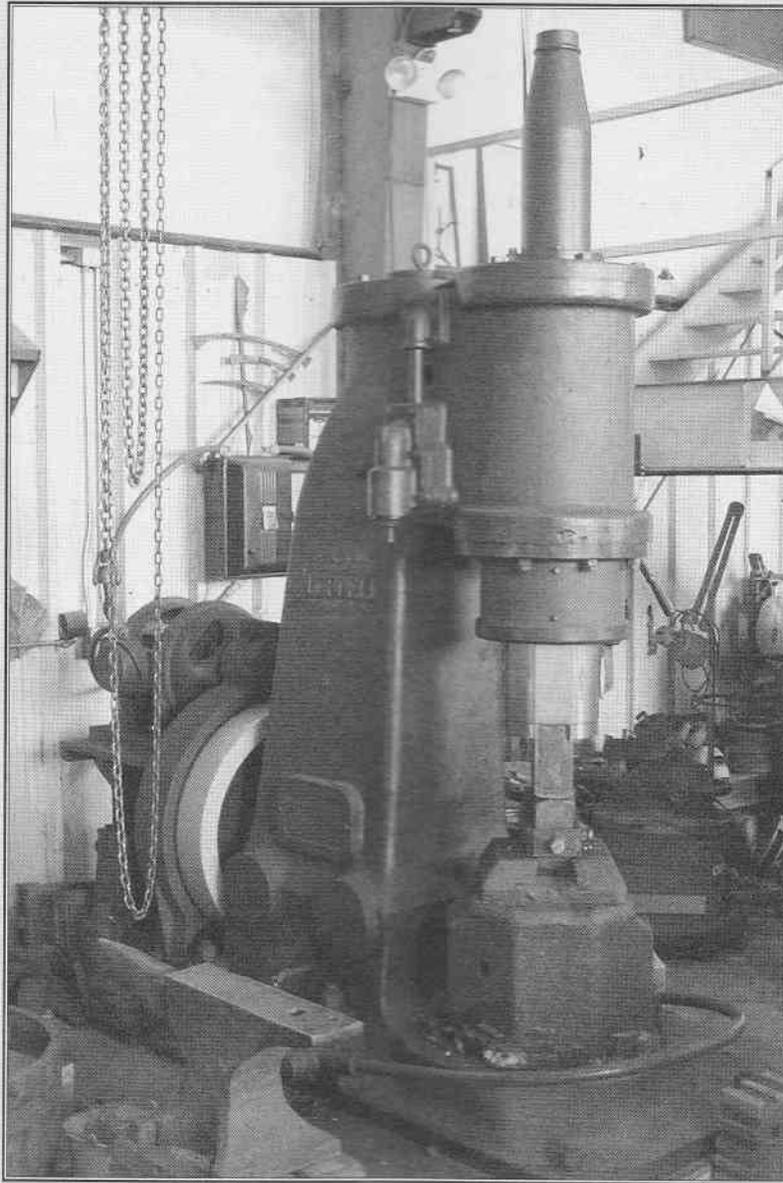


RAM

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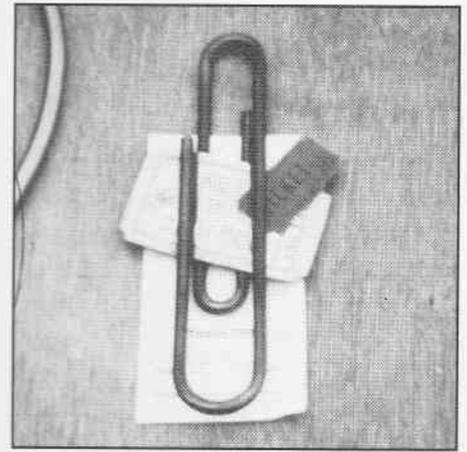
16 Try your hand at this advanced project, a Carl Close candelabra.

Side blast forge

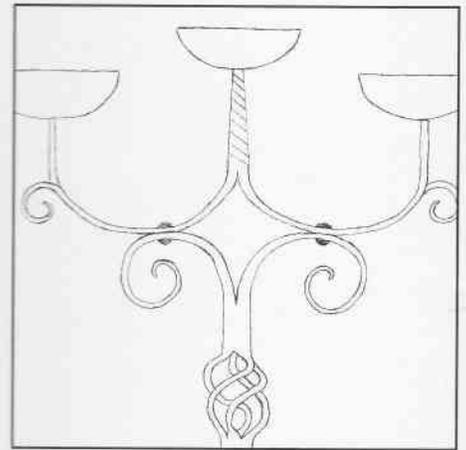
24 Japh Howard's forge got so much attention that he sketched it for the rest of us.

May meeting

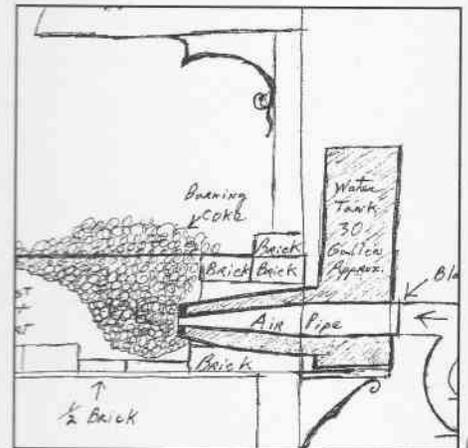
27 We head back to Bass Pro Shops in Springfield for our May meeting.



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Newsletter of the Blacksmiths Association of Missouri

Volume 19 No. 2
March — April
2002

Our cover: John Medwedeff's Nazel hammer, used to make sculpture, is itself a work of art. Photo by Bob Stormer.

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Jim McCarty

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Japheth Howard
Pat McCarty
Bob Stormer
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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, 5821 Helias Dr., Jefferson City, MO 65110; (573) 395-3304 or you can send e-mail to jimmac@socket.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.

BAM 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 \$20, 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\$45 yr.
- Senior Citizen (Age 65+)\$40 yr.
- Fulltime student\$35 yr.
- Overseas airmail\$80 yr.
- Overseas surface mail\$60 yr.
- Contributory\$100 yr.
- Full time student\$35 yr.
- Public library.....\$35 yr.

See reverse

Editor's anvil

As I write this the 2002 BAM Conference is just about upon us. I'm about out of coal, my stash of reading material has been consumed and most of my stock is gone. I'm also short on fresh ideas so I'm looking forward to the big event.

Pat says we spent some money this time so it should be a good one.

Last week I found myself in Ste. Genevieve so I stopped by to see our grubby little blacksmith, Stanley Winkler. Stan has his hands full with a big railing job for a new winery that is opening between Ste. Gen and Farmington. He has about 500 feet of railing and it's a nice design.

There are new wineries going in all over Missouri. Wherever they are should be a good opportunity for someone to do some ironwork.

I also got a chance to chat with Don Asbee, another one of our BAM old-timers. He said he's thinking about building the mother of all air hammers, maybe in the 200-pound range. Now that I've got to see.

Don has been regrouping thanks to a car wreck that left him with back pain. Knowing Don, he'll be back at it in no time.

Those guys who do this for a living have to take good care of themselves or they risk being out of commission maybe for good. All of us could use a little more stretching out before we work and we should pay a lot more attention to safety. That includes drinking enough water to get us through the summer and remember to keep the air moving when using those gas forges.

Our president had some more plumbing work done, probably to get him in shape for the conference contest. Can't wait to see if he made another book for the auction.

I talked to Bill Irvin who owns High Point Welding in Columbia and was our host for a past meeting. Bill is

doing a bunch of festivals in the Columbia area and has invited BAM members to join him. It's always nice to have a second person when you do this so you can help watch each other's stuff. He has an ad in the Bulletin Board section, call him if you are interested.

Haven't heard from anyone else lately. But then I'm not getting out much. I did see Pat over the weekend. He is cleaning up behind one of my dad's old buildings in Moselle. We knew there was a blacksmith shop there years ago. Pat is finding horse-shoes just under the ground everywhere. He also found the remains of a top fuller with the eye broken out.

Wonder what else is there?

I found the drawing below in an old copy of the Callaway Electric Cooperative Newsletter. The drawing symbol-

ized our gearing up for the Korean Conflict. It seemed kind of fitting for what's been going on since last fall. The blacksmith looks kind of sad to me.

Thanks to everyone who has been sending stuff in for the newsletter. I've even got a few in reserve for the next issue. Please keep the stuff coming, especially the project info.

It would sure be nice to see some new work. Sometimes I wonder if anyone is making anything anymore???

Hope to see you all at the conference and at the next meeting in Springfield. Until then,

— Jim McCarty

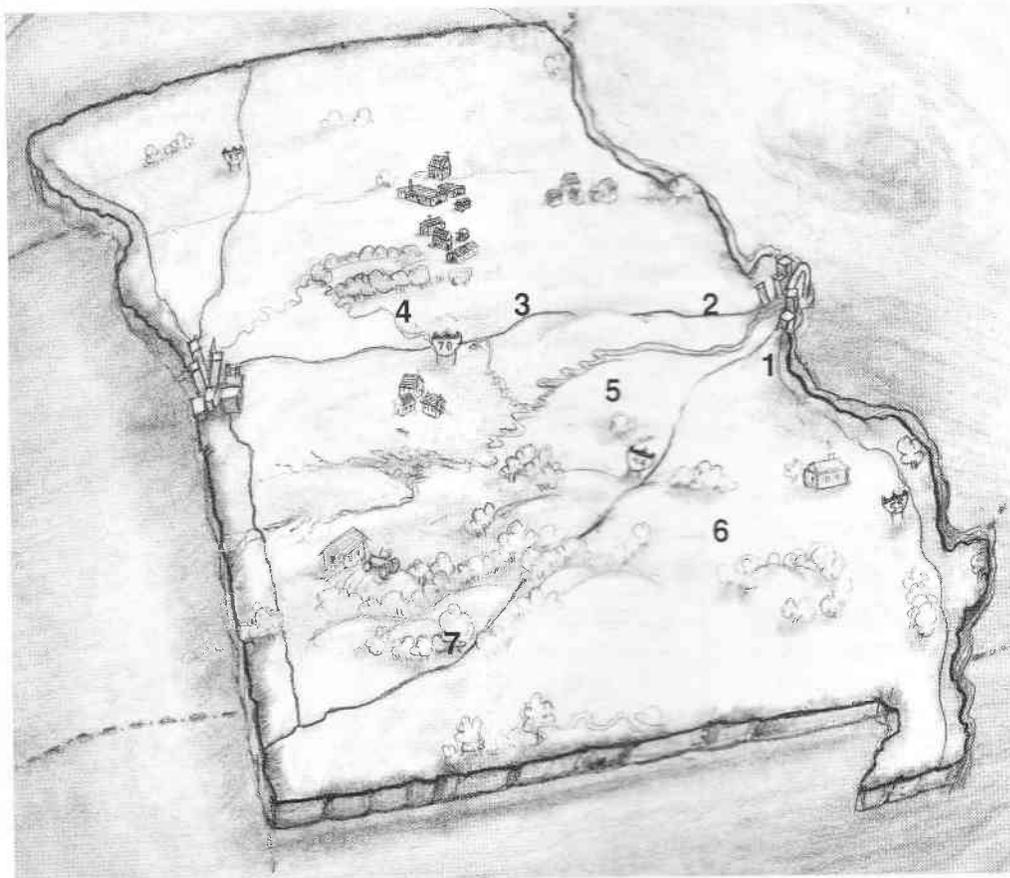


WELL - HERE WE GO AGAIN -
PLOW SHARES INTO BAYONETS.

