



# SOFA SOUNDS

JUNE/JULY 1987

**SOFA**  
SOUTHERN OHIO FORGE & ANVIL

Artist-Blacksmiths Association of North America

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## BOARD OF DIRECTORS:

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## NEWSLETTER EDITOR/1987 QUAD-STATE COORDINATOR

Ken Scharabok (513-429-3967)

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MARK YOUR ABANA CALENDARS: Unless otherwise noted, all meetings will be held at the Studebaker Frontier Homestead on Rt. 202, four miles north of I-70. Please don't park on the grass or block access to the production buildings. Donations for the newsletter support raffle are always welcome.

June 6th, 1 PM

BUSINESS MEETING followed by a demonstration by Ed Hulihan on "BACK TO BASICS" highlighting basic blacksmithing skills.

June 13th, 9 AM

July 18th, 9 AM

August 8th, 9 AM

September 12, 9 AM

Work on the homestead gate wings. Hot dogs and beans lunch to be provided by SOFA. This is an excellent opportunity for members to learn intermediate-level blacksmithing on a complete project.

July 11th, 1 PM

BUSINESS MEETING followed by the group making hardy tools from jack hammer bits at several work stations. We need four volunteers to supervise the stations.

August 1st, 1 PM

BUSINESS MEETING followed by a demonstration to be determined. Volunteer needed.

September 5th, 1 PM

BUSINESS MEETING followed by a demonstration to be determined. Volunteer needed.

September 26th-27

1987 QUAD-STATE BLACKSMITHING ROUND-UP.

## MEETING NOTES:

A number of items were covered during the April 4th business meeting:

- Hans Peot went over literature or information he had received from ABANA or other parties. This will be listed elsewhere in the newsletter.

- Charles Staley offered to show a WW-I vice he had acquired. Apparently it was designed to be attached to a wagon or cannon wheel.

**Chapter of ABANA**

- The report on the next Quad-State was that there was nothing new to report. We still have a few loose ends to tie up, but the bulk of the advance preparation has already been completed.

- A reminder was give of the upcoming ABANA Board of Directors meeting at Emmert's the first weekend in May. Hans Peot will attend as an observer and representative of the group.

- Reminders were also given about the I.B.A. annual gathering and the N.O.B. annual gathering to be held the first weekend in May and the Southeast Regional Blacksmithing Gathering to be held in Madison, GA May 16-17.

- The 1987 ABANA Calendars have been reduced to \$2.00 (our cost). Copies can be obtained through mailorder by sending \$2.00 plus \$1.00 postage to the editor.

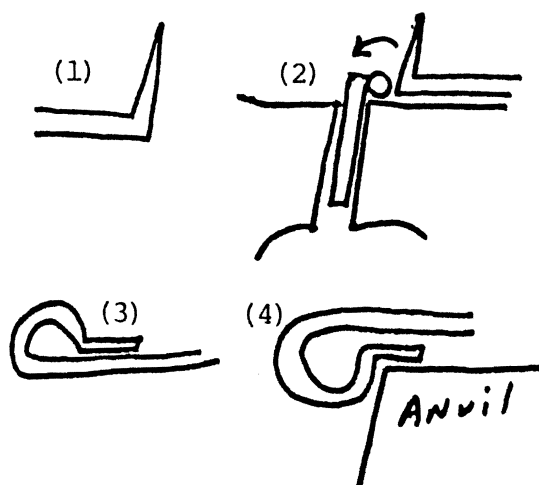
- A brief report was given on the SOFA Building Contingency Fund. The funds (now totaling about \$19,000) are invested through a Merrill-Lynch account. We are receiving about a 30% return on investment thus far. The fund is managed by the group President and Treasurer.

- Ron Van Vickle gave a report on the 18th Century Blacksmithing Workshop recently held at Conner Prairie. Ron and several other SOFA members attended. Ron reported it was an excellent workshop, well worth the cost and trip over to Indiana. He highly recommends it to members when it is held next year.

The newsletter support raffle brought in an additional \$61.50. Winners were:

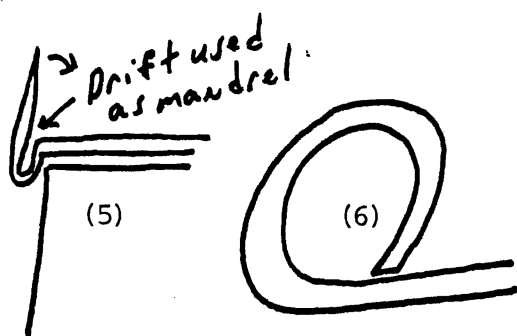
<u>Winner:</u>	<u>Item:</u>	<u>Donated by:</u>
Tom Ziegler	Hot Cut Hardy	Emmert Studebaker
Keith Sommer	Hot Set Head	Emmert Studebaker
Emmert Studebaker	Plaque (Early Car)	Ham Hammond
Carey Alexander	Top Swage	Emmert Studebaker
Charles Staley	Power Hammer Plans	Hans Peot
Ron Van Vickle	Mason Drill	Ralph Van Buskirk
Robert Ream	Hand Cleaner	Art Wolfe
Art Wolfe	Twisting Wrench	Ken Scharabok
Ham Hammond	Small Electric Blower	Dick Franklin
Art Wolfe	Horseshoe Rasp	Ron Van Vickle
Scott Murray	Growing Nuts Book	Owen Vance
Ralph Van Buskirk	Magazine (Forge on cover)	Ken Scharabok
Scott Murray	Spring	John Jacobs

Thanks goes out to everyone donating items for the raffle. Without it we would either have to reduce the size of the newsletter or raise chapter dues.



Following the business meeting Dick Franklin gave an excellent demonstration on making hinge eyes. Dick started by tapering the strap material to a fairly narrow taper for about 3 1/2", with the end of the taper rounded. He then gave a precise formula for determine where to bend to start the eye. Since he wanted an 1/2" eye, he allowed for 2 1/2 times the diameter of the eye, added 1 1/2" for the forge weld overlap and said that 1/2" either way would be fine. He then bent at about 3 3/4" (Illustration1).

