

# SOFA SOUNDS



**SOFA**  
SOUTHERN OHIO FORGE & ANVIL

OCTOBER/NOVEMBER 1988

Artist-Blacksmiths Association of North America

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NEWSLETTER EDITOR:

Ken Scharabok (513-429-3967)

MARK YOUR CALENDARS: Unless otherwise noted, all meetings will be held at the Studebaker Frontier Homestead on Rt. 202 about 4 miles north of I-70 near Tipp City. Please don't park on the grass or block access to the production buildings. Donations of items for the newsletter support raffle are always welcome. Please bring your work or tooling to display. The public and guests are welcome. Finger food and cold drinks to be provided on a break-even donation plate basis.

September 24th - 25	1988 QUAD-STATE BLACKSMITHING ROUND-UP. Volunteers needed for Friday AM set-up, Saturday and Sunday AM manning of a SOFA merchandise sales table and Sunday PM/Monday AM clean-up. Volunteers receive a partial rebate on conference fees.
October	No meeting this month.
November 5th, 1 PM	BUSINESS MEETING followed by a demonstration by Ken Scharabok on making a horsehead fireplace poker.
December 3rd, 1 PM	BUSINESS MEETING followed by a demonstration by Duane Wegley. What would you like to see demonstrated?

MEETING NOTES:

There was a short business meeting prior to the August 6th demonstration. Hans Peot reminded members of several event occurring during August and September which were looking for blacksmithing demonstrators.

The newsletter support raffle brought in \$64.00. I hope you folks notice a fairly direct correlation between the size of the raffle proceeds and the size of the newsletter. Dave Clouse won a small wrench and later masking tape donated by Ham Hammond; Ed Fleckenstein and Hans Peot won gas forge welding flux donated by Bruce Hubbard; Ken Scharabok won a flatter donated by Scott Murray; Scott Murray won a bundle of spring steel donated by Dave Clouse; Ron Van Vickle won a poster, Brian Thompson won a table donated by Ed Fleckenstein; Doug Fink won a hot donated by Centaur Forge; Art Wolfe and Ray Armstrong won layout fluid donated by John Baker; Steve Roth won gasket leather donated by Ray Montgomery; Bill Heileman won a small brass hammer donated by Brian Thompson; Steve Roth won masking tape donated

Chapter of ABANA

by Ham Hammond, John Baker won about a dozen RR spikes donated by Al Grillot; Ham Hammond won a container of rivets donated by Bill Heileman; Art Holz won a soldering iron donated by Scott Murray; and Dave Kentner won jackhammer bit pieces donated by Ray Montgomery. Thanks goes to all who donated items or bought tickets.

Following the business meeting, Hans Peot gave a presentation on making Damascus-pattern knives. Tips and techniques were:

- When welding on mild steel and carbon steel billets, use mild steel welding rods. Alloy rods (e.g., nickle rods) can infuse unwanted material in your design.

- When assembling initial billet, grind or polish the inside surfaces to make a good welding surface. Imperfections here (e.g., nicks or scratches) will show up in your final design and the polished surfaces will aid in the welding process.

- Prior to the first forge weld, heat up the anvil top and powerhammer dies to avoid cooling off the bottom piece before it can be properly welded.

- Don't try to weld the entire billet at once, start at the handle end and take two or three heats to weld about two inches at a time. Remember you are trying to weld multiple surfaces at the same time. After the last weld, flux, heat to welding temperature, turn over, and reweld entire billet as insurance.

- A good flux for billets is "20-Mule Team" borax straight out of the box. When using borax, keep the blower on (at least on low speed) all the time to avoid a big glob of melted borax over the shaker ball.

- To help find the middle of the billet for cutting, put chalk lines 1" apart on the side of the anvil as a guide. (From a previous newsletter, to avoid stressing the handle/billet joint, put the cut billet in the vise and knock the top half around as far as possible first - ed.)

- The outside layers of the billet should always be mild steel for forge welding purposes.

- Determining welding temperature by color takes practice. Remember carbon steel will burn before mild steel and good quality wrought-iron won't show burning sparks at all.

- Before fluxing brush vigorously with a butcher block brush. It does a better job at scale removal than a regular wire brush. They are available at wholesalers who supply butcher shops or from Centaur Forge.

- For safety sake, wear cotton clothing, gloves with high wrist guards (e.g., welding gloves), high top workshoes and safety glasses.

- For a stronger edge, forge it thin rather than grinding off excess material.

- If you are using a disk sander, 9" sanding paper is far cheaper than 12".

- A variety of designs can be introduced into the pattern by making different powerhammer fullers.

- Hans used a torch to heat the blade for tempering (with the tang held in a pair of vise-grips) as this gives him better control of the pre-quench heat on the cutting edge, spine and tang.

- Used automotive transmission fluid makes a good tempering bath. It should be between 100°F and 120°F. Transmission fluid has a low flash point.

