the Quad States Roundup.

I was so busy taking pictures that I won't try to describe how they did it. Tom Clark has promised to bring the finished product to the next meeting so we can examine it and question its makers.

Tom bought the piece at auction during the business meeting. He must be getting quite a collection of fine iron. Maybe we can persuade him to put his assortment of pieces on display somewhere.

Pat McCarty also demonstrated his top tool, which was the trade item for the day. He made a chisel-type tool that put a nice S-curved pattern on the stock.

Those who stayed late got a taste of Damascus making.

A lot of new business was conducted in a short time as President Clark had to get back to Six Flags, so he could hear more stories about people's grandfathers and wow the kids with his leaf-making skills.

Tom talked about his first-Sunday open houses at his forge, and asked for volunteers to host similar gatherings on a regional basis.

Ray Chaffin, BAM's librarian said he was open to suggestions for the library, which is in need of material to get started. Ray taped the meeting, so we have a record of the day's demonstrations for those who are interested.

Talk moved to the upcoming Ozark Conference, to be held April 24 and 25 in Potosi, Mo. Tom said a special contest would be held to forge an eye in one heat and cut it without using a hardie on progressively larger stock. The winner is the last one to make an eye.

Tom announced that a forge making session would be held to come up with 6 forges to use at the conference and the 1994 ABANA conference. The work session will be held at Lou Mueller's shop.

Anyone who wants a forge can build one. A group steel buy will keep costs low. For more information call Tom or Lou. The forge will be Jerry Hoffmann's design from his *Blacksmith's Journal* newsletter. No date has been set yet.

The treadle hammer work shop with Clay Spencer will be held Jan. 15, 16, and 17 at Stan Winkler's shop in Ste. Genevieve. The hammer will be built according to Bob Woodard's revised plans.

The meeting adjourned to chili cooked over an open fire.

Lou Mueller called committee people aside before the day was over to discuss the ABANA Conference. Lou and his wife will handle registration and assigning rooms. Lou expects a big crowd, judging from the Ohio Quad State Roundup which drew over 600 people.

The theme was debated long and hard, with ideas like "Odyssey in Iron" thrown around like hot sparks. We didn't agree on a theme, but were real close.

Plans seem to be going real well, with most committee chairs waiting for ABANA to come forward with seed money to really get cranking.

With that we left for home, vowing to gather again in November.

Thanks Ken for a good day.



Lou Mueller leads a discussion of the ABANA conference at the September meeting

FIRE &

ABANA

FUSION

1994 CONFERENCE

ST. LOUIS, MISSOURI

This is Jerry Hoffmann's logo for the 1994 ABANA Conference. If this is the final draft you will be seeing it in a lot of different places.



Above: Doug Hendrickson and Pat McCarty team up to demonstrate Pat's top tool he made for a trade item. Trade items were few at this meeting. Below: The tool puts a nice S-curved pattern on stock. Below right: Tom got a lot of good-natured kidding for taking the hammer away from this budding smith, who comes to the meeting with BAM member Jack Weekley. Jack built the forge from scratch.



ABANA News

President's Message October 1992

The issue of eye protection has once again come to my attention. It amazes me to see people sitting within a foot of a forge welding demonstration without wearing safety glasses.

When questioned about why these people were not wearing eye protection, there were numerous answers. "I didn't think I'd get a front row seat, so I didn't bring my glasses along." "I was sitting behind someone." "They make me look like Buddy Holley." "I can't see out of the old pair I own." "You worry too much — what are the chances of something flying into a person's eye?"

My message to those of you who haven't been wearing safety glasses is this: It doesn't matter which row you're in; you can't hide behind someone and see through; better to look like Buddy Holley than your favorite blind musician; get a new pair you can see through; and yes, I worry about the one time something would fly in your eyes and change your life forever.

As you might expect, there is a lot of work to do to keep ABANA's various services up and running. It is the ABANA Board that is responsible for keeping ABANA moving forward and we couldn't get along without their efforts. Being an ABANA Board member is not a right, it is a rare privilege bestowed upon some of us, by you, to keep ABANA going strong. No one feels this more than those you have elected to serve. The ABANA Board is committed to continuous improvement, and that is one of the reasons your vote in the ABANA Board election is as important as it is.

We are making preparations for the ABANA Budget Meeting in November. One of the things we are doing is contacting all the chapters for their comments and suggestions during the month of October. If you aren't contacted, call me at (509) 586-9278 (evenings) and I'll take your comments to the Board. We want you to have the opportunity to be heard through the Chapter Liaison network of calls.

Until next time,



Clayton Carr
ABANA President

ABANA Liaison

Don't rock the boat

The Louisiana Metalsmiths Association had members demonstrating at the Wooden Boat Festival in Madisonville Sept. 26-27. I wonder if they got any orders for anchors? LAMA President David Mudge appointed all LAMA members to the building committee and they have already received a star plate building system from member Chuck Simonin and extra 2X6's used in a deck from Ed Lancaster. What a novel way to get a building put together without draining their budget. This might be food for thought for some chapters that want to put up a permanent site.

Knife of the year

Congratulations to Hugh Bartrug who was awarded the W.F. (Bill) Moran Award by the American Blade Society. Hugh is a member of the Pittsburgh Area Artist-Blacksmith Association and ABANA. This is a very prestigious award and shows the great talent we have in our chapters.

Do it yourself air hammer

Arizona Artist-Blacksmith Association member Ron Kinyon sent a photo of the 75 pound air hammer he built with no machine shop work and all parts were acquired locally. AABA hopes he will bring it to their November meeting for a show and tell session. Hopefully someone will write an article on it so we can all get an idea how it is done.

1992 Quad State Round-Up

Another great conference was held by the Southern Ohio Forge and Anvil with attendance close to the 700 mark. A special thanks to all the people who helped put it on and especially to Emmert and Jane Studebaker who so graciously offer the use of their facility. This conference draws people from all over the United States and Canada. Start making your plans to attend next year.

