SOFA SOUNDS

SOF&A SOUTHERN OHIO FORGE & ANVIL
Artist-Blacksmiths Association of North America

JUNE/JULY 1991

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.

MAY 21st, 6 PM	SPECIAL DEMONSTRATION by Czechoslovakian blacksmith Yaroslav Valek. See details inside.
JUNE 1st	Meeting cancelled due to May 21st meeting.
JULY 6th, 1 PM	Demonstration by Larry Wood.
AUGUST 3rd, 1 PM	Demonstration by Brian Thompson.
SEPTEMBER 27-29th	1991 Quad-State Round-Up.
OCTOBER 5th, 1 PM	Informal workshop to make hardy tools or handtools out of jackhammer bits. This is not a regular meeting.
NOVEMBER 2nd, 1 PM	Demonstration by Hank Steinmetz and Don Munford on making campfire accessories.

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 Ave., Greenville, OH 45331 prior to the next meeting. We are still missing a number of these tapes. Please check your tape library. Any non-copyrighted tape may be copied.

1991 I.B.A. SPRING CONFERENCE:

The 1991 Indiana Blacksmith Ass'n Spring Conference will be June 1st and 2nd at the Stoney Creek Farm, 11366 St. Rt. 38E, Noblesville, IN. Demonstrators will

be Bob Becker, Bob Ferguson and Hans Peot. For further information contact Clifton Ralph at 219-980-4437.

SPECIAL DEMONSTRATION!!!!!:

Czechoslovakian blacksmith Yaroslav Valek is spending time in the U.S. being informally sponsored by several of the ABANA chapters. Brian Thompson has arranged for him to spend the week of May 20th in the Dayton-area and we have rescheduled the normal June meeting to Tuesday, May 21st at 6:00 PM at the Studebaker facility. To help pay his travel expenses, there will be a special auction of donated items prior to the demonstration and Brain has also made one of his gas forges to be raffled off as well. There will not be a newsletter raffle or general business meeting at this demonstration. You normally would have to travel to one of the ABANA biennial conferences to see a European blacksmith of this caliber so please try to bring along a fairly nice item to auction off. For those coming from a distance, self-contained camping will be available at the site that night.

IN ADDITION, he will be staying with Brian in Fairborn and working out of Brian's garage shop and at the Studebaker facility during the week when access to a power-hammer is needed. Anyone is welcome to come to either location during this time to watch him work, but please coordinate with Brian first at 513-878-7084.

This is a unique opportunity to watch one of the premier European blacksmiths at work so make a special effort to catch him while he is in the area.

MEETING REPORTS:

At the April 6th meeting, Doug Find gave a nifty demonstration using metals such as channel iron, angle iron and pipe in decorative forging. Some tips and techniques:

- He recommended sending off for a pamphlet titled "Arc Welding Safety" from the American Welding Society, P.O. Box 351040, Miami, FL 33125. It contains valuable tips on this subject.

- Doug has subscribed to the new "Blacksmith's Journal" and is very pleased with the publication. The illustrations and process descriptions are excellent.

- When making leaves, etc. out of channel iron, avoid hitting the ridges as their sharpness will be part of the final design. The channel can be held on the anvil step to fuller in the center of the piece. When fullering from the sides to form waves, work slowly to avoid bending in the middle.

- Angle iron makes nice leaves due to the ridge in the middle. It works particularly well for leaves such as corn or cattails. To spread the edges, hold the angle iron along the sides of the anvil, overlapping the plate, and draw blows towards middle of anvil. Putting a bend sideways in the leaf can be done by fullering one side only - essentially the same process which puts a curve in the back of a knife blade when the edge is drawn out.

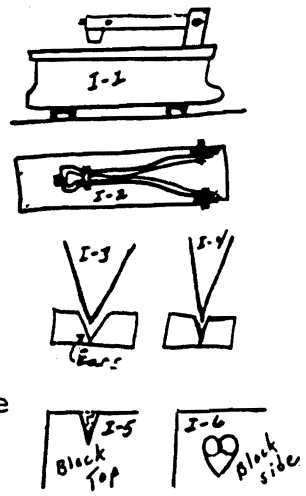
- To taper pipe, square it up and then upset from the four sides equally using light blows. When ready to go round, work the corners equally. This is basically the same process as for putting a round taper on a round rod.

- To make a plant stand top, Doug needed to curve the edges of an 8" diameter plate. To do this he made a jig for the legvice by welding on two curved lengths of rod to a piece of heavy-duty angle iron. The plate was held over the curved rods and peened in with a ballpeen hammer between the two rods. The back of the angle iron acted as a stop. By working his way around the plate, a raised lip was formed.

Doug indicated this type of material is difficult to work with due to its shape and non-consistency (e.g., the corners of channel iron and angle iron are heavier than the sides), but you can produce interesting results from them.

* * * * * * *

For the May 11th demonstration, Scott Murray made a ladle with an iron handle and brass bowl.