From a 1952 issue of the Callaway Electric Cooperative newsletter, this drawing symbolizes America's entry into the Korean Conflict.

Coal Stash

Coal Captain: Bob Maes



1. Bob Alexander, DeSoto, MO
(636) 586-6938 Lotsa bags

2. Ken Jansen, Moscow Mill (636) 366-4353
100 bags

3. Ruben Funk, Columbia (573) 445-8340
30 bags

4. Doug Clemons, Malta Bend (660) 595-2257
100 bags

5. Jerry Rehagen, Rich Fountain
(573) 744-5454 100 bags

6. Doug Hendrickson, Lesterville
(573) 637-2576 60 bags

7. Jeff Willard, Willard (417) 742-4569
100 bags

Price \$7.50 per bag

Coal keepers earn 50 cents a bag

Bob has 1/3 of his bunker still full

More to come!

Joe's jive

Nice turnout for our meeting at John Medwedeff's shop in Murphysboro, IL. We got to see some new faces we haven't seen for awhile. John does some pretty amazing things in his shop. Thanks John for hosting.

For those that couldn't make the meeting I will try to bring you up to date on things we discussed.

Bob Alexander has a scholarship from John C. Campbell School to give away. It's good for 50% of the tuition. Student is liable for lodging and other 50% of tuition. Contact Bob if you have an interest.

Faust Park will be last weekend in September. Frank Turley will be one of the demonstrators. Lou says we need gallery items. We hope to be able to award a significant prize for the best gallery item.

ABANA is in the process of chang-

ing their relationship with the chapters. They will no longer be liable for any legal responsibility nor have any authority over them. Chapters will henceforth be called "affiliates". This will require that we change our by-laws to suit, eventually. ABANA is also asking for a volunteer to be a "chapter representative". That person will act as a liaison between ABANA and the chapter. They will also be sent free copies of the "Hammer's Blow" and the "Anvil's Ring" each period. Anyone interested, let me know.

I have received the new BAM Chapter Flag. It looks good. I'm now looking for a volunteer to make a small standard to hang it on. I have a sketch of what we need, anyone interested let me know.

A discussion was held on selling coal to non BAM people. Many

options were discussed and ultimately a motion was made and passed to sell coal to non BAM people for \$1 more than our members' price. The membership has spoken, so be it.

Pat McCarty is having some rose patterns cut out on a laser machine. They really look good and cost \$5.62 per set. This saves about half a days work in making a rose. I'm getting some. Anyone interested, give Pat a call.

Lou Mueller is trying to put together a "Traveling Training Shop" that will accommodate 20 students at a time. He envisions this as a system that could travel around the state and hold beginners and intermediate training.

— Joe Wilkinson

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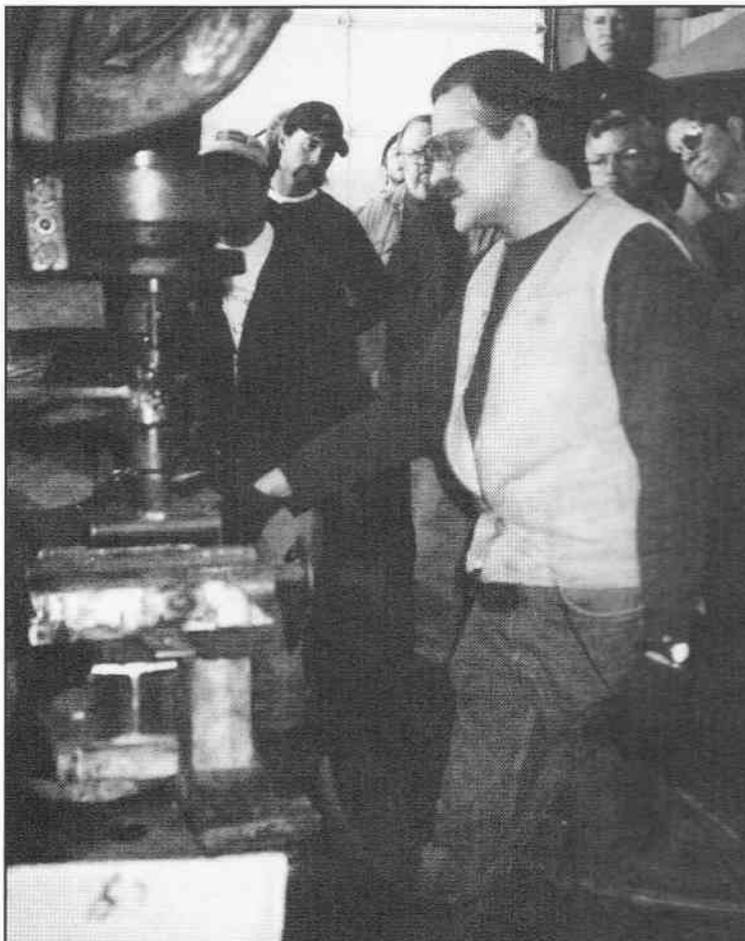
Coal Captain:

Bob Maes
(573) 866-3811

BAM MARCH Meeting

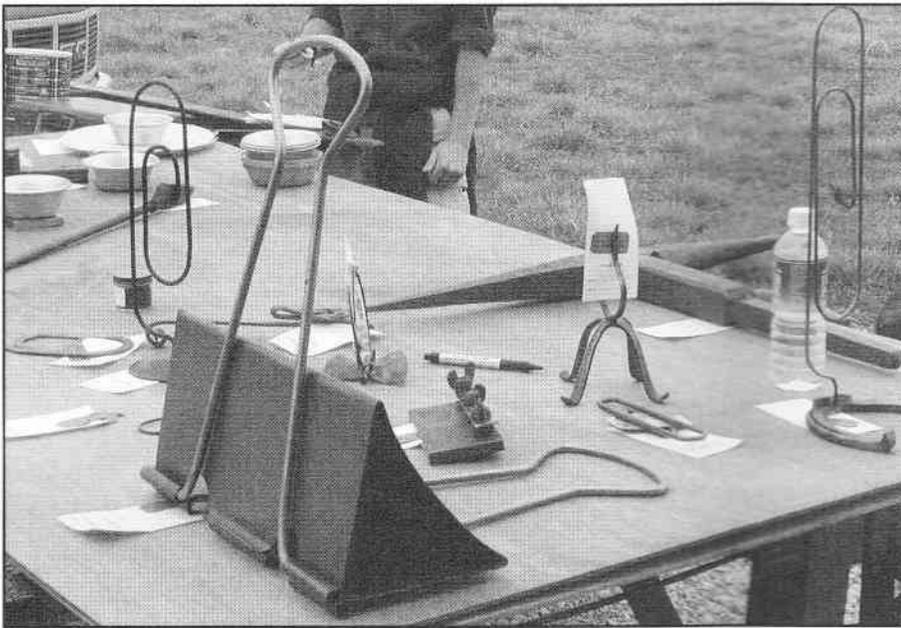


Right: The meeting drew a big crowd, but Duff had plenty of space. Below: Our host shows off his motorized fly press.



Minutes

- Thanks to John Medwedeff and crew for hosting the meeting.
- Bob Alexander has a scholarship to John C. Campbell Folk School to give away. Contact Joe if interested.
- Faust Park Oktoberfest Festival will be the last weekend in September and will feature Frank Turley. Items are needed for the gallery.
- ABANA is changing the bylaws concerning the chapters. See Joe for details. Someone is needed to act as liaison between ABANA and the chapters. Contact Joe if interested.
- Treasurer's report: \$39,577 last meeting. \$40,264 as of 3-30-02. 505 members as of 3-30-02.
- Bob Maes introduced as the Coal Captain.
- Joe displayed the BAM flag, need



Left: We had a good turn out for the trade item, which was a paper clip. Below: President Joe Wilkinson holds court in tailgate row. Is that Duff's propane supply in the background?

Photos by Bob Stormer & Pat McCarty

someone to make a flag pole so flag can be shown at the ABANA conference.

- The town of Jamesport needs a blacksmith for their festival on Sept. 28. Contact Peggy Williamson.

- Elections coming up at conference. Contact election committee with nominations.

- Send completed rosettes to Don Nichols so they can be put on grill.

- Small items are needed for the BAM Boutique.

- Lou brought up the setting up of a training station on wheels to be set up at different locations around the state. A workbook would be completed and printed to standardize the training for beginner and intermediate members. Joe will set up a committee to work out the bugs, contact Joe if you're interested.

- Motion made and seconded to continue selling coal to non-members for \$1 over BAM member price.

- Meeting adjourned.