(3)



Dick noted there are two basic ways to form the eye. The traditional method is shown in Illustration 3. He prefers the other direction since, when forge welding on the anvil, he doesn't have to worry about striking the eye and deforming it (I-4).

To get the initial rollover, he uses a gig in the post vice which he picked from from Peter Ross. It consists of a piece of rod the size of the pin hole desired welded onto a piece of flat stock. (Illustration 2).

To complete the roll over he used his drift as a mandrel (Illustration 5) to help ensure the final eye would be close to the final eye size desired. He used his hip as the third hand while bring the taper over. To forge weld the eye shut he held it in the fire with the overlap down and looked for the top side (back) to come near forge welding temperature, noting if the back piece is that hot, the overlap was at least there. To complete the eye he drifted it with an 1/2" drift which he had put a long taper on one end and a short taper on the other to facilitate getting it out of the eye.

Another style of overlap is shown in Illustration 6. Here the material was not tapered but the end was scraffed to the angle where it will meet the flat area. He demonstrated this on flat stock and by making butterfly hinges (door butt hinges) out of a piece of water heater tank.

Dick also demonstrated soldering with brass filings in the forge noting the axiom that you can't forge weld with brass or copper in the fire was an old wife's tale.

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The primary business of the May 9th business meeting were several announcements (covered elsewhere in this issue) and election of the Board of Directors seats being vacated at term expiration by Hans Peot and Dick Franklin. Both Hans and Dick were reelected without opposition.

The newsletter support raffle brought in an additional \$73.00. Thanks goes to all those who donated items. Winners and donators were:

<u>Winner</u>	<u>Item</u>	<u>Donated by:</u>
Gary Ameling	Anvil-shaped belt buckel	Brian Thompson
Ken Scharabok	B-B-Q set	Larry Gindlesperger
Doug Fink	Candle reflector lamp	Scott Murray
Brian Thompson	Chisels	Doug Fink
Hans Peot	Wire brush set	Ham Hammond
Jim Campbell	Caliber Measure	Art Wolfe
Joe Abele	Rheostat	John Graham
Ed Rhoades	Fireplace poker	Ralph Van Buskirk
Larry Wood	Blower	John Graham
Larry Gindlesperger	1/2" x 1/2" bar	Ken Scharabok
Ed Rhoades	Files	SOFA
Phil Sturr	Large tongs	Joe Abele
Robert Ream	Hand cleaner	Art Wolfe
Dennis Hoffer	Muffler clamps	Art Wolfe
Art Wolfe	Blower	John Graham
Art Wolfe	Key Case & Drink cup	Unknown/Owen Vance
Carey Alexander	Battery clamps	Art Wolfe
Larry Wood	Clamp	Art Wolfe

We were only able to obtain 15 lengths of 3/8" square out of the total steel order since our source had apparently sold out of the other lengths. We are still looking for a source of 1/4", 5/16" and 3/8" square, 1020, hot rolled.

Following the business meeting the editor demonstrated his style of ram's head pokers. The demonstration went quite well and in far shorter time than expected. I have included a page out of a back issue of The Blacksmith's Gazette which reprinted in initial write-up in SOFA SOUNDS some time back. My procedures remain basically the same. One tip I would like to mention is for my style eyes (where material is driven back from an angle near the nose), start with the eye on the other side of the vise. This is because the second eye should match the first and you will have more control on the side closest to you for the matching.

Larry Gindlesperger won the poker since I used the 1/2"x1/2"x36" bar he won during the raffle. The decorative twist he selected from my samples is called a diamond design. Basically, you put in grooves on the four sides 4" long, twist the stock one complete turn in either direction, flatten the raised ridges back to a square shape, groove again to the original end points and untwist one half turn in the opposite direction from the original twist. This raises little diamond-shaped ridges.

I was out of town for the May gate wings working session but I received a note from Emmert Studebaker as follows, "Hans (Peot) was cold forming the top rail which is a shallow curve. The bar is 1 1/2" x 1" cross section and it broke in two a few inches away from the hammer blow. So much for A36 hot roll steel. It was brittle, but not hard. Filed readily".

BLACKSMITHS ARE SPECIAL PEOPLE (From the newsletter of the Indiana Blacksmith Ass'n):

One in a while someone will help with questions but not very often! Go to a drag race, shooting match, flower show, car show, baking contest. Ask lots of questions about "secret" procedures, processes or "how-to" tips and see how many straight answers you get! They will beat around the bush, evade the issue or flat out lie to you.

On the other hand, go to a gathering of blacksmiths and ask questions. You will be flooded with tips and how-tos. Many times you'll hear, "Let's fire up that forge over there and I'll show you how I do it".

Go to a conference and you'll go home with your head swimming with ideas and plans enough to last till the next gathering. It's no wonder people go to conferences and go home hooked for life on hot iron.

No matter where you go or who you visit, everyone is doing something different. I get around smiths like Francis Whitaker, Peter Ross and I'm in awe of their ability with hammer and anvil. I go to Clifton Ralph's shop and he fires that hammer of his up. By the time I leave his shop I've got pages of notes and my mind in overdrive.

With everyone doing something different - flowers, grills, knives, horseshoes, belt-buckles, gates, etc., your opportunities to learn are endless. They all agree on one thing and that is, "We like to work the hot iron!".

It doesn't matter at what skill level you are or how big or small your shop is, we can all get the same thrill out of "forging hot iron", no matter where we are in the skill spectrum. Blacksmithing is so rewarding I wonder why the whole world doesn't do iron work. But then I'm glad they don't.

Blacksmiths are a unique group of people who share and learn a very interesting trade or skill. Some even say we're artist who do artsy stuff with iron.