He started with a piece of 7/16" round stock, 2' long (each end will become a handle). The end 3½" or so was flattened with the sides chamfered. The next 2-3" was shouldered using the edge of the anvil with the center of the area left close to the original 7/16" size. The last 4-5" was flattened, cut off and drawn into a handle with a curl at the far end.

The end first flattened was split back about 2". Since he works alone, he had made a drop cutting or groving chisel out of a length of railroad track which was placed upside down and secured to a table frame. He then added two uprights on the rear and formed a bow out of about 3/8" x 1¼" flat stock with an old stubby hotcut head secured in the end. A bolt through the bow held the head secure, as did another bolt through the front of the bow and then through the eye of the hot-cut. Thus, the head can be removed for resharpening. (See I-1 & I-2). The bottom of the track, which now acts as the cutting table, was wide enough to where a quide-bar could be clamped onto it to provide a side rest for grooving. All-in-all, a nice little helper, although some work on the hotcut head to thin the blade out more would have produced less ear on the cut (See I-3 & I-4). Hacksawing eliminates the ear entirely.

Next Scott brought the legs back horizonally towards the neck with the ends rounded and slightly stepped. When near to the desired shape, Scott put them in the large bowl on his Thompson swage block and peened them to be close to matching the outside of the bowl.

For the bowl, he used a 5" disk of brass. He noted brass and copper have the opposite effect of iron. When heated to a dull red and quenched, the brass and copper (and I believe silver) are actually softened, rather than hardened. As it was being shaped in the bowl depression on the swage block, it would work harden and thus needed to be periodically reheated and quenched. I believe silver works the same way. Scott had his apprentice Ron Turpin do the initial shaping and then he switched to the middle-size bowl depression to arc the sides into a deeper, rather than shallow bowl shape. Final shaping was done on a solid metal ball (formerly the top of a fireplace andiron which was welded to a shaft to fit into the pritchel hole).

Scott assembled the ladle by having Ron handdrill holes into the handle wings and bowl and then riveted the bowl to the handle with three soft rivets, one in each leg and one in the center. Normally before this step he would have polished the bowl and did extensive file work on the handle.

Scott did two things to give his handles nifty little extra touches by doing some additional engineering on the swage block. He had cut a "V" with about a ½" opening on one side (See I-5). By laying his handle over this "V" and striking it from the backside, he was able to give a nice transition from the handle neck to the rear handle area. To add a decorative feature, he had put several sizes of recessed hearts in the anvil block sides by drilling side-by-side holes to form the top of the heart and then used a chisel to take out the rest of the heart shape (See I-6). To put a raised heart on the front top of the handle he put the handle over the heart recess and struck it from the back with a punch of approximately a heart shape. This produced a raised heart maybe 1/16" high.

Scott said he sells a set of a ladle, strainer ladle, iron fork and iron spatula for $100.00. Scott also said this was the first time he had demonstrated to a group and he did a really nice job of it. We hope to have him as a demonstrator again in the future.

In the newsletter of the Prairie Blacksmiths Evvert Browning noted that to accommodate visitors with motor-homes he dug down to the sewer line in his back yard and installed an RV dump. I suspect this was a fairly inexpensive operation.

WANTED: Craftsmen and/or demonstrators for the Clifton Days Festival, Sept. 7-9. Draw of 20,000-35,000 expected. Contact Bob Green (513-767-1876 or Tony Satariano (513-767-9459).

WANTED: SUBCONTRACTORS to make scrolls, leaves, balusters, etc. Contact Roger Scott, Custom Ironworks, P.O. Box 180, Union, KY 41091 - 606-384-4122.

Reprints of 1915-1918 blacksmithing magazines and blacksmithing posters are available from Gardner Enterprises, P.O. Box 338, LaFontaine, IN 46940.

If you find mistakes in this publication, please consider that they were put there for a purpose. We publish something for everyone, and some people are always looking for mistakes!!!!! (From the newsletter of the Indiana Blacksmithing Ass'n).

The Blacksmith's Journal is an information-oriented publication, presented in illustrated form, focusing on blacksmithing techniques. New and old techniques are shown in accurate detail and distributed monthly to provide a continually growing 'how-to' source of information. Subscription is $28 per year to Rt 1, Box 189, Lonedell, MO 63060. Backissues and binders are available.

The City of West Milton is looking for blacksmith demonstrators for their 4th of July festival, 2-4 July. Contact Karen Calahan at the West Milton Chamber of Commerce at 513-698-3055.

When attending the monthly SOFA meetings and demonstrations, please pick up your coal prior to the meeting.

For safety reasons we are starting a new demonstration policy to strongly encourage the wearing of safety glasses during the demonstration. Please bring a pair with you to future meetings.