- Hans hand sands his final blades after hardening starting with 180 grit paper and progressing to 600 grit paper.

- Different acids etch at different speeds. For example, Ferric Chloride (available at Radio Shack and similar places) is a slow etcher (about 1/2 hour) while Nitric Acid is a fast etcher (a few seconds). Ferric Chloride acid should be warned in hot water before using.

- An acid dipping/storage tank can be made from PVC pipe using end caps and twist-in plugs. Make a stand to hold the container upright.

- Source of mail-order knife supplies: Knife and Gun Finishing Supplies, P.O. Box 1352, Arlington, TX 76013 - catalog \$3.00 and Sheffields Knife Makers Supply, P.O. Box 141, Deland, FL 32721-0141 - catalog \$3.00.

Hans noted that Indian Sambar Stag horn is going to become very expensive. According to Blade Magazine the Indian Government is going to stop exporting the horn material because the natives have become too destructive in collecting it. The horns fall off in late fall and to find them the natives have been burning off the area which is very destructive to wildlife.

Larry Wood recommends the following reference material on Damascus-pattern processing: The Complete Bladesmith by Jim Hrisoulas (Paladin Press); A History of Metallography by Ceril Smith; Decorative and Sculptural Ironwork by Dona Z. Meilach and Damaszenerstahl by Hermann-Josef Hoper plus 3-4 articles in past issues of The Anvil's Ring.

\* \* \* \* \*

I didn't attend the September 10th meeting as I was coming off of a two-week brownwater raft trip down the Colorado River in Arizona. I understand attendance was below normal but Emmert still put on an interesting demonstration. For those who haven't already heard, Emmert is scheduled to go in for a hip-joint replacement operation shortly after Quad-State.

#### UNDERSTANDING AND SHARPING THE TWIST DRILL: (By Bud Rolston)

There is evidence the Egyptians used drilling dating back as early as 4,000 BC. Twist drills, as we know them today, are the most common and widely used metal cutting tools. Little did Stephen A Morse realize the twist drill he patented in 1863 was going to become as successful as it is today. It is believed that 80% of the metal chips made in the world today are traceable to drilling.

A drill begins to wear as soon as it is placed into operation. The maximum drill wear occurs at the corners of the drill cutting lip. The web, or chisel point edge, begins to deform under the heat generated during drilling. The increase in wear at the corners travels back along the lands resulting in a loss of size and tool life.

Wear occurs at an accelerated rate. When a drill becomes dull it generates more heat and wears faster. In otherwords, there is more wear on the twentieth hole than on the tenth, still more on the thirtieth, and this continues. As wear progresses the torque and thrust required increases. In addition to the accelerated wear, drill breakage due to excessive torque is one of the most common drill failures. In comparison, running a drill beyond its practical cutting life is like driving an automobile with a flat tire--both drill and tire are headed for total destruction. Consequently, sharpening a drill more often will increase its efficiency and life.

Geometrically, the twist drill is one of the most complex metal cutting tools in general use today. They are designed so the thickness of the web gradually increases from the point down. This provides added strength and rigidity. The web at the point does no

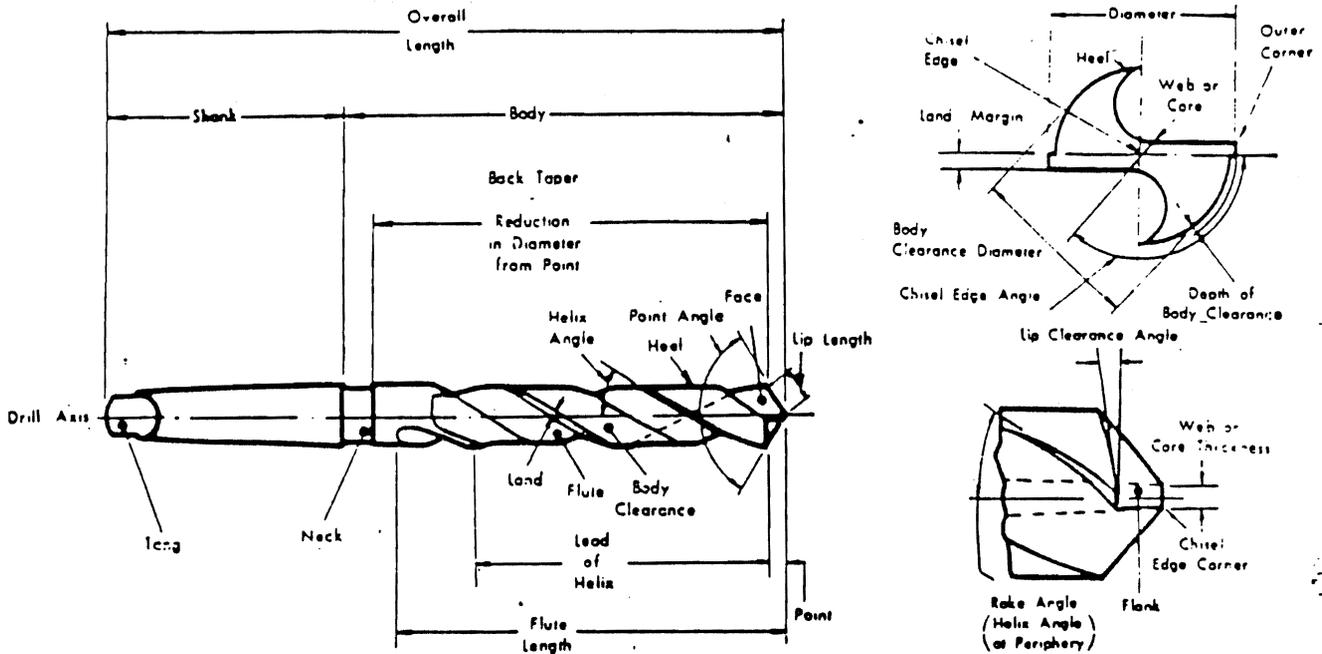
actual cutting, but pushes the metal out of the way. When about a third of the useful length has been ground away, the web will become widened to such an extent it needs to be thinned. Equal amounts of material must be ground away, the web will become widened to both sides of the web. The web should be thinned to approximately 1/9th the thickness of the drill diameter.