# Ram's Head Fire Poker

By Bud Rolston

[Reprinted from SOFA Sounds, newsletter of Southern Ohio Forge and Anvil, April/May 1985]

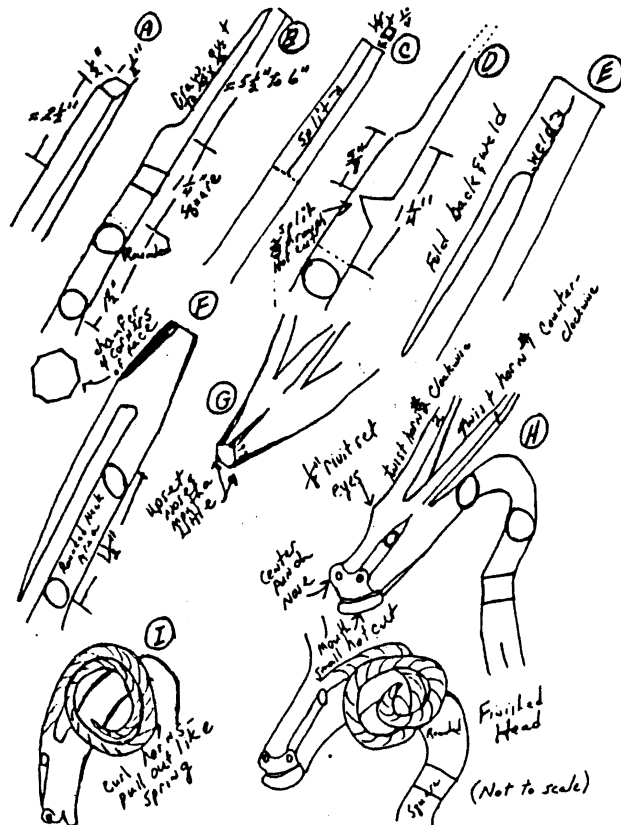
1. If you don't intend to taper down the poker by the hook, start with a piece of  $\frac{1}{2}$ " square stock about 36" long.
2. On one end, draw out  $2\frac{1}{2}$ " to  $\frac{1}{4}$ " x  $\frac{1}{2}$ " x  $5\frac{1}{2}$ " to 6" for the horns. (See illustrations A and B - I-A & I-B).
3.  $1\frac{1}{4}$ " back from where the horns start, round  $1\frac{1}{2}$ " to form the neck. Bending this area square can result in a crimp in the metal. (See I-B).
4. If you intend to put a decorative twist near the head, you can heat the metal starting about 1" below the bottom of the neck and twist it as is once around or, to get a nicer twisted rod bundle effect, put in grooves in the middle of the four sides about 4" long, round the square edges, and then twist. I made a die for my power hammer to give a four-leaf clover effect to this area which is then twisted.
5. Split the horns down the center to the head. I use a bandsaw to get an even cut. Then draw the horns out to the taper desired. (See I-C).
6.  $5/8$ " back from where the horns start, use a hardy to cut about  $2/3$ ds of the way through the head to allow this area to fold over easily. Fold the top half of the head back. (See I-D). The cut goes on the side such that the horns will be on top once folded. (See I-E).
7. Prepare the top and bottom half of the head for forge welding. Forge the head together, draw it out some, and chamfer the four corners of the face. Chamfer the bottom of the head less than the top. (See I-F).
8. Upset nose and mouth area a little to improve the appearance. (See I-G).
9. Make the facial features as indicated in I-H. As you punch in the nostrils, the top of the nose will raise up slightly to form a nice nose.
10. Heat the neck area, quench the head, and carefully bend the head over to form the top half of the top of a backward "S". (See I-H).
11. Facing the face, twist both horns to the outside in different directions. If the area already twisted begins to twist too much, cool off this area. (See I-H).

12. Using a pair of pliers or the anvil horn, curl horns to the size desired, roll them completely to the head and then use a pair of pliers to pull out the horns like a spring. Adjust shape of horns as desired. (See I-I).

NOTE: To avoid metal fatigue and breaking off of the horns, try to keep the first inch or so of the horns as cool as possible when you are not working on that area.

EDITOR'S NOTE (Ken Scharabok): I made the poker raffled off at the February meeting slightly different than Bud's. Starting with instruction #5, I draw out this area as much as possible. I then split the horns through using a hand-held chisel at the base of the horns (to ensure a centered cut here) and a handled hot cut for the remaining cut, leaving the last  $\frac{1}{2}$ " uncut to hold the horns together. I finish splitting and tapering the horns later. Then I continue with Bud's instructions. The dimple punch I made has a small hole drilled in the center to give a pupil effect to the eyes. While Bud holds his dimple punch at about a  $45^\circ$  angle to the head, I hold mine closer to the head and put the eye at the back of a half-moon groove. I

think this gives more character to the eyes. Once the head is bent, I finish cutting the horns and separate them by holding the head vertical in a leg vice and using a hot cut. I use a fuller (blunt) chisel to round out the horn base at the top of the head into a shallow "V" and continue this "V" down the forehead about  $3/8$ ". To do the final work on the horns, I bend one horn towards the back of the neck while working on the other one and then reverse their position. This way one horn sticks out in front and the other is kept out of the way without having to bend either horn out to the side (with the resulting metal fatigue). Since the horns were tapered earlier, all I need to do is true up the square where the chisel cut distorted it. I also draw out the tips a little. To roll the horns I put the first  $3/8$ " over the anvil edge, bend it about  $90^\circ$ , turn the head over and then roll the horns to the head using frequent heats. If one of the horns does break off, take Larry Wood's suggestion—turn it sideways and make the head into a coat hook. If one of the horns burns off short while in the fire, you can still make it into a goat or Eland. Ram's head door handles and knockers are also quite attractive.



MORE MURPHY'S LAW IN THE FORGE: These were added by Brad Silberberg in the newsletter of the Blacksmiths' Guild of the Potomac.

#6. The telephone will always ring at the exact moment a welding heat is reached.

#6a (corollary). If you don't answer the phone, it will be an important call. If you do, it will be someone speaking a foreign language calling a wrong number.

#7. When using your 160 lb swage block, the side you need will always be facing down.

#8. The amount of time spent talking with a client is inversely proportional to the dollar value of the work discussed.

#9. No matter what time you decide to eat lunch, it will coincide exactly with the arrival of a steel shipment.

STILL MORE ON GAS FORGES:

Judging from information contained in other Chapter newsletters, and the requests I have had for reprints of articles on low cost gas forges, interest in them is growing for a number of reasons, such as mentioned in the one write-up I authored.

The following was sent in my Don Campbell of Hazleton, PA in response to my request for additional information on my "homemade" forge.