INFORMATION ON ANVIL REPAIR (from the newsletter of the Blacksmith's Ass'n of MO):

Old anvils are most commonly found used and abused to the point the working edges and face are chipped and broken. Generally, this damage can be successfully repaired by arc welding with an appropriate filler rod. Many people automatically think of "hardfacing" rod for this purpose, but a couple of points should be considered here:

1. True, "hardfacing" welding rods and filler wire are meant mainly to counter-act abrasion, and to some extent corrosion and heat, and to a lesser extent, impact. That is the key work - for anvils, we are concerned with - impact. These "hardfacing" alloys usually contain significant percentages of chromium and/or tungsten. While the weld deposits are extremely hard, they have little ductility and resistance to impact. They tend to crack and spall, and in fact some are meant to check and crack as the weld bead cools down, thus providing instant stress relief. This is OK for gravel buckets and ripper teeth, not so hot for your beloved anvil.

2. Impact resistance calls for what are typically classed as "build-up" alloys. These are often used to deposit heavy layers of weld metal, sometimes several inches thick on such items as ore crushers and railroad track switch gear. This thick, ductile, "cushioning" layer is often capped with a thin layer of hard abrasion-proof material. "Build-up" alloys typically contain a lot a manganese and molybdenum and it is important to note they are definitely work-hardening; intentionally work-hardening in fact.

Now a few words about the practical application of build-up alloys, but first a word of caution is in order. The anvils we are talking about here are forged from wrought-iron with a faceplate of hard steel forge-welded on top. It is possible for this faceplate to separate from the wrought-iron body of the anvil. Before any welding is considered, tap the faceplate all over with a hammer. Listen for dull-sounding spots which might indicate a fault or void in the critical forge weld. Examine the sides of the anvil for splits in the seam. Welding on an anvil with a defect in the face-to-body weld may cause the face-plate to partially lift, so check it out carefully. If everything looks and sounds OK, then it's probably safe to commence a repair by arc-welding.

I've used and experimented with a number of "build-up" alloy rods and the one I most prefer is a Stoody Welding Company product called "2110". It is a high manganese iron-based rod, with a tensile strength of about 135,000 PSI. It welds easily on AC or DC, the weld deposits are smooth and clean and not too hard to grind down. It work hardens to about 56 RC.

My welding procedure is pretty simple, a little preheat on the anvil is OK, especially in a cold shop on a winter day, but not too much - about 200°F maximum. This is important, as too much preheat causes enbrittlement on manganese steels. Too much preheat may also lead to porosity in the weld deposits. Weld with a short arc at fairly low amperage. Use stringer beads or a slight weaving motion. You want lots of extra height and mass in the weld deposit. Stagger the welds to keep the heat down, especially when welding long areas on the edges.

The next step is stress-relief and work-hardening. As soon as you've run a bead, immediately put down your hood and stinger and grab your hand hammer. As the weld starts to cool, peen it down. Hit it hard. Forge it down, hammer it until it barely deforms at all under heavy blows. You'll feel the weld work-harden, becoming more and more resistant to the hammer. Now go ahead and weld another beed somewhere else.

After all the welding and peening is done, grind, sand and polish to your satisfaction. That's it. (By John Murray)

I have done repair welding on three old anvils, including one Peter Wright which required complete resurfacing and a build up as great as 3/8th" in the center of the face. My experience has been similar to John's, but I would like to add to his comments.

1. Preheat: This is often a compromise between what's best for the filler material and the faceplate. Old anvil faces are usually plain carbon steels and may be very hard. Hardness may vary from anvil to anvil within the same make. My two Peter Wrights were relatively soft; a Trenton I worked on is so hard it shows no hammer marks after decades of service. High carbon steels should usually be preheated to around 400°F before welding and more won't hurt. If the manufacturer of the welding rod says no preheat, I would compromise. Try to avoid cooling stresses on the parent metal. Cracks, once started, will propogate themselves. If you preheat do it slowly and throughly. A charcoal bricquet fire works.

2. Welding sequence: I start at the middle and work out, as though tightening head bolts, on the theory it works stresses out to the edge and ends, rather than

(Continued on Page 11)

BLACK(SMITH) MAGIC! by Ron Thompson

Blacksmiths are really wonderful people and I can't imagine a group of people that I'd rather spend some of the increasingly precious hours that I am allotted on this magnificent earth. But..... I have noticed one little thing. Blacksmiths love a mystery. Or a magical solution that defies the law of gravity, Newton's second postulation, and Iben Brownings latest prediction. Now having said that, I must admit a couple of things. I am a Hobby Blacksmith (albeit not a very good one) and have worked most of my career as a foundry metallurgist/weld shop-foundry manager. I started my blacksmithing as a result of pursuing interests in colonial ironware, bladesmithing, and a desire to forge out a Kentucky rifle gunbarrel. Right away, I became intrigued in discovering some of the long lost secret processes of the old blacksmiths, and I heard of Indiana blacksmiths, from days gone by, who swore by only using "BLACK DIAMOND" steel for their stone chisels. A little research and I discovered that "BLACK DIAMOND" was basically AISI 1075, or a plain carbon steel of 75 points of carbon. No magic. No exotic alloys. What a bummer. A little more research and I found that before about 1920 the only high carbon steel available was plain carbon steel of about 75 points to about 120 points of carbon. That really made sense since the use of alloys to enhance the hardenability of steel is a relatively late science. In other words, it wasn't available to the early blacksmiths.