The most commonly used drill point is the conventional 118° point. It will give satisfactory results in a wide variety of materials and applications. To meet the special demands of today's drills, here are some general rules to follow when resharpening.

1. The harder the material, the steeper the point angle: Soft plastics and metals generally are drilled with an included angle point of 60° to 90°. An increase in relief (clearance) angle is helpful here.
2. The harder the material, the flatter the point: Tough materials like cast iron and high alloy steel require a flate angle point of 135° to 140°. Less relief angle used here will reduce the risk of the drill point chipping or breaking.
3. Increase the relief angle on smaller drills, and reduce it for larger drills. Suggested lip relief angles for various sizes are (drill size range / lip relief angle): 1/16" - 1/4"/15° - 25°; 1/4" - 1/2"/10° - 15°; 1/2" - 3/4"/9° - 13°; 3/4" - 1"/7° - 1°; and over 1"/6° - 8°.

NOMENCLATURE OF VARIOUS PARTS OF DRILL

Familiarize yourself with the point angle, heel, lip length, point, lip clearance angle, web or core, and point angle of the drill. This will make it easier to understand the sharpening and these are the parts we will be working with.



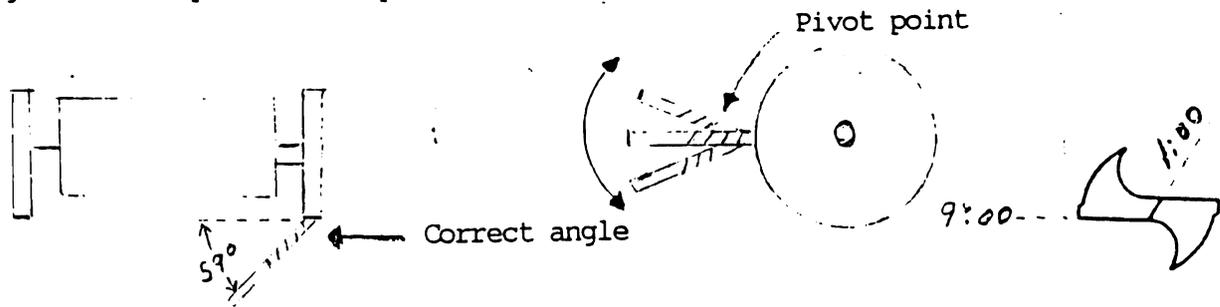
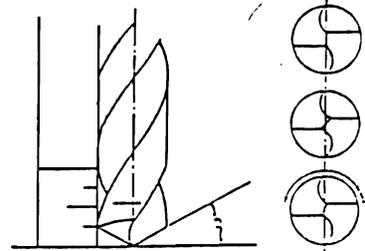
SHARPENING A DRILL

NOTE: If drill is burnt, broken, or chipped, cut off before starting.

To sharpen we are going to need a grinding stone in a range of A-60K or L to an A-100I on a grinder with an RPM of 3450. Grinding stone should be flat at a 90° angle to the side of the wheel. Drill will be held at an angle of 59° to sharpen one side. Other side will be held at 59° to give you an overall angle of 118°. Drill will be held in center of grinding wheel with left thumb and index finger. Left hand will be steady on a rest,

fingers will be pivot point. Back of drill will be held in right hand, cutting lip will be against grinding wheel back of drill will be pushed down to heel of drill. Drill will be backed away from wheel and raised back up. Cutting lip will be pushed back against wheel and lowered again. This pumping in and out action will sharpen one side of drill when it is sharp rotate drill to other side and repeat until drill chisel is in center of diameter. With web or core pointing at one o'clock from cutting lip.

