SOFA SOUNDS

SOF&A SOUTHERN OHIO FORGE & ANVIL

FEBRUARY/MARCH 1985

c/o 1135-6 Spinning Road, Dayton, OH 45432-1641

UPCOMING EVENTS:

February 2nd:	BUSINESS MEETING followed by a short demonstration of low relief designs in a flat plate by Dick Franklin and work on the gate.
March 2nd:	BUSINESS MEETING followed by a short demonstration of making brass ladles (using a swage block) with iron handles by Keith Summers and work on the homestead gate.
April 6th:	BUSINESS MEETING followed by a short demonstration on knife making by Ron Thompson and work on the gate.

MEETING NOTES:

At the December 1st meeting, Hans Peot announced that the ABANA 1985 calandars had arrived. These really nice calandars are available at the meetings ($4.00) or by mail from Hans at 6245 S. Scarff Rd., New Carlisle, OH 45344 ($4.50). The proceeds from the sale of these calandars go to support the ABANA '86 Conference. Other business:

- Hans gave a presentation on the Air Force's B-1 Bomber, its impact on the Ohio economy, and some production techniques. At one point the group appeared to be surprised to find that a significant amount of the titanium used in the B-1 comes from the Soviet Union. Hans said he could give a future presentation on how dependent the U.S. in on other countries, some not particularly friendly to the U.S., for strategic metals so, if you are interested, let him know.

- Bob Zeller demonstrated making a tomahawk. He started with a piece of mild steel 1/4" x 1 1/4" x 9 1/2" which had been beveled on the ends (in the opposite direction, i.e., ) with the bevel length about twice the thickness of the material. When heated in the center, it was bent over to form a cotter key shape with the bevels facing each other. Bob then partially drifted out the handle eye using a tear drop shaped drift, brought the two sides almost together again and prepared the area between the eye and about the last 1 1/2" to 2" of the

blade for forge welding. For flux Bob uses borax with a little salammoniac (ammonium chloride) added. He takes this mixture, bakes it into a cake and then powders it. Following forge welding of this area the handle eye is again partially drifted and the blade end opened up on a hardie to the welded area and the blade forge welded together to about 1" back from the end. The blade was again opened up on the hardie to allow the insertion of a piece of a rasp (or file) the same length as the blade end at this point. This wedge was then forge welded into the blade end to form the cutting edge and the blade drawn out to the proper proportions with the bottom edge of the blade (about the last 2" to 3") fishtailed to form the traditional tomahawk shape. The final drifting of the handle eye was then done with a beveling to the top of the blade. Bob then tempered the blade edge (to a bronze I believe) and quenched the entire head in oil. By the way, tomahawk handles are available from SOFA member Joe Abele. These are straight grain hickory, two sizes for large or small eyes, at $2.75 each or five or more at $2.50 each. Call 276-2977 anytime. Leave a message and he will return the call.

- The raffle of the two hardies donated by Emmert Studebaker drew a good response with the hardies being won by Joe Abele and Fred Tanis. I had the daughter of one of my tenants (a guest at the meeting) draw the first winning ticket and, to my embarrassment, drew my ticket - so I redonated the hardie to the raffle. Actually, she wasn't suppose to draw the ticket I taped to the side of the can until the second hardie was up for grabs. I was particularly pleased with the response to this raffle since the proceeds go to offset the cost of this newsletter. Our goal is to raffle off at least two items each meeting.

- Larry Wood distributed flyers which announced that he was holding workshops as follows: "The Design, Layout and Construction of Window Grills" - Jan 12, 19 & 27 - $75, "Door Hardware Design and Construction" - Feb 17 & 23, $40 and "Damascus Workshop" - Mar 9 & 16 - $35. Attendance is limited so contact Larry at 233-6751 ASAP if you are interested in one of the remaining workshops (or are interested but cannot make the scheduled times).

- During the meeting Emmert Studebaker suggested something which I think is a great idea - a blacksmithing workshop for the kids of local members conducted by other kids of local members. For example, I know that Bob Zeller's grandsons are good at the anvil as well as Paul Kuenle's son. This could be in conjunction with a regular meeting, a separate meeting or, perhaps, a children's program at the 1985 Quad-State Round-up. Let's see what we can work out.