Then a fellow Indiana blacksmith told me that he had a copy of the secret process that Little Giant used to temper their power hammer dies and the secret steel composition that they used for their dies and he would trade a copy of this information to me for a copy of my tool steel data I had gotten from my metallurgy books at work. What a deal. Of course, I agreed so fast his head was spinning for, if the truth be known, I would have given him,or anyone else that wanted them, my copies with no more than a simple request. And now, I was going to get the secret information on the Little Giant Hammer. The day it came in the mail I couldn't contain my excitement, ignored my wife-mate, and began to digest the secrets. Wait a minute, something is wrong. The secret composition was AISI 1075 and the secret hardening process was to get it cherry red on the top surface about 1/2 inch in and quench it upside down in a water tray, moving it continuously. Where's the magic here.

By this time you probably have suspected that I was beginning to get the message that blacksmiths of old were incredibly talented people, using two basic iron products(wrought iron and blister-1075-steel) to make wonderful things. Wrong. I was still expecting to find a few long forgotten magical secrets of manufacture that would defy the laws of nature. So, one day I was just hanging around the blacksmith shop at Friendship during the National finals-just tickled to death to be shooting the breeze with the likes of Daryl Meier and Henry Palmer and several others-when Daryl remembered that I had a Metallurgy background and referred me to Henry.

Henry was an old-time blacksmith who was one of the neatest characters I have ever had the fortune to run into in this business. The first time I met him he must have been in his late eighties and was carrying water buckets back and forth to the slack tub in the shop. Several conversations were going on at once in the background and finally Henry stops what he was doing and looks at me, hanging over the counter watching the proceedings, and says "Do you know what I'm doing ?". Well, I'm not too smart and being around famous blacksmiths always makes me realize how much I don't know, especially about blacksmithing, so usually I'd try to hide my ignorance by fading into the woodwork. Now I figured Henry had caught me and no matter what answer I gave it would no doubt be wrong and everyone would laugh at me. But that's happened before (and since), so I said "It looks to me like your filling the slack tub." Henry said "Do you know how much water it takes to fill a slack tub ?" "No", I said. He said "A blacksmith has got to have enough water in his slack tub to drown a yaller dog." I'll never forget it.

Anyway back to the other story about Henry's metallurgy problem. Henry showed me a knife blade he made out of a steel he got from left-over worn-out shear blade from the whiskey distillery down the road. It was the greatest steel he ever used for knife blades and held the best edge and he would like to know what it was made of. I told him shear steel is often like an AISI 5160 but I could run it through our lab at work as a favor for all the stories he had entertained me with. I don't remember if it was he, or another fella there, who said if I would do that he would bring me the secret steel composition for the steel used in a Hammer plant in West Virginia. Also, the steel used for axes and sledge hammers made at the same plant. What a deal.. Well, I analyzed Henry's steel and sure enough it was 60 carbon, 80 manganese and 80 chrome or AISI 5160. Next Friendship I reported the results and received the news on the hammers and axes. You guessed it. AISI 1075 plain carbon steel. Sledge hammers were AISI 1060 plain carbon steel. By then it was hitting me that even though a Chrome-Molybdenum bearing steel such as AISI 4140 would probably make a superior hammer the cheapest steel to use and still get a good acceptable hammer was a plain carbon steel. Alloys cost money.

Since that time I have heard all manner of amazing magical tricks used by blacksmiths; their variety and sheer inventiveness have never failed to thrill me. Such things as sighting down over the fire to get the time when the flame just breaks the surface before putting your piece in the fire for reheating. Woah! I always see beginning blacksmiths, and even grizzled veteran blacksmiths, writing furiously whenever a new one pops up. Finally, I'll admit that I even hide my skepticism somewhat because when demonstrating making a small spring for a project at a S.O.F.A. the other day my partner, Ron Van Vickle, and I admitted that while we quenched the spring in an oil pan that was sitting east and west we moved it north and south while quenching so it could absorb the magnetic field of the earth, or the molecules could align with the magnetic poles, or something.

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
May 1991

What a Spring! I want to apologize for not corresponding with you last month. The kerosene heater in our living room blew up and I had my hands pretty full getting the fire out before we lost more than the carpet and drapes. I managed to get the darn thing outside mid full blaze and sustained only 2nd degree burns on my hands and lost about 4 inches off my hair. Fortunately, it was the bottom 4 inches instead of the top 4!! I was down for about two and a half weeks, but I'm up and running fine now.