*Respectfully submitted,
John Murray, secretary*

Iron in the hat donated by: Pat McCarty, Bob Maes, Dean Coonrod, Keith Barrick, Larry Lustfeldt, Bess Ellis, Maurice Ellis, Fred Weisenborn, John Murray, John O'Connor, Eric Cuper and Don Birdsall.

Trade items were made by: John

O'Connor, Peggy Williamson, Dean Coonrod, John Lovin, Keith Barrick, Larry Lustfeldt, Maurice Ellis, Pat McCarty, George Rousis, Doug Hendrickson, Ed Harris, Fred Weisenborn, Bob Smith, Fabian Schilly and Bob Alexander.



ABANA

ABANA Chapter Liaison Letter

March 2002

Dear ABANA and chapter members,

Preparations for the 2002 Conference are progressing nicely and all the pieces are falling into place. Keep checking the website for updates, and more information will be included in the upcoming issues of *The Anvil's Ring and Hammer's Blow*. Make your reservations as soon as you can, as spaces are going fast. Registration forms can be found on the ABANA website (www.abana.org/downloads/2002_Confregform.pdf) or by contacting Mary Fredell (612) 276-0271 or 2002conf@abana.org. Forms were sent to all chapters in January so someone in your chapter may have additional copies. We have capped attendance, so be sure to register early to keep from being disappointed.

The ABANA Bylaw changes have been approved by the board; the final step in this process is the vote of the membership. The revised bylaws and the ballot (a pre-paid post card) will be inserted in the next issue of *The Anvil's Ring* for review by the membership and their vote. The board believes that these changes are for the benefit of ABANA, resolving the uncertainty of the chapter status, bringing the seven chapters involved in the anvil shooting incident back to the ABANA family and ensuring that ABANA has a solid bylaw foundation to help move the organization forward as we continue to serve this most honorable of crafts. Copies of the pro-

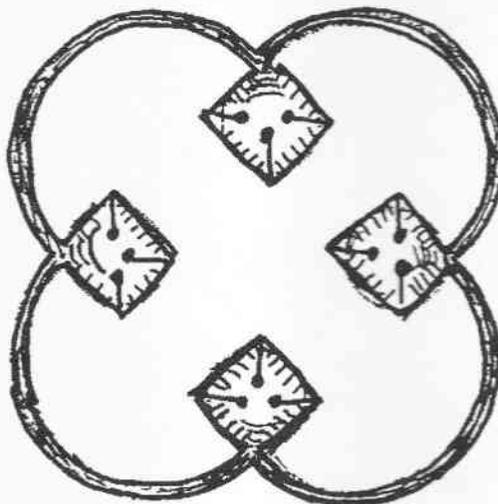
posed changes in several different formats can be found on the ABANA website at http://abana.org/business/abana_business.html.

On the chapter status, I believe that Dave Allen, the editor of the *Appalachian Blacksmiths Association*, said it best in the latest issue of the ABA's newsletter. He defined the relationship that the chapters have always had with ABANA as more of an affiliation, with no formal relationship with or oversight of the chapters by the parent organization and no dues of the chapter members supporting the national organization, as opposed to a chapter, which implies dues paid in part to support the parent organization and those chapters controlled in some part by the national organization. This is exactly what the board, in making these changes, has put into place. And as Dave urges his chapter's members of ABANA, I also urge you to support these changes.

Finally, with spring in the air, hammer-ins, workshops, shows and conferences are all in full bloom. Please attend as your schedule allows. And as you can, please help your chapter (and ABANA) with your time and efforts. The success of every organization is measured in the level of active participation of the members.

Safe and productive forging!

Doug Learn
ABANA President



BAM

Bulletin Board

Approximately 300 pound anvil, no name, real lively, great shape. \$800 or best offer. Call Kirk Sullens, (417) 725-6665.

For sale: 7.5 hp Baldor 3 phase motor, new, \$300. (573) 442-6955.

For sale: Stake plate and three large stakes, \$600. Pexto ring and circle shear, will cut circles from 2 inch to 44 inch diameter, \$900. Guy McConnell, (660) 332-7354.

For sale: Beverly shear B2, \$250. Angle iron shear, will cut up to 2" x 5/16", \$100. Jim McCarty, (573) 395-3304.

Wanted: Big vise, 200 pound, 8-inch range. Also need handled punches and drifts. Mike Kellersprass (417) 890-9174.

Wanted: 50 to 100 pound Little Giant. Buy or trade for larger anvil above 300 pounds. Bill Bench, 5626 S. Farm Road 205, Rogersville, MO 65742; (417) 883-9145.

Pat McCarty has for sale a like-new upholstery sewing machine. It's a Juki brand model # LU-563. Call (636) 239-3814.

Coke for sale, \$10 per hundred pounds loose or \$9 per bag sacked. Bags hold 60-70 pounds. Call Japheth Howard for more info, (660) 777-3508.

For sale: 5" leg vise, \$100; 3-1/2" bench vise, small anvil on rear, 40 lbs., \$50. 3 bags BAM coal, \$21. Champion No.3 blower, hand crank, on stand \$200; Buf-

falo electric blower, 200 silent 14", \$140; #400 whirlwind fire pot with tuyere assembly 12x14" heavy duty, no burn out, set in steel table 24x24" on wheels, has hood and stack. \$300; Gas forge, new, never used by BAM complete with regulator, hose, fittings, etc. \$350; Canedy-Otto post drill, hand crank, automatic, has original chuck and Craftsman 1/2" chuck, mounted on steel post with feet, 5'5", \$130; Di-Acro Spartan roller Model #4, 24", \$150. Emil Bubash, 3151 Lin-Tel Rd., St. Louis, MO 63125; (314) 892-4086.

Smithin' Magicians — as featured in the Blacksmith's Journal. Includes mild steel tool blank, \$275. Call Bob Woodard at (618) 692-6508.

Ray Chaffin has a new computer operated plasma cutting system that can cut anything out of metal. Mail, call or e-mail your design for a price quote. Also hardwood blocks 2-2 1/2" x 12-14" are \$5 each in curly maple, straight maple, English walnut, birch laminated in brown and white and blue and white. Ray Chaffin, (660) 438-6720 or Ray's Welding, RR 3, Box 279, Warsaw, MO 65355.

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. Available with or without two 3/16 inch holes for handles. Now tumbled clean. 1-4 \$9 each; 5-9 \$8 each; 10 or more \$7 each. Shipping \$4 plus \$.50 for each pan. Contact: Bob Tuftee, 3855 Aspen Hills Dr., Bettendorf, IA 52722; bobforge@hotmail.com; (563) 332-4800.

Custom-built air hammers. 6-pound table top model \$1,300; 20-pound table top model \$1,900; 20-pound floor model \$2,200; 40-pound floor model \$2,600. Some modifications to the basic hammers can be made to your specifications. Also custom metal spinning in copper, brass, pewter, and steel. Contact Maurice L. Ellis, Route 1, Box 1442, Belgrade, MO 63622-9709. Phone: (573) 766-5346. E-mail: mbellis@misa.com.

BAM members, I have a CNC plasma cutting system in my shop in Columbia and will offer my services to BAM members at a 10 percent discount. From art to

parts I do it all. Now offering: 12" x 18" BAM logo signs plasma cut from 1/8" A36 steel plate, \$25 BAM members, \$35 non-members. Call (573) 474-8749 and ask for William Irvin.

Kayne and Son Custom Hardware, 100 Daniel Ridge Road, Candler, NC 28715. (828) 667-8868 fax (828) 665-8303, email: kaynehdwe@ioa.com, website: www.kayneandson.com. Offering Big Blue 100 ram air hammers, Peddinghaus 2 horn anvils, Offcenter tongs and swages, etc, hammers, tongs, the Blu Crusher rolling mill and Forgemaster gas forges. We ship and accept Visa and Mastercard.

Subscribe to Jerry Hoffmann's Blacksmith's Journal, a monthly publication for blacksmiths. \$32/year, call 1-800-944-6134 for more information.

Tom Clark has expanded his line of hand forged Hofi style hammers to include a nice rounding hammer and punches, drifts, tongs etc. He's also importing a new line of air hammer, the Sayha from Turkey and just got a shipment of punches, shears and gas forges. For more info on the tools contact him at (573) 438-4725.

Power hammer history! *Pounding out the Profits — A Century of American Invention* by Douglas Freund (hardbound, 317 pages, profusely illustrated) is available for \$32.50 plus \$4.50 shipping and handling through Mingus Mountain Machine Works, PO Box 532, Jerome, AZ 86331. For blacksmithing books contact Norm Larson, 5426 E. Hwy. 246, Lompoc, CA 93436 or call (805) 735-2095. Ask for his catalog.

George Dixon is starting a new blacksmithing publication called "The Traditional Metalsmith". For \$28 you will get four issues of how-to information. Contact him at 1229 Bee Tree Lake Road, Swannanoa, NC 28778.

Irony is a new publication by BAM member Stephen McGehee. It's full of metalworking projects as well as his own brand of wit. Subscriptions are \$35 a year or \$65 for 2 years. Send checks to P.O. Box 925, corydon, IN 47112.

How I spent my spring vacation

by Rob Ahrens

In May of 2001 My wife and I spent a week at the John C. Campbell Folk School. My wife took the weaving class, I attended the knife making course taught by Jim Batson and Chuck Patrick, two very talented knife makers. Since most of the readers of this publication have little interest in weaving, I will tell you about the knife making course.

The proposed schedule at the school was a four hour period of shop time between breakfast and lunch and then another four hour period after lunch until 4 PM. The dining facilities and food were exceptional, making it unthinkable to skip a meal. Every morning there was a nature walk available and a morning singing session with some very talented leaders. After class in the afternoons there was the opportunity for tours of the school and other places of interest in the area. In the evenings there was time to read or attend lectures or dance lessons. All in all a very nice idea.

Very few of the knife making students took part in these extracurricular activities The students were allowed in the shop anytime as long as there were at least two at the same time. Most of us worked well into the night after supper.

