

EDITOR - ONLY COPY

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Hot Iron News

-- Voice of the Northwest Blacksmiths Association



March

1989



Northwest Blacksmith's Association

P.O. Box 81041

Seattle, WA 98108

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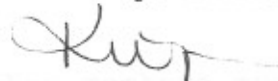
FROM THE EDITOR

Well, another year has passed. It was a very busy year for me. Six issues of the Hot Iron News! And HIN is only a quarterly!

I need your help! You will notice a distinct lack of photographs in this issue. I would like to start a showcase for members work. Black and white photos work best but color photos with lots of contrast between light and dark work well too. So please look through your portfolio or album and choose something you are proud of. For the June issue I need the photos by May 1st.

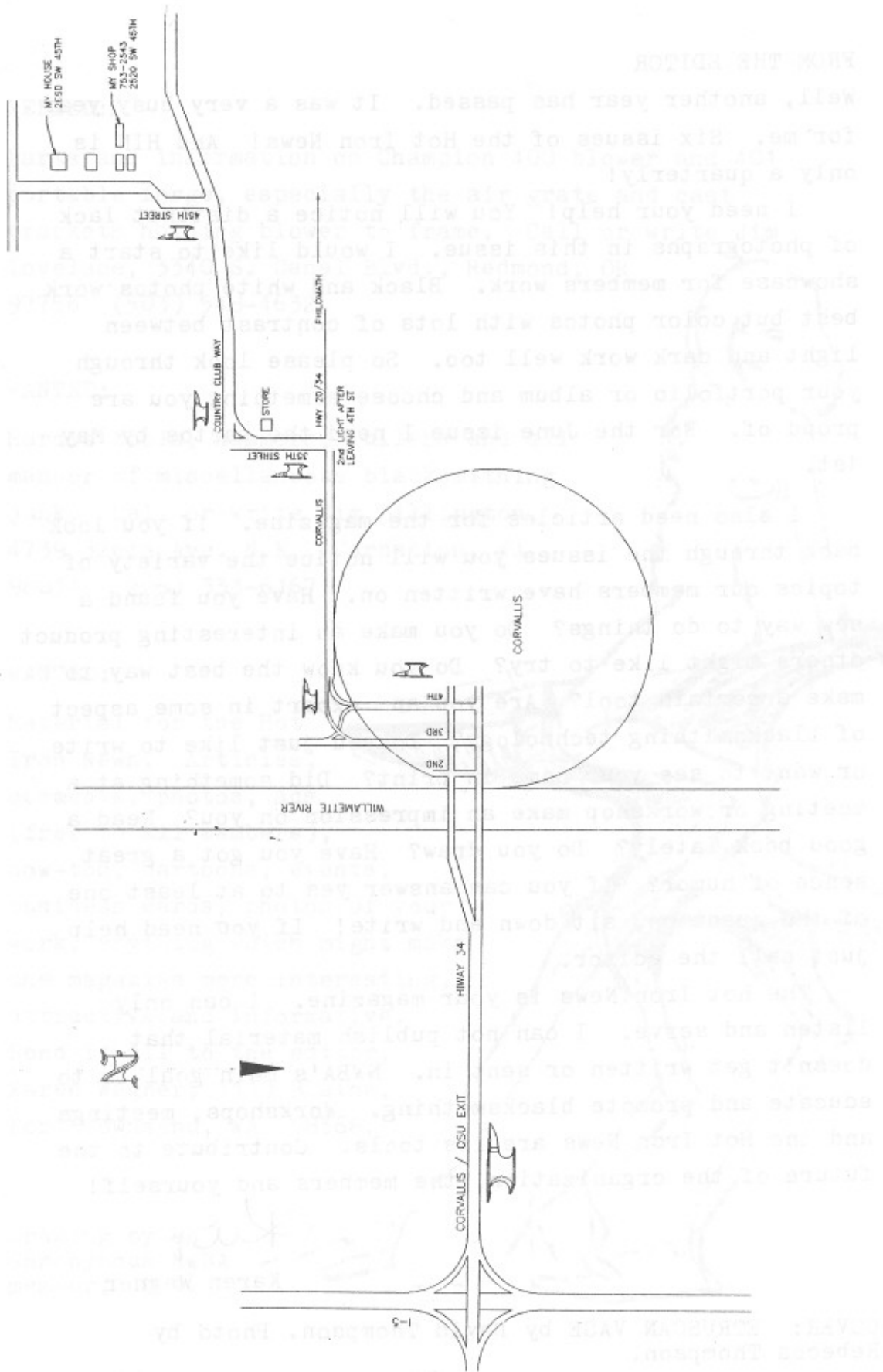
I also need articles for the magazine. If you look back through the issues you will notice the variety of topics our members have written on. Have you found a new way to do things? Do you make an interesting product others might like to try? Do you know the best way to make a certain tool? Are you an expert in some aspect of blacksmithing technology? Do you just like to write or want to see your name in print? Did something at a meeting or workshop make an impression on you? Read a good book lately? Do you draw? Have you got a great sense of humor? If you can answer yes to at least one of the question, sit down and write! If you need help just call the editor.