"Although I am not a "gas engineer", I have 14 years of LP gas service under my belt before leaving that job to become a full-time farrier and blacksmith. I have built two forges and one small foundry furnace for casting brass. The forges were based on the Mankel horseshoers special +4 (my first gas forge) with variations to fill my wants and desires. I am now working on an atmospheric forge hoping to eliminate the blower and retaining welding efficiency. With care, and an ever alert eye for safety, I hope the following ideas may help modify your forge to increase its efficiency:

1. The house or appliance regulator (with a working pressure of 11" water column or 0.4 pounds) you used may be replaced with a variable high pressure regulator - 9-20 lbs'. Along with this addition the 3/8" tubing crimped to form the nozzle must be replaced with an orface to control gas flow more precisely. I use 1/4" or 1/8" pipe fittings with a cap or plug orface drilled to the proper size. This drill size must be determined by experimentation with your forge and burner assembly. The Mankel forge used approximately a #54 wire guage drill in the two burner forge. I use a smaller drill (sizes run from #80, the smallest, to #40, the largest in this set) and work up to find the optimum efficiency. Your local LP gas supplier may help supply orfaces and drill them. Operating pressures may be varied at the regulator depending on the operation performed. 5 to 10 pounds for forging and 15 - 20 pounds for welding.

2. Check the C.F.M. of the hairdryer you are using on the forge. This may not be enough to give good combustion of the gas supplied by the nozzle, thus not maintaining good heat. I use a blower which is larger than necessary and control the speed or the air flow. This enables better control of the flame.

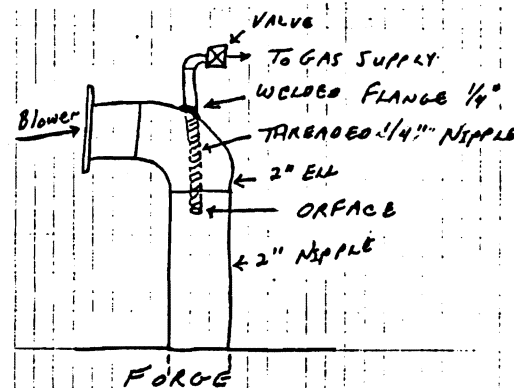
3. You can use more insulated brick or a castable refractory cement (available at foundry outlets) to obtain a higher refractory value. Check the flame path and configuration, simple changes in the burner placement or the orface position can make big changes in heating the forge.

4. Freezing tanks are the result of too high a volume drawn on the tank in relation to the surface of the tank. LP gas vaporizes at 44° below room and

at from the outer sheel, causing the frosting seen there. To help with this problem, you may get a bigger tank or manifold two or more tanks together with manifold tees before the regulator.

Here are some of the propane physical properties:  
Formula:  $C_3H_8$ . Specific gravity of gas: 1.53 (air is 1.00), thus LP gas is heavier than air. Lbs per gas liquid: 4.24. Btu per lb: 21,591. BTU per gallon: 91,690. Boiling point:  $-44^{\circ}F$ . Limits of inflammability, percentages of gas in air mixture: Upper limit - 9.6%, lower limit - 2.4%.

This rough sketch may help in placing the orface inside the air intake. The orface may be placed in the line outside the pipe tube but pipe or tubing must be extended inside as shown in the diagram.



I hope these ideas may help you alter your forge, but always procede with caution and safety ruling every move. Soap check fittings, and keep the tanks at least 10' from the forge. The tanks should be outside, away from doors and windows below the tank level (e.g., basement windows).



HEAR YE! HEAR YE! HEAR YE!:

In writing an article on ash and clinker disposal in the newsletter of the Mid-Atlantic Smith's Ass'n, Don Plummer said, "As many of us are well aware, the disposal of coal ashes and clinkers can become a problem which invites the very highest level of devious ingenuity. One of the worst cases I ever heard of was a blacksmith in the next county over who used to put them in a large, clear, plastic bag. Then, in the middle of some darkened night, he would leave them in front of a mortuary which was also a crematory. He said he never knew what happened to them but they seemed to disappear really fast." In the same issue Don noted that the Yellin Metal Works has received permission to sell some of Samuel Yellin's old and original blueprints. Many of these are dated in the 20's and 30's, beautifully detailed and, when matted and framed, would make great shop hangings. Price range should be \$20-\$60 per.

I assume the Yellin Foundations will make a general announcement on these.

Received a package of information from Norm Larson (5426 Hwy 246, Lompoc, CA 93436). Norm sells some 86 generally out-of-print books relating to metalworking at reasonable prices. The packet included some clip art, among which was nine shop signs, several hinges and grillwork. For a copy of the price list send me a 22¢ stamp. For the clip art, send a 39¢ stamp.

Received a note from Clifton Ralph that, while technically round stock is 78.54% the volume of the size diameter square stock, unless you are working with fairly large stock, 80% is a good of a rule of thumb as any. He also noted he agreed with Larry Wood's on a member claiming a "trade secret" closing, "...it sort of amazing to me they can get out of school without reading about the Great Wall of China."

Smith Lock, Inc. (14626 Houston-Whittier, Detroit, MI 48205 - 1-800-624-7515) specializes in locks, latches and accessories for the iron-working industries. Call or write for a free catalog.

Hans Peot has prepared and printed plans for the homemade 50lb power hammer he built last year (the one displayed at the last Quad-State). They are available from him at

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meetings for \$3.00 or by mail for \$4.00 (Address: 6425 S. Scarff Rd., New Carlisle, OH 45344). He did an excellent job on preparing the plans.

The tentative plans to have a SOFA demonstration/sales table at the next Montgomery County Fair has been dropped due to lack of interest.

The 1987 Annual Mum Festival Arts and Craft Show, in Tipp City on Sept. 19-20 is looking for blacksmithing demonstrators and sellers. For an application form call Lilian Nichols (667-2655), Darlene Taylor (667-2747) or Esther Clark (845-3607).

WANTED: Spreading and flat dies for 25 lb Little Giant. Contact: Leroy Schindler at 224 Fernwood Ave., Dayton, OH 45405 - 513-277-9482.