At the January 5th meeting, Larry Wood showed the more or less final design for the gate the group is doing for the Studebaker Homestead as a group project. It should be spectacular when finished. The gate will be done in stages over the next several months in time for the next Studebaker family gathering in mid-summer. Other business:

- It was announced that Ron Thompson will be the Chairman of the 1985 Quad-State Round-up tentatively scheduled for September 21-22. Ron will be working with other selected members to arrange the demonstrators so if you would like to see a particular demonstrator, or would like to see specific procedures demonstrated or items made, let Ron know as soon as possible at Sidney phone # 492-2259. We also expect to have several local members do half-day demonstrations. Ron will be looking for a number of subcommittee chairmen to handle various aspects of the Round-up, so volunteer early if you are interested in a particular area.

- Following the business meeting Larry made a pot lifter for a fireplace and demonstrated how rifle barrels used to be made by starting with a length of 2 1/4" x 1/2" stock, bending it to a "U" shape using a striker and a swage block, completing the circle and then forge welding the ends of the material together to form a pipe. For a rifle, this blank would have been bored out to the size caliber desired.

- Winners of the raffle were Mel Mote (the tomahawk made at the December meeting) and Ed Hulihan (a pair of tongs made by Hans Peot). If you would like to donate items to this raffle, please bring them to a meeting or call Ken Scharabok at 252-3001 most evenings and weekends to arrange pickup.

FINISHES - PART II:

10. FLAT BLACK PAINT #2 - Sand paper to make highlights, put on and wipe off flat black paint, let dry, then wax.

11. EXTERIOR - Use paint but first put on two coats of primer (or three in Calif.), each a different color to avoid missing any spots.

12. BOILED LINSEED OIL - Put oil in a metal container and keep inserting a red hot piece of metal until the flamable solutions in the oil burn off. Apply to warm piece liberally and then wipe off excess.

13. DANISH OIL - Rub a coat of Danish oil on your work and wipe off most of it, leaving on a thin coat. For best results, let it dry 24 hours and repeat.

14. RAW LINSEED OIL - A metal finish which looks very nice on iron is raw linseed oil applied to the metal at 700° to 800°F. Several applications of linseed oil may be applied by wiping on with a rag. CAUTION: Linseed oil is very susceptible to spontaneous combustion. Rags which have been used to apply the linseed oil should be properly disposed of or stored in metal airtight containers. (By Francis Whitaker). (I saw another reference to this finish with the only difference being the recommended temperature was 600°F).

15. BEESWAX AND TURPENTINE - Take an old tin can and melt some beeswax in it, then pour in some turpentine and mix it up, about two parts wax to one part turpentine. BE CAREFUL pouring turpentine into can, so it won't explode. When the mixture hardens, you have a good paste. What the blacksmith I learned it from did was to rub the paste on the piece with his fingers, using an old tooth brush for the hard-to-get spots. He then would rub the whole piece in very find Humboldt County dusty dirt. Then he'd take an old nylon stocking and rub the piece down, it would look like it was 300 years old. I've seen some of the pieces, 10 years old, they still look fresh, like he'd just finished them. (By Barry Berman).

16. RUST FINISH - The following is a rust finish for decorative iron work. Iron tends to return to its natural state, iron oxide, if it isn't protected. If left alone to do so on its own it isn't always too attractive. I prefer to control the rusting and speed it up. I do it with a solution of copper sulphate. Brush it, hit or miss, on oil-free steel. Allow to set overnight, preferably outside. Rinse off next morning. After the work is dry, warm and apply Johnsons paste wax or polyurethane. (By Carl Jennings).

17. BOILED LINSEED OIL AND POLYURETHANE - (1) Clean metal with electric-powered wire brush or sandblast. (2) Warm, using rosebud tip torch to a heat which is comfortable to touch, but uncomfortable to hold for extended periods. This evaporates the moisture on the metal surface and down in the pores and aids the finish in flowing across the surface allowing excellent penetration. (3) Apply finish directly onto the metal while the metal is still warm. (4) Wipe off excess with rags, and (5) Finish may be later repeated cold to cold iron to build up coats. Avoid heating metal too hot with rosebud, it will (a) cause temper colors to appear and (b) burn finish materials, changing chemistry. FINISH MIXTURE: Approximately 1/2 boiled linseed oil and 1/2 marine-type polyurethane. You can supplement this mixture with Johnson's paste wax, beeswax, plain paraffin, clear shoe polish, etc. Be generous in applying the finish, excess is easy to wipe off. Be sure to get down into all the cracks and crevices. Try different mixtures,

experiment and maintain records of what works best for you in various conditions. Yo have to go back over your work from time to time with this finish. It's easy and quick It's an easy recipe for your customers to learn and maintain their own iron. With age and the building of layers of the finish, the metal takes on a beautiful antique patina. (By Robert Owings).

