



SOFA SOUNDS

AUGUST/SEPTEMBER 1991

SOFA
SOUTHERN OHIO FORGE & ANVIL

Artist-Blacksmiths Association of North America

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ACTING NEWSLETTER EDITOR:

Ken Scharabok (513-258-1389)

MARK YOUR CALENDAR: 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 to the newsletter support raffle are always welcome. Please bring your work or tooling for display. The public and guests are welcome. Finger food and cold drinks provided on a break-even donation plate basis. The forges at the homestead are available before and after meetings for individual projects. PLEASE BRING AND WEAR SAFETY GLASSES.

AUGUST 3rd, 9 AM

Joint meeting and potluck lunch with the Ohio Tool Collectors Ass'n. See newsletter for details.

SEPTEMBER 7th, 1 PM

Demonstration by Ron Turpin.

SEPTEMBER 27-29th

1991 Quad-State Roundup. If you have not received a registration package, contact Dick Franklin, 7158 Klyemore Dr., Dayton, OH 45424.

OCTOBER 5th, 1 PM

If there is enough interest expressed, we can open the shop for an informal workshop to make handtools or hardy tools out of jackhammer bits. Confirm meeting at 258-1389 before date.

NOVEMBER 2nd, 1 PM

Demonstration by Hank Steinmetz and Don Munford on making campfire accessories.

DECEMBER 7th, 1 PM

Demonstration volunteer needed.

VCR TAPE RETURN POLICY:

The VCR tapes which have been donated or loaned to SOFA are loaned out until the next meeting. If you are unable to attend the next meeting, mail the tape to Ron Van Vickle, 1121 Central Avenue, Greenville, OH 45331 prior to the next meeting. We are still missing a number of these tapes. Please, pretty please, check your tape library and return any you may have. Any non-copyrighted tape may be copied.

Chapter of ABANA

QUAD-STATE HELP NEEDED:

We are still looking for someone to donate about six new log section anvil stands. If you have a medium-weight log you are interested in donating, please call Ken Scharabok at 258-1389.

As usual, those who help to set up on Friday morning and to take down on Sunday evening/Monday morning will receive a partial or full refund of their registration fee.

We would appreciate your help in keeping the grounds clean during the event. If you see stray paper, cups, cans, etc. laying around, please put them in a nearby trash container.

SPECIAL AUGUST MEETING!!!!

The August 3rd meeting will be a joint meeting with the Ohio Tool Collectors Ass'n.

Beginning at 9 AM tools will be swapped, sold, traded and shown in the parking lot east of the Process Equipment Co. There will be a silent auction all morning. Leave an item on the auction table with a card. Anyone wishing to bid lists their name and bid on this card. Highest bidder goes home with the item. Proceeds go to Ohio Tool Collectors Ass'n.

At 10 AM there will be a ladies program in the Peters Cabin. Maureen Picklesimer will bring some dolls from her collection. Ladies, and guys if you have them, are invited to bring their favorite doll to discuss and display.

For lunch, there will be a potluck lunch at 11:45 AM. Please bring one or two dishes and cold drinks to share and your own table service and condiments.

At 1 PM there will be the normal SOFA meeting and demonstration. Brian Thompson will be the demonstrator. Proceeds from the newsletter support raffle will go to SOFA.

If you like this joint meeting, perhaps we can make it an annual event!

CLARIFICATION ON THE ROSE IN THE LAST ISSUE:

OK, I think I have it figured out now. On page 9, lower right hand corner. Where the instructions say, "Cut petal stock 7/16"x3 1/2"...", it should have said, "Cut bud cover stock...". You need two of these and they form an "X" under the rose pedal stock. Make change and then delete my additive notes on the second instruction and eight instruction on page 10 (different writing). The petals can be brass or copper, as well as thin gauge sheet metal.

Meeting Highlights:

Rather than the originally scheduled June 1st meeting, Czechoslovakian blacksmith Yaroslav Valek gave a special demonstration for us on May 21st. Varoslav works at a power plant as a profession but carries on the family's blacksmithing tradition by working on it in the evenings, etc. He does predominately sculptures.

For his demonstration he made a very nice bird sculpture out of 10-12 pieces of thin flat stock about 1" wide. These were roughly divided into cut lengths of 30", 32", 34", 36" and 40" and wired into a fairly square billet. The end of the billet was then forge welded (without flux) back about 5". He noted he never uses flux back home - we speculated he uses wrought iron there.

Next the forge welded area was drawn out to about 8-10" long on the power hammer to a sharp taper. The area just behind the taper was then rounded and fullered with the power hammer and finished fullered with the ball on a ball peen hammer. A 1/4" hole was then drilled through somewhat ahead of this fullered area. This later became the bird's eyes.