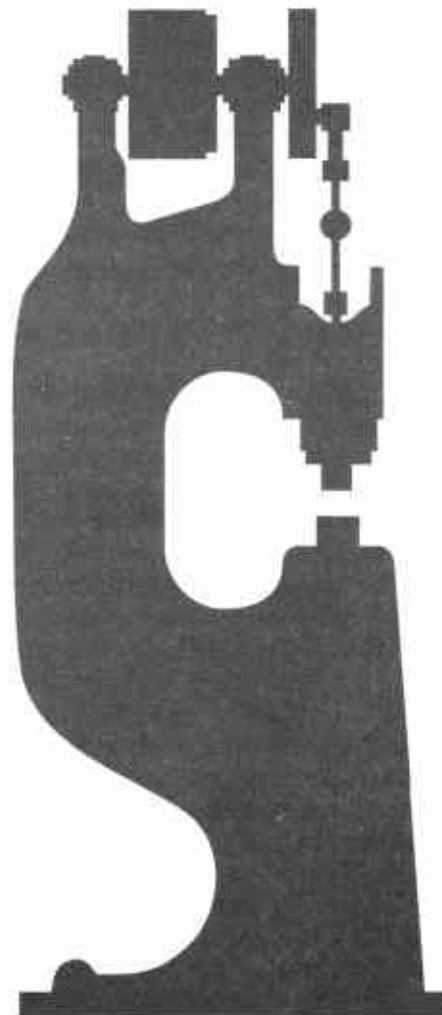
SEPTEMBER-OCTOBER 1992

ABANA switchboard

Got a problem? Need a source for supplies? Just got a bone to pick! The ABANA Switchboard is there to help you We can't solve all your problems but we will make every effort to help or find someone who can. For assistance call any ABANA Board member or the ABANA Office for a referral (ABANA's number is 812-988-6919. Office hours are 7:30-11:30 am & 1:30-4:30 pm.)

Volunteers needed

ABANA is looking for volunteers who would like to work on some of our committees. If you have a specialty you want to share with us or a desire to become more involved with ABANA call and let us know.



RUSSIAN / AMERICAN BLACKSMITH EXCHANGE PROGRAM



"WHAT THE HELLSKI'S A GRUBBY
LITTLE BLACKSMITH?"

by Paul Lundquist

For the past couple of years several requests for contact and information have come to ABANA and some of our members from Russia, Ukraine, Estonia, Czechoslovakia and other places.

These have been published in the *Anvil's Ring*. When I read those letters my heart went out to those smiths but I had no idea how to respond. I wondered what was wanted, whether things would arrive safely and other vague questions. Now in 1992 for the first time a Russian smith has attended an ABANA conference.

With personal contact established, a way has been found to reach our colleagues in these lands with a helping hand.

The immediate need is for information on what is going on in the West. That means books, magazines, photos, drawings, brochures, catalogs, equipment and tooling plans.

The most recent information on blacksmithing in the St. Petersburg Institute of Applied Art library is from the 1950s. Any information that does arrive from the West is immediately devoured by the whole crowd of some 70 students and instructors. The most popular material is photos of contemporary work.

The people I met at the conference are Vladimir Zolnikov and Victoria Kireyev who presently live in Boston and plan to return to St. Petersburg later this year. They can provide the connection there as Vladimir is enrolled at the blacksmithing program at the institute.

Meanwhile, at the same time as the ABANA conference there was another one held in Moscow which was attended by several people from the West including David Petersen of Wales. A network is beginning to form and we can be part of it.

I have volunteered to coordinate an effort to reach this need for information exchange. That means finding out what is wanted and keeping track of books and other materials sent so that people there

don't get 10 copies of one title and not the next nine they want. It means collecting donations of money and materials, buying the materials and shipping them.

It means making contact with more smiths and groups in various places throughout the newly independent nations. It means establishing a bank account, keeping books of account and publishing reports. It means coordinating with others in Great Britain and Europe who are also reaching out to our friends in these lands. And it certainly means several things I have not thought of yet.

I have the office and the computer to help me do all this and I will make the time on a volunteer basis.

This is being started as an individual effort so we can get started now and does not involve ABANA in an official capacity. My inquiries at the conference turned up no one else doing this work. If there is and you read this, I sure would like to hear from you right away so we can work together.

We have the opportunity now to establish communication and to help you out in ways we have not had before. We can't say where this will all lead but it should prove interesting. A number of things could occur including travel, work/study exchange and possible artistic collaboration.

We can look forward to hearing from many smiths in places we had always thought we could never know. It's a two way street now.

Generous support for this effort has already been offered by several individuals. Booksellers Norm Larson and Bill Pieh have offered discounts and other support. This immediate response at the conference tells me that people are ready to do this now. If you want to participate or have ideas to share, please get in touch with me.

Thanks!
Paul Lundquist
328 White Oak Creek Road
Burnsville, NC 28714
(704) 675-5258 — voice
(704) 675-9196 — Fax

An Appeal for International Sharing

The next to last word on flux

Ask two blacksmiths which welding flux is best and you might get three answers

by Michael G. Merickle

(Reprinted from the Northwest Ohio Blacksmiths newsletter)

If two or more Blacksmiths get together and the subject of discussion turns to talk of fire and forge, it is almost certain that an argument will follow when the talking gets around to the ideal welding flux.

No bit of arcane knowledge seems so controversial and shrouded in mystery as the composition of the ideal welding flux.

I make no claim to have the ultimate answers. My research has shown that this controversy has existed for at least 125 years (the earliest reference I have available is dated 1879. It lists three different formulas for welding flux and three for soldering flux.) It is unlikely that the ideal flux exists or that even if it did that all blacksmiths would agree about it anyway.

If the smiths at the recent Northwest Ohio Blacksmiths Hammer-In are to be believed, the ideal flux would have the following properties:

- It would be some exotic mixture of materials. The more complicated the better. (So that there would be more to argue about).

- It would stick iron together at room temperature with only minimal hammering.

- It would either be free or very expensive. (Money does not seem to be the limiting factor to a blacksmith. Just ask him how much he spent on that hand cranked drill press he bought last month instead of repairing his wife's wired together muffler.)

- It would keep in a rusty can on

the back of the forge forever without becoming contaminated with dust, clinker or coal.

Realistically, welding flux must serve several functions.

Firstly, it must clean the surface of the iron. It can do this chemically, by decomposing into an acid, or mechanically by lubricating the scale and providing a liquid medium to transport that scale away from the weld.

Secondly, flux must coat the iron and protect it from atmospheric oxygen. This will prevent new scale from forming before the weld is completed. This task must be accomplished in the face of temperatures ranging from 900 to 2500 degrees Fahrenheit.

Thirdly, flux must be clean. It must accomplish the above tasks without either preventing the fusion of the iron, or becoming incorporated within the weld itself. It also must not be injurious to either the composition of the iron, nor to the blacksmith performing the weld.

Fourthly, flux may supply materials to the weld that melt at lower temperatures, or enhance the fusability of the iron being welded.

These tasks are often contradictory and any flux that works well is likely to be a compromise compound of several ingredients each attempting to serve one or more of the above functions.