THE GOLDEN RULE OF BLACKSMITHING: "Into everything made, put knowledge, skill and pride, quality, integrity and caring. Then comes the fire and iron, muscle and sweat and a fair price do you get". (By S. Houston from the newsletter of the South-West Artist-Blacksmiths' Ass'n).

BLACKSMITH WANTED: Opportunity for experienced professional and serious intermediate smiths to work in a busy, productive shop using excellent equipment in a friendly learning environment. This job offers potentially rapid advancement. Pay will be commensurate with skill level and acquired experience. A comprehensive benefit program includes life, health, prescription drug, dental insurances and paid vacation awaits the successful applicant. Located in scenic Brown County, Indiana, Jack Brubaker's shop specializes in production forging of contemporary candlesticks. Interested smiths should send resumes to: Joe Schappert, Personnel Manager, Jack Brubaker Blacksmith, RR #2, Box 102-A, Nashville, IN 47448 (812-988-7830).

BLACKSMITH WANTED: Silverton, CO. tourist attraction. Opportunity to set up shop in "Old Town Square". Good tourist volume and opportunity to do restoration work during non-tourist months. A year-round business is a good possibility. Contact Thomas Wipf, Old Town Square, P.O. Box 688, Silverton, CO 81433 (303-387-5705). Silverton is a registered national Historic Landmark set in the spectacular San Juan Mountains of Southwest Colorado.

VOLUNTEER NEEDED: At the 1988 ABANA National Conference the gallery is being organized by chapters. We need a volunteer to assemble (and perhaps transport) a SOFA display. Compensation for out-of-pocket expenses a definite possibility. If interested, contact Hans Peot at 845-9934. We need to send a space commitment to the national contact point as soon as possible so don't be bashful.

Reminder that SOFA membership cards are not sent automatically. If one is desired, include a 22¢ stamp with renewal.

BEGINNING BLACKSMITHING CLASSES offered when sufficient people sign up. Contact Larry Wood at 233-6751.

In the April 87 newsletter of the Illinois Valley Blacksmith Ass'n, John and Claire Smith related how difficult it was for them to find insurance for a "blacksmith shop", since there is not a precise insurance risk category to place it in. They were finally able to obtain insurance at a reasonable rate through State Farm by using the definition of "artist studio" with the shop classified under "other structures". A blacksmith is an artist, however doing "machine" or "welding" work for others may cause problems with this definition.

"This story has to do with public relations or the lack thereof and what it can do to you. In a recent conversation with Jack Perry he informed me that "the city" had closed his forge down. Since he lives in a residential area (in town) there are various rules and regulations which govern what you can and cannot do in your garage,



all of which say that a blacksmith shop is a no-no. If no one complains the powers will overlook a hobby shop, but if someone complains, then they are forced to take official notice and enforce the regulations. So if you live in the city be nice to your neighbors." (From the newsletter of the Illinois Valley Blacksmith Ass'n). Local member Duane Wegley worked out of his garage (including using a power hammer) for years without interference from his neighbors. However, he was also more than willing to drop whatever he was doing to do various work for them with his forge and welder. When I get my hobby shop set up, one of the first projects will be making one of my ram's head pokers for each of my neighbors.

In the last issue I mentioned Lindsay Publications (P.O. Box 12, Bradley, IL 60905-0012, Catalog \$1) carries two turn of the century blacksmithing-related books. These were Elementary Forge Practice (1908) and Blacksmith Shop & Iron Forging (1906). Duane Wegley sent off for these and says Elementary Forge Practice is one of the best books he has seen for the beginning blacksmith. Lindsay specializes in reprints of books of this nature.

**DEMONSTRATOR WANTED:** Glory Days Celebration, July 4, Patterson Homestead. Contact Debra Ried, Patterson Memorial Center, 1815 Brown St., Dayton, OH 45409 - 222-9724.

**DEMONSTRATOR WANTED:** Brookville Community Steam Engine Reunion, July 25-26, contact Larry Thokey at 833-2183 between 9AM-5PM.



The picture to the left is part of a postcard of the Children's Chapel at the Washington Cathedral. The ironwork in the forefront is by Samuel Yellin, sample pieces of which were on display at Oberlin College. The top floral arrangement has horsehead-like figures coming out of the arrangements. On the gates, each of the four center pieces in the rings is a different head figure. To avoid duplication, apparently he had a number of different blacksmiths make these. I visited the Cathedral about eight years ago and frankly didn't pay attention to the ironwork in it. While in Washington, D.C. the middle of this month, I made a repeat visit particularly for this purpose. The ironworking in the Cathedral is worth a visit to the Washington, D.C. area by itself. Dick Franklin has excellent photos of the sample pieces taken at Oberlin College.

**BLACKSMITH WANTED:** Myers & Company Architectural Metals is currently accepting applications for blacksmiths to work in the shop in all phases of metal work. Traditional and contemporary work. Opportunities for advancement. One opening available for an apprentice instructor. Contact Ken Hambel, P.O. Box 1025, Basalt, CO 81621-1025 - 303-927-4761.

Centaur Forge (P.O. Box 340, Burlington, WI 53105) new catalog is 161 pages. Where it use to have a few pages of blacksmithing-related items, about one-half of their stock is now in this area. They also carry a wide variety of books. Catalog \$1.

The May 87 issue of the newsletter of the New York State Designer Blacksmiths contains a dandy article on the design and layout of a sidedraft, sheet metal forge hood, including a list of material and assembly instructions. For a copy send a 22¢ stamp.

COLD FORMED REPOUSSE WORKSHOP?????. Nahum Herson (from Boise, ID) has offered to conduct cold formed repousse workshops for A.B.A.N.A. chapters noting that more and more customers want repousse work included in their gates, grills, etc. He comes highly recommended by the Northwest Blacksmiths Ass'n. Cost of a three day or so workshop would be about \$100.00 per person if 12 signed up. Natum can be called the "Francis Whitaker" of repousse work from what I have seen. S.O.F.A. members interested in such as workshop should let the Editor know by the end of June so we can determine its feasibility. This is an opportunity to expand our knowledge we should take advantage of. Perhaps it could be held on a Friday, Saturday and Sunday so only one day of work would be missed. Also, back-to-back workshops could be held if more than 12 are interested.