The entire billet was then secured in the postvise and twisted between 1 1/2 and two turns. He noted he had no set formula on this, but the number of quarter twists will affect the final product. When satisfied with the twists, he repositioned the billet in the vise to just hold the 40" long lengths and untwisted the billet. When the tapered portion was bent over to form the head, the bending action also caused the shorter lengths to flair out to form wings. When completed it very much resembled an egret or heron.

As an encore, he heated the end of a length of about 1/2" x 1 1/2" stock and made a charming little head on the end just using some handheld tooling for the hammer. For the tooling ends he brought along his own bits and pieces and noted that since he is not a "professional", he could bring them through customs as scrap iron rather than tooling. Handles were welded on here.

The completed bird sculpture was presented to Emmert and is on display at the homestead. We will also try to remember to place it on the display table at Quad-State.

* * * * *

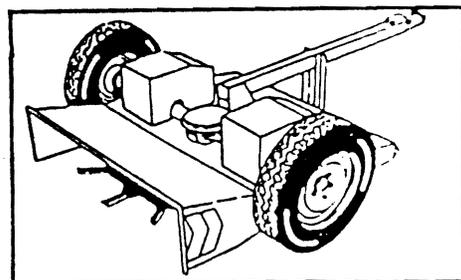
I was not able to stay for the July meeting; however, since the demonstrator was Larry Wood I am sure the folks were treated to a high quality demonstration. Larry indicated he was going to make a hinge and tooling for it as he went along.

Glenn Horr will be teaching a beginning blacksmithing course at the Touchstone Center for Crafts (P.O. Box 2141, Uniontown, PA 15401 - 412-438-2811) on August 19-28. Doug Fink attended a course there and was impressed by their program.

The Eastwood Company (580 Lancaster Ave., Box 296, Malvern, PA 19355 - catalog on request) primarily carried auto body repair supplies and equipment. However, some would be of use to blacksmiths. They carry one model of Beverly Shears which will cut up to 14 gauge mild steel. While they also sell the stand to go along with it, it appears one could be fabricated from scrap for far less.

If you are planning to buy one of Bob Zeller's firepots at the 1991 Quad-State, it is recommended you reserve one in advance. Contact Bob at 108 Middle St., Midway, OH 45341. These firepots are cast iron; about twice as thick at half the cost of those sold by blacksmith suppliers.

For you do-it-yourselfers, this mower was featured in a recent issue of "FARM SHOW". It was developed by a guy in Australia to cut his landing strip. He claims the mower can be towed and cuts efficiently up to forty mph. It looks like all he did was to take the rear end out of a vehicle, turn the differential to point downward and then added a disk with lawnmower-type blades on it - although I cannot figure could what purpose the two boxes by the wheel serve. Cutting width for this model was four feet; however, it could be downsized by using a smaller rear end. Interesting!



Height of wheel-driven blade adjustable and mowers can be ganged together.

According to a note from Clayton Carr, ABANA Chapter Liaison Committee Chairman, some members have not received their Spring 1991 issue of The Anvil's Ring, although they are believed to have been shipped. If you did not receive this issue, please contact Janelle Gilbert at 812-988-6919 during normal business hours.

WANTED: 200-300 lb air hammer. Contact Gary Ameling - 419-862-2090.

The remaining 1991 and the 1992 three week blacksmithing course dates for Turley Forge Blacksmithing School (Rt 10, Box 88C, Santa Fe, MN 87501 - 505-471-8608) are: 1991 - October 7-25; 1992 - February 10-28, April 13 thru May 1, June 1-19, August 10-29 and October 12-30.

Clay Spencer will be holding a treadle hammer workshop, August 10-11 at the Cedar Lakes Conference Center, Ripley, WV. \$25.00 for the workshop. For food and lodging arrangements contact the center. For further information or to send in registration fee contact Boyd Holtan, c/o A.B.A., Rt 1, Box 36B, Core, WV 26529.

FOR SALE: Round rivet forge, asking \$250 or make offer. Contact Ben Reynold, 3307 Vagabond Lane, Dayton, OH 45424 - 513-233-9388.

If you have natural gas or your home or shop, G-T Energy Concepts produces a portable unit to use the gas for welding, brazing or cutting. Natural gas is cheaper than propane and produces a higher BTU output. For further information contact Advanced Fuel Systems, 516 Ford Building, Detroit, MI 48226 - 313-963-48226 about their GT-Pak product line.

The book "On Damascus Steel" by Leo S. Figiel is available from the author for \$41 (softbound) or \$69.50 (hardbound), both prices postpaid. 160 pages with over 148 photos. Basically covers the history of Damascus steel. Address: 552 Muirfield Dr., Atlantis, FL 33642.

BLACKSMITHING FOR DRAFT ANIMALS WORKSHOP, October 22-25. Hands on forge instruction with a focus on making hardware for hitching animals. Heat treatment and tool making included. \$140 training fee. For more information contact Tillers Intl., 5239 South 24th, Kalamazoo, MI 49002-2019 - 616-344-3233 days or 615-342-6040 evenings.