The first night, after check in and supper we spent a few hours in the shop getting oriented and discussing the basics of knife making in this course. One of the first items was cave fire construction. The method that was taught was to place the paper ball in the tuyere, line the tuyere with green coal, and put the coke on top of the paper when it is lit. After the fire is going, put more green coal on top and water it down This produces a cave fire. When a deep fire is needed it is made by putting bricks along two sides of the fire pot to, in effect, make a deeper fire pot.

The style of our knives was discussed and I discovered that my ideas of making a Confederate D handle bowie or a Kris were unrealistic. After the first session all I knew was that we were going to have an opportunity to use three types of tangs; full, ? and rat tail. Other stylistic elements

discussed were the visual flow of the knife and the different types of Bowie knives and their historical derivation. Jim made some very good points about design and flow that went right over my head. He recommended a book entitled

Drawing on the right side of the brain. I don't remember the author.

Also during the first night we discussed basic metallurgy. Since I usually work with scrap steel I was interested in finding out what good sources for suitable steel were. Among the tidbits that I gleaned from this first meeting are as follows:

1075 is in a lot of agricultural implements.

Car springs are 5160 and oil hardening. Oil hardening steels don't anneal as well as water hardening steels. "The faster that it needs to be hardened the easier it is to anneal".

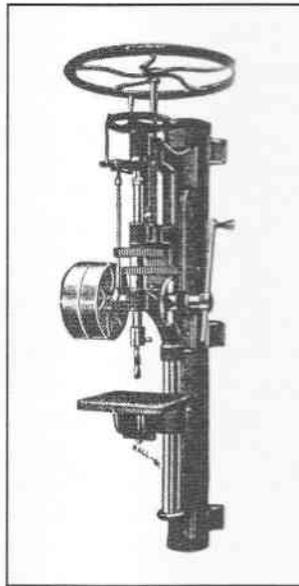
L-6 is found in re-saw blades and is good for knives to be used in arctic temperatures.

We were also exposed to the idea of refining the grain of the metal through forging. I felt justified when I had to reheat a piece and correct mistakes; I was just refin-

ing the grain.

The first two and a half days were spent forging the blades using both hand and power hammers. There were school hammers available, but I was glad that I had brought my own tools (were I to go again I would bring my own wire brush, as there seemed to be a shortage of those). After normalizing and annealing we started on the file work and drilled any holes needed for the handle. Prior to heat treating the blades were shaped and profiled. I learned that "An hour at the forge is worth five at the wheel". The heat treating and tempering were done about the middle of the week.

The second part of the week was spent in constructing the guards and handles and doing the final finishing. I had not realized that we would be spending at least half of the time working with cold metal. During the first part of the week the shop sounded like you would expect with the roar of forges and the sound of hammer on anvil. During the



second half the only sounds were of filing, polishing and an occasional tapping of handle pins.

The last day we had a school-wide exhibition where each class displayed what they had made. While I had been watching my fellow students during the course, it was quite impressive to see their finished pieces. Each piece was different, reflecting the style of each individual.

My fellow students were a mixed lot, ranging from a girl who had not done any blacksmithing beyond a beginners course to a couple of people who were making their living at blacksmithing. In between there were amateurs like myself and an art student who did very intricate file work. I learned a lot from each of them by watching how they interpreted the instructions which we received. I managed to make three knives; one of each tang type. Two were out of a car coil spring, one was from a piece of 1080 that I bought there. While I have gotten compliments on all of them, I can see glaring imperfections.

It was a very good course and I learned a lot about the subject. If any of you have the chance to take this course I recommend it without reservation. The instructional style was more demonstration and learning by doing than by following a recipe. For those who want to try this at home I have tried to organize the information in a step by step manner which is at the end of this article. Many thanks to Tom Clark for the financial assistance which made the trip a lot easier.

Blade forming steps

Forging. Find the critical temperature of your material, defined as the nonmagnetic point or where there are no shadows in the piece. Never exceed the critical temperature of the material in all subsequent steps.

A. Full tang knife.

Make a point on one end of the piece, keeping the same thickness throughout. While doing this step form a curve on one side of the blade. This will be the back of the blade

Taper the blade thickness $2/3$ of the way back from the point. This will establish the length of the blade desired.

If making a full tang this is the time to make the finger notch, if desired, on the edge of the anvil. Flatten out the subsequent hump in the blade and bring all surfaces into proper alignment

Make the ricasso, if desired on the edge of the anvil. The ricasso is a stylistic element in which the blade thickness is left intact for a short ways (about $1/4 - 1/2$ inch) in front of the finger notch or finger guard before sharply starting the edge of the blade. Straighten the blade in a vise. This will begin the edge formation. I personally didn't have much luck making a good looking ricasso.

Forge the cutting edge to nickel thickness (about $1/8$ inch). Take the humps out, making the blade sides a straight line from the back of the blade to the thinnest part of the edge.

Cut excess material off of the formed blade leaving $3 - 3\frac{1}{2}$ inches to form the tang.

Draw out the tang to the desired length and shape. Straighten the humps out and bring the tang into alignment with the back of the blade.

Taper the tang to the rear, making the thickest part of the knife at the finger notch or guard area. Square all edges of the tang. For a full tang knife the sides of the tang may be made slightly concave to ease the fitting of the scales (slabs of wood attached on either side of the tang to form the handle).

B. Rat Tail or partial tang handle knife

Make a point on one end of the piece, keeping the same thickness throughout. While doing this step form a curve on one side of the blade. This will be the back of the blade

Taper the blade thickness $2/3$ of the way back from the point. This will establish the length of the blade desired.

Make the ricasso, if desired on the edge of the anvil. The ricasso is a stylistic element in which the blade thickness is left intact for a short ways (about $1/4 - 1/2$ inch) in front of the finger notch or finger guard before sharply starting the edge of the blade. Straighten the blade in a vise. This will begin the edge formation. I personally didn't have much luck making a good looking ricasso.

Forge the cutting edge to Nickel thickness (about $1/8$ inch). Take the humps out, making the blade sides a straight line from the back

of the blade to the thinnest part of the edge.

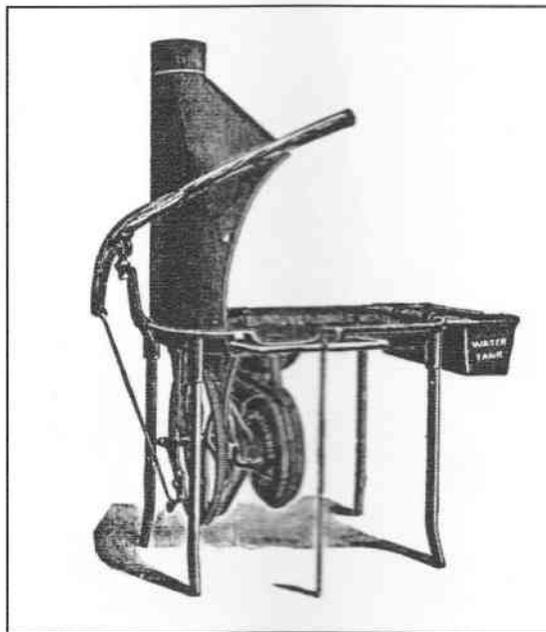
Use a spring fuller or similar tool to demark where the blade ends and the handle begins.

Work the tang down to the desired taper. Use the anvil edges to maintain the fuller points. Pull the tang to the desired angle and length. The partial tang will be shoved into the handle material while the rat tail tang will extend through the handle material and be peened over either with or without a butt plate

C. Normalize the blade.

Bring to critical temperature, defined as the nonmagnetic point or where there are no shadows in the piece Remove from the fire and let cool to black color. Re heat to the critical temperature and place in vermiculite until cool (usually overnight)

D. Profiling, filing and finishing the blade. This class



taught that profiling can be done either before or after finishing the sides. I prefer before

To hold the blade for these steps a blade holder must be made.

A 1x2 inch piece of wood about 14 inches long can be placed in the vise at elbow level and, using a C clamp, the blade secured to it.

In order to file the ferrous oxide coat (scale) must be broken first, as it is very hard and can dull your file quickly.

An old file may be used to rough the piece down to get to where bare metal shows through.

A tool may be made from a piece of 5160 (leaf spring material) or an old planer blade with handles welded on (when welding the handles on be careful not to warp or soften the blade). Use either tool to draw file out the bigger hammer marks. Start in the ricasso area and draw towards the point.

E. Draw filing.

After the scale has been broken and the larger hammer marks taken down is the time to file the profile of the blade. This class used the Moran edge in which the sides of the blade make a bulging V with the wide part of the V the back of the knife and the point of the V the edge. The sides are slightly convex, making the middle of the blade slightly thicker than the back.

During profiling the blade is smoothed by the file. This step will bring out the imperfections in your forging technique. A motto that I learned is: "An hour at the forge is worth five at the wheel". I found this to be true.

The tang of the full tang knife must be flattened and smoothed at this time also to allow a clean fitting of the scales. The tang doesn't need to be polished to the same degree as the blade. Be sure to finish the finger notch and add any decorative filing at this point.

The rat tail or partial tang should start at the blade and be 1/3 of the blade width and then smoothed and tapered evenly in 3 dimensions. The tapering is important to allow the guard to slide on and fit tightly. Soldering the guard on requires clean smooth surfaces.

The holes for pinning the partial and full tang handles should be drilled at this time.

Pins to secure the handle should not be over 1/8 inch in thickness.

Drill the holes in the tang to .064 inch then countersink to an angle of about 17 degrees.

F. Safety Note!!

When drilling the holes in the tang keep the blade point-

ed to your left with the edge towards you. This way, if the drill press grabs the blade as it is being drilled it will do less damage as it rotates with the drill. The leading edge will be the back of the blade.

For the full tang handle, line up the scales on the tang and, using the tang as a template drill holes in the scales. Drill one side at a time; after drilling the first hole, insert a try pin to lock it in place. Drill the second hole and insert another try pin. Now the scale is locked in place and the remaining holes can be drilled without inserting try pins. Repeat on the scale for the opposite side (Be careful to avoid making two of the same side).

Place the scales on the tang in the proper orientation and pin with try pins. Note where the handle ends and then finish the ricasso area as this will be very difficult to finish when the knife is assembled.

G. Heat treating

"The heart and soul of the knife".

Bring to critical temperature and quench quickly.