I want to remind everyone to get your signatures in to our main office by June 15 for the upcoming Board of Directors Election. You will need 10 signatures of ABANA members in good standing to qualify for nomination. You are going to want to send a snapshot of yourself, and a short paragraph telling why you want to run for the Board. You might want to include a notation on what you feel you can contribute to the organization in the way of service. If someone doesn't recognize your name or face, they will be looking to that statement when they vote.

We have just received the last of the slow mail from past Editor Al Anderson, so we can look forward to some of those great articles in print very soon. Thanks for the vote of confidence while we moved the Editor's Office.

I got a note from Ben Fenton of Wellsville, NY and he had submitted an article entitled "Blacksmiths as Artists", to the flight magazine that Delta Airlines publishes. He said that it had been accepted for the Sky Magazine, June issue. If any of you are flying DELTA in June, pick one up. I haven't actually seen the article, however I am confident that it will represent us well.

We are currently working on the *Long Term Plan* for ABANA. I am in hopes that some of you will have some suggestions in this direction. We are quite solvent at this time and we want to implement a good guide line for the organization to follow. If you have any suggestions, please mail them to the Chairman of the Long Term Planning Committee, Mark Smith, 165 E. Derry Road Apt A-1, Hershey, PA 17033. Something that I personally would like to see, is a bridge for the wide gap between those who call themselves Farriers and those who identify with the term Artists, and/or hobbyists craftsman. Any suggestions??

We are also putting together the next ABANA National Conference to be held in California during the summer of 1992. Have you any suggestions for who you want to see as demonstrators or lecturers? Any suggestions should be sent quickly to Chairman, Michael Bondi, 1818 Shorey Street, Oakland, CA 94607.

Have a real great June and take time out to smell the flowers!

Warm regards.

Dorothy Stiegler

Dorothy Stiegler
President of ABANA

DES/igf

Editor Everett Writes: (From the newsletter of the Prairie Blacksmiths Ass'n. Note comment about quench results varying from batch to batch of mild steel)

More About the Lye-water Quench

More about the lye water quench: recently Dr. Lester Russell, head of Industrial Arts at Peru State College and I checked the hardness of mild steel when quenched in lye water. First we checked an untreated, unheated piece of mild steel which registered Rockwell C - 0, a normal reading.

After heating to a high yellow and quenching in a solution of one can of lye to one gallon of water, we checked the piece in several places and on different sides. It tested C48, C44, and C44 on one side. On the other side it tested C44 and C35 (apparently I had failed to sufficiently move the steel in the quench).

We then ground several thousands of an inch off the surface of the steel with no appreciable loss of hardness, indicating the hardening was more than just a surface hardening.

To give an idea of the relative hardness of the Rockwell scale we checked a couple of industrial grade commercial cold chisels in the Industrial Arts shop. One tested Rockwell C45 and one tested C55.

We then put our hardened piece in a tempering furnace at a controlled heat of 400 degrees F. with a soak of several hours. The piece then registered C40, indicating that the steel can be tempered after hardening with this process.

More hardening info next issue on salt-water quenches.

...Everett Browning

More on those Quenches

One thing has been evident in this quest for quenches of mild steel: not everything worked out the way I expected.

To sum up what I found: generally lye water (one can of Red Devil to a gallon of water) gave a harder quench than brine (3/4 pound of rock salt to a gallon of water) and brine gave a harder quench than plain water. Mild steel quenched in oil had about the same hardness as before it was quenched, in other words no hardness added.

I found that different batches of mild steel varied as much or more than the quenches used. One batch of 1/2" square mild hardened in a lye water quench to C-50 (Rockwell scale). Another batch of cold rolled hardened under the same conditions to C-22 at one extreme and C-0 at the other extreme and varied widely depending on where the test was made on each piece. Some pieces did not harden at all.

Temperature of the quench makes some difference; the warmer the quench the less the hardening.

Brine quench hardened almost as much as lye water and is much safer. Large pieces of hot iron make lye water spew violently so it is advisable that you wear protective clothing and a full face shield when working with the stuff. Lye water takes off scale and generally leaves a cleaner grey surface than other quenches.

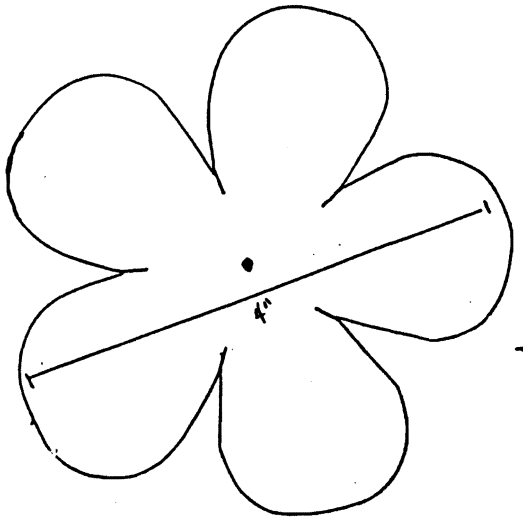
Quench Test Results

	All quenches at yellow heat		
mild steel	Water	Brine	Lye water
3/8 x 3/4"	C-39	C-40	C-42
3/8 x 3/8"	C-38	C-45	C-49
1/8" plate	C-0	C-0	C-22

Each hardness figure is an average of four readings, two on one side and two on the other using an Ames tester. Test conducted by Everett Browning at his shop using Ames tester loaned by Peru State College Industrial Technology Department, Dr. Lester Russell, chairman. Quench temperatures were ambient.