Clifton Ralph will be leading one of his powerhammer workshops on August 3rd & 4th at the shop of David Norrie near the town of Sunderland, Ontario (approximately 60 miles northeast of Toronto). Hammer work will include a 75 lb and 300 lb air hammer and 100 lb mechanical hammer. Write ups in other newsletters indicate these workshops are top-notch. Fee is \$60 for both days. If interested call David at 705-357-2714. ****NOTE: We have arranged to borrow a set of Clifton's powerhammer tapes for Quad-State. These will be shown in the Wagon Shed on Friday evening.****

Twelve different styles of Tavern Puzzles are available from Tucker-Jones House, Inc., P.O. Box 231, E. Setauket, NY 11733 - 516-751-8960. Puzzles are \$12.00 each plus shipping. Write or call for brochure.

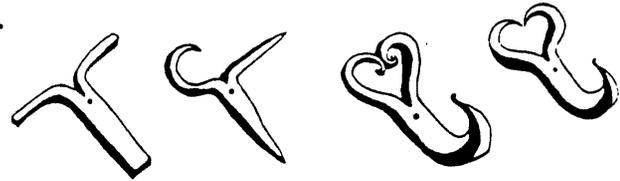
SHOP TIPS AND TECHNIQUES: The following were, for the most part, paraphrased from other ABANA Chapter newsletters. While the information presented herein, and elsewhere in this newsletter, is believed to be accurate, neither SOFA nor ABANA assume any responsibility for the accuracy, fitness, proper design, safety or safe use of any information, technique, material, tool design, use, etc. USE IS SOLELY AT THE USER'S OWN RISK!

- FULLER GAUGES: If you are making your own fullers, roundness gauges can be made by cutting in half washers with the correct inside diameter hole. (By Pete Staraitis from the newsletter of the Guild of Metalsmiths).

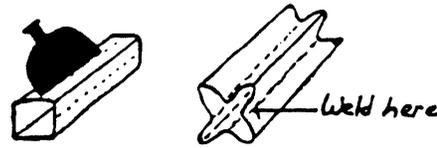
- HEART HOOKS: 1. Start with $\frac{1}{2}$ "x $\frac{1}{4}$ "x $6\frac{1}{4}$ " stock.

Hot cut or saw down center $2\frac{1}{4}$ ", punch or drill nail hole $\frac{1}{2}$ " below cut. 2. Draw out legs and bend over anvil. 3. Bend heart tips with round nose pliers and make hook over anvil horn, leaving tip somewhat blunt to not snag clothing if used for that purpose. Two variations shown.

(By Jerry Grimes from the newsletter of the Illinois Valley Blacksmith Ass'n).

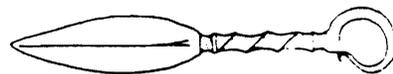


- E-Z HARDY HOLE SHANK: To put hardy hole shanks on tools, use square tubing just larger than your hardy and crimp all four sides until it just slides into the hole (it will go in easy once it cools down). The crimped area provides four areas to weld the shank to the tool without having weld build-up prevent the tool from lying flat on the anvil. (By Jack Wheeler from the newsletter of the Appalachian Area Chapter - ABANA).

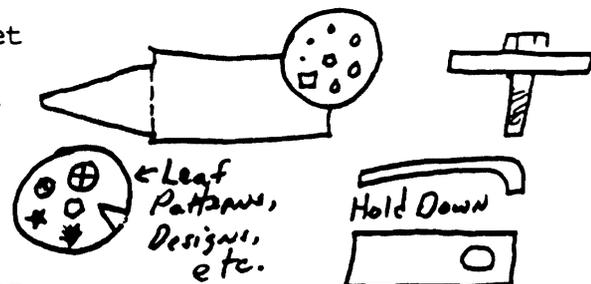


- GAS FORGE FLUX RESISTANT REFRACTORY: Robb Gunter recommended Colorado Refractories Corporation's (Canon City, CO 81215-1567 - 719-275-7555) Plastic ALCRO-85CB for lining the bottom of gas forges to prevent damage from welding flux. I bought a 50 lb bag and Jim Batson and others have tried it out. It works well. It has a high chromium content and comes as a wet, rammable plastic. It has a limited shelf-life so must be used in a few weeks. You can make up several bottom liners for your forge and save them for later. A similar composition may be available from refractory suppliers in a city near you. If not, Colorado Refractories will UPS a 50 lb bag (smallest quantity sold) to you. In 1990, 50 lbs cost \$40 plus shipping. (By Clay Spencer from the newsletter of the Alabama Blacksmith Ass'n). (For refractory material look in the business-to-business telephone book. You might go in with someone and split an order also. Another alternative if you are lining your gas forge with an insulating blanket is to just cut out and replace the bottom section occasionally. - ed).

- LETTER OPENER: This letter opener is one used by Toby Hickman during a beginning blacksmithing class. It is a nice project in that it involves a lot of different steps: an eye, fullering, twisting and forging the blade on the diamond. (From the newsletter of the California Blacksmith Ass'n). (It looks like the used about an eight inch length of $1/2$ " square stock for the opener. - ed).