BLACKSMITH WANTED: Blacksmith interested in working in a recreation of an 1880 shop in the New England area. Summer months only. Contact Mack Phinney, 617-295-4225.

Norman Larsen is looking for blacksmith puzzles, such as those shown in the last issue, for a book he is writing. Credit will be given to the sender of any puzzle used. Send sample puzzle to him at 5426 Hwy. 246, Lomboc, CA 93436.

For sale: 50 lb Fairbanks power hammer. Excellent condition. Jackshaft, large motor, many dies included. \$1,200. Contact Bill Blachley - 802-456-8968 (New England area).

FOR SALE: Welding rods and hot box (nickel rod, low H<sub>2</sub>, large assortment), tongs, anvil hardies, swage block, plus many other blacksmithing-related items. Call Mark Cusac, Piqua, 513-473-2149.

The Smoke and Fire News is a bi-monthly newsletter covering 1800's crafts and lifestyles (including buckskinning). Has an extensive calendar of events. Also covers "medieval" events. \$8.00 per year from P.O. Box 166, Grand Rapids, OH 43522.

Ohio is sometimes referred to as "The Festival State" due to the number held each year. The Ohio Arts Council has numerous books, catalogues, brochures and pamphlets available to the public. The Ohio Festivals and Competitions Guide Book is free and valuable to traditional craftsmen since it lists festivals, requirements and contact points. The Directory of Appalachian Artists in Ohio costs \$5.00. The Traditional Arts Program Publications in Folklife is also free. To secure copies contact their Public Information Office, 727 E. Main St., Columbus, OH 43205-1796 - 614-2613/4541. To obtain the first publication listed, send a business-size envelope with 73¢ postage.

At their request, the University of Washington Department of Environmental Health visited the shop of Darryl Nelson and Terry Carson in Eatonville, WA. to measure noise levels. They measured an average of 91.8 dBA which exceeds the recommended allowable dose for a working day by 128%. Based on the standard of 72 dBA, they measured their tumbler (at tumbler) at 110 dBA, tumbler (in shop) at 90 dBA, riveting at work table at 125 dBA, riveting 15' from work table at 115 dBA, and air hammer (at hammer) at 105 dBA. They noted, "Exposures during setup and other periods was 70-80 dBA, so it is likely average exposures over the course of the day would be below 85 dBA if hearing protection were worn during the noisy periods." They recommended hearing protection be worn at all times when operating the tumbler, and both earplugs and earmuffs be worn when riveting. Remember that hearing loss is permanent and that ear protection (e.g., headsets) are readily available and relatively inexpensable. For a copy of the full letter from the newsletter of the Northwest Blacksmiths Ass'n, send me a 22¢ stamp.

In the same issue of the NWBA newsletter, an outline for a 2½ day Casting Workshop was included. Involves making a wax model of a belt buckle through cleaning up the casting and sand casting another small item. If sufficient members were interested, this might make another workshop for S.O.F.A. If interested, let the editor know. Each workshop participant would design and cast individual items.

BLACKSMITH SHOP FOR LEASE in Kyle, Texas. Fully equipped. Contact Davey Faye Jacks (208 S. Front, Kyle, TX 78640) or Paul Richardson, (P.O. Box 565, Kyle, TX 78640). Phone 512-268-0501. Located about 100 miles northeast of San Antonio.

WANTED: USED JACK HAMMER BITS for July 11th hardy tool workshop. Bring to regular meeting.

FOR SALE: Heavy-duty, castiron firepots. \$125. Contact Bob Zeller in Midway at 513-849-1771.

SHOP TIPS AND TECHNIQUES: The following were, for the most part, extracted from other group newsletters. They have been rephrased from the original write-up or illustrations for consistency of format with the original source cited. While all of these, here and elsewhere in the newsletter, are considered to be valid and safe, neither SOFA nor ABANA bear any responsibility for any adverse results from their use.

- One thing I've learned from a demonstration by Francis Whitaker of great help is about scrafig the lap weld. By tipping in the thick end of the scarf towards the receiving stock, the thin ends don't cool as fast and seams show less or not at all. The thin edges seem to melt right into the other side when the pieces are first placed together on the anvil. (By Dave Ashley from the newsletter of the California Blacksmith Ass'n).

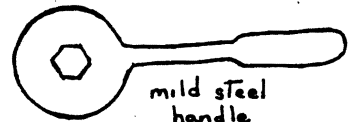
- Did you know that iron expands on the average of 0.00000662 of its length for each increase of 1°F in its temperature. Translated, a steel bar two feet long will grow almost one quarter of an inch in length at forging temperature. (By Stan Strickland from the ABANA President's Message).

- Peter Ross, the resident master blacksmith at Colonial Williamsburg, uses the nail headed illustration. The nail header is made more versatile by having interchangeable slugs for different size nails. He made the slugs from the collar area of a small jackhammer bit, annealed and drilled a hole the diameter of the nail shank desired, then heated the slug and drove in a tapered drift from the bottom. The top hole was dressed square with a file. The domed top helps when forming the nailhead. The handle is forged from mild steel. (By Ike Bay from the newsletter of the Northwest Blacksmiths' Ass'n). ((It would seem that short, fat rivets would be excellent for the slugs and that the top hole could be squared by using a tapered square punch. - ks)).

Nail header



slug



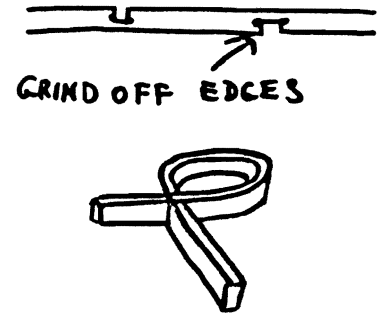
- I use one hammer for finishing and smoothing up my work. Recently I noticed some "unwanted decorations" all through my work. What I found were some hardy marks from cutting small stock. I cleaned up the face on a belt sander and a buffing wheel. It never hurts to look at the other side of a hammer once in a while. (By Larry Smith from The Blacksmith's Gazette).