Historically there have been dozens if not hundreds of recipes and formulas for fluxes. If one were truly better than the others it probably would have pushed all the others out of the market, so we can assume that there is room for experimentation and improvement.

There are two major categories of recipes for welding flux. Each is based on its major ingredient. One group of fluxes are based on borax, and the other, the so called "glass fluxes" on silica sand. As might be expected, there is some crossover and shared ingredients common to both groups.

Over the years a host of ingredients have been used. I have listed a number with observations about their various properties and potential drawbacks. This list is roughly divided into those ingredients used in borax based fluxes, and those based in silica. The list is not comprehensive, but I have seen each of these ingredients listed in at least one formula in my library.

Borax: Sodium tetraborate decahydrate as borax is known to chemists is a complex compound formed from sodium, and boron, oxygen, and varying amounts of associated water. The water is not chemically bound to the borax but is associated with it due to the hygroscopic nature of borax.

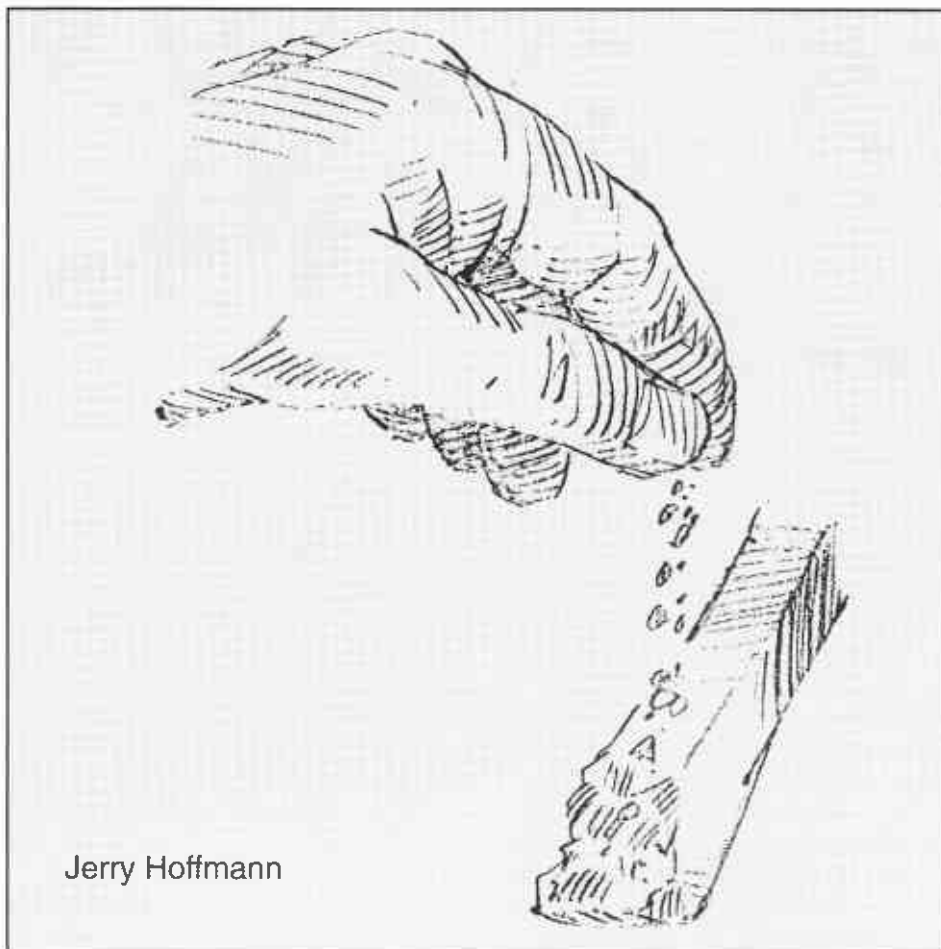
It can be driven off by heating the borax until it melts, then allowing it to cool. This will reduce but not completely eliminate the amount of water associated with the borax molecule. When the borax cools it

It is unlikely that the ideal flux exists or that even if it did that all blacksmiths would agree about it

will have formed a glassy solid that is nearly anhydrous sodium tetraborate.

Unfortunately borax is naturally hygroscopic and is unstable in the anhydrous state so it will reabsorb water from the air as quickly as it is allowed to. Since borax melts and dehydrates when used as a flux there is little need to go to the extra step of melting out borax prior to use. It will facilitate this dehydration if the borax is applied early in the welding heat, and the iron being welded is brought to welding temperature slowly.

Borax is the most commonly listed ingredient in welding fluxes both historically and to the present day. It



Jerry Hoffmann

melts easily, well below welding temperature, and forms a sticky semi-liquid layer on the iron that is resistant to runoff and vaporization at common welding temperatures.

It can be used as a flux alone and serves adequately. If borax has a drawback it is that it splashes a lot when the iron is struck during welding, and that it is hygroscopic.

Zinc Chloride: This compound decomposes in the presence of heat or water to release hydrochloric acid. It serves as an etching agent to help clean the iron. Often added in small amounts (up to 5 percent). It is the primary active ingredient in grease based soldering fluxes for copper and tin.

Calcium chloride: Like zinc chloride this compound releases HCl in the presence of heat or water. Very strongly hygroscopic, it will absorb so much water from the air that it decomposes spontaneously into a semi-liquid acid slush.

Ammonium chloride: Historically known as Sal Ammoniac, this compound is for all practical

purposes interchangeable with calcium chloride. It is somewhat less hygroscopic than CaCl.

Wood ashes: See discussion below on potash.

Clay: Clay for all practical purposes can be thought of as finely ground silica sand. Many clays contain feldspar.

Feldspar: A naturally occurring mineral of highly variable composition, feldspar most often contains silica, alumina, sodium, potassium, calcium and fluorine. Feldspar, which is also used in glass making, would serve many of the same functions in a flux as silica.

Potassium nitrate: Listed in several formulas. I can think of no useful purpose for this compound in a welding flux except possibly to lower the melting point of silica.

Potassium cyanide: Used in metallurgical formulas as a solvent for noble metals, and as a softening agent for welding cast iron, this compound would theoretically soften the iron and promote fusion at lowered temperatures. It is so highly

poisonous however, that it has no place in a modern forge welding flux. One breath of the fumes produced when this compound is heated would be fatal!

The silica based formulas for welding flux can best be thought of as glass making on a small scale. the concept of silica fluxes is to produce a glass that protects the iron and prevents scale.

Silica: Silica sand is the primary ingredient in the slag found in wrought iron. It is also the primary ingredient in glass making. Silica is inert, stable, clean and forms a tenaciously protective layer when melted on hot iron.