- PRITCHEL HOLE SIZER: Having always been upset that the size of my anvil's pritchel hole was never the size I needed, I have, after 20 years, come up with an ideal solution. I drilled the pritchel hole out to $17/32$ " and tapped it $5/8$ " x 11 thread. Next I cut an 8" circle out of $3/4$ " plate and drilled a $5/8$ " hole on center. A number of different size holes were centered over the hardie hole as needed. One was torched $7/8$ " square to line up the hardie hole. This allows use of hardie tools without removing the plate. By loosening the bolt, the plate can be rotated to the size needed and the bolt can be used with a holddown, cut-off plate or to mount a small vice. Possibilities are endless. (John L. Kosirnik, Haycreek Blacksmith Shop, Clinton, MI).



- MEASURING IRREGULAR OBJECTS: Use masking tape. Wrap it around the area you want to measure, mark it and cut it off. Pull the tape off and measure it. (By Ollie Juare from the newsletter of the Guild of Metalsmiths).

- RING STOCK LENGTH: When figuring the length to cut your stock for creating a ring to a predetermined dimension use the formula of three times diameter of the circle plus three times thickness of the material being used. For example: to make a 10" circle out of 3/8" rod it would be $(3 \times 10) + 3 \times 3/8 = 31 \frac{1}{8}$ ". So cut a piece 31 1/8", bend, scarf, and weld to get a ring just under 10" diameter. (By Bill Kauffman from the newsletter of the Illinois Valley Blacksmith Ass'n).

- DEADENING ANVIL RINGS: To deaden the ring in an anvil, wrap a length of chain around the base. (From the newsletter of the Inland Northwest Blacksmiths Ass'n). (If you want an anvil to ring (e.g., if used in a play), place it on a piece of about 1/2" thick styrofoam - ed).

- POWDERED PAINT FINISH: At the 1987 Western States Conference, Joe Pehoski from Texas showed a technique he has been using recently to finish his work. You must try this. The effect is most striking and difficult to tell how it is done. The first thing he does is paint the article flat black. Then he mixes up a solution of one part shellac (in a small Dixie cup) and seven parts denatured alcohol. To this he adds a spoonful of powder paint to give the brew color. He then pours the whole nasty mess into a common spray bottle. When he has the stuff ready, he sprays it onto the recently painted article. Being thinner than water, it almost immediately runs off for the most part, but leaves a slight colored sheen on the object. On the surface, in every little depression or hammer mark, there is a greater concentration of color giving the object a truly beautiful depth and life I hadn't expected. When it is finished to his satisfaction, he highlights the corners with gold or silver paste, then sprays the article with a clear matte finish to protect it. The colors he used to demonstrate were: green to impart a tarnished copper look, brown to impart a tarnished bronze look, and brown then yellow to impart an old time iron look. Joe recommends using the colors found in nature. (By Clayton Carr from the newsletter of the Inland Northwest Blacksmiths Ass'n).

- PAINT REMOVER: Mix one can of lye with about four gallons of water. Apply this solution to painted surfaces with a still bristled brush or broom. After a few minutes the paint will begin to bubble up and can be removed with the brush and additional solution. DO NOT let this solution come into contact with your skin! It can cause severe burns. Read the warnings on the lye can. (From the newsletter of the Blacksmiths Ass'n of Missouri).

- Safety Tips from the Conner Prairie: (Several years ago)

-- Be careful if you use old hay rake teeth. They apparently have a very high carbon content and have been known to explosively shatter when heated and struck.

-- Wear safety goggles even when forging at the anvil. There have been several instances when hot pieces have broken off and struck the goggles, melting into the plastic, and probably prevently eye damage.

-- Grind off the mushrooms on your tools. They can shatter off sticking in your hand or hit the anvil and fly back.

-- Ear protection is a must when using a power hammer and should also be worn while forging. Like eyes, God only gave you two of them.

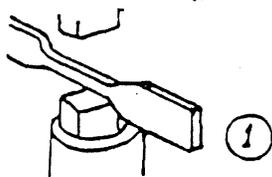
- ANVIL SIZE: Changing from an anvil of about 150 lbs to one in the 300 lbs range, my work seems to go much faster due to the additional bulk under the work. (By Danny O'Brien from an old issue of the newsletter of the Indiana Blacksmiths' Ass'n).

- DANCING ANVILS: If your anvil has a tendency to dance around on a concrete floor, put a piece of carpeting underneath it for friction. Standing on a piece of non-flammable carpeting will also help keep your feet warmer during winter months. - ed.