ROSE BY JIM ROBARR (From the newsletter of the New York State Designer Blacksmiths)

SPECIAL THANKS TO STEVE JOSLYN FOR SHOWING ME HOW TO MAKE A ROSE.

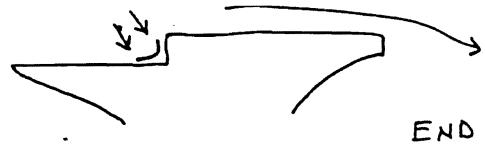


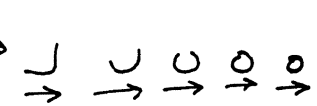
← NEED FOUR: 4", 3½", 3" & 2½"

START BY CUTTING OUT THE LIGHTEST STOCK YOU CAN GET (18 TO 24 GA.). FILE ANY SHARP EDGES. HAMMER BOTH SIDES TO MAKE VERY FLAT.

USE SAME SIZE STOCK FOR LEAFS AS WAS USED FOR PETALS.

NOW ROLL STEM OF LEAF. START ON CORNER OF ANVIL TABLE, THEN WORK ROUND - SEAM WILL BE USED ON BACK SIDE OF LEAF STEM. ↗

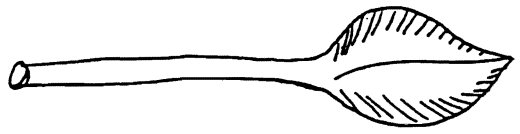




END VIEW of LEAF STEM

FOLD LEAF (KEEP STEM SEAM ON BACK SIDE) TO MAKE SEAM IN CENTER of LEAF. RE-OPEN THEN WORK EDGES.

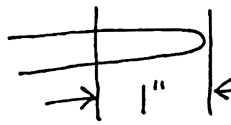
PINCH DOWN HERE, LEAVE END SLIGHTLY OPEN



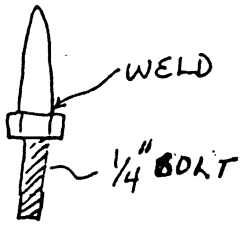
PRY OPEN LEAF AND WORK EDGES ON HORN of ANVIL

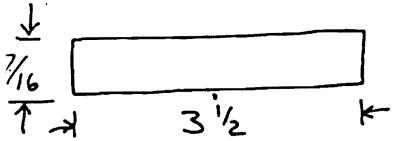
CUT OUT PETALS AND PUNCH OR DRILL HOLE IN CENTER FOR ¼ BOLT.

FORGE ¼ TO 5/16 ROUND STOCK TO A BLUNT END, FILE AS NEEDED. NOW CUT OFF TO 1" LENGTH.

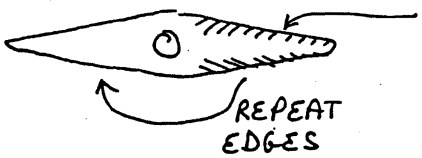


NOW GAS WELD TO ¼ BOLT

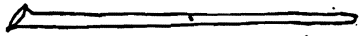




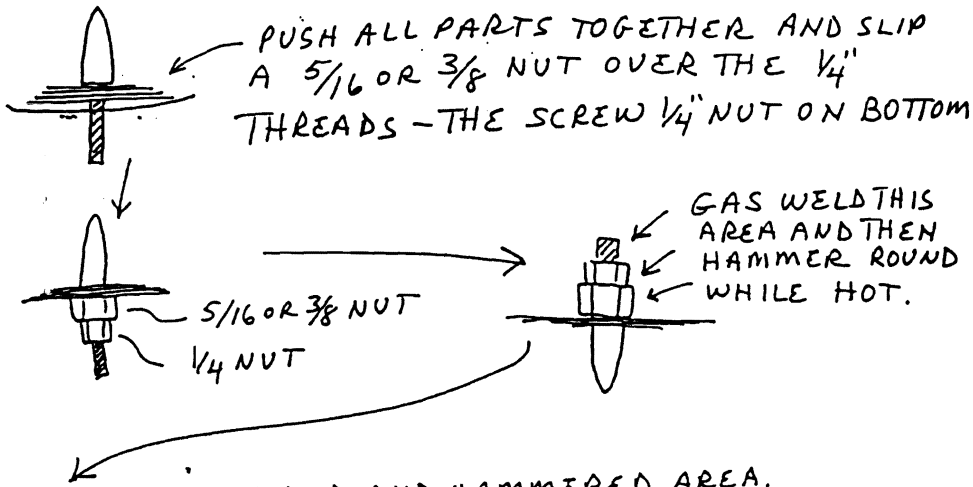
CUT PETAL STOCK 7/16 X 3½" TRIM ENDS, PUNCH OR DRILL HOLE TO FIT ¼" BOLT.