It has several drawbacks when used for mild steel. Silica melts at a relatively high temperature (approximately 2300 degrees). It is quite sticky and can interfere with the weld by becoming trapped, forming voids. It is also less liquid than borax so flows and carries scale less easily than borax. All of these drawbacks are less of a problem when welding wrought iron because wrought welds hotter, it does not scale as much as mild steel, and it does not matter if some silica gets worked into the iron.

Soda ash: The second most common ingredient in everyday glass, soda ash was historically made by burning seaweed and some selected species of softwood trees. Chemically pure soda ash is either sodium oxide (if you are talking to glassmakers) or sodium carbonate (if you are talking to most anyone else).

Historically the product of burning seaweed was a mixture of sodium oxide, sodium silicate, sodium hydroxide, and sodium carbonate. The exact composition would depend on the nature of the raw materials and the temperature of the fire.

Sodium carbonate is available today as washing soda. The main function of soda for our needs is to lower the melting point of silica sand.

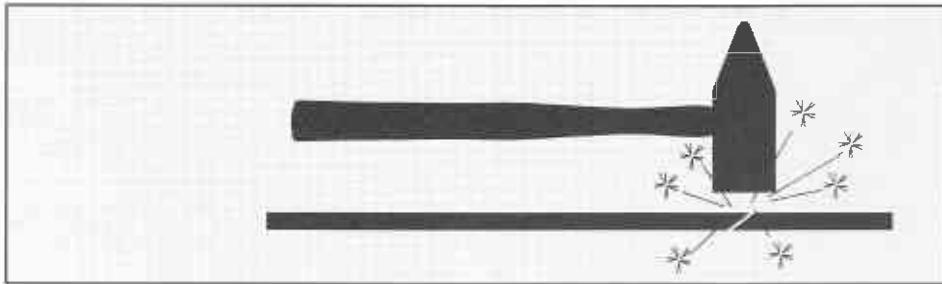
Potash: As soda ash was produced by burning seaweed, potash was the product of burning hardwoods. Wood ash contains potassium hydroxide, potassium oxide, potassium silicate, and potassium carbonate. For our purposes it serves as well or better

Flux

(Continued from previous page)

than soda ash in the production of glass fluxes, and is much more readily available.

Lime: The third major ingredient of common glass is calcium oxide. It also serves to lower the fusion point



of silica. Calcium oxide was made historically by burning limestone or seashells until the calcium carbonate was converted to calcium oxide.

In the making of iron from ore, another form of lime, calcium carbonate, is used to absorb impurities. Since our goal is to make a glass flux, the oxide would be of more use than the carbonate.

Borax: Sometimes used with silica, borax would serve to make a glass flux stickier. Borosilicate glass is sold under the trade name PYREX which is a very heat stable, shock resistant glass used in lab and cookware.

Other ingredients that might be included in fluxes include:

Iron filings: Intended to supply iron to weld and replace the iron lost to scale, iron filings can be useful. Many proprietary formulas such as EZ-WELD contain iron. The size of the chips is of some importance. Drill chips produced by an 1/8 or 3/16 inch bit are about the right size. It is important to emphasize that these chips need to be from very low carbon steel or wrought iron so that the carbon present does not burn up the chips and contaminate the weld. It is also important to strip all cutting oil from any recycled chips intended for flux, with acetone before using in shopmade flux.

Soapstone: Hydrous magnesium silicate, also known as talc is listed as an ingredient in several formulas. It is characteristic of this substance that it is very resistant to heat. It will not melt at temperatures commonly found in an open forge, so its

function in a flux is unknown. It can be speculated that it might act as a filler or occlusive agent along with the borax.

Below I have listed several formulas taken from household encyclopedias and machine shop manuals dated 1879 to 1915. I make no claims to their usability, but list them with the assumption that they were being used on a regular basis during this time period.

1 part by weight borax
1/2 part ammonium chloride
1/2 part water

Boil all ingredients together until dry then crumble to powder. Add to this 1/3 part clean wrought iron filings.

2 parts by weight borax
2 parts wrought iron filings free from rust

1 part ammonium chloride
Mix borax and ammonium chloride well and heat until melted. After cooling crush to powder and add iron filings.

75% clean silica sand
15% soda ash (clean white wood ashes can be substituted ed.)
10% burnt lime
Mix well and apply to hot iron at red heat.

3 parts borax
2 parts fine clay
2 parts finely screened wood ashes
1 part ammonium chloride
Mix well and heat until melted. After cooling crush to powder and add 1 part clean iron filings.

3 parts borax
2 parts fine wood ashes
1 part clean wrought iron filings

How about some of the more experimentally minded smiths doing a little experimentation and writing up their results?

Also for the experimentally minded, bulk glass making supplies and chemicals can be ordered from the address listed below:
General Color & Chemical Co., P.O. Box 7, Minerva, OH 44657

How old is your Peter Wright Hanvil? According to an article in the Inland Northwest Blacksmiths Association newsletter, the anvils made by Peter Wright and Sons of Dudley prior to 1850 were made from several pieces forge welded together. From 1850 to 1910 they were two pieces welded together at the central block with a top plate and included "Peter Wright Patent — Solid Wrought" as the trademark. After 1910, while still the same construction, the word "England" was added to the trademark.

While we're talking about anvils, if you want to have yours identified or dated contact Dick "The Anvil Man" Postman, 10 Fisher Ct., Berrien Springs, MI 49103. Provide photos, trademarks, or any other markings and dimensions if possible. Include a stamped, self-addressed envelope for his reply.

—Florida Clinker Breaker

Powered wire brushes (and their cousins, the buffing wheels) either hand held or pedestal mounted, are some of the most dangerous pieces of equipment in your shop. It is very easy to allow a piece of work to catch on the wheel and be ripped out of your hand. Always use a pinch grip so the work will be pulled out of your hand and not rip your hand or drag your hand into the wheel. Do not allow any loose clothing or wire to be grabbed by the wheel. Keep the guard on grinders and wire brushes. Using an angle grinder or wire wheel with one hand while holding the work in the other is dangerous also. Clamp the work in a vise and use both hands on the grinder/brush. Be careful where you spray the sparks from a hand grinder. Change the angle of your attack to keep from sparking someone nearby.

—Bituminous Bits

Holddown tool: Starting with an H11-R Vise Grip welding clamp, first cut off the jaw on the side where the adjusting screw is located. Next take a piece of stock the size of your hardy hole (about 4-6 inches long) and weld the stock to the cut off jaw.

This hardy holddown is simple and quick to make and works great!