Quench quickly in oil which has been warmed by stirring with a hot piece of metal.

Oils that may be used are: peanut oil, Wesson oil, olive oil, 10-20 wt hydraulic fluid, transmission fluid, or Tuff-Quench from Brownells.

Quench by putting edge only in the oil and rotate the point repeatedly into the oil until the back turns black (800 deg F) then immerse the whole blade in the oil. When the bubbles stop, remove, wipe, test edge and look for hardening line. If it meets your satisfaction, place in vermiculite 5160 will continue to harden in vermiculite. 5160 may be re hardened by normalizing to black and re treating, but it may crack.

To make it easier to immerse the blade only as deep as you intend a brick or block may be placed in the bottom of the oil tray. The blade may be rested on the block until the back

turns black, then it can be moved off the block and completely immersed.

Drawing. This may be done in a toaster oven at various times and temperatures. The recipe we used was for one hour at temperature that varied with the type of metal.

5160 from 350-375 x 1 hr

L-6 400 x 1 hr

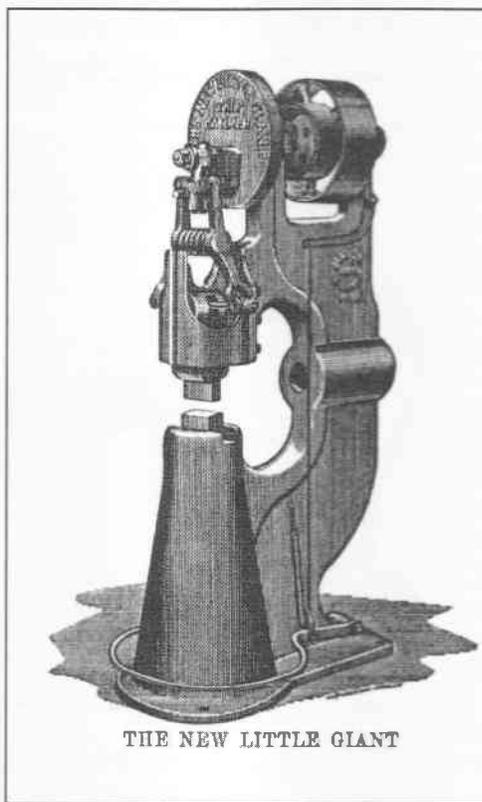
1084 from 425-450 x 1 hr

W-1 from 475-500 x 1 hr

H. Guards.

"The guard interrupts the flow of the knife".

Guards can be any shape that is desired. Most common are oval, tear drop, round with concave indentations and S shaped.



THE NEW LITTLE GIANT

Form the guard after fitting the handle so that the components can be matched and modified prior to final assembly.

Scribe a center line on the guard material stock.

Lay the tang across center line and scribe the two lines across the center line.

Drill holes just smaller than the thickness of the blade within the area to be removed. Brass and aluminum may be punched out.

Use needle files to enlarge and fit the hole to fit the tang snugly. This is why the tang was tapered in three dimensions when forging.

Slide or try pin the handle material on to the tang with the guard material held in place. Mark the outline of the handle on the guard material and mark the outline of the finished guard.

When the guard is completed, finish and polish the mating components of the joint, then silver solder it onto the tang. Make sure that it is square as it is very difficult to fit the handle to an unsquare surface.

I. Handle application

Full tang handles.

Pin materials.

Ferrous metals do not have to be annealed.

Non ferrous metals may be annealed by heating to red and quenching quickly.

J. Attaching scales.

Clean all metal surfaces with alcohol.

Mask the blade and guard to avoid slopping epoxy on them. Apply epoxy to the pieces and assemble with try pins. Hold for 5 minutes and then wipe off the excess epoxy using alcohol.

After curing the epoxy according to the instructions on the container, drive out the try pins and replace with the permanent pins of your choice.

Peen the ends of the pins over with a jewelers ball peen hammer. As an anvil, use a ball peen hammer clamped in a vise with the peen part upright.

If using antler for the handle there is nothing left to do except polish the handle.

If using wood for the handle, it can be finished by sanding to the desired shape and oiling it with various solutions of linseed oil.

The instructor recommended a 1:1 solution of turpentine and boiled linseed oil with a little japan dryer added. Another technique is to moisten and dry the wood handle and then knock off the high grain with steel wool, repeated 4 times. After the final abrasive, to soak the handle for several days in linseed oil.

K. Rat tail and partial tang handles.

Handle preparation, whether using antler or wood.

A hole must be drilled through the handle material to accept the tang.

For the partial tang the hole does not have to go all the way through, but it does have to conform to the shape of the tang and allow the handle material to butt up to the guard.

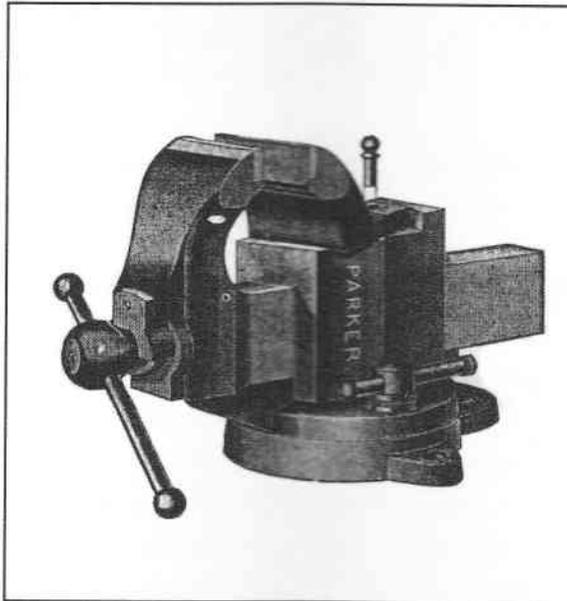
The rat tail tang requires a hole through the handle material so that the tang can extend enough to either be peened over or threaded for a cap nut.

When drilling the hole it may be necessary to drill from both ends of the handle.

When using a drill press it is helpful, when drilling an odd shaped piece, to make a bottom support consisting of a nail in a block of wood which has had the head cut off and sharpened to a point. The bottom of the handle can be anchored thus to keep it stable while being drilled.

After the handle is drilled, it must be fitted to the tang. To do this it must be reamed and rasped out.

Rasping tools can be made to work the inside canal until it fits.



L. Fitting the handle.

Prior to epoxying the handle, make sure that the handle fits the guard snugly and squarely.

Mask the blade and guard to prevent slop.

Clean the metal pieces with alcohol.

Apply the epoxy (The canal will require less than is anticipated), fit the handle and hold for three minutes. Clean the excess epoxy off. Allow to cure according to the manufacturers recommendation.

After curing, file and sand the handle so that it is flush with the guard.

M. Finishing the Butt.

The partial tang does not need any finishing unless it is desired.

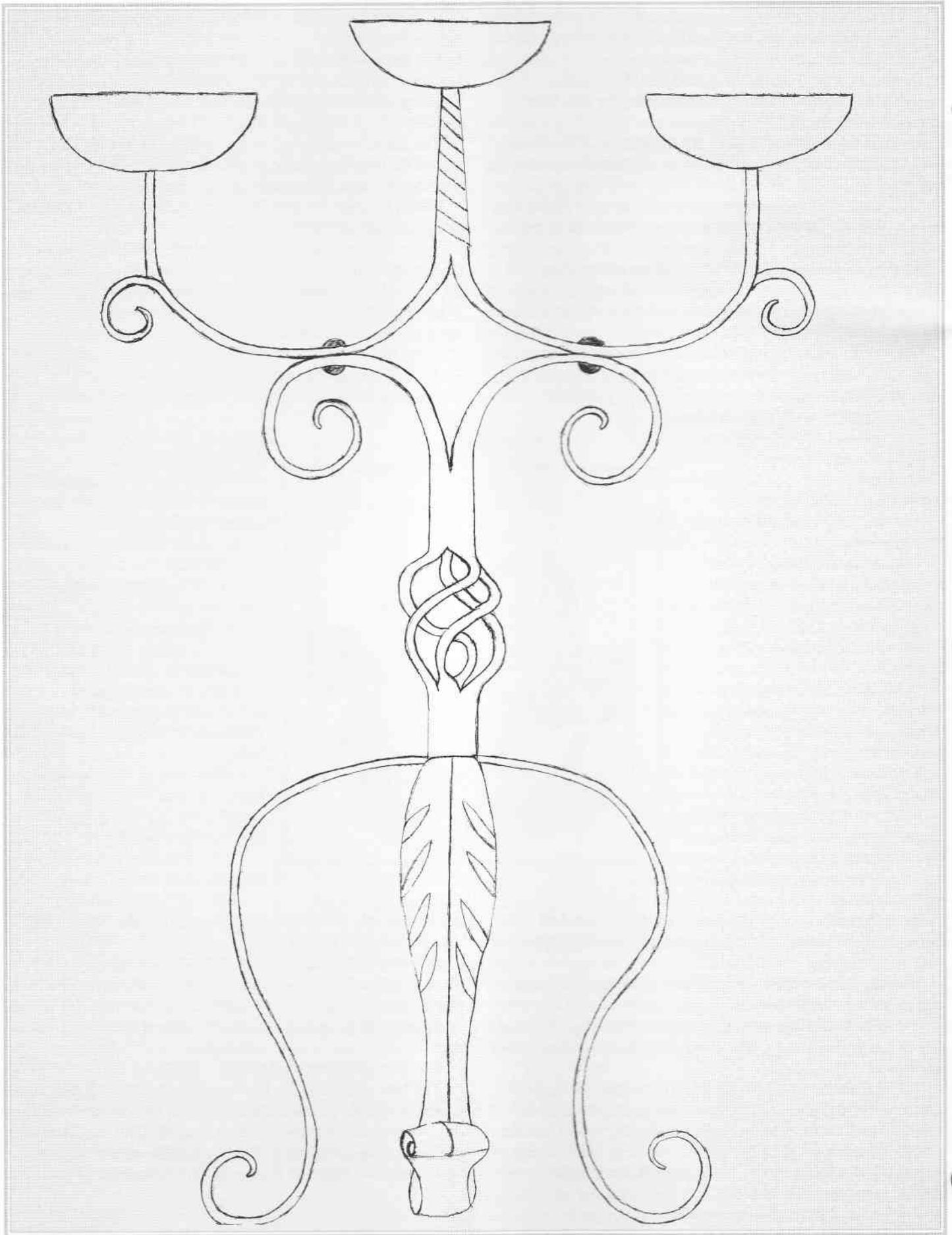
The butt of an antler handle may be simply finished by rubbing super-glue across the cut end with a CLEAN finger.