We can test heel drop by standing the drill on the point on a flat surface and turning in the direction of the arrow, at the same time holding a scale beside it. The line beneath the arrow should incline upward as shown, indicating that the cutting edge is lower. A, B, C represent the cutting end of the drills. A properly ground drill will appear as A, with the angle of the straight central part at the point as indicated.



#### CORRECTING ERRORS IN POINT GRINDING

Figure 1 illustrates a good drill with the heel at 12° drop from cutting lip, with chisel 125° from cutting edge and pointing at one o'clock from cutting edge, with 59° on each side to make a total of 118°. Figure 2 illustrates point grinding of drill if ground off center. Grind short side to even both sides. Figure 3 illustrates drill with 59° and 70° cutting lips grind 70° to 59° to match otherside. Figure 4 illustrates a drill with no drop in heel and chisel point at 12 noon. Drill will be rotated clockwise a little bit and regrind both sides to bring chisel point back to one o'clock and drop heel to 12°. Figure 5 illustrates drill with heel at 35° and chisel angle at two o'clock to straighten rotate drill counterclockwise and resharpen both sides (See illustrations below).

#### POINT GRINDING OF TWIST DRILLS

As furnished from manufacturers most twist drills are machine point ground. This insures uniform chipload and wear, which in turn results in maximum drill life. A large percentage of drill failure can be directly attributed to improper point grinding. It is most important therefore that great care be exercised when regrinding drill points. The following diagrams illustrate proper and improper grinding.

Fig. 1 illustrates a drill properly ground. Lip angles and lengths are equal, resulting in a central chisel. The chisel angle and lip relief are correct.

Fig. 2 illustrates a drill ground off-center, resulting in uneven lip lengths, and even though the lip angles are correct the chisel is not in the middle of the drill. Such a drill will tend to walk on initial penetration. Rapid drill breakdown and oversize holes will result.

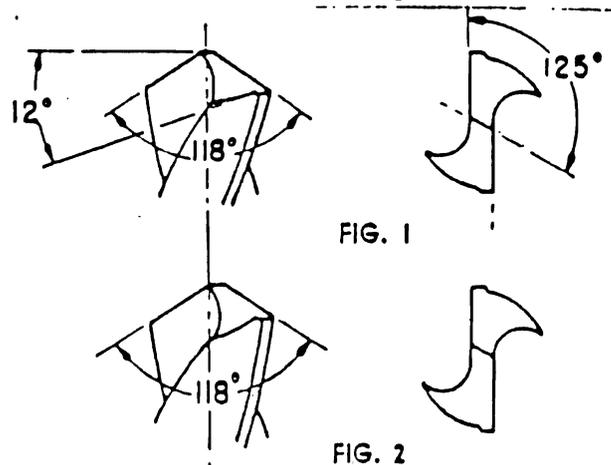


Fig. 3 illustrates a drill with central chisel edge, but unequal lip angles. Such a drill allows all the cutting to be done by one lip, resulting in premature breakdown.

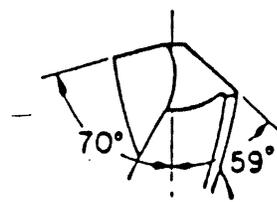


FIG. 3

Fig. 4 illustrates a drill with insufficient clearance and improper chisel angle. Drills ground in this manner require abnormally high thrust, and rapidly obtain a wide wearland.

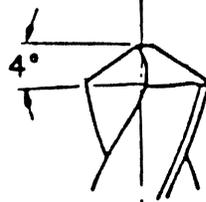


FIG. 4

Fig. 5 illustrates a drill ground with excessive lip relief and too great a chisel angle. Drills ground in this manner will chip readily and out an oversize hole.