—Mike Shaffer, Tullie Smith House
Blacksmith Guild

Tempering knife blades: I forge, grind and finish a blade of W2 steel or Damascus to a complete finish. The blade is all but sharpened, and is about 1/32 inch or so thick at the cutting edge at the time of heat treating. A nitrite nitrate salt is melted in a stainless pipe placed in a furnace. When the solution reaches 1,500 degrees F., I lower the blade into the solution. In one or two minutes the blade reaches temperature evenly, not overheated nor underheated, and with no thermal shock. The blade is withdrawn and quenched into another salt bath at 400 degrees F. When the solution has cooled back down to 400 degrees F., the blade is withdrawn and allowed to cool to under 175 degrees F. in still air in the shop. What is achieved is a super fine grain structure, several points higher on the Rockwell scale of hardness, yet it is tougher, not more brittle. When tempered, the steel can be left at a higher Rockwell hardness, yet be substantially tougher because the blade is essentially stress free. As significant to me is that the blade is not scaled at all. Decarburization is reduced from .010 to .0010 per inch. The surface is unaffected visually.

—John Smith, Illinois Valley
Blacksmith Association

Poor Man's Grinder: A farrier's rasp makes a good substitute for a grinder when working hot metal, Jerry Hoffmann demonstrated at his Blacksmith's Journal Workshop. You'd be surprised at how fast it takes stock down. Just clamp the stock in the vise and have at it. Just don't try to use it later on horses hooves.

U-Channel can be welded into a tool for bending bars on edge. The narrow channels keep the stock from twisting. Small stock is best bent in the jig cold.

—Jan Kochansky, Blacksmith Build of
the Potomac

BAM

Shop Notes

Got a tip to share with BAM members? Jot it down and send it to Jim McCarty, editor, Rt. 1 Box 20, Loose Creek, MO, 65054.

A hanger worthy of its name

It seems to me that plant hangers should kind of identify with the plant world. Most of my plant hangers are made of textured round stock and have leaves or flowers on them. Of course, there is nothing wrong with plant hangers made of square or flat stock.

Two feet of 1/2 inch round make a nice hanger. Hammer texture the stock except where it will be forged later. Under the power hammer, pull the stock toward you about 1/4 inch and rotate it about 15 degrees for each hammer blow.

Forge a leaf on both ends of the bar. One is usually larger, up to 2 inches wide. The veining and shape of the leaves should be similar. Before the large leaf is forged, draw the stem to at least a 6 inch long taper. Longer is better. This tapered part of the stem is curled into a hook. It can be a simple U or a 360 degree or more loop.

Make a smaller leaf on the other end and taper only a couple of inches. This tapered section may also be looped and the leaf end up at any desired angle.

Just above this smaller leaf, forge two spots for mounting screws 4 inches apart. These can be flats (forged from the front so the back side is flat for mounting) or dimples or forged countersinks. Flatten the mounting area.

The shape of stock from the hook to the first mounting hole is your playground. It can be a part circle,

part of a spiral, straight for a bend, etc. It can have loops or kinks like vines, it can be squared or grooved and then twisted, whatever strikes your fancy. More important than pleasing your eye, it must catch the eye of and be pleasing to your customer.

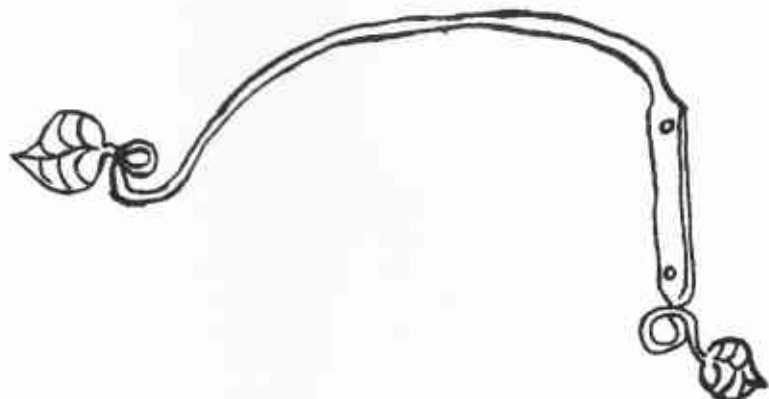
The finish on plant hangers should be able to stand up outdoors. This means a good priming coat (or two) and a durable finish coat of paint.

For a clear finish Joe Miller and I have had good results with brushed on Red Devil Satin Polyurethane. The satin has UV protection in it. Other brands that specify they have UV protection may be all right.

If your paint or finish will not stand up to outdoor use, you should tell your customer that you guarantee it will rust if used outdoors (at least in the humid southeast). Advise them to put a suitable finish on it.