- To upset the end of a bar, localize the heat in the end by quenching. Concentrate the force of your blows in the center of the bar by first drawing a blunt point on the end. When a long upset is needed, quench the end first and upset out towards the end. Upset by hammering the bar down on the anvil, on an anvil on the floor or a plate on the floor. Large bars can be upset by dropping the end on a floor anvil or plate. (From a demonstration by Oscar "Bud" Oggler as reported in the newsletter of the New England Blacksmith's Ass'n).

- HACKSAW BLADES: If you want to extend the life of your hacksaw blades, keep a chunk of beeswax handy to rub on the length of the blade - both sides - as you use the saw. This lubricates the blade to make it cut easier and last longer. (By M. Nelson from the newsletter of the Kentucky Blacksmith Ass'n).

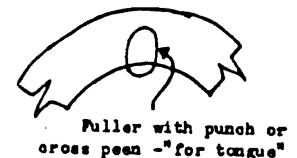
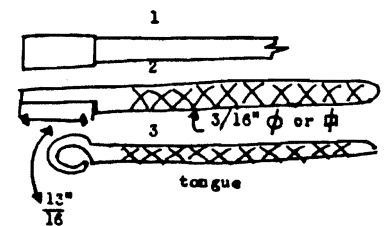
- Roger Lorrance reports that he has, quite by accident, come upon a new surface treatment material. It is that soft, black, gooey stuff known as roof cement. It seems his wire brush had fallen bristles down in an open can of this material. (From the newsletter of the Illinois Valley Blacksmith Ass'n).

- To make an overlapping curved piece, say for an upright in a railing, mark the joining sections of the oval or circle and from opposite sides start the cuts with an undersized fuller. Then grind off the sides where they have bulged out. Next heat the indentations and drive them together locking them. You might have to do the bend first with one heat to get the two indentations in line and then in the next heat get that part hot and put them together. (From a demonstration by Bob Bergman as reported in the newsletter of the Upper Mid-West Blacksmith Ass'n). ((It would seem easier to cut out the locks with a hacksaw and a chisel. - ks)).



- Small, hand-held punches can mean bruised fingers and thumbs if your hammer doesn't fly just right, especially when you are working in small places. Tongs can be used to grip such punches, if you make the tongs just for this job and square the body of the punch a bit so it doesn't twist in the tongs when you strike it. Or you can add a handle in one of two ways. One way is to make an iron handle with a thinned neck. This thinned neck is important to eliminate the stock of the hammer strike to your hands and wrist. This neck is arc-welded to the punch with Ni-rod. The way I prefer to do it is to slit the body of the punch and drift it out to admit the neck of the handle. You can then arc-weld it in place with Ni-rod. When the punch needs to be replaced, it is a simple matter. If it needs to be redressed in the fire, you needn't worry about damaging the handle, either in the fire or during removal and replacement of it. You can use a plain piece of rod, such as 5/8" square with the corners knocked down a bit, or you could make it pretty by twisting it or twisting a bundle of rods, if you wanted to get fancy. (By Carol Sakowski from the newsletter of the Upper Mid-West Blacksmith Ass'n). ((Jack Brubaker puts small wooden handles on his punches, chisels, etc. Using a metal handle would mean you wouldn't have to remove the handle to retemper or reshape. On the first method, the arc-weld is just at the bottom of the punch (which wasn't drilled). On the second, the arc-weld is just at the top of the punch. - ks)).

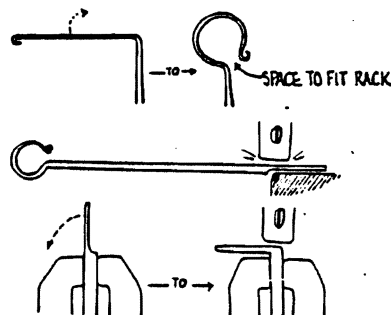
- Double-headed nails can be used for pot racks, herd racks, cup racks, etc. Grind off the excess head from the end and shape the other end as desired. Insert through a hold the diameter of the nail and peen over. A block with a hole the diameter of the nail should be used to keep the inside head intact. ... To make a horseshoe belt buckle without welding, start with a 0 or 00 ponyshoe. Separate the tips to the desired belt width size (usually about 2"). Near the tips drill a 1/8" - 1/4" hole in both sides. Form the same size rod into a flat "U" shape to where the legs fit into the drilled holes. Insert and peen over the legs. Make the tongue from 3/16" square or round, measuring and sectioning down as shown in the illustration. Where the end of the tongue will rest on the oval end of the shoe, fuller with a fuller punch or crosspeen to give the tongue tip a resting place as illustrated. (By Ron Smith from the newsletter of the Arizona Artist-Blacksmith Ass'n).



- FORMING A BASKET HANDLE: Start with six 5/16" round rods. Form into a bundle with a plug approximately 1/2" long in the center of each end (use up your scrap). Hold this bundle together with rubber bands. These will hold long enough to tack rods at both ends by arc welding. Now forge weld one bundle end. A finial, hook or whatever can be forged at the end during this first heating. Put the flux (20 Mule Team

Borax was used) back past the actual forge weld to keep scale from forming. Keep the bundle straight and tight as you work. Now forge weld the other end, this can later be welded to a poker shank for example. Take a heat and place one end in vice, twist one full turn. As you open the basket (reverse the twist), tap the end with a hammer. The basket opens faster and more evenly the harder you tap. (From a demo by Joe Staley from the newsletter of the Upper Mid-West Blacksmith's Ass'n). ((If you forge weld both ends this way, you will need tongs to handle the bundle and will have difficulty in holding the bundle to forge weld it to a shaft. As a suggestion, in the center of one end, leave a piece sticking out about 12" or so. This then gives you a handle to forge the other end and scarf it. Now forge weld it to the shaft again using the handle instead of tongs. Once on the shaft, you can cut off the handle and forge weld the other end. No tongs will be required! A hose clamp works nicely to hold the handle in the bundle. I have not tried to twist a hollow core bundle before but suspect the twisting/untwisting would be more uniform if you filled up the hollow space with 1" long pieces of rod, which I have seen described somewhere. The short pieces would fall out during the untwisting. You might want to leave a 1" gap between the first and second pieces at both ends so the second pieces doesn't become attached in the forge welding. - ks)).