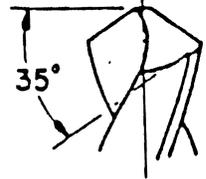
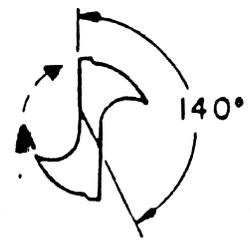
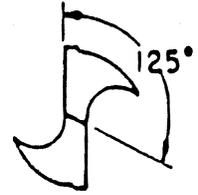
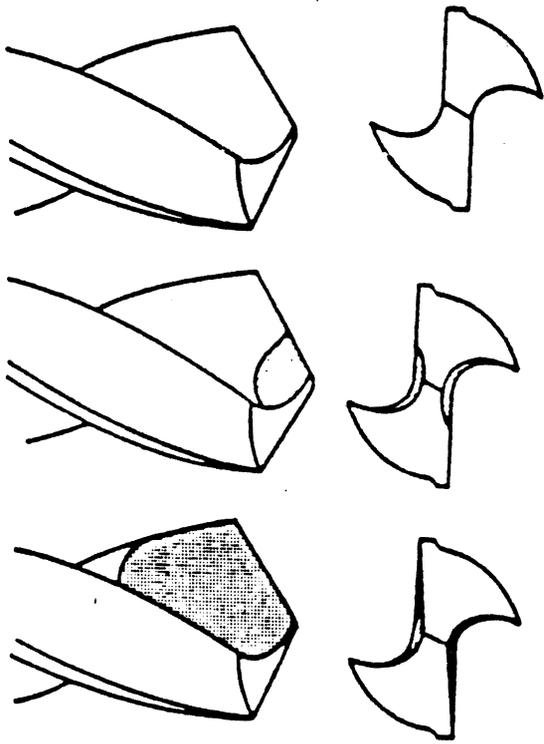


FIG. 5



Now we should have a drill that is sharp with 59° angles and are now ready to go into web thinning. If web exceeds the demenisions in table below web needs thinned. Of the two types of web thinning gash would be the easiest to do, conventional takes a little more practice. To thin webs we need a dish wheel with a 1/2 thick center tapered out to a 1/4 inch. This wheel can be radiused and thinned to approximately fit drill flute. On gash type you would run grinder on each side of drill flute at point of drill to thin web or core of drill. Conventional type web thinning put grinder in far side of flute turn drill on grinding wheel to the angle of cutting lip and twist drill as you are pushing. Do this on both sides so the the web is still in the center of diameter of drill. To the demenisions of drill diameter to thinning (see table and illustrations below).

DRILL DIAMETER RANGE	WHEN WEB EXCEEDS	THIN TO
.1285	.038	.030
.1570	.041	.033
.1890	.046	.038
.2188	.052	.042
.2500	.056	.045
.2812	.063	.045
.3160	.067	.045
.3480	.071	.048
.3770	.075	.051
.4062	.076	.051
.4375	.076	.051
.4688	.078	.053
.5000	.079	.058
.5625	.085	.060
.6250	.091	.070
.6875	.097	.079
.7500	.104	.081
.8125	.111	.088
.8750	.118	.094
.9375	.124	.094
1.0000	.137	.095



CONVENTIONAL POINT  
Drill webs need no thinning as received from manufacturer.

GASH TYPE  
This thinning is accomplished by grinding two half-round gashes near the center of the drill, thus reducing the web.

CONVENTIONAL TYPE  
Stock is removed in such a way as to follow the flute contour.

I hope I haven't confused you on drill sharpening and web thinning. With a little practice I think your drills will be sharp. Machine sharpening is best best but this will get you by in a pinch and by the time you sharpen all your drills the last one will be easier.

# ABANA

Artist-Blacksmiths' Association of North America



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

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

M E M O

TO: ABANA CHAPTER MEMBERSHIP, via Chapter Newsletters  
FROM: Dorothy Stiegler, ABANA President  
DATE: August 1988  
RE: President's Message

Dear Fellow Blacksmiths,

It certainly seems as though the months are whizzing by. I for one hope we can all keep up.

I want to thank all of you who sent in names for candidates for the ABANA Board of Directors and for the careful selection of those people. It is never intended that anyone will vacate a board position, so we are of course shooting for people who will serve three years - full steam ahead. Your ballots should be out to you shortly for individual voting.

We are in the process of changing the approach to the elections so that everyone who is an ABANA member is more personally alerted to the nominations and the elections themselves. However, it takes a little time to change gears in as large an organization as ABANA, so this year we are still working from the old format. We are relying heavily on your newsletter editors to print the information concerning the general membership submission of names for nominations. In the future elections, we hope to be able to canvass each person individually as is done for the election itself since many ABANA members are not members of a local chapter.

Please take time to vote on the ABANA Board Members. We need everyone to return their ballot in a timely manner so we can really know who it is that you want to be serving on the board. This is your organization and we need your input.

Thanking you in advance for your voting time.

Sincerely,

Dorothy Stiegler  
ABANA President

DES/jrg

July, 1988

Dear Chapter Member,

Just as your chapter needs new chapter members for its health and vitality, so too does ABANA. I am writing to urge each of you to go out and recruit at least one new member for ABANA.

Someone from your chapter who is not a member, or someone outside your Guild who has expressed interest in our kind of endeavor.

To whet your interests further if you get **two** new ABANA members, we will send you a T-shirt from the Sloss Conference. If you get **ten** new members, we will send you a dress belt buckle also from Sloss. The only requirement is that you send in all two or all ten names at one time, complete with names, addresses, and the money. Otherwise the record-keeping at the the central office will become horrendous! Just think, now you can get belt buckles for your whole family....