(SOURCES: #10 and #11 - the newsletter of the Northeastern Blacksmiths Ass'n, #12 - from my demonstration notes - demonstrator unknown, #13 and #14 - from the newsletter of the Arizona Artist-Blacksmith Ass'n, #15 - #17 - from the newsletter of the Upper Midwest Blacksmiths Ass'n.)

DAMASCUS STEEL vs DAMASCUS PATTERN STEEL:

When the Crusaders invaded the Holy Land, they encountered Arabian swords reputed to be so sharp that a hair dropped on the cutting edge would instantly fall into two pieces and the swords would hold this edge in use. Cakes of the metal used to manufacture the blades, reportedly from India, were brought back to Europe but the European swordmakers were unable to duplicate this quality sword blade. The manufacturing process used by the Arabs was apparently forgotten as swords were replaced in battle with more efficient weapons.

However, a team of metallurgists from Sanford University has recreated the process, developing techniques which could produce significant reductions in the cost of manufacturing steel products. The researchers wanted to explore the secrets of a remarkable property called "superplasticity", then found in only a few alloys. Superplastic metal, when heated to what metallurgists consider a "warm" temperature (for steel, the point at which it glows red-hot), begins to behave something like chewing gum; it can be stretched or shaped without cracking or breaking. This allows it to be press molded to make parts which now must be machined out of a single block of material, such as gears. If a process could be found to make regular steel superplastic, the cost of manufacturing parts could possibly be reduced by 60%.

The researchers decided to explore ultra-high-carbon steels, working with metals which contained more than one percent carbon. Below that concentration, the metal remained too course-grained, and thus very brittle. Working with a carbon content of about 1.5 percent, they found they could control this brittleness by controlling the temperature at which the metal is forged. They discovered that the basic difficulty the European swordmakers encountered was the result of trying to work the ultra-high-carbon cakes when the steel was white-hot on the forge. If a block of this metal is brought to that temperature, the iron next to the cementite network (a lacy network of a carbon-iron compound) starts to liquify. If it is hit with a hammer at this point, it will shatter. The swordmakers were unable to work the metal in their forges using their customary procedures and, since it's too brittle to work at room temperature, they gave up.

The researchers found that the ultra-high-carbon steel could be worked if rolled out continuously, cooled from 2,050°F (very light yellow) to about 1,200°F (blood red), then held as close as possible to this temperature while being worked. For the European swordmakers this meant they would of had to heat the cakes to 2,050°F, allow them to cool to 1,200°F, then forge out the blade with frequent reheating to hold the metal near 1,200°F. The lacework-type pattern which appeared on the Damasus blades resulted from a course, hammer produced, distribution of cementite on the surface. Factory (machine) produced superplastic steel does not have this surface pattern.

The current Damascus pattern steel results from forge welding together alternating layers of high-carbon and mild steel (or wrought iron), leaving a surface pattern dependent upon the number of layers produced and the forging technique used. However, the only similarity between Damascus steel and Damascus pattern steel appears to be

(Continued on Page 6)

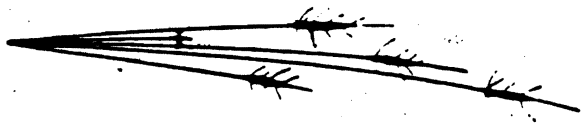
SPARK TEST

For the Beginning Blacksmith.

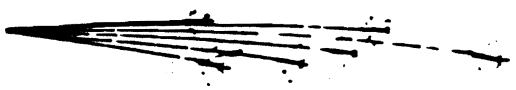
Holding a piece of mystery metal against a grinding wheel and observing the pattern of sparks can help you to determine the composition of the metal.

WROUGHT IRON
Long yellow streaks broadening to a leaf some distance from the grinding wheel.