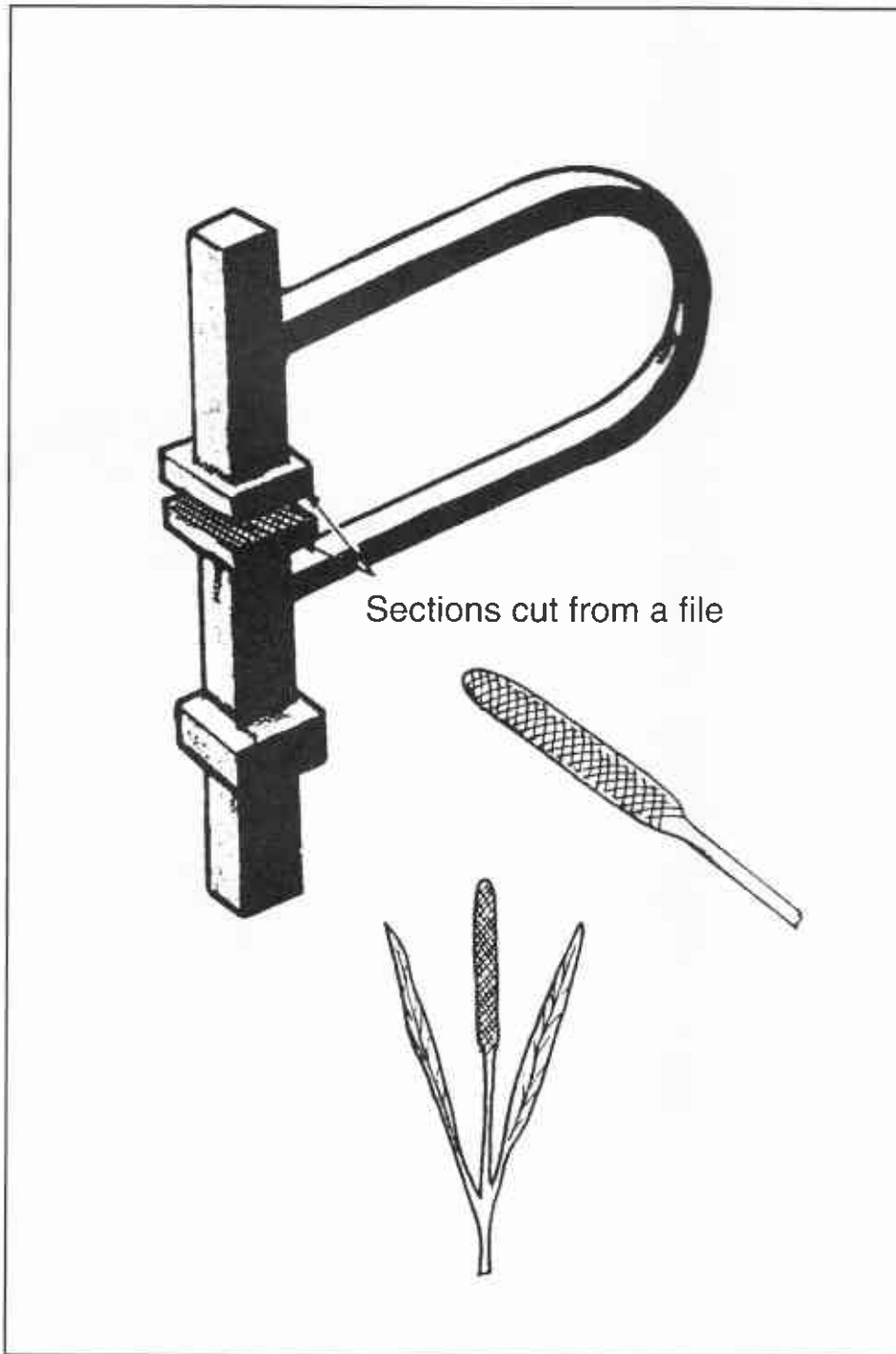
—©Clay Spencer, *Bituminous Bits*

*It seems to me
that plant
hangers should
kind of identify
with the plant
world.*



Texturing Tool

Peter King describes a useful tool which can be used for producing a texture on the forged seed heads of grasses and rushes



At a recent forge-in I was asked how I textured the spike of grass by a very knowledgeable member. Well, if he didn't know and was interested enough to ask, I thought other members might be interested. The drawing shows the spring tool I use, with the two sections cut from a file welded as shown — I use stainless steel rod for this weld. The forging is done at red heat, the grass spike being rotated between the file sections as the blows are struck with the tool.

Animals IN Iron

A new book by a committee of talented volunteers from the Guild of Metalsmiths will bring out the animal in you. It took two years to put together this informative, well-done volume showing how to make everything from steer heads to birds. There are 175 detailed photographs, along with a clear explanation of each step. All proceeds from the sale of the book will go into the Guild's Education Fund. Iron Menagerie is available from Norm Larson Books, 5426 E. Hwy. 246, Lompoc, Calif. 93436. Cost is \$16.95 + \$1.35 shipping. For credit card orders call 1-800-743-4766.

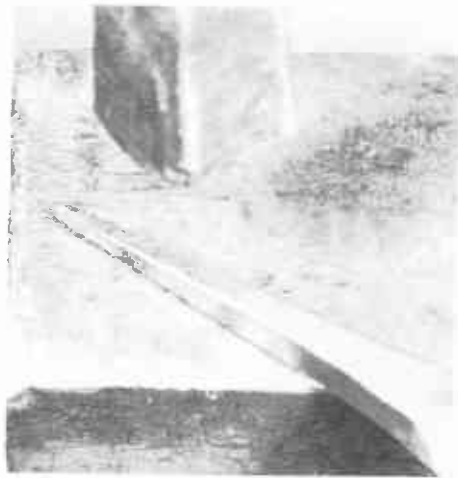
Here's a teaser from the book:



Blue Crane

Material: 3/4 by 1 inch stock

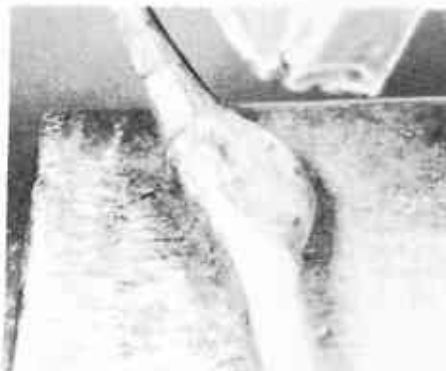
This head was used as the arms of a chair and designed into the chair back. It was also used to develop the legs of a matching table. It would also make a nice letter opener, using the beak itself as the blade.



Draw the beak out in a square taper from the raw stock size down to about 1/8" square and about 4" in length. Taper it down to a fine point. Lay it on a 45 degree angle and hammer the beak into a diamond shape.



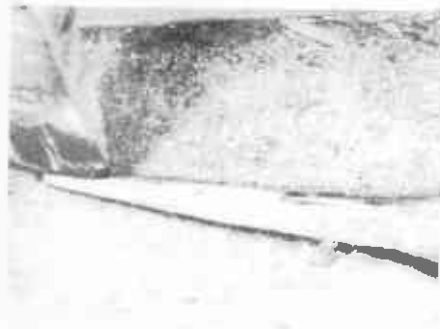
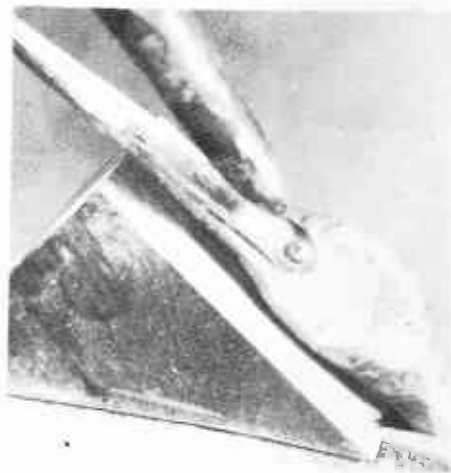
Neck down the neck over the horn of the anvil.



Flatten the head, drawing it out and rounding it up.

Use the 1" straight chisel to define the top and bottom of the beak. This will be done on the diamond. Chisel the beak all the way to the head. Using the large half round chisel separate the beak from the feathers.

Complete the beak by punching in the nostrils with the bird nostril punch. Locate them 3/4" in front of where the head meets the feathers. (Below)



Punch in the eye with the large round eye punch. Start up into the beak and chisel straight back. Bring the punch down and as you go back into the head start bringing the chisel around to the side of the head. When you finish up, the chisel will be going into the head at a 90 degree angle. Form the pupil with the small center punch. To bend the neck, heat up the neck close to the head, put the head in the vise and bend to a pleasing shape as in the first photo.