Finally, the person who gets the most new members between now and our conference in 1990 will win a brass anvil from Bill Gichner. And this anvil isn't one of the pocket varieties, either. So get new members, good luck to you, and thanks from all of us in ABANA.

Sincerely,

(ABANA Membership

Nol Putnam Coordinator)

HEAR YE! HEAR YE! HEAR YE!

**BLACKSMITH APPRENTICE WANTED:** Contact Tom Muschlitz, Fancy Gap, NC, 919-454-4377 or 703-728-7166.

**INVENTORY WANTED:** Our business offers strictly authentic replicas of goods used in 18th century America. As such we are always seeking surces for any items which fit into our line of goods. Our main areas of interest are presently military, farm and homestead goods. Examples are: musket tools, campfire tripods, flint strikers, trivets, spiders, axes, froes, etc. If you have any designs which you feel would fit in our line, we would be glad to hear from you. We can also furnish scale drawings of items we presently offer. Contact John White, Avalon Forge, 409 Gun Road, Baltimore, MD 21227 - 301-242-8431 (evenings please).



A new knife magazine is Knives Illustrated (P.O. Box 15690, Santa Ana, CA 92705-0690, quarterly, \$10 per year). Flier says it will present well-researched, in-depth articles on every aspect of this exciting industry, from the makers who create these masterpieces, to the artists who adorn them, to the collectors who buy them. By the way, you can buy a licensed reproduction of the knife used by Sly Stallone in the movie "Rambo III" for \$95 postpaid from Great Lakes Distributing, 600 W. Orange, Greenville, MI 48838 - 616-754-6694.

**FOR SALE:** LITTLE GIANTS: 25 lb with sow block - \$1,000; 25lb with sow block and 3-phase motor, nice - \$1,100; and 50 lb, brand new - \$1,450. 50 lb Mayer powerhammer - \$850. Contact Russell Cashion, 720 Bell Rd., Antioch, TN 37013 - 615-834-3215.

**BEGINNING BLACKSMITHING OR DAMASCUS-PATTERN CLASSES.** Contact Larry Wood, 233-6751.

FOR SALE: HEAVY-DUTY CAST-IRON FIREPOTS. Contact Bob Zeller, 849-1771.

FOR SALE: Anvils with sides and top dressed with hard-facing rod as required. \$1.00 - \$1.25 lb. Contact Ken Scharabok, 429-3967. (P.S. You Editor now has one of those blankety-blank answering machines so you can call anytime.)

SHADES OF THING TO COME??? The newsletter/magazine of the British Blacksmithing Ass'n indicated one company there is now producing maintenance-free wrought metal gates of lightweight aluminium which are polyester powder coated (and thus don't need painting). The gates currently produced are black but can be in 10 standard colors.

FOR SALE: Anvil (about 100 lbs) and 4" jaws postvise. Contact John Baker, 2727 N. Eastown Rd., Lima, OH 45807.

One of the treadle-hammers at the 1988 ABANA Conference was set up to accept top and bottom dies (fullers, swages, etc.). The bottom die just sat in a square hole. The top one had a slot in the shaft for securing with a key from the side. I didn't see it in use, but it did look practical as a stand-alone or as an alteration to an existing treadle-hammer.

Insufficient interest was shown in either the Jim Rubley knife-making from files workshop or the tapes from Williamsburg to pursue them further.

FOR SALE: Blacksmith aprons, 100% cotton, double denim, machine washable, harness design, one size fits all. \$22.00 (full) or \$12.00 (half), S&H prepaid. Iron Crow Forge, 217 Western Ave. North, Roseville, MN 55113 -- 612-484-1898.

In a recent newsletter, Larry Wood noted the spring between the arms on his power-hammer broke nearly hitting him. At the 1988 ABANA Conference one arm broke on a powerhammer, went flying through the air, struck a truck and bounced to the ground some 50' away from the hammer. The spring went flying off in another direction. The broken ends of the arm showed bright, shiny, large crystals - metal fatigue. Nobody was hurt this time but it sure emphasized the need to place a safety cage around the arm mechanism of your powerhammer. This incident was relayed from the newsletter of the Guild of Metalsmiths.

Those of you who have a Trenton anvil can use them with a little bit of Ohio Pride. They were manufactured by the Columbus Forge and Iron Co., Columbus, OH. Their ads claimed, "It rings like a bell".

DEMONSTRATOR WANTED: October 1-2, 1988 at the Knox County Agricultural Museum near Mt. Vernon, OH. This is part of the Heart of Ohio Tour and the expect 1,500 -2,000 people passing through the area to stop. They hope to set up a permanent blacksmithing shop for weekend-type demonstrations. For further information contact Chuck Whitney, 5 Teryl Dr., Mt. Vernon, OH 43050 - 614-393-2246.