(Continued on Page 12)

Fireplace Shovel

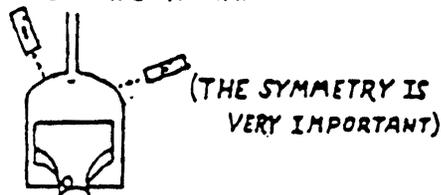
BAR STOCK $\frac{1}{2} \times 2 \times \dots$
DRAW DOWN TO $\frac{5}{8}$



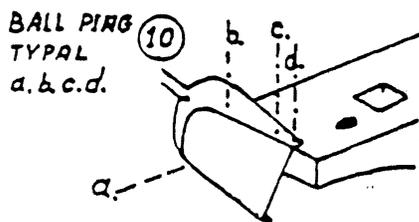
DRAW - EACH HEAT START
IN MIDDLE WORK OUT



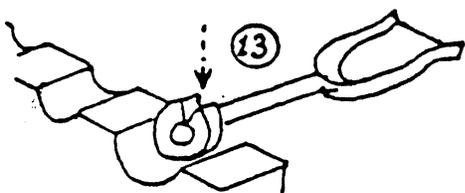
CENTER BACK OF SHOVEL
WITH HANDLE



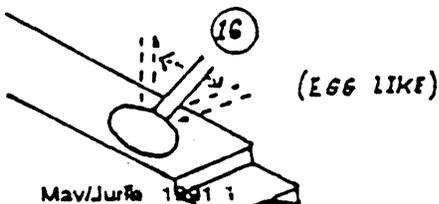
DEFINE EDGES b. TO c.



FORGE WELD

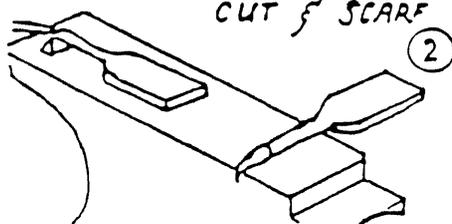


SNAP TOP OF BALL

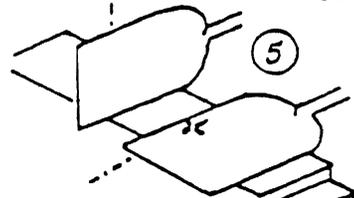


May/June 1991

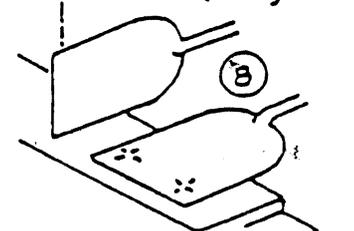
CUT & SCARE



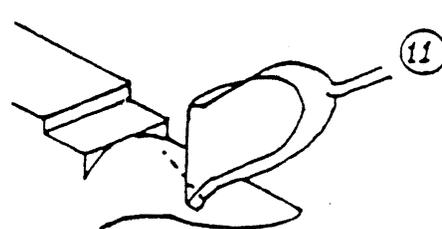
ALINE EDGES



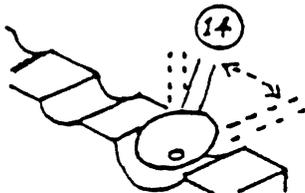
TRUE & ALINE



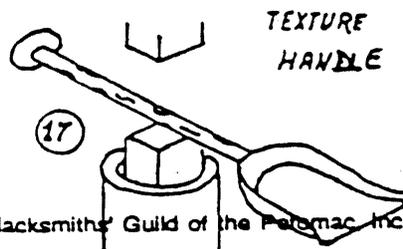
"ROLL HOURGLASS" IN SIDES



ROUND OVER BACK OF BALL
EDGES

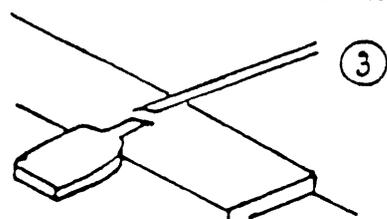


TEXTURE
HANDLE

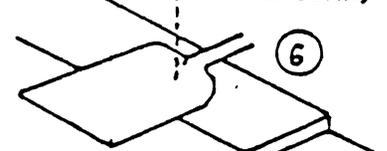


The Blacksmiths' Guild of the Palomac, Inc.

$\frac{1}{2}$ " ROUND STOCK - SCARF WELD



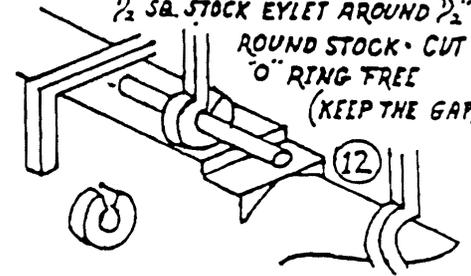
CENTER BACK OF SHOVEL
(CARE THIN METAL
'WILL BURN')



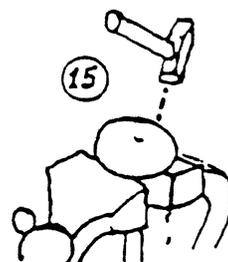
BALL PING - CREEP EDGE SHAPE
- START BACK OF SHOVEL
(WORK OVER
HARDEE HOLE)



$\frac{1}{2}$ " SQ. STOCK EYLET AROUND
 $\frac{1}{2}$ " ROUND STOCK - CUT
O' RING FREE
(KEEP THE GAP)



ROUND OVER
EDGES TOP
OF BALL



By ;

Jerry Darrell

The Newsletter

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

PRESIDENT'S MESSAGE June 1991

Dear Friends,

Thanks for the calls and letters concerning the fire here at our homestead! Indeed, I am fine now, and except for the black spots on the walls and the burned carpets, you would never know anything happened.