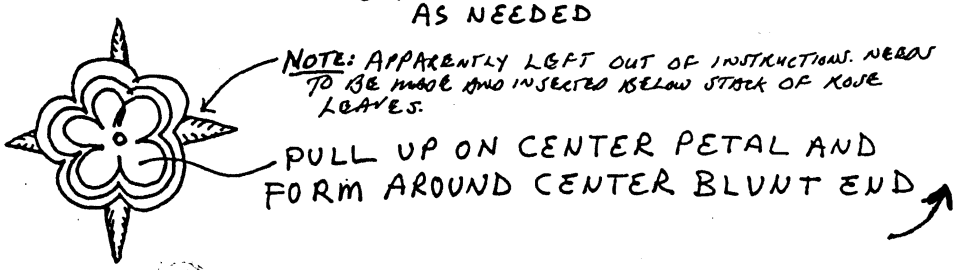


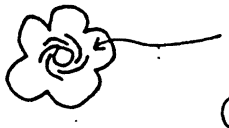
MAKE ROSE STEM 1/4 TO 5/16 ROUND STOCK 12 TO 14" LONG — TAPER ONE END (FORGE) AND UPSET BIG END

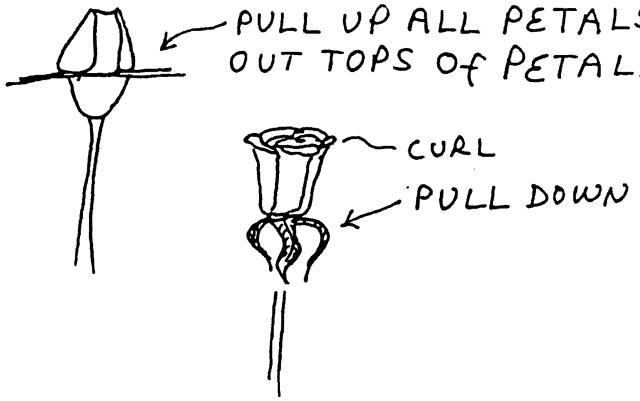


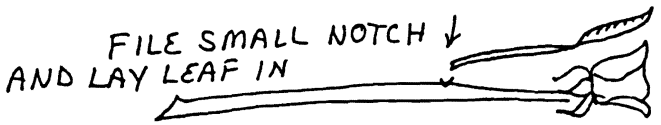
TAKE PETALS AND BUD COVER ALONG WITH 1/4" BOLT (1 TO 1½" LONG) AND PUT ALL PARTS TOGETHER (See Note below)



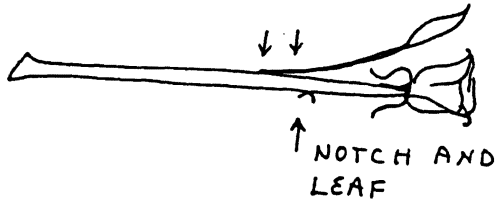








GAS WELD STEM OF LEAF ON TO ROSE STEM, HAMMER WHILE HOT.



PULL LEAFS OUT AND SHAPE AS NEEDED. HEAT ROSE AND COAT WITH LINSEED OIL.

trapping them. This may not be right, but it's worked so far. Don't hurry. Run short beads (1" - 2" maximum). Have a cup of coffee.

3. Procedure: Keep welding heat low. Set your machine as cold as you can and maintain the arc. Keep rod angle to work high. You want to increase the deposit rate and decrease penetration.

4. Cooling rate: As slow as possible. A little postheat with the rosebud helps here. Consult your supplier.

5. Holes: Fill your hardy and pritchel holes with fireclay. Shape the clay to suit and weld right up to it. Otherwise you'll either end up with weld metal in the hole or with a sloping, ragged edge. (By Walt Hull)

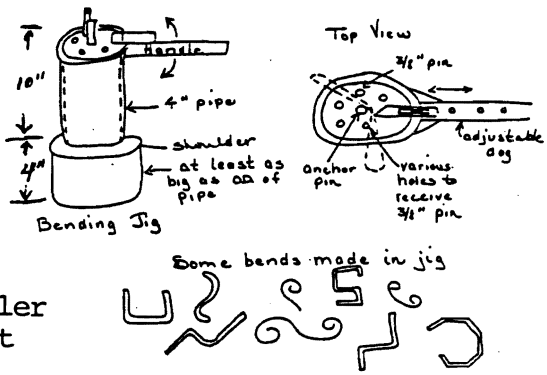
(Editor's note: I've welded up anvil faceplates simply using 7018 rod with good results, although I don't do very heavy forging. If the faceplate is 'supersoft', the anvil may have been annealed in a fire. The anvil can be reheat-treated by a company specializing in heat-treating.)