Entries are being accepted for a juried exhibition of hand-crafted products created for the home furnishing market. \$7,000 in awards. Entries must be submitted on 35mm slides. For further information contact Kraus Sikes Inc., 150 West 25th Street, NY, NY 10001- 212-242-3730. All "American Craft Awards" entries must be postmarked by October 7, 1988. This an annual event.

The Appalachian Blacksmithing Ass'n (c/o Bob Wagner, Rt. 1. Box 9A, Old Fields, WV 26845) is offering a rare and excellent reproduction of the 1909 Champion Blower and Forge Co. Catalog. It is 8 3/4" x 11" and has 36 pages with a plastic spine. Cost is \$6.50 postpaid.

UNUSED MILITARY SURPLUS BUFFALO 500 HAND-CRANKED FORGE BLOWERS are available for \$99.00 plus \$10.00 for UPS from R. Huber, Layton, NJ 07851 - 201-948-4565. These are top-of-the-line, with 13" diameter heavy-gauge, pressed steel housings,

milled helican gear train running in oil, angle iron gase and forged crank. Some surface rust spotting from 40 years in storage, but internal are as good as new. If you have been looking for a blower, this is a bargain basement price.

The story of two welders who accidently threw an arc while their hoods were up and fused their contact lenses to their corneas is making the rounds again. From what I understand, this story has been extensively researched and cannot be documented as happening. Another story about welding sparks blowing up butane lighters in shirt or pants pockets was traced to two spelunkers who simply wanted to see how far the story would spread.

If you are interested in tinning your copper work, tinning compound is available at some welding supply shops or can be ordered from York Engineering Co., 211 Spangler Ave., Elmhurst, IL 60126 (write for current price and S&H charges). Complete instructions along with health hazards are on the label.

The August 88 issue of the newsletter of the Northwest Blacksmiths Ass'n includes an item on adding a brake for a Little Giant by Joe Elliott (503-548-2564). He says it prevents "running on" problems and adds lots of control on softer blows. For a copy send a 22¢ stamp.

COMPLETE BLACKSMITH SHOP for sale for \$30,000. This price includes stock, building, tools and trade. The owner started the business in the forties and has decided it's time to sell out. This is a good business in an excellent location and has always made a good living for the owner. Contact Palmer Realty, 19 First Avenue NW, Waukon, Iowa 52172 - 208-568-3488.

For literature on a new type of combination welding and cutting torch, send a business size SASE to Dillon Industries Internation, P.O. Box 710, Washington, MO 63090. Due to its patented, revolutionary method, equal quantities of oxygen and acetylene are used in all welding procedures. The pressures used are maximum 4 PSI. The unit comes complete with cutting attachments, all tip sizes, tip cleaners, guide wheels, heat shield and comprehensive instruction book. Can weld copper, brass, castiron, lead, stainless steel, mild steel, casselman bronze, inconel, aluminum and dissimilar metals (e.g., copper to castiron). Can cut up to 1" thick mild steel with an 80% savings.

Advanced blacksmithing/tool making workshops are held periodically at the Old Cowtown Museum, 1871 Sim Park Dr., Wichita, KS 67203 - 316-264-0671 by Joe De La Ronde. The next is October 20-23, 1988. Cost is \$155.00.

Turley Forge Blacksmithing School will sold one six day farriers' flash refresher course, two six week classes and four three week classes during 1989. For further information contact them at Rt 10, Box 88C, Santa Fe, NM 87501 - 505-471-8608. Frank Turley has trained many of the full time smiths today.

For information on a three month study session in Aachen, W. Germany contact David Court, Bay Hill Rd., Northfield, NH 03276. This is an ABANA sponsored study session.

SHOP TIPS AND TECHNIQUES: While the information provided in this section, and elsewhere in this newsletter, it believed accurate and safe, neither S.O.F.A. nor A.B.A.N.A. bear any responsibility for any adverse results which may occur. Use at your own risk.

- HANDLE GRIP: For a sure-grip surface, wrap electrician's rubber tape around the handle. A 3/4" x 22' roll sells for about \$2.75. Don't overlap the edges unless your hand is well calloused.

- DRILLBIT TIP ANGLE: A quick way to check the proper angle for drillbit tips is to hold two hexigon nuts together. The angle between them is within 2° of the proper one to use. (By Jay Reakirt from a demonstration at ABANA '88).

- REPAIRING FRAYED WIRE BRUSHES: To take off those wires from the side of your wire brush (the ones which love to stick you), take an oxy/ace. torch on a cutting heat and hold it sideways to the side of the brush. (By Jay Reakirt from a demonstration at the 1988 ABANA Conference).

- USING A-36: Most hot rolled these days is A-36, relatively high in carbon and manganese. Cold rolled, though, is still 1018 mild steel. While the cost and appearance of cold rolled make it unsuitable for many projects, it is worth using for many hardware and utensil projects where the work is entirely forged and the materials cost is a very small percentage of the sale price. (By Russ Pope from the newsletter of the New England Blacksmiths').