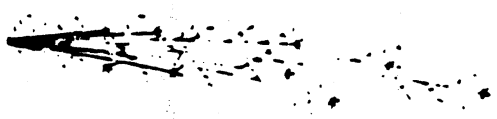
MILD STEEL
The leaf is smaller and gives rise to a number of sparks. Some streaks are shorter.



MEDIUM CARBON STEEL
Very small leaf-larger sparks near the grinding wheel.

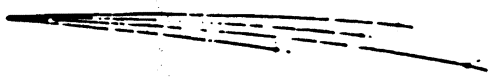


HIGH CARBON STEEL
Streaks less bright. Profusion of sparksstarting very close to the grinding wheel. Complete absence of leaf.

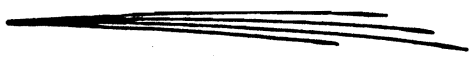


MANGANESE STEEL
The streaks fork before forming sparks.

HIGH-SPEED STEEL
Faint red streaks terminating in a fork.

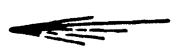


STAINLESS STEEL
Bright yellow streaks terminatingin pointed ends.



CAST IRON
Faint red streaks terminating in complex bushy sparks yellow in color.

MONEL METAL
Faint red streaks quickly tailing off.



(Thanks to the Guild of Metalsmiths)

(Courtesy of Appalachian Area Chapter-ABANA
Reprinted from CoSIRA, METALS FOR ENGINEERING CRAFTSMEN

in the name as Damascus steel would be one layer of ultra-high-carbon steel with a surface pattern resulting from the cementite structure.

Keep this manufacturing process in mind when you are working with high-carbon steels.

(The bulk of this information was extracted from the article "Rediscovered: Supersteel of the Ancients" by James Trefil in the February 1983 issue of Science Digest magazine. The article predicted that superplastic steel will come into everyday use and noted that prototypes of the Air Force's B-1 bomber made extensive use of superplastic forgings in the airframe and engines. It went on to note that one of the first applications for the consumer may be in gourmet knives, which would seem to be a possible profitable application for blacksmiths with access to this ultra-high-carbon steel.)

TIPS ON RESURFACING AN ANVIL: (From the newsletter of the Northeastern Blacksmiths Ass'n)

1. Anvil faces are made from several different steels. An electrode which works well on one anvil may not stick to another. Don't use regular-type hard facing rods - they will spiderweb crack. A list of electrodes said to be good for anvil facing: Eureka 8510 and 75X, McKay Tool Alloy W, Chemtron Tool-arc WH, Eutectic Tool-tectic 6WH and Airco Nicro-Mang (work hardening). Note that there is often a 50 lb minimum order on these rods. (By Frank Turley).

2. To test electrodes for proper adhesion before refacing an anvil run a short bead along the edge of the anvil with the electrode being tested. When cool, try to remove it with hammer and cold chisel. A filler metal which will not pop off under this test is compatible with the steel on the anvil and will probably give good results in refacing. (Source not identified).

3. You can use Airco "Micromag" 5/32" rod, 165AC or 140A.DCRP for refacing an anvil. This metal is soft as deposited and hardens when cold forged. It can be applied without preheating the anvil. Apply 3" or so of bead and hammer until it gets hard, then apply more, etc. Begin by building up the edge of the anvil face from the side, then work on the face. To ease restriking, peel back the coating a little from the end of the rod. Finally, grind flat. (Source not identified).

4. To reharden an anvil, build a tuyere in the ground with adobe and build a wood fire. Heat anvil to hardening temperature and quench in a large tank of water. Water from a hose is not enough to quench an anvil. The anvil is "self-tempered" by the mass effect. Other references: The Anvil's Ring Dec 80 (p. 35), Jun 79 (p. 43) and Dec 78 (p. 8 and 11). (By Frank Turley).

5. Use a straight carbon tool steel electrode and apply just a little at a time without preheating the anvil. It is self-quenching this way. You should be able to hold your hand on it after chipping off the slag. No further heat treatment is used - just shape it with an angle grinder. It may take a week to do an anvil this way. (By Beau Hickory).

(The first issue of the newsletter of the Upper Midwest Blacksmiths Ass'n in our newsletter exchange folder contains a lengthy article (with photos) on putting a replacement plate on two anvils, one by welding and the other by forge welding the plate on. If you would like to read this article, call me before the SOFA meeting so I will remember to bring the folder along with me.)