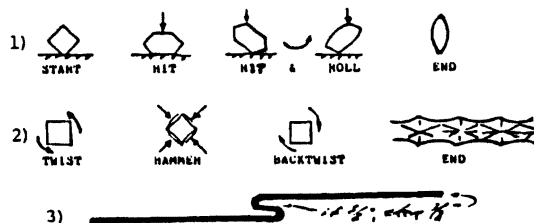
- FORGE POKER: Use 3/8" round or square stock, 30" long. Draw a tapered point on one end, and curl tip (round taper on round, square taper on square). In vice, bend 90° 6½" or 7" from curl. Bend over horn to form a ring about 2½" in diameter. Leave an opening large enough to hook this handle over your forge rack. Draw a short point on the other end. With the ring in the vertical plane, step and flatten 3½" or so using the near anvil edge. Allow the flattened part to get wider but keep the edges smooth and straight. Thin to about 1/8" thick. In vice bend flat part to 90° and hammer to a sharp bend. Hot twist to



decorate, holding ring in vice and turning flat part. To twist round stock forge section roughly square, then twist that section. Straighten twist using wood mallet on wood block. (By Nick Vincent from the newsletter of the Blacksmiths' Guild of the Potomac).

- Aluminum makes a good cutting plate for an anvil. A 3/8" thick aluminum plate dissipates heat rapidly enough to keep a yellow hot bar from melting it. It is tough enough to resist denting from a broad surface such as an iron bar but soft enough to allow the chisel edge to penetrate without damaging the edge. The raised edges of cut marks are easily hammered down so that the plate leaves no marks on hot metal. (By Brad Silverberg from the newsletter of the Blacksmith's Guild of the Potomac).

- An organic form can be forged from a square shape as illustrated. It is great for snake bodies. The second illustration is a thorn twist. First twist is conventional and has a 45° pitch. Hammer until the new flats touch one another. Backtwist slightly until 'thorns' line up along the axis. Just eyeball entire effect. The third illustration is the Whitaker twist bar, made from square stock the size of the largest bar to be hot twisted. The second bend can be any smaller size. (From the newsletter of the Mid-Atlantic Smiths).



- When drilling for an 1/8" rivet use a #30 drill rather than 1/8". Use a #12 bit for 3/16" rivets. At just .002" oversize, the fit is very snug, but assembly will go much easier. The rivets I use sometimes bind in fractional bit holes. ---- If you find your commercial flux falls off the work as you return it to the fire, mix it half and half with borax. (By Jonathan Herz from the New England Blacksmith's Newsletter).

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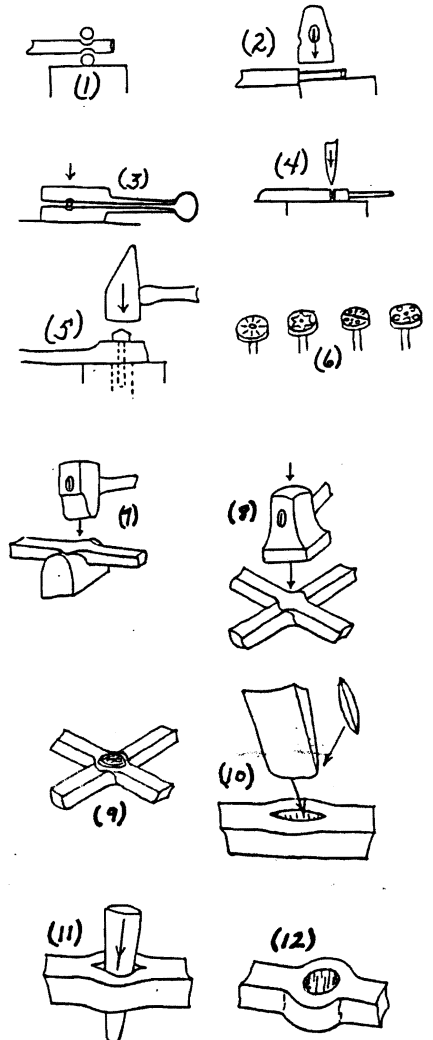
- AGING COPPER: To "age" copper green in a couple of hours, take 2 1/2 gallons of urine and boil it down to two cups. Add a cup of bleach and it will do the job. Of course, if you boil that down in the house you are liable for divorce or shooting by neighbors. (From a demonstration by Michael Dosemagen from the newsletter of the Upper Mid-West Blacksmiths Ass'n).

- TIPS ON WINDOW GRILLS (By Glen Gilmore from the newsletter of the North Carolina Chapter - ABANA):

-- Making a rivet: Use a top and bottom handheld or hardy fuller tool to neck down the rod (1). Use a hot set to square off the shoulder and tenon (2). Use a handheld or hardy tenon tool to round off the tenon (3). Cut off with hot cut so rivet can be snapped off in center (4). Use a rivet header to form head (5) and decorate as desired (6).

-- Forging two bars together at right angles on the same plane: Using square stock, fuller over a bottom fuller on both pieces. Use a crosspeen to widen and thin that area on both pieces since they will be rounded where they will join (7). Place one on top of the other at the fullered part and flatten with a flatter making sure the right angle is maintained (8). Drill a hole and rivet with a decorative rivet (9). If more than one of these is needed, make a sample piece so you can determine how much the bar will expand with the fullering and joining.

-- Slit punching a hole in either round or square stock (i.e., you want to pass a round or square bar through the same size stock): Use a slitting chisel which is 1 1/2 times the diameter of the hole. Drive the chisel 2/3rds of the way through from one side, flip over, carefully align chisel and complete cut from other side (10). Use a drift the size and shape of the finished hole from both sides as equally as possible (11). You should end up with a centered hole with one-half of the diameter stock on both sides of the hole. This is an excellent method to use for tongs made from small stock or any job requiring a hole without removal of material which would weaken the joint. ((When Francis Whitaker demonstrated this at one of the I.B.A. Conferences, he upset the chiseled area between steps 10 and 11 to facilitate punching. The upsetting opened the hole wider.))



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