VisionGroup International Post Office Box 27524 Tempe, Az 85285, is considering a television series on Blacksmithing. It will be a little like This Old House, but about blacksmithing. Your Chapter will be hearing from Eric Sperstad in the near future regarding this excellent opportunity for advancement of the trade. At the moment, the prime concern is in funding. Mr Sperstad will be sending each chapter a detailed proposal and will probably be seeking chapter support as well as individual support for this idea. Please watch for his mailing and contribute in any way that you can.

The Atlanta Historical Society of Atlanta, Georgia is in the process of building a new museum. Within this project is to be a memorial to Alex Sealer, one of the founders of ABANA. At this time they are in the process of preparing a design concept for the memorial that can incorporate as many of us as we wish to participate. We all remember the combined effort for the beautiful gates at the National Ornamental Metals Museum, and although this may not be a gate, the idea is the same. I will keep you as informed as possible so that everyone is given the opportunity to contribute and in our own way, forge a lasting and fitting memorial to a truly wonderful man.

(7) PLEASE SEND YOUR NOMINATIONS FOR THE ABANA BOARD OF DIRECTORS ELECTION A.S.A.P. We have not received any nominations at the time of this mailing. The deadline for nominations to stay on schedule is (noted in Spring issue of The Anvil's Ring) June 15, 1991.

Directors who are leaving are as follows:

Ward Brinegar - Chairman of the Chapter Liaison Committee, member of the Canadian Liaison Committee, and member of the Conference Planning Committee.

Randy Calhoun - Member of Conference Planning Committee, member of the Library Committee, and member of the Chapter Liaison Committee.

Bill Callaway - Treasurer, member of the Election & Nominating Committee, member of Long Term Planning Committee, member of Conference Planning Committee, and member of the Finance/Audit Committee.

David Norrie - Chairman of the Canadian Liaison Committee, member of the Library Committee, and member of the Membership Committee.

Mark Smith - Member of the Anvil's Ring Committee, member of the Conference Planning Committee, and member of the Chapter Liaison Committee.

We are looking for those of you who would like to work on the ABANA Board of Directors and serve on committees. Please contact the ABANA Office if you have someone in mind but don't know the details of making the nomination.

Warm regards,

Dorothy Stegler
ABANA President

PRESIDENT'S MESSAGE
July 1991

DES/jgf

Dear Friends,

Summer at last!!! Now if the Pacific West will just get some nice weather to go with it, we'll all be happy.

Our long time friend and Board Member, Bud Oggier, has resigned this past month. His eyesight had deteriorated to the point that he is forced to read

only with the assistance of a magnifying glass, and in his words, "My get up and go, got up and went." He has served on the ABANA Board for a decade now and it is with regret that he leaves his position to someone more in a position to deal with the ever increasing workload and subsequent paperwork. The Board Members have chosen Charlie Orlando of Belmont New York as his replacement. As one of his last requests, Bud nominated Charlie to be considered for this post. Charlie will serve out Bud's remaining term running through to November 1992. It was a tight race between Charlie and Brian Russell of Tennessee, but Charlie won out by one vote. You will find Brian's name on the November ballot, coming right up..

We have finally settled with Al Anderson for the return of the ABANA computer and other office equipment, including The Anvil's Ring Office laser printer. Due to this situation, The Anvil's Ring budget will show that we have spent more than we had allotted for it. However, we do have the money and we will come out just fine. Thanks to Robert Owings, we are on schedule, despite the pitfalls.

We are working on the ABANA Board nominations for the ballot. Watch for yours with the Fall issue of The Anvil's Ring, due out in September, and be sure to vote. Remember, you can't gripe if you don't vote.

Thanks to all of you Editors who print this monthly update, you are our most current link to the membership.

Warm regards,

Dorothy Stegler
ABANA President

DES/jgf

FOR SALE: Homemade powerhammer (approximately 20 lbs), runs well, works fine, would be great for a hobby shop, \$225 without motor. Champion handcranked blower with stand, \$75. Contact Jerry Gier - 614-496-2532.

FOR SALE: Farrier's forge, like new, used once since stored, \$250. Contact Ray Remusat, 542 Myer St., Toledo, OH 43609 - 419-382-3832.

Epitaph of Blacksmith Joseph Hill, buried
1826, age 65, in Norton, Massachusetts.