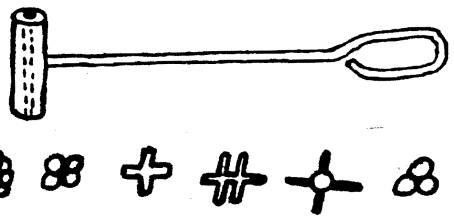
THIS AND THAT:

The following letter was received from Mr. Stan Strickland (President of ABANA), "The Anvil's Ring is in need of information to print. We need your Tips and Techniques

to make The Anvil's Ring the publication that you members want. PLEASE advise your membership that The Anvil's Ring is composed of the items which they send in, so if they want it to be better, they can do it by sending in their material. They may send in anything which will help the blacksmith improve his trade or make his work easier. This information should be sent to: Mr. Pete Minier, Editor, The Anvil's Ring, Ga. Univ. Sta., Box 2534, Athens, GA 30612-0534. Every member has some tip which would help someone else, so let's get this information out to everyone". OK you folks who have been commenting that The Anvil's Ring is oriented too much towards the full-time, highly experienced blacksmith; now is your opportunity to send in items which you think should appear in our national publication. Mr. Studebaker has told us that The Anvil's Ring wants to move in this direction, so help it along.

I still have a few copies of the fifteen pages of notes from a 1982 workshop conducted by Francis Whitaker. I will provide members a copy for $2.00 to cover the cost of reproduction and mailing.

SHOP TIPS: (Where a shop tip from one newsletter has been repeated in another newsletter [and I picked it up from there], the original newsletter is cited as the source. In most cases, these shop tips have been paraphrased from the original write-up or illustrations for consistency of format).



To alter commercial-made rivets and give them that extra something, I use what I call a wand shown at the right. The rivet is inserted in it and heated in the forge, then struck over a pattern plate. Patterns can be made on a piece of scrap steel in any number of ways. At the right are some ideas. In setting your rivet so as to not deface it, wood makes a fine back up surface. (By Brett Wilds in the newsletter of the Northeastern Blacksmiths Ass'n). (It appears that monkey tools (for putting a square shoulder on tenons) would serve the same purpose as his wand if the rivet was heated separately and then put into the monkey tool. By the way, does anyone know where the name "monkey tool" came from? - ks).

Ball peen hammer heads, often found with broken handle stubs in the bottom of those interesting boxes at flea markets and auctions, can be useful tools even if you have all the good ball peen hammers you need for hammering. Pre-equipped with an eye, the ball peen hammer head can be reformed rather than chisel stock anytime a short hot set tool is needed. For example, a dapping (bottom part of a rivet setting tool I think - ks) set might be made by sinking depressions in a mild steel block with various sizes of ball peens. Well rounded ball peens would be needed for this. The hammer head found most often at bargain prices has a chipped face and flattened ball. This kind may be formed into tools for setting plain or decorative rivet heads, flower centers, or depressed designs of many types. (From the newsletter of the Guild of Metalsmiths).

To make a braided handle for a fire tool, etc. start with two pieces of 1/4" round stock 30" long. Clamp a 1" diameter bar in a vice. With a torch heat the center area of one rod and bend it 180° around the bar. Then place the second rod on the first rod, reheat the center area of the first rod and bend it 180° over the second rod (which is still straight). Now heat the center area of the second rod and continue brading process until you have seven braids (which feels right for a good handle). Straighten in vise as required. Terminate braids by bringing four rod ends to center and cut two of the rods short for scarfing. Then weld to a handle. (By Bob Hale in the newsletter of the Appalachian Area Chapter - ABANA).

If you have to break a hole in four inches of concrete to pour a thicker foundation for a power hammer, don't bother hitting it with a sledge hammer. All you'll get that way is a little exercise. First, score a rectangle at least 1/2" deep by using a masonry blade in a skill saw. This will keep a crack from spreading across the floor. Then, drill several holes about 4" apart in one area using a carbide-tipped masonry drill bit in your electric drill. When you have a few holes through, hack away with the sledge and star drill to chip away between the holes. Once you get through to the sand under the slab, scoop it out from under the rest of the retangular area and then the slab will break out easily to your scored marks. (By Ed Schutz in the Jul/Aug 83 Blacksmith's Gazette).