- GETTING FINISHES IN INACCESSIBLE PLACES: I use a paste finish of beeswax and oil. The problem was gobs of it would get stuck in inaccessible places such as inside of basket handles. Now I just hit the area with a blast of compressed air. Not only does it drive the excess off, but it forces the finish deeper into cracks and crevices, leaving a thin even coat. (By Johnathan Herz from the newsletter of the New England Blacksmiths').

- UNIQUE COLOR FINISHES: Combine one part clear shellac, 10-15 parts denatured alcohol and mason colors, using about 1 tbsp of pigment per pint of liquid. Mason colors are what potters use to color clay and masons use to color concrete and can be purchased in small quantities in pottery supply houses. You can get the pigment in blues, pinks, whites, grays and browns and depending on how you apply it, you can add a subtle or intense dash of color to your work. This wash needs to be applied to painted metal and shows up best on a black surface. Depending on the look you want, the wash can be sprayed, brushed or sponged on. You can then put on a clear coat of lacquer for interior use or urethane for exterior use if desired. (From a demonstration by Joe Pehoski at the 1988 ABANA Conference as reported by Cathy Borthwick in the newsletter of the Arizona Artist-Blacksmith Ass'n).

- TIPS FROM BRAD SILBERBERG (From the newsletter of the Blacksmith Guild of the Potomac):

-- SAND TEMPERING: Jim Batson, at the 1988 ABANA Conference, used a steel pan filled with sand to draw the temper on knives. Place the pan on the forge fire and keep stirring the sand until the bottom of the pan becomes red hot. Put the hardened blade edge up in the sand. The colors will run slowly and can be controlled by piling hot sand where you want them to run faster and scraping sand away where they should move more slowly.

-- ANVIL HEIGHT LEG VISE: Consider shortening the leg on your most massive leg vise. Most leg vises are a perfect height for filing, sawing, or twisting, but are too tall to beat on. Cut off the leg so the top of your vise will be the same height as your anvil face. Mount it on a steel pipe or tube which is bolted to the floor with space all around it. This will enable you to lock a piece in the vise and really whack at it from all sides. This set-up is great for upsetting, riveting, making 90° bends, etc.

-- CENTERING RULER: Woodcraft Supply (and probably others) carry centering rulers. These have normal inch markings on one edge, but the other edge is marked with a zero in the center and inch markings going left and right away from center. These rulers allow you to quickly find the center between two points without any calculations.

-- FINAL CLEANING OF BRASS AND BRONZE FORGINGS: B.A.B.A. member Mike Roberts says he uses builder's lime to remove the greasy residue from the buffing compounds he uses to polish his brass and bronze forgings. Just rub the dry powder on the polished work with a soft cloth. Mike doesn't lacquer his non-ferrous pieces, choosing instead to work in alloys like aluminum-bronze which are tarnish resistant.

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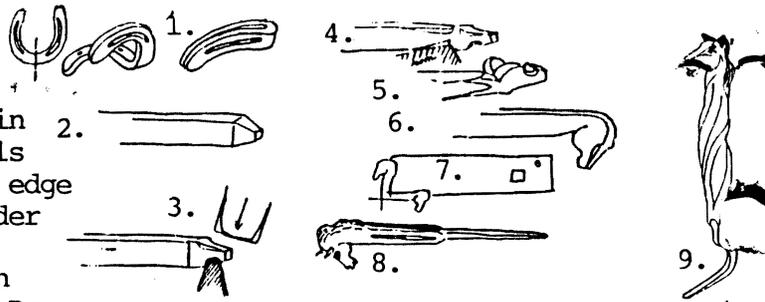
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- MORSEHEAD HCOF PICK: 1. Take an old shoe, remove nails and fold and straighten. 2. Weld heels for about 2", shape muzzle. 3. Define chin over bottom fuller and upper face bevels with hammer. 4. Define neck over far edge of anvil and round over. 5. Split under jaw and refine shape with fullers and rasp. 6. Bend head over with ballpeen (strike cold muzzle behind nose). 7. Draw out mane with combination peen hammer. 8. Punch facial features and weld and draw pick area. 9. Twist once left and one-half back and bend pick to shape. (By Jon Soini from the newsletter of the California Blacksmith Ass'n)..



- REPLACING ANVIL FACES: Sometimes the only way to save an otherwise decent anvil is to weld on a new top plate. I had a friend weld a plate of plow steel but instead of just welding the sides, he also drilled 12 holes in the plate and welded in plugs. I have never seen a replated anvil which was anything but dead, much less ring, but the effect of the welding through holes in the plate is dramatic. The performance is like new and ring is earsplitting. Plow steel is too soft for me so I will attempt hardening and tempering in the future. (By Don Keifer from the newsletter of the California Blacksmithing Ass'n).

FIRST CLASS