My sledge and my hammer
Be reclined
My Bellows too
My fire's extinguished
Forge decay'd
And in the dust
My vise is laid.
My iron's spent
My coals are gone,
The last nail's drove,
My work is done.

(From the newsletter of the
Prairie Blacksmiths Ass'n)

Shop Tips

by Brad Silberberg, Bradley Metal Design, Inc.

WHEN RE-SURFACING AN ANVIL, resist the temptation to polish it like a mirror. A polished anvil is a must for cold planishing nonferrous metals, but can cause trouble when forging hot steel. A bar at yellow heat will slip and slide on a polished anvil face, making it very hard to set a shoulder on the near anvil edge, or draw a point on the far one. My anvil sometimes gets a little too polished just from use (usually during the winter when the humidity is low, not during the rust season in August) and I give it a quick rub with coarse aluminum oxide cloth to give it some tooth. Do this by hand only, as a sander or grinder will remove more metal than necessary.

THIS MAY SOUND STRANGE, but Crazy Glue is great for fastening metal to metal or other hard materials to metal. Although it should never be used on parts that will be soaked or heated, it's great for attaching light weight ornaments to larger projects. Use some common sense, and don't use it where a lot of leverage can be applied to break the bond or places where parts only barely touch.

I used Crazy Glue on a pair of newel posts that I made recently. The design called for 9" long strips of 1/8" x 1/2" steel to be attached long wise to the side of a pipe to produce a ribbed effect. I thought about all of the other fastening methods that were available to me and it seemed that all of them would either warp the thin strips, or in the case of welding or soldering, would leave excess material to be ground or scraped off, leaving marks, or at least knocking off the black oxide finish. I remembered watching a furniture company use Crazy Glue to attach electric wires to the struts of chandeliers. I tried an experiment gluing a scrap of the ribbing to a scrap of pipe. I had to smack it with a hammer to knock it loose! It wasn't even the glue that gave way. The glue pulled the black oxide off one of the bars.

To make the bond even better, I sanded the black oxide off both the back of the rib strip and

the mating area on the pipe. I then wiped both parts with acetone to remove any grease or oil that might interfere with the chemical bond. I applied the glue to the rib strip in a thin line (if you use too much glue, it weakens the bond) and pressed the parts together for two full minutes. The strips are now in place to stay. I prefer the Crazy Glue pen container as it is easier to control the flow of glue. Be careful with this stuff, **it can glue your skin together!**

A RECENT PROJECT required acorns to be forged with swage die. To make the swage, first a master pattern of an acorn on a stem was turned from tool steel and hardened. I have always read to then take two blocks of steel, heat them, and forge them onto the pattern, turning it around on its stem until the blocks met. This acorn was quite large and it seemed like an awful lot of metal would have to be displaced to get the blocks to meet. Instead, I took two blocks of steel about 2" x 2" x 1" and used a carbide burr in my die grinder to cut away enough of the mating faces of the blocks so that the master pattern would almost fit in the spaces. I checked them frequently with the pattern, making sure that when I heated the blocks and forged them onto the pattern, no voids would develop around it.

I then made a set of **hinged** connecting arms and welded them to the blocks. I use hinged arms rather than the traditional hairpin-type spring arms because they allow me to fully open the dies so that both ends are flat on a bench. I can then check or grind them comfortably. When using mated top and bottom swages, it is necessary to keep the swages tightly clamped against the hot workpiece, and my hand gets tired of working against the spring-type arms that want to open after every blow. The hinged joint also makes it easier to open the dies to insert the work. With the hinge, I can swing the top die of the pair out of the way so that I can forge steel into the bottom swage only.

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making a one sided forging (more important with pass-through type swages, like to forge half round stock).

Next, I welded the arms to the carved out die blanks, heated them, inserted the cold master pattern, and forged the dies shut under my air hammer while turning the pattern to smooth and shape the impressions. When cool the edges of each impression were then relieved with the die grinder to minimize flashing. Remember that you only need to maintain the true profile of the master pattern in a small area along the axis of the pattern to get the right profile on the turning forging because the dies will squeeze the hot blank to the smallest cross section of the impression.

I then hardened the swages and welded two plates to the lower hinged arm to create a guide fork to keep the halves of the swage aligned. I tested the dies to find the right size material to use for the forging. Finally, I used a stone in the die grinder to relieve and tune the hardened dies.

I SPENT SOME TIME at the Southeast Regional Blacksmithing Conference talking with Robb Gunter (the blacksmith at Scandia National Labs who helped develop the ABANA propane forge) and picked up these tips:

Some of you may have read in the Anvil's Ring magazine about a 10% lye quench to harden mild steel. This is **very** dangerous stuff to have around the shop. Robb has come up with a safe, bio-degradable alternative that will turn 1018 steel to 43 Rockwell hardness, and seems to do the same to the A-36 steel commonly sold as mild steel in our area. This is hard enough to use for power hammer dies, but still can be cut with a file. Somehow this quench (as well as the lye) turns the cubic steel crystals into flattened rhomboid crystals, all the way through to the center of even large pieces. This imparts incredible toughness along with the greater hardness. The metallurgists that Robb has spoken with cannot explain what

happens.