To make a handy tenon/tenon hole measuring tool start with a 6" length of square stock. On one end forge a tenon as close to the desired size as possible (e.g., 3/8" diameter). Near the other end punch the same size tenon hole, then drill it to true the diameter of the tenon hole. When using this size tenon, you can use this tool as a reference tool to test for the proper size of either the tenon or tenon hole. Make one of these for each size tenon you use and mark them for ready identification by using a set punch to form the numbers. Remember that the rule of thumb for the minimum length of a tenon is that it should stick out of the stock being secured 1 1/2 times the diameter of the tenon (e.g., 9/16" for a 3/8" diameter tenon). You can lengthen the tenon if you intend to make a larger button for decoration purposes.

To make a spring fuller for your hardy hole start with square stock the size of your hardie hole. About 3" up from one end punch a hole the size of the fuller you want (e.g., 1/2" rod). Then punch a second hole about 3" up from the first hole and cut off the stock about ¾" above this hole. Drill both holes one size larger. Form the rod to act as the fuller in a "U" shape with one leg about 6" longer. Force this through the two holes (longer leg on top) and then bring the top one down to form a spring. You may have to tack weld the length of rod on the back of the square stock to secure the rod in it.

To test for high carbon steel at a junkyard, take along a piece of mild steel. Strike a corner of the piece you are interested in with a corner of the mild steel. If it is high carbon steel, only the mild steel will show a nick. (From Hans Peot). To test for cold rolled steel versus hot rolled steel, expose a piece of the suspect steel and a known piece of hot rolled steel to the weather. Hot rolled steel will rust much quicker than cold rolled. (From Tom Creech).

Welding a shank on a hardie tool would be a definite time saver in that you could use square, mild steel stock for the shank the size of your hardie hole and thus would not have to forge it down with the resulting difficulty of trying to get the bottom of the hardie flush with the anvil surface. It would also give a nice handle to forge out the hardie itself. There are at least two ways to accomplish this. The first is to take the shank and grind a neck on the end to be welded to the hardie tool to allow some weld to remain after grinding. The method used by Hans Poet on the two hardies raffled off at the December 1st meeting was to clamp the hardie tool and the shank on a piece of "C" shaped angle iron such that they were about 3/16" to 1/4" apart with the shank centered by washers. He then welded the shank on with most of the area of separation filling in with welding rod material. In this manner, even grinding flush with the shank would still leave a substantial amount of welding material between the hardie tool and the shank. Hans' welding method appears to be far superior to the first. If you are going to forge out the hardie tool after the shank is attached, the time to get it flush with the anvil surface is before you do the forging. Just heat up this area and strike the top of the hardie stock to flatten out the area where the shank joins the hardie bottom.

The uneven working of a file is usually due to the fact that filings clog the teeth of the file. To preclude this, wire brush the files before use, and then coat them

with olive oil. A file prepared in this manner lasts for a longer time, does not become so quickly filled with filings, and can be conveniently cleaned with brushing. (From Henley's Formulas for Home and Workshop (which says it contains 10,000 scientific formulas, trade secrets, food and chemical recipes, and money saving ideas). It is usually available from Publishers Central Bureau (1 Champion Ave., Avenel, NJ 07001). It was initially published in 1907 and revised in 1927.)

Screws will sometimes rust in their seats, even when carefully oiled before securing. But, if they are first coated with a mixture of graphite and soft tallow, they will remain unrusted and readily removeable for years. In addition, a screw rusted in may also be removed by placing the end of a red-hot rod of iron on it. When the screw is heated, it will be found to turn quite easily. The removal of broken spiral drills and taps is an operation which even the most skillful machinist has to perform at times. A practical process for removing such broken steel pieces consists of preparing in a suitable kettle (not iron) a solution of one part, by weight, of commercial alum in four to five parts, by weight, of water and boiling the object in this solution until the piece which is stuck works itself out. Care must be taken to place the piece in such a position that the evolving gas bubbles may rise and not adhere to the steel to protect it from the action of the alum solution. (From the newsletter of the Indiana Blacksmith's Ass'n - originally from Henley's Formulas...).

Steel screws can be "burned out" of cast iron parts with a cutting torch (cast iron is more resistant to burning than steel). (From the newsletter of the Northeastern Blacksmiths Ass'n).