Saying Goodbye to an old friend

Blacksmithing lost a good friend on Sept. 30, 1992 when Joe Humble died at age 77. Joe was president of the Appalachian Area Chapter and also editor of that group's newsletter for the past 15 years.

His obituary lists him as a native of Missouri, although I can't tell you what part of the state. He was a 1939 graduate of the Southwest Missouri State Teacher's College.

He lived in the Chattanooga, Tenn. area for the past 20 years. Before that, he served in World War II, fought in North Africa and Italy, and received the Purple Heart and Bronze Star.

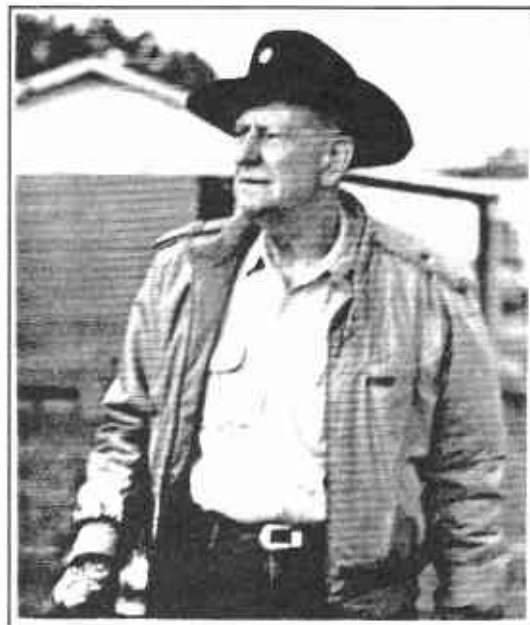
He was also a founding father of ABANA and a past director. Many ABANA chapters can trace their beginnings to Joe, including the Alabama Forge Council, the Tullie Smith Blacksmith Guild, the Florida Artist Blacksmith Association, the Mississippi Forge Council and the Louisiana Art Metalsmiths

Association. BAM received much encouragement from Joe. In fact, he held one of his summer meetings in the western part of the state so that BAM members could attend.

Joe never asked for recognition or expected any for his many accomplishments. Joe was a working smith, but many of those who knew him never saw him pick up his hammer. That's because he was big on encouraging others to demonstrate their talents. In this way he was responsible for turning many beginners into masters.

Those who did see him work knew he swung a big hammer with a short handle, usually 4 pounds or better. He liked to sharpen and temper tools, and if it wasn't made from a jack hammer bit Joe didn't mess with it.

Joe wrote a good newsletter, full of folksy stuff on visits he made or visitors he had. If you talked to Joe, chances were it ended up in his



newsletter.

Joe won't be forgotten by the blacksmiths who knew him. A trust fund called the Joe Humble Memorial Fund has been established to continue his work. Donations from individuals and chapters may be sent to Jack Wheeler, AAC Treasurer, 2000 Clematis Dr., Hixon, Tenn. 37343.

We'll miss you Joe! Our sympathy to his wife Lorraine, his family, and all the members of the Appalachian Area Chapter who knew him the most.

Joe's Poem

Traditionally Joe would include a poem he called "Gone Home" in the newsletter that reported the passing of one of our members. The poem is on the gravestone of a blacksmith buried in Shropshire.

My sledge and anvil lie declined,
My bellows too have lost their wind;
My fire's extinct, my forge decay'd,
And in the dust my body's laid:
My coal is out, my iron's gone,
My nails are drove, my work is done.

Reprinted from Joe's own Apalachian Area Chapter Newsletter

BAM NEWS

Hammer Time

Starting last month, BAM President Tom Clark hosted a hammer-in at his shop in Potosi. Tom says the shop will be open the first Sunday of every month except September so that anyone who is interested can pound away and socialize. Tom was gone Oct. 4 demonstrating at Six Flags, so Bob Patrick kindly took his place in Potosi. No word on how many showed up, but this sounds like a good idea to get started elsewhere in the state. BAM members could get together regionally to try things we don't have time for at the regular meetings. If anyone is interested in hosting a hammer-in at another location give Tom a call or let it be known at the next BAM meeting. I'm working on a map that would show where BAM members live in relation to each other.

Bob Patrick mending

Speaking of Bob Patrick, the report on him says he is mending nicely following extensive knee surgery. The problem was worse than anticipated, which required him to stay in the hospital longer than expected. As of this writing, he was expected to be released the last week in October. If you want to drop him a get-well wish, the address is Bob Patrick, c/o Dana and Mickey Leuke, Dogwood Hill Farm, HCR 85, Box 457, West Plains, Mo. 65775. Bob is one of BAM's founding fathers.

Classified

Wanted: New member seeks lasting relationship with an anvil big enough so it won't move around on him. (100-200 pounds). Also has for sale an electric heat-treating oven. Heats to 2,000 degrees. Outside measures about 14 inches, inside 4 1/2 high by 6 inches deep. \$75 or swap for anvil, other tools. Contact Al "The Gunsmith" Thompson, 49 Lee Dr., Lake Mykee, Holts Summit, Mo. 65043; or call (314) 896-8949.

Classified ads in BAM's Newsletter are free to all BAM members. Take advantage of this offer while it lasts — we have a lot of new members who need tools and a lot of old members who have stuff in their way. Perhaps you know where a rusty old anvil is sitting in a flea market or the whereabouts of a Little Giant Hammer that needs a good home. Send the info to: Jim McCarty/BAM, Rt. 1 Box 20, Loose Creek, Mo. 65054.

Send me your best

Iwould like to get to know as many members of BAM as possible, and here's how you can help me put a name with a face: Send me a picture of your latest project with you in it. Please be sure to put your name on the back of it. It would also help if you tell me a little about your work (like, What the hell is it? and how do I make one?) I'll run as many as I can as space permits. Black and white works best, but color is OK too.

Numbers to Know

Some phone numbers and addresses of BAM officers and key people every BAM member should know are as follows:

Tom Clark — BAM President, HCR 87, Box 5780, Potosi, Mo. 63664; (314) 438-4725. Call Tom with any new ideas for the group.

Pat McCarty — Vice President, Rt. 1, Box 247A, Washington, Mo.

63090; (314) 239-3814. Call Pat if Tom's not home.

Steve Austin — Secretary/Treasurer, 44 NE Munger Rd., Claycomo, Mo. 64119; (816) 781-1512. Steve handles BAM memberships, so send him your dues as they expire. (See the mailing label for the date your dues are up.)