The Hot Iron News is your magazine. I can only listen and serve. I can not publish material that doesn't get written or sent in. NWBA's main goal is to educate and promote blacksmithing. Workshops, meetings and the Hot Iron News are its tools. Contribute to the future of the organization, the members and yourself!



Karen Wagner

COVER: ETRUSCAN VASE by David Thompson. Photo by Rebecca Thompson.



Announcements

NWBA'S 1989 SPRING GATHERING

The spring gathering will be at Kent Rudisill's forge in Corvallis, Oregon on the 15th and 16th of April. It promises to be a great event. NWBA has arranged for Mark Bokecamp of Powell, Ohio and David Thompson of Eugene, Oregon to demonstrate.

Mark Bokencamp is an artist-blacksmith. His work ranges from traditional to very modern, architectural to utilitarian. It is clean, refined and employs a variety of techniques.

David Thompson is also and artist-blacksmith. His work is modern and at times experimental. He does architectural work as well as utilitarian objects and sculpture.

SPRING FEAST

A usual we will serve our usual pot-luck dinner Saturday night. The main course will probably be beef cooked over coals on the NWBA spit. Bring along your favorite dish or two. If you last name starts with A-H, a salad or hot dish and if your name starts with I-Z, a dessert or hot dish.

NWBA AUCTION

Join in the fun of our sixth auction. Bring along your life savings and something interesting for the sale Saturday night after dinner. All contributions are tax deductible!

REGISTRATION FEES

Current members - \$25. Families - \$12. Non members must pay and additional \$15 membership fees. ALL participants must be members because of insurance considerations.

NWBA'S TENTH ANNIVERSARY GATHERING

October 6th, 7th and 8th

Our 10th is coming soon. Darryl Nelson has arranged for a really special location up at Paradise, Washington. The meeting will be held in a private park one mile below the Paradise entrance to Mount Rainier. The park is on the Nisqually River and boasts, besides fantastic scenery, a small railroad and steam engines. There are cabins for people to roll out their sleeping bags in and restaurants, a bakery, a deli, cabins for rent and other lodging nearby. The demonstrators the Board is approaching should be really special. The event promises to be one to remember! See you there!

NWBA BOARD NOMINATIONS

The election is coming up in June. Nominations will be taken at the Spring Gathering. If you think you could make a contribution to NWBA, get someone to nominate you. If you know of some shy person who you think would be a great asset on the board, nominate him or her. Ballots will be mailed out in May. Please take the time to vote and drop the postcard in the mail.

CARPOOLS!

Call Karen Wagner if you want to share a ride for names and phone numbers of NWBA members near you. (206) 385-5272, after 6 PM.

RIDE NEEDED:

I need to find a ride or someone to share gas with to the spring gathering. If you are traveling on I-90 you go right near my home. Jim Billington, 4739 326th Ave., Carnation, WA 98014. (206) 333-6167.

***** SPRING BLACKSMITH SEMINAR *****

Mark Bokenkamp from Powell, Ohio will be on hand to show you the techniques that have made him the successful artist blacksmith that he is. No matter if you are a beginner or more advanced in your abilities, you will learn a lot from Mark. He will share a wealth of experience gained from operating his shop in Powell, "Bokenkamp's Forge". From large, architectural pieces to small household items, Mark has done it all and will show you step by step how he did it! Don't miss this special workshop featuring one of the USA's best smiths. Register right away, space will be limited.