For the beginning blacksmith: As a learning exercise, I punched a 3/8" hole in a 1/2" bar and then drifted it out to 1/2" using a drift made out of standard 1/2" stock. When I tried to insert a piece of the same stock, it wouldn't fit. Hummmm? Next I reheated the bar and swiveled the drift around in it to expand the hole. The 1/2" stock still wouldn't fit. Hummmmm???? After a couple of beers, I concluded that several things were at work here. The first is that the drift is driven through so the fit would be tight at best. Swiveling expanded the outer areas of the hole but not the center area (it made the hole take a slightly hourglass shape). Next is that the hole is drifted when the stock is hot (and the metal expanded from the heat). Thus, it strinks slightly when cool - making the 1/2" drifted hole perhaps 15/32". What to do? Two approaches: The traditional way would seem to be to use 5/8" stock to make a drift 17/32" to 9/16" in diameter to allow for shrinkage. The more modern way would be to simply drill out (and subsequently true up) the hole using an electric drill with a 1/2" bit.

When you cut off stock on the hardie, take an extra minute to dress up the end of the stock being returned to the stack. That way, you won't have to reheat this end to dress it up the next time you use this stock. Don't quench unless you will need to handle this end since it hardens the stock and could ruin a hacksaw blade in the future. Small, throw away pieces can be quenched and discarded. (From Nol Putnam at the ABANA '84 Conference).

CLASSIFIED ADS: (Classified ads are free to SOFA members [and other ABANA Chapters selling promotional material]. Others are charged 10¢ per word per issue.)

WANTED: Portable forge suitable for demonstration purposes. Ken Scharabok, 252-3001 evenings/weekings.

FOR SALE: Trent 255 lb anvil. $260. Terry Garman, 473-5224.

FOR SALE: Swage blocks with five spoon depressions - 90 lb. Portable cone mandrels - 50 lb. Shovel molds. Ron Thompson, Sidney, 492-2259.

(Emmert Studebaker has blacksmith grade coal usually from $6 to $7 per hundred pounds. He will also let you go through the scrap bins behind the factory at 6¢ per pound).

SOURCES:

- Brushes suitable for fireplace sets are available from Fehler Brush Co. (201 Bender, Milw., WI 53209). Fireplace screen by the roll or piece is available fr... the Hub Wire Cloth Co. (68 Vine St., Everett, WA 91249). Cost is about $1 a square foot.

- Brass and copper rivets by the pound are available from Cobb and Drew, Inc. (Plymouth, MA 02360). $25 minimum order.

- The Indiana Blacksmith's Ass'n (in additional to holding a terrific conference each year) puts out The Silent Swedge newsletter which is directed towards the beginning or intermediate level blacksmith). Membership in IBA is $10 year. Apply to P.O. Box 40294, Indianapolis, IN 46240-4029.

- Mankel Blacksmith Shop (7836 Cannonsburg Rd., Cannonsburg, MI 49317) and Centaur Force (117 N. Spring St., Burlington, WI 53105) cater mostly to ferriers but carry some blacksmith equipment and tools. Centaur also carries a number of books.

- Reconditioned single phase motors in 1/4 to 10 Hp at $40 to $55 per Hp are available from Howard Christenson, Power Engineer. Call (317) 251-0432 (Central IN) before 8PM.

- Power hammer dies milled to your specifications are available from Fred Caylor, 3602 S. 800 E., Zionsville, IN 46077. For pricing, send sketch with dimensions. Fred also reconditions power hammers.

- Attention owners of Little Giant power hammers. The company which bought out the Little Giant Co., due to the lack of demand for new power hammers, discontinued production. However, they still have an inventory of parts (which will probably not be replaced). Thus, if you own a Little Giant, I would recommend determining what spare parts you are likely to need in the future and to obtain them from the Dotson Co. (P.O. Box 1270, Mankato, MN 56001) while they are still available.

- If you have a Champion power hammer, forge or blower and needs parts, their address is Champion Forge and Blower Co., P.O. Box 4098, Lancaster, PA 17604. I believe that this company was bought out by the Channellock Co.

- Brookstone's "Weathertamers: For the Energy Conscious" catalog includes a fiberglass fire mitt capable of withstanding 900°F. Might work as a blacksmith's glove in handling hot metal. $16.95 pair plus S&H. Address: 850 Vose Farm Road, Peterborough, NH 03458. Catalog on request.

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