Another butt treatment is to pin a butt plate onto the handle with pins driven into holes drilled at an angle. The butt plate is made in the same fashion as the guard.

The rat tail tang may be simply peened (cold) over the end of the handle or with a butt plate.

The butt plate may be simply a washer.

The butt plate may be fashioned the same way as the guard, being shaped to fit the tang and the butt of the handle. After epoxying and peening the butt plate in place in the same fashion as the guard, the handle should be filed and sanded so that it is flush with the butt plate.



Carl Glase

by Jim McCarty

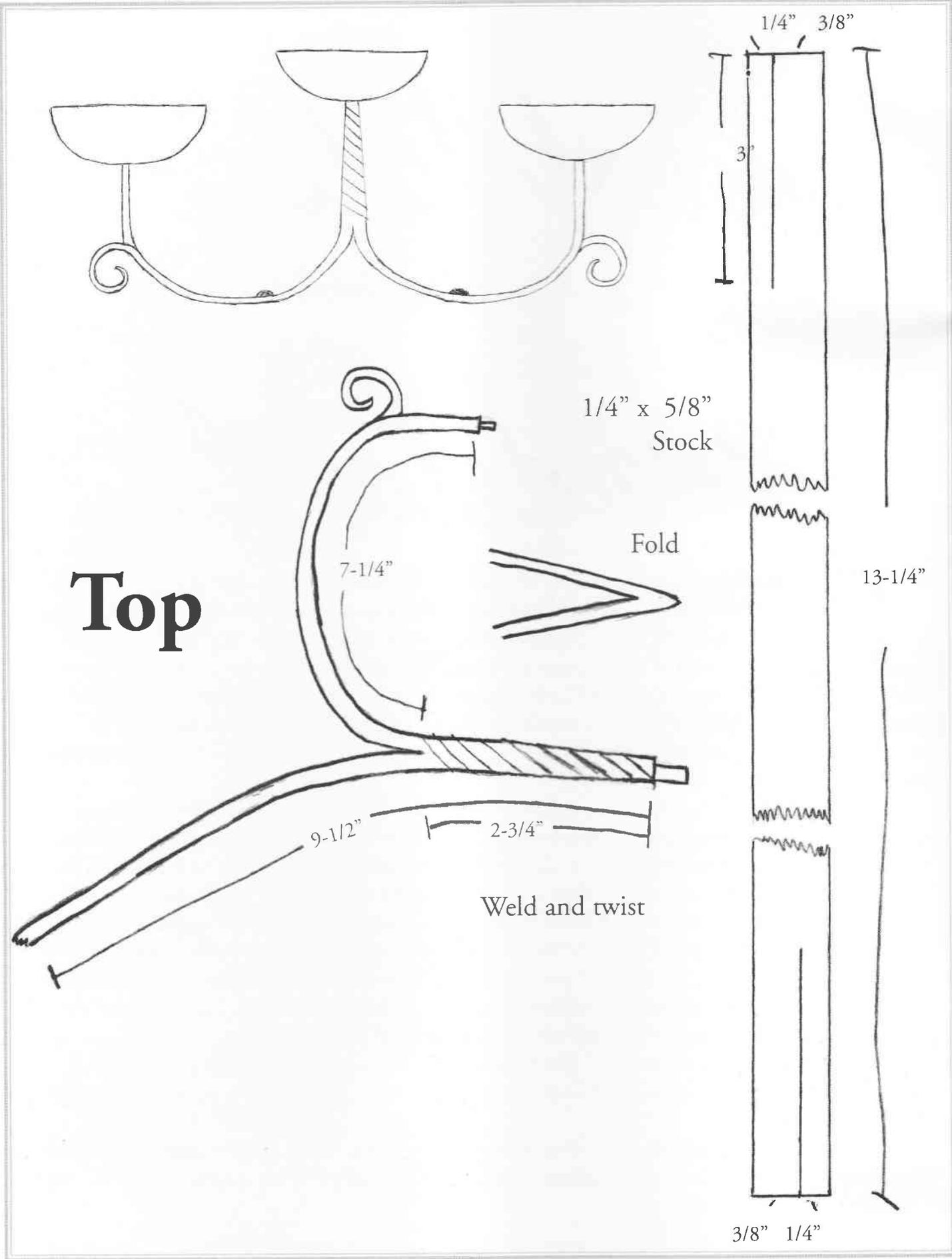
Candelabra

The candelabra pictured here is something I have been eyeing ever since I attended the ABANA Conference held in Alfred, NY. Somewhere at the trade show I picked up a brochure with three photos of Carl's work and this piece was one of the pictures. I slipped the brochure and a bunch of other handouts into a box and from time to time pulled it out to admire Carl's efforts, which also included a nice repousse door knocker. I kept thinking sometime I would get the chance to ask Carl about the piece and how to go about making it. That, of course, never happened, despite the fact that I have run into him several times over the years.

Finally, this past winter I found some time to try to work out the details of this project. Besides the picture, the only other information was the height, 18 inches. Starting with that dimension, I was able to sketch the candelabra full size on a piece of poster board. I used the ratios in the photo to arrive at the other dimensions and I think this is pretty close. Once I had the full-size piece sketched it was simple to take a piece of heavy solder and shape it by hand to the drawing to get lengths for the scrolls and other pieces. It would be a good idea to make some test pieces to see exactly how much stock to use. In some cases you can leave it extra long and cut off the excess but on other parts exact length is critical. I didn't make this yet so my dimensions might be a little off. Should be close though.

You might also want to make jigs for the scrolls so that you get them to match. Tooling you might need to make includes the tear-drop shaped fuller for the legs and bending tongs for the scrolls.

While this is a difficult piece, it's within the range of most BAM members. Now wouldn't this make a nice addition to the conference auction? Especially if it was sitting on one of those Jay Burnham-Kidwell tables...



Top Section

Ibroke this project down into three sections to make it easier to visualize. Let's start with the top. You will need about 13-1/4" of 1/4" x 5/8" stock. Start by slitting each end for 3 inches. Note that your cuts are off center by 1/8 inch and on opposite sides for each end. Forge a taper into the smaller side for a ribbon scroll. Forge a tenon into the wider side of each end that will go into the candle cup.

Now fold the piece exactly in half and weld about 2-3/4". Forge the welded area into 1/2" square and then draw out the end slightly. Be sure you get a good weld or it will open up when you start to form the curves. You are going to twist the welded section. If the seam shows you might want to fuller a groove in the opposite sides to make a nice rope twist. Forge a tenon on this end for the middle candle cup.

To get the two sides to match make a jig to match your full size pattern (you did make a full-size pattern, didn't you?). Once you have it shaped to suit you, bend the scrolls keeping the heat concentrated on the part to be scrolled, otherwise you will be reshaping the curves again.

Center punch and drill for rivets. You can mount the candle cups now. These will hold the small votive candles so no holders are needed. Tall candle stands get short candles, short candle stands get long candles.

These dimensions are approximate. Make some test pieces to ensure you have it right before you do it for real.

Center Section

This part is by far the hardest task to accomplish. If you saw Jay Burnham-Kidwell make his table you will grasp the concept as this is the same motif he used on the table. The key is to split the stock exactly in the center. You should lay this out cold with a chisel so that your hot cut will find the center marks. Also center punch all four sides so that you begin and end in the same place on each side. Other than that, keeping your hot cut sharp and vertical while striking it are all that is required to make this happen.

Start by laying out all the dimensions for the cuts and marking them with a center punch. The scrolls will be tapered. If you are careful you can draw them out before slitting the stock. You will still have to clean up the cuts but your stock will end up the same length on each side of the split this way.

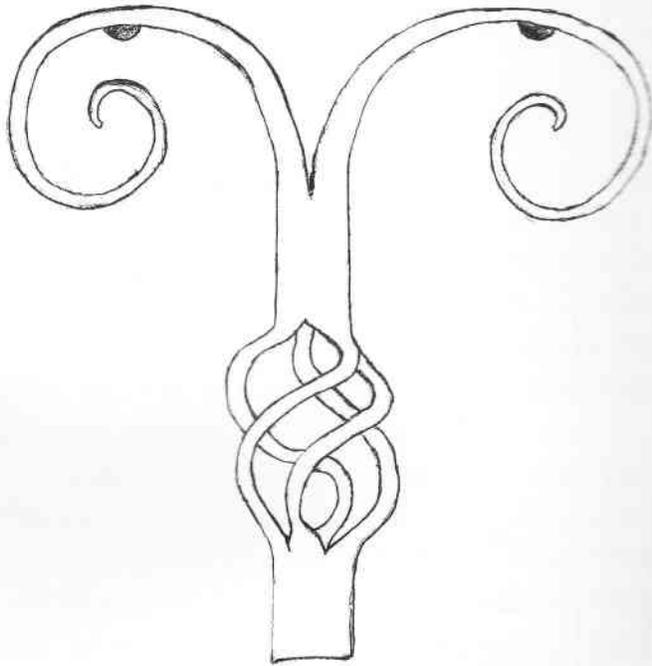
Once you have the scroll end complete forge the tenon on the opposite end. Do this now because if you make the basket and do much other work with it formed you run the risk of distorting it.

Now make the slits for the basket twist. Work carefully all the way around and keep those slits centered. don't forget to mark the stock all the way around cold. When you have the cuts made clean up each piece as best you can working on the horn or a stake if you have one. Try to get each piece of the basket as round and free of ragged edges as possible. When you are satisfied close it up and get each element as straight as possible.