SATURDAY, APRIL 8, 1989,
9:00 AM TO 5:00 PM-

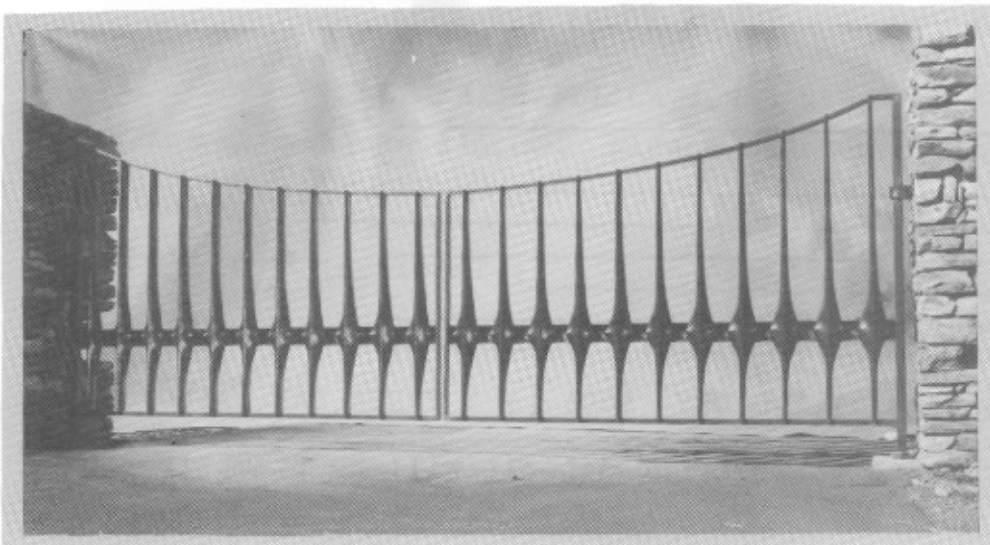
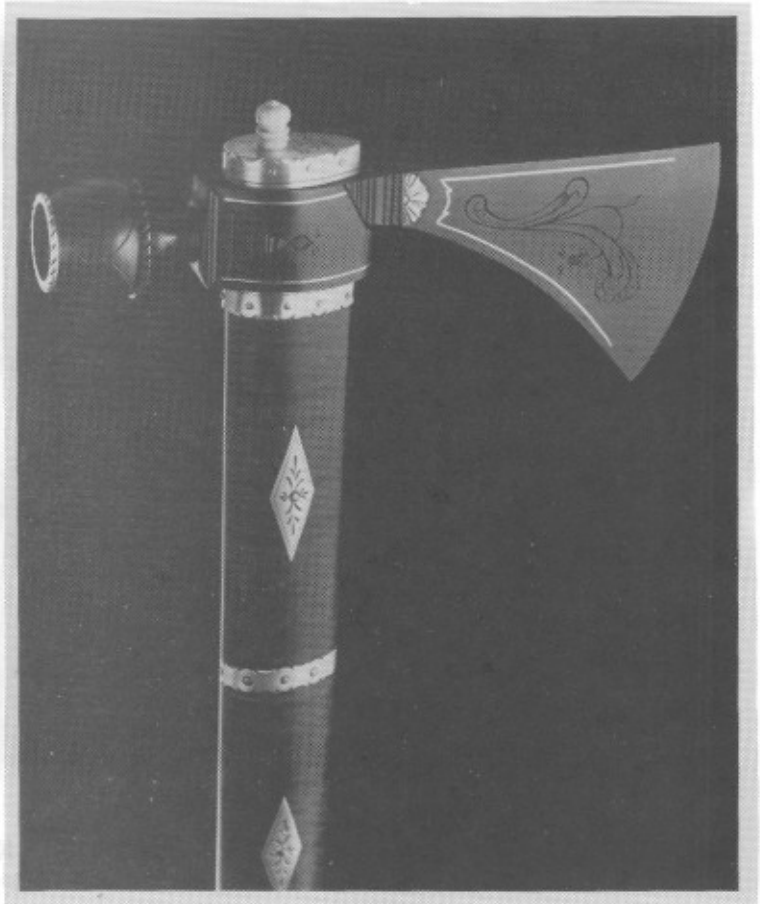
Mark will be demonstrating various blacksmithing techniques, based partially on input from the participants, and his own considerable experience. Lunch will be provided.

SUNDAY, APRIL 9, 1989,
9:00 AM TO 5:00 PM-

Forging stations will be set up, and you will have the opportunity to work under Marks' supervision on whatever you wish. Lunch will be provided.