Robb and his co-workers at Scandia have done 150 test samples, complete with photomicrographs that show the change. The extreme whetting characteristics of the ingredients of this mix make it a super fast quench. Robb says that it will elevate the hardness of all carbon steels to the point where steels of 1% carbon and over will literally explode from the stress induced by the rapid cooling. Mix the following:

- 5 pounds table salt
 - 32 ounces "Dawn" dish washing liquid
 - 8 ounces Shaklee "Basic 1" cleaning concentrate (\$8-9 for 32 oz. Look under "Shaklee Products" in your business white pages.)
 - Enough water to make 5 gallons of mix
- ("Basic H" I think - ed.)

Stir mixture every time before using. Quench steel at 1550°F (bright red). Mixture is good for about a year until its components begin to break down. I told Robb about a consumer report that a local TV station did about the effectiveness of various dish soap brands and its finding that "Sunlight" worked best. I used it for my mix and it seems to work fine.

I tested the quench with several things. I found that a piece of 1/2" square A-36 mild steel got somewhat harder when quenched in plain water, but I could easily flatten the end with a 3 lb. hammer. The other end of the same bar, quenched in Robb's mix, got only a little harder but my hammer just bounced off of it. A 1-1/2" round piece of cold rolled steel quenched in the mix didn't seem to get any harder. A 1/2" octagon piece of 1075 tool steel hardened in the mix (but not tempered) broke in half when laid across the hardie hole and tapped with the cross pein of a hammer. I can see where this quench will allow

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the use of mild steel for blunt forging tools, but it can't make mild steel suitable for tools like cold chisels. I still need to experiment with different steels and different quenching temperatures.

Robb buys big hex (Allen) keys cheaply at flea markets to use for chisel stock. He straightens them out, forges what he needs and hardens them in oil.

Robb has also made some additions to his latest version of the ABANA forge. At the suggestion of a combustion engineer who we talked with at length at the last ABANA conference at Alfred, NY., Robb has added a top to the forge's chimney. Actually, it is a piece of sheet metal that holds pieces of the ceramic insulation board at the front and above the chimney opening so that heat reflects back down the chimney onto the air intake pre-heaters while still allowing the exhaust gases to escape from the open sides and back of the added assembly. Tests at Scandia have shown this reflector to raise the efficiency of this forge by a whopping 30% at the high end of its working temperatures.

The other additions are a pivoting support arm on the front of the forge to hold up long stock, a wider base frame, and stock supports on the sides of the chimney to take advantage of the waste heat from the chimney for twisting heats. Robb let me use his forge for my demos at the Southeast Conference. It was just like home. Thanks again, Robb!

If you use what Chris and I call "the Goo" (boiled linseed oil, beeswax & turpentine mix) to finish ironwork, you can darken the finish of your work by adding a little lamp black tinting color to it. (available at paint stores). We just made some drapery rods for an interior designer and had to use the rusty, scarred up steel rods we got from our supplier because there was no time to send the stuff back. (Like they would have sent us anything different the next time?) We cleaned the

rods with Scotchbrite cleaning pads, heated them and applied a coat of "goo". Chris then put a little of the lamp black on the same rag and went back over the rods. The marks in the scale were made much less noticeable and the finish looked an even, dark black. I suppose you could mix the lamp black tint right into the "goo" itself. Other tinting colors could also be used to achieve different effects.

Shop Tips from Tom Latane

by Steve Wheeler

Tom Latane, well known for his beautifully carved and detailed surfaces, hardens his chisels and chasing tools their entire length, including the struck face. He then uses a soft face hammer. Tom says he would rather dress one hammer every couple of months than rework all his chisels and tools. For forge fuel, Tom uses charcoal obtained from restaurant suppliers.

Know Your Materials

by Jan Kochansky

* ASTM A-65 is the standard specification for steel track spikes. Grade 1 is soft. Grade 2 is high carbon. The steel may be made by open-hearth, electric furnace, or basic oxygen processes.

Grade 1 (soft spikes) has 0.12% carbon minimum. Grade 2 (high carbon steel) has 0.30% minimum carbon. Either grade may be ordered with 0.2% minimum copper for corrosion resistance.

A Grade 1 spike must bend 180° flat on itself, cold, without cracking, and the head must bend backward to the line of the face without showing forging laps. Grade 2 must bend cold 120° around a pin of a diameter not greater than spike thickness, and the head must bend back to an angle of 55° with the face.

Spikes are marked on the head with the manufacturer's symbol. HC for high-carbon, and Cu if copper-containing. The marking is on the head, so it may be mashed during driving, or may have rusted off of old spikes.