Now get the basket area hot, twist, then upset as you untwist. You'll want one end clamped in the vise for this step. To get the bar back into an even plane try laying it horizontal in the vise and putting a piece of flat stock across each side of the stock in front and back of the basket. Twist until the two pieces line up as you sight down the bar.

The last step is to form the scrolls again to match your full-size pattern. A scroll jig will help get the two sides to match. Keep the basket cool so it doesn't untwist.

Don't rivet the top and center sections together until you have the legs finished. When you have all three parts forged you can use small bolts to assemble the candlestand and check to see if any fudging needs to be done anywhere.



Center

Slit all 4 sides. Upset
and twist to 2-1/2"

3-1/2"



1"

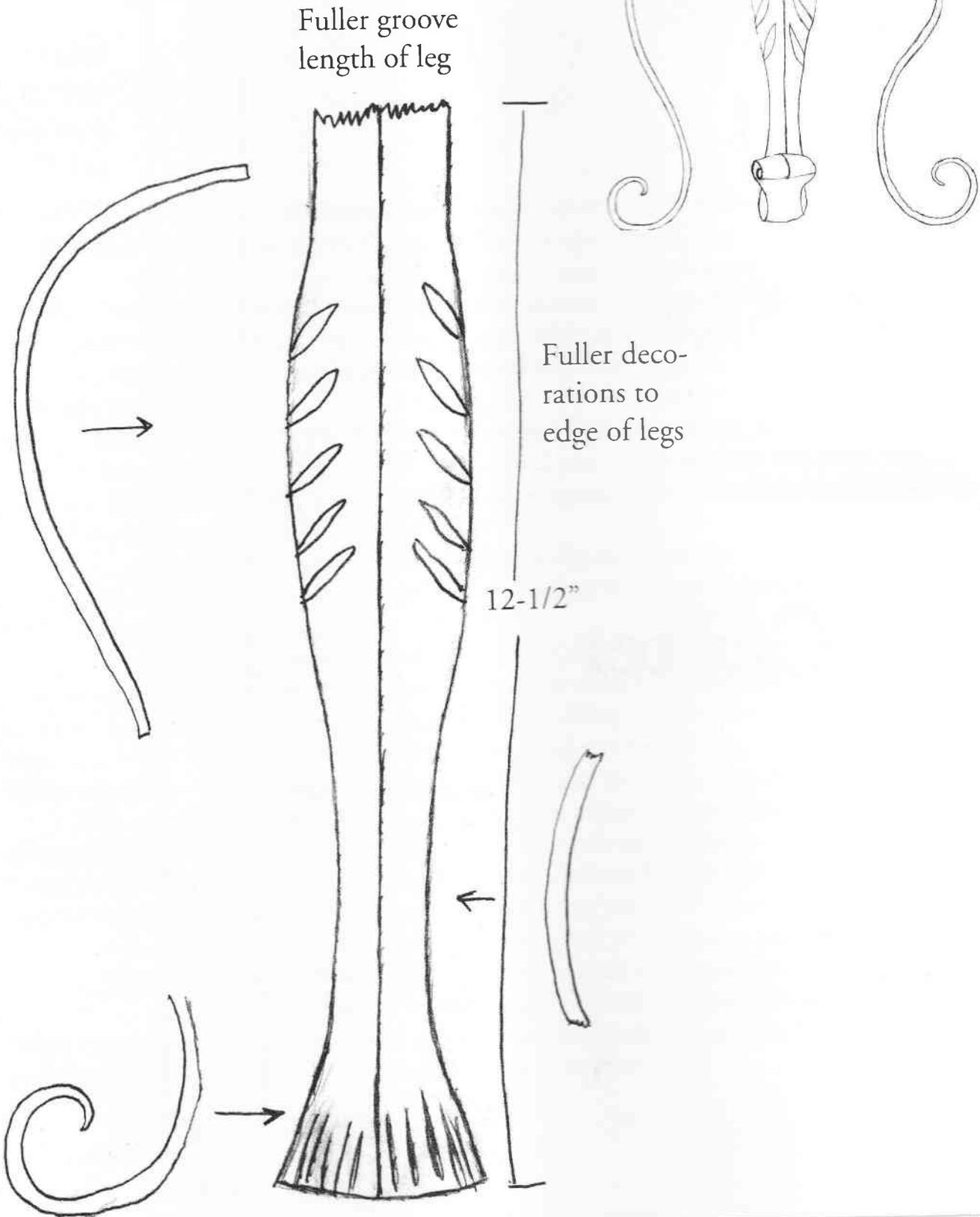


Split,
taper and
draw out
to 13"
total
length



Tenon

Legs



Legs

After that basket twist and all those scrolls the legs should be a piece of cake. The legs are made from two pieces of stock. Start by forging each end for fishtail scrolls. Now shape the legs as shown in the drawing at left. When you have all four pieces looking about the same fuller a groove down the center stopping with one inch left in the center of each piece left untouched.

Put the decorative fullering marks on each side, keeping the angle the same. This is a good place to add your own special touch with tear drop, curved or straight fullers being just a few options you can try.

Check to make sure your legs are the same length. Now drill or punch the center hole. Get both leg sections hot, align the holes with the legs at right angles and hammer them together under the treadle hammer or use a flatter and a striker on the anvil. It's a good idea to do a little bit, then flip the stock so that the heat doesn't go out of the bottom piece. Make sure the leg holes stay lined up and keep them at right angles. Dress the half laps up with a file if necessary.

When that's all done forge the fishtail scrolls on each end. Take care to form them as close to each other as possible so your stand doesn't have a short leg. Now comes the difficult task of forging the leg curves. Once again a jig would be a lot of help.

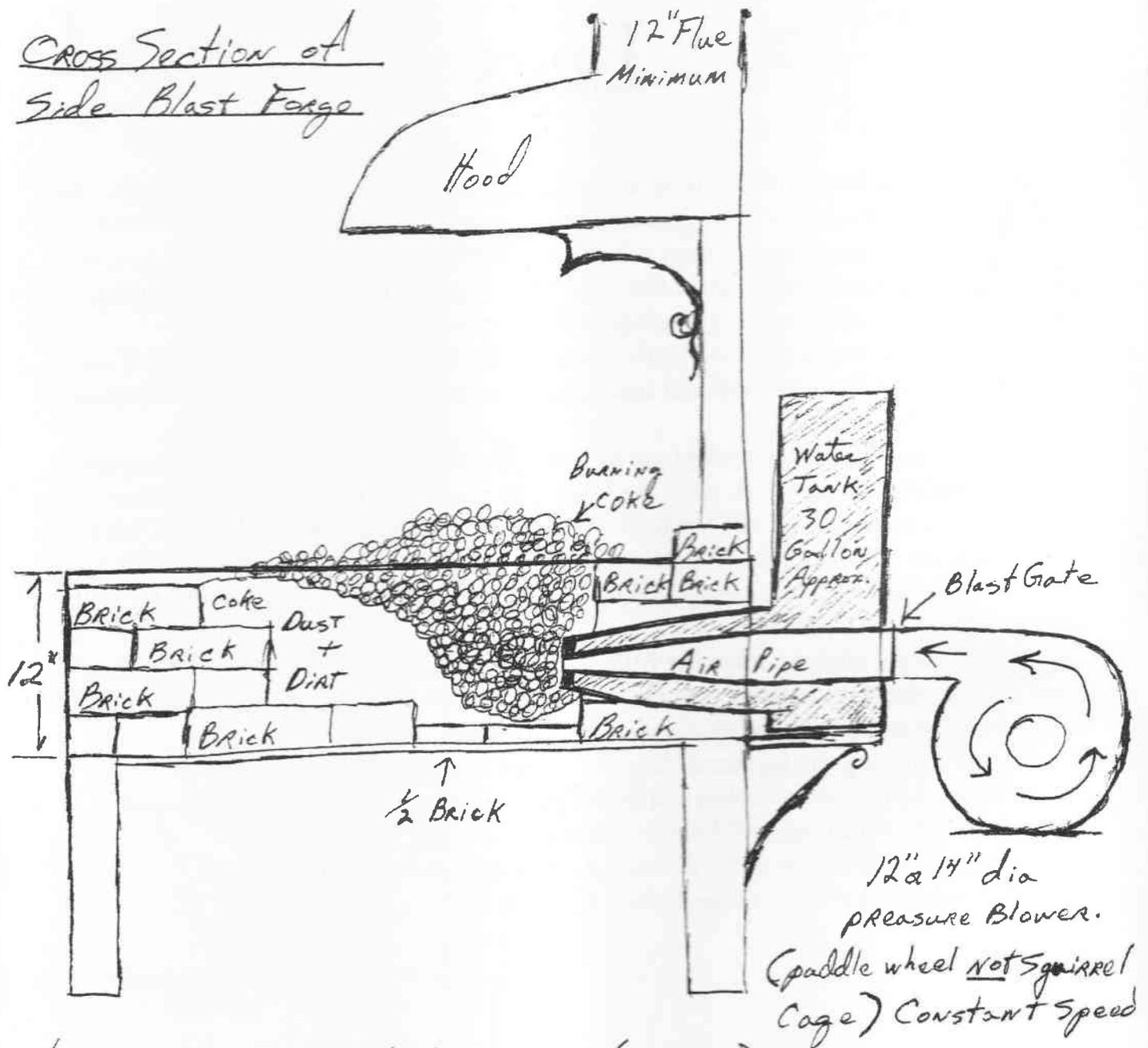
Keep adjusting the legs until they sit the way they should.

When the legs are complete test fit the parts. Use a torch to tweak things until they are just right. A plump bob will help you check for leaning parts.

Clean everything up, apply a beeswax finish and go light some candles.

I wonder if this is even close to how Carl did it???

Cross Section of
Side Blast Forge



Notes: Opening of Air pipe (tuyere) is 1" or 1 1/8" dia. Opening is Positioned 5" above Floor of Forge and 7" below top edge of Forge.

- Water keeps the tip of the Tuyere from burning off and chills clinker so it won't stick to the tuyere

FLICKER FORGE



by L. Japheth Howard

Last weekend I was reminded of something very special many of us blacksmiths have almost come to take for granted. That is the mixture of curiosity and boundless enthusiasm that makes a person get up early on a weekend morning and risk traveling in bad weather to attend a BAM meeting. This enthusiasm and the camaraderie it generates is a rare and valuable thing.