MONDAY, APRIL 10, 1989, 9:00 AM TO 5:00 PM -

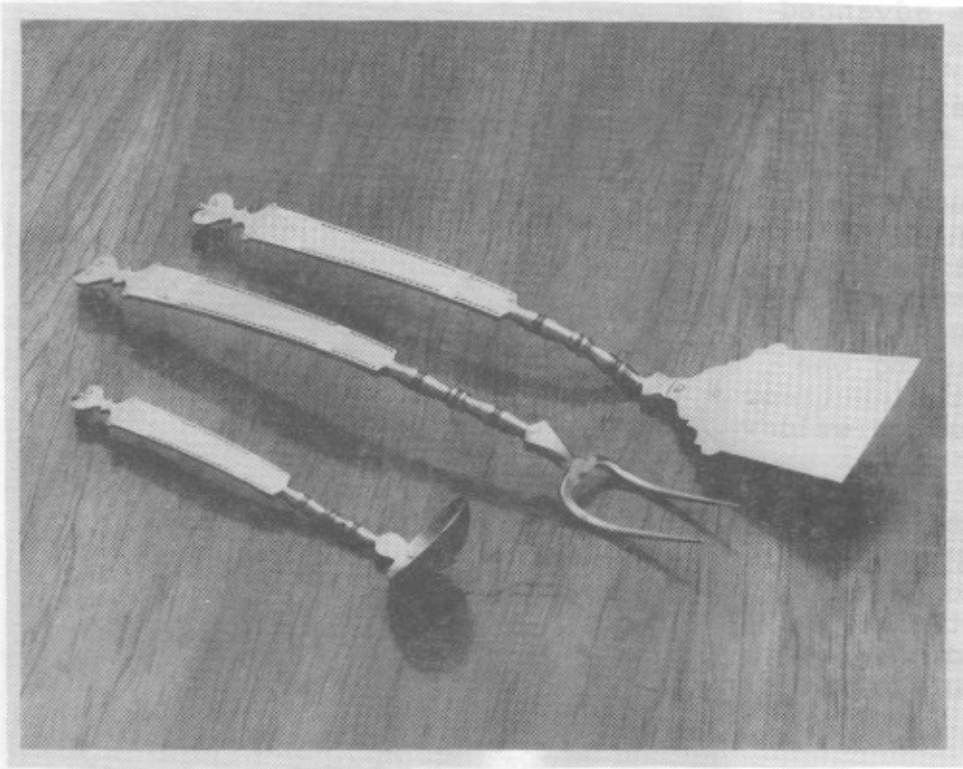
This will be a rare opportunity for you to get more "one on one" with Mark to get full benefit from his experience. Lunch will be provided.



All the coal, steel and material you need will be supplied for you, but you should bring your own tools as we may be short.

There is plenty of room for campers or tents or there are plenty of motels in the area.

Mark Bokenkamp from Powell, Ohio will be on hand to show you the techniques that have made him the successful artist blacksmith.



A \$20.00 deposit will reserve your place. In the event all places are taken, your deposit will be promptly returned.

TWO DAYS:

Saturday and Sunday cost will be \$80, lunch provided.

THREE DAYS:

Saturday, Sunday and Monday cost will be \$110, lunch provided.

Please fill out and return the form below along with your \$20.00 deposit to:

Clayton Carr Rt. 2 Box 2911 Kennewick WA 99337 (509) 586-9278
** OR **

Richard Karnesky 1491 Amon Drive Richland WA 99352 (509) 627-1312

Please send this form along with your \$20.00 deposit to:

Clayton Carr
Rt. 2 Box 2911 ** OR **
Kennewick WA 99337
(509) 586-9278

Richard Karnesky
1491 Amon Drive
Richland WA 99352
(509) 627-1314

Name: _____

Address: _____

City, State: _____

Phone: (____) _____

I am planning to attend: [] TWO DAY (\$80) [] THREE DAY (\$110)

In the event all places are taken, your deposit will be promptly returned.



1-25-89

DEAR KAREN,

GREAT JOB ON THE NEWSLETTER! WHAT HAVE YOU BEEN DOING IN P.T. KEEPING WARM & DRY I HOPE.

GENE CHAPMAN HAS ASK ME TO DEMONSTRATE IN APRIL AT CORVALLIS & REQUESTED I SEND YOU THE ALL ABOUT MYSELF.

I AM HAPPY TO DEMONSTRATE AT THE SPRING MEET IN APRIL FOR N.W.B.A.