Lou Mueller — 1994 ABANA Conference Chairman, 224 Benton, Valley Park, Mo. 63088; (314) 225-3252. Call Lou if you would like to help out with the conference.

Jim McCarty — Newsletter Editor, Rt. 1 Box 20, Loose Creek, Mo. 65054; (314) 897-4111. Call or write me with any BAM news, classified ads or constructive criticisms. All is appreciated.

Maurice Ellis — Mail List Manager, 4 Covey Ct., Florissant, Mo. 63031; (314) 838-0080. Let Maurice know if you have moved or if your address has changed otherwise. It costs BAM 75 cents every time someone's newsletter has to be forwarded, plus you get it late, so please keep Maurice up to date.

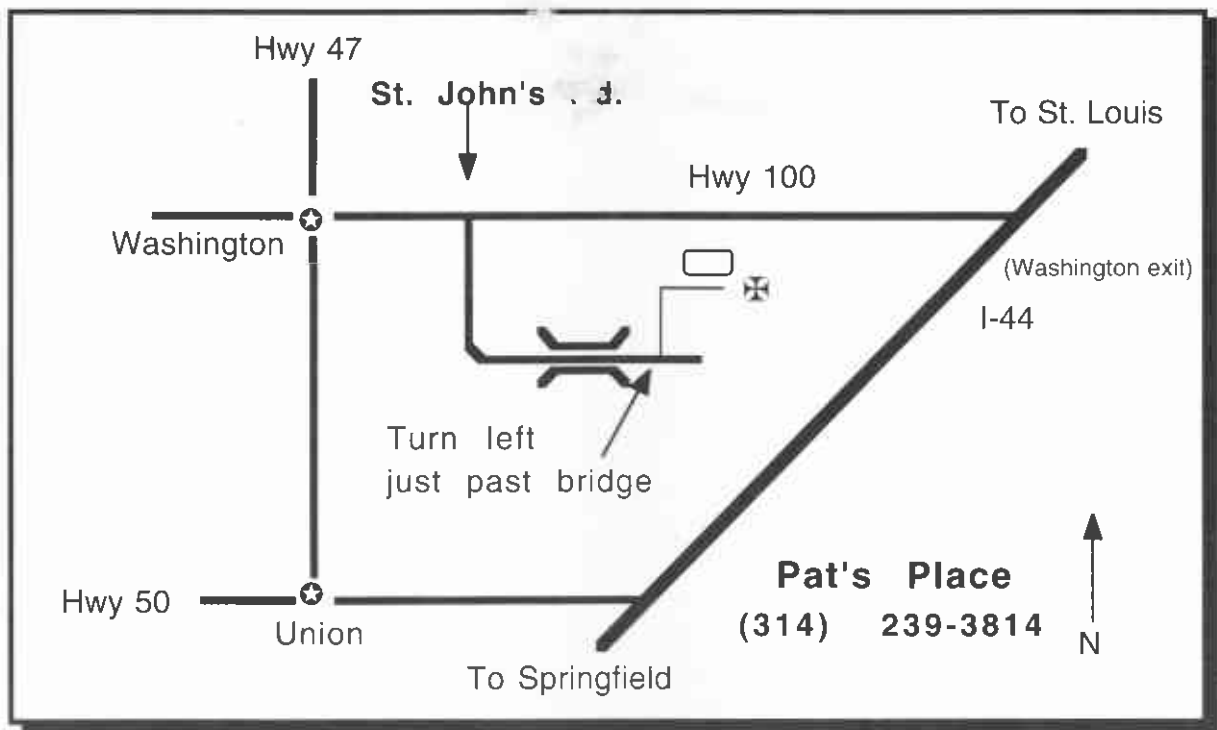
Power hammer class

Another power hammer forging class is scheduled for March of 1993 at Mardav Haun in Kingston, Tenn. If you are interested contact Clifton Ralph, 4041 West 47th St. Gary, Indiana 46408; or call (219) 980-4437.

Blacksmiths board

Anyone who has a computer and a modem can take advantage of a new bulletin board just for blacksmiths. Just have your computer dial (414) 544-1836 and you'll find Paul Sperbeck has set up the beginnings of a pretty neat forum. For more info call him the usual way at (414) 544-0784 (nights).

Next Meeting — Nov. 28



Don't forget to make a trade item — this month's trade will be a letter opener. While yer at it, knock out something for Iron in the Hat.

BAM Vice President Pat McCarty will host the November BAM meeting. The November meeting will actually be held in November (bad precedent Pat), Nov. 28 to be exact, so that we can go deer hunting and make the BAM meeting.

Pat lives just east of Washington, Mo. To get there turn south on St. John's Road off Highway 100. Go a mile or so until you cross a bridge; turn left immediately, shift to 4-wheel drive and head up the hill. Dial (314) 239-3814 if you get lost.

For the non-blacksmith

With the non-blacksmith in mind, Pat has arranged for an informal lecture on "Quilts in Women's Lives." Did you know a girl had to have 13 quilts ready before she could marry? Did you know a 13th quilt was called the wedding quilt and the bride-to-be could not work on the quilt nor could she take it out the front door of the home? Why? Because the next man to enter would be her groom — what girl wanted to lose control of selecting her husband!



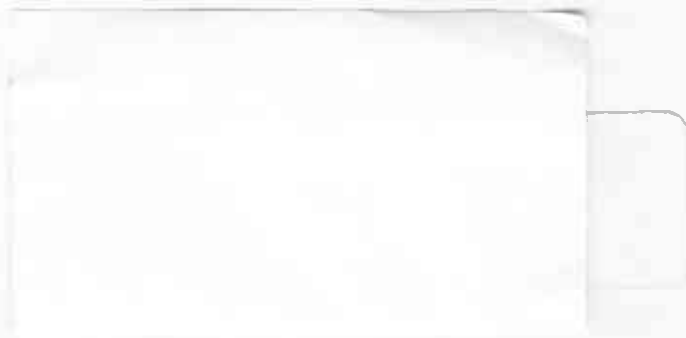
These and other legends will be part of the lecture. You will see quilts both old and new and are promised a peek into an antique sewing basket.

The quilt lady is Evelyn McCarty, also known as Pat and Jim's mom. Evelyn is a well-known writer, speaker and quilt enthusiast across the United States. She has even lectured as far away as Australia and Tasmania, and her articles are standard fare in quilting magazines. Pat also likes to quilt.

Bring a thimble to fit your second or third finger and you can even try your hand at quilting.

BAM
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