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 SOF&A 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!

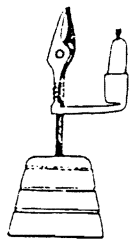
- LEG VISE SPACERS: If you hold something in just one side of your leg vise, the jaw will rack, lessening the grip on the item held. A piece of scrap the same thickness can be used but requires three hands to hold the work, the scrap piece and to tighten the vise. Glenn Horr made a set of spacers by spliting the top half of various thicknesses of stock and forming legs as shown. He stamps the size on each one. (From the newsletter of the Appalachian Blacksmiths Ass'n). (Another method to make these spacers is to fold the top half of the spacer over one side of the vise as shown in the second illustration. - ed.)

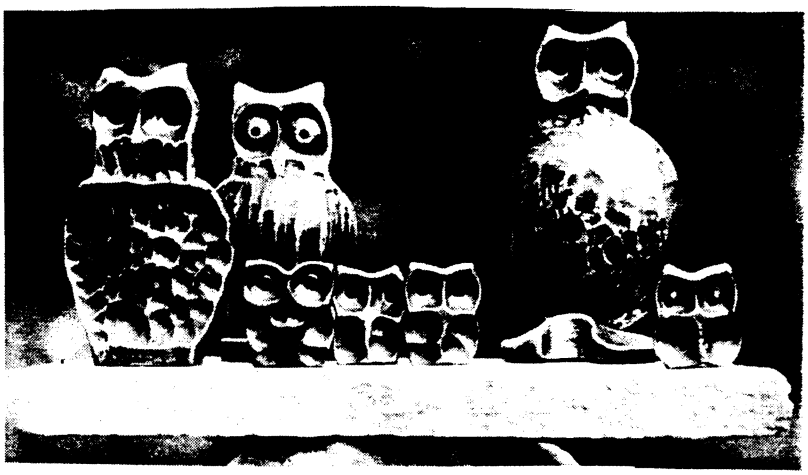
- TRIP HAMMER SAFETY CABLE: Probably the most dangerous breakage on a power hammer is breakage of one of the arm or the spring between the arms, as the spring can come flying towards the smith. To add a safety feature, Clayton Carr reported in the Fall 90 issue of The Anvil's Ring he strung a length of plastic coated aircraft cable through the spring and secured both ends to the side arms (ends towards the front) using standard wire clamps. Double nut the clamps or use lock nuts. When one of his hammer arms broke, the spring stayed with the hammer, not flying towards his chest.

- BENDING JIG: This handy little bending jib can be made from scrap and is a real time saver when making various bends. The center was made from a piece of 4" pipe inside diameter. A pattern of 13/32" holes were drilled in this piece to receive 3/8" pins. The handle was made from a piece of 3/4"x1½"x24" hot rolled - 1/2" tapped holes in the handle allows the bending dog to be adjusted. Using different pin arrangements allows for larger or smaller radius of the bend. Bushings can also be made to fit over the pins to make even larger radius. I use my bending jig all the time in my shop to bend everything from U-bolts to decorative scrollwork. (By Ralph Miller, Jr., from the newsletter of the Michigan Artist-Blacksmith Assoc.)



RUSHLIGHT HOLDERS: You may have seen handle holders like the one illustrated and thought, like me, the tong jaws were merely oramentation. However, it turns out they actually served a purpose. The following is from the book "Old Farms: An Illustrated Guide" by John Vince: "Country people used to rise at daybreak and to go to bed at dark. Lighting was expensive and used as little as possible in ordinary houses. The simplist lights were made from rushes which had been peeled and their pith dipped into fat. Rushlight were held in holders which had jaws like a pliers. Sometimes the counterweight which kept the jaws closed was formed to hold a candle. Rushlight holders were made by village blacksmiths and do not conform to a standard pattern. In use rushes burnt quite quickly. It was a child's task to keep moving the rush in the holder so the jaws did not put out the precious flame."





". The Owl Family" - One of Jaroslav Valek's sculptures.

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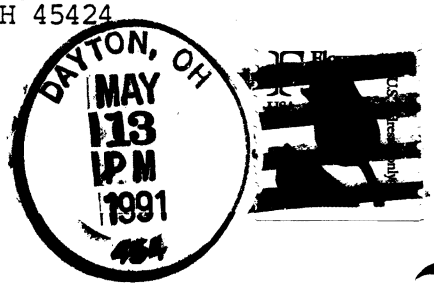

Richard A. Franklin
7158 Klyemore Dr.
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