Previously Alice and I shared a large building with a group of craftspeople in Seattle, Washington and one of our fellow tenants was a boat builder. He was always a bit jealous when we returned from a blacksmiths meeting full of energy and ready to face the next challenge our work would present. Brad would say to us that he wished he had a similar peer group to learn from and for moral support during the tough jobs which always come to the self-employed craftsman. In my case this network of friends and associates makes me feel like I am doing something worthwhile and less like a stubborn, anachronism in a modern, mass-produced world.

Thanks to all of you who made the trek to come visit us and a very special thank you to all my family who shoveled snow, served food, made coffee and above all cleaned up the aftermath. What a great group of people! I think I am going to like Missouri.

I had several inquiries at the meeting about the forge I was using so I have included the following sketch to illustrate the basic construction. I believe this is the best way to burn coke. The clinker accumulates under the fire and does not blow up on the work or interfere with the air blast. Thus I can work half a day without needing to clean the fire. I can also vary the size of the fire to fit the work by digging out the hearth in the morning to the size needed.

Yes, I will sell some coke to people in our area: \$10 per 100 pounds loose or \$9 a bag sacked. Bags hold 60 to 70 pounds. Call me for more information, (660) 777-3508.

BAM NEWS

IVBA Conference coming

The 2002 conference of the Illinois Valley Blacksmith Association will feature something for everyone with a wide variety of demonstrations, hands-on training sessions, tailgate areas, vendor booths, a forging contest and a beginner training class.

The conference is set for July 19-21 at Thresherman's Park in Pontiac, Ill. On Friday, July 19 a beginner class with Augie Schmidt will be held. A forging contest will be held Friday evening. Saturday will feature hands on training in forge welding, leaves and tong making.

Demonstrations on Saturday and Sunday include:

- Roger Clausen, white metal casting
- Bill Kaufman, forging
- John & James Lovin, forge welded tomahawk and gun barrel
- Steve Parker, tool and tong making
- Mindy Gardner, leaf
- Darryl Allen, rose

Tailgates are welcome. load up your unused items and head to Pontiac. A disposal auction will take place along tailgate row following the Saturday afternoon demonstrations for persons wishing to auction their surplus items. The Saturday night auction will consist of donated items by members and guests and items produced by the demonstrators. Iron in the hat drawing will be Saturday at noon. Please bring donations.

Preregistration is encouraged to help plan for food and other requirements. Cost is \$30 for both days, or \$25 for Saturday, \$10 Sunday. Send to: Mindy Gardner, IVBA Conference,

RR-1, Box 36, Farmer City, IL 61842.

Indiana wants you

The Indiana Blacksmithing Association's 22nd annual conference is set for June 1-2 at the fairgrounds in Tipton, IN. It will feature our own Bob Patrick (general blacksmithing), Mark and Mindy Gardner (repoussé), Ed Friend and Bill Conyers (technique) and Alan Bauldree (armour).

There will also be a beginner's workshop and a spouse's program. For more information contact Mark Thomas at (260) 758-2332 or send e-mail to mthomas@ssi.parlorcity.com.

Future meetings

Our meeting coordinator Kirk (Raoul) Sullens has been hard at work setting up a meeting schedule. He's got 2002 in place and is even looking ahead to next year. Here's what he's got so far:

May 18:

Bass Pro Shops, Nixa

July 20:

Joe Wilkinson, Hope

September 21:

Jerry Hoffmann, Washington

November 2:

Jeff Willard, Willard

January 2003:

John Lovin, Belle Rive, IL

March 2003:

Maurice Ellis, Belgrade

May 2003:

Don Asbee, Hartsburg

If anyone would like to host a meeting in 2003 please let Raoul know.



Likewise, if you are scheduled to host one and need to change the date or anything else please make sure our meeting coordinator knows. If anyone sees a conflict with any of the scheduled dates please share that as well. He can be reached at work (417) 725-6665, or at home (417) 863-8628.

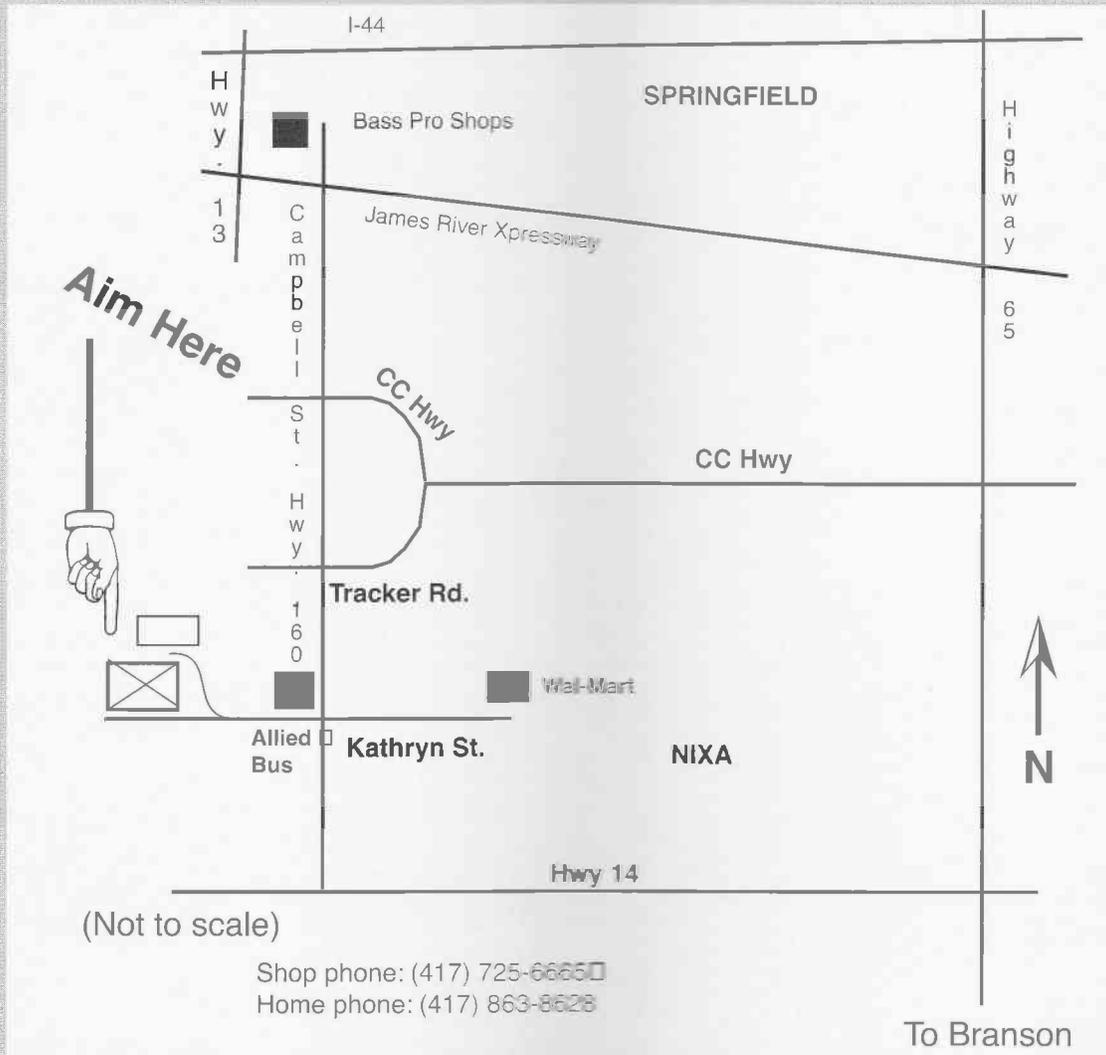
Swage block sale

The Saltfork Craftsmen, our neighbors in Oklahoma, have a really nice swage block they are selling. Now the group hopes chapters like ours will make a group buy to save a few bucks on the blocks. The group is planning to bring a number of blocks to the ABANA Conference in LaCrosse, WI and wants to know how many to bring. If you preorder one they will bring it to the conference (or deliver anywhere along I-35 between Oklahoma and Wisconsin) and save you the shipping. In addition, they will donate one free block to BAM for every 10 ordered by our members. To qualify block orders must be assembled and paid for in bulk by BAM. Cost is \$75. The block weighs 62 pounds and is cast from new malleable iron (no remelts). Around the perimeter it has half rounds in 10 sizes ranging from 3/8" to 3". There is also one 6" diameter concave shape and two V-swages. On the two faces are four spoon depressions, three ladle depressions and one shovel form. They measure 12" x 8" x 4". We'll bring this up at the next meeting and maybe take orders then.

Teaching trailer

Lou Mueller is working on a way to get BAM's beginner's some much needed training. He proposes a teaching station with all the tools for a workshop. It could be pulled to a site and set up for a weekend class. BAM already has a lesson plan which will be updated so that anyone with experience can serve as the instructor. BAM is buying several anvils for the station and we have gas forges. We'll let you know more details and will be asking for volunteers with shops large enough to host such an event.

Next meeting: May 18, Nixa



I told you if we behaved we would get to come back. Kirk Sullens and company are the hosts for the next BAM meeting at the Bass Pro Metal Shop in Nixa.

Plans were incomplete at press time

but Kirk says he wants to get Mark Krauss from Fayetteville in to demonstrate on the shop's big hammer.

Trade item is mixed media. Kirk says the inspiration for this one came from Dr. Iron. He saw Doug's towel

bar which is crafted from a big smooth piece of river stone with steel through the middle.

Don't forget something for the iron in the hat. If you get lost call (417) 725-6665. See you there.



2002 Meeting schedule

May Meeting

Kirk Sullens
Nixa, MO
May 18, 2002

Trade item: Mixed media

July Meeting

Joe Wilkinson
Hope, MO
Date: July 27

Trade item: Bending device

September Meeting

Jerry Hoffmann
Washington, NO
Sept. 21

Trade item: TBA



John Medwedeff demonstrates at the meeting he hosted at his Illinois studio.

BAM
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