I WILL DEMONSTRATE THE FORGING OF PIPE & TUBING, SOME OLD STUART HILL TRICKS & HAVE A SHORT SLIDE SHOW.

I DEMONSTRATED AT THE 1986 ABANA CONFERENCE IN FLAGSTAFF, AZ. AS WELL AS NUMEROUS CHAPTER MEETINGS. I HAVE OWNED & OPERATED A ARCHITECTURAL & SCULPTURAL IRON WORK BUSINESS IN EUGENE, OR. FOR 18 YEARS, I AM CURRENTLY WORKING ON A PUBLIC FOUNTAIN INVOLVING 300 FT. OF 2 1/2 IN. PIPE.

TAKE CARE, DT.

David Thompson

Tips & Techniques

CONFERENCE TIP

Forging Hollow Material

DAVID THOMPSON
Eugene, OR

Illustrations by Eric Ziner.

I have found experimenting with tubing and other industrial steel stock is exciting and rewarding, and would like to encourage other metal workers to explore the possibilities of this material because of its light weight, strength and economy.

Using a light hammer and quick blows is the most successful method of working standard mild steel seamed tubing of .083 wall or heavier. If there is a problem with a seam splitting, it is usually an inferior piece of stock. Caution should be taken when cooling in the slack tub because hot water and steam can discharge out the end of the tube causing burns.

Forging a Taper Point

I have forged taper points from 3/8" to 2" square using the following method. Work the taper point by hammering only the edges, so that the sides slightly bulge out. (Fig. 1). If the sides of the tube collapse inward, you must correct immediately or you will have a crease. Continue working until the taper is closed.



Fig. 1

Forge weld the tip and draw it out to a point. Welding the tip is a simple process. Flux only the tip and return it to the fire. Since you are only welding the end together, the end comes to a welding heat first.

There is a quicker way of making a taper point on square tubing which results in a handsome point with interesting grooved sides (Fig. 2).



Fig. 2

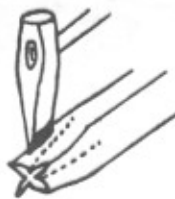


Fig. 3

Use a dull hot cut or chisel, and collapse all the sides on the end of the tube into the center (Fig. 3). Taper down, weld the tip and draw the point.

Square tubing can be twisted by using this method of collapsing the sides of the tube into its center and twisting.

Forming a Flared End

Forming a flared end on square tubing and round pipe is a process of stretching the material. In forming a flare, I first make a beaded edge. The bead helps to minimize seam splitting and improves appearance. Using a ball peen or radiused cross peen hammer turn 1/4" of the end of



Fig. 4

the pipe 90° over the edge of the swage block (Fig.4). Using the horn of the anvil as an inside mandrel, roll the bead over but do not flatten (Fig. 5). Continue to form the flare in the same manner as the bead is formed, by working quarter inch sections from the inside over the swage block.

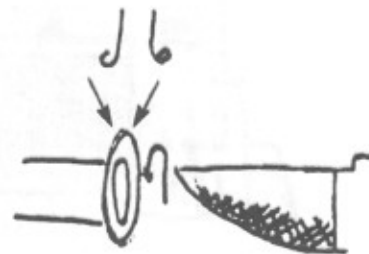


Fig. 5

To reach unworked material, the already stretched material must be knocked back to 90° out of the way, increasing the size of the flare (Fig.6).

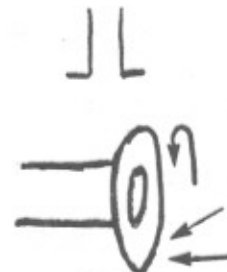


Fig. 6

A flared end on pipe or tubing is useful for candle cups or a base for standing vessels.

Forming an "S" Scroll

To form a scroll from tubing, it is necessary to make a jig. A jig can be quickly and easily made from light materials. Material should include: 13" length of 1 1/2" x 1/8" strip; angle iron welded on for securing in vice; 32" of 3/4" sq. tube. Here are some workable dimensions for an "S" scroll (Fig. 7).

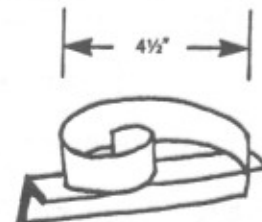


Fig. 7

Taper each end back 13" by striking on the corners (Fig.8). Fire weld the ends and form a hook (Fig.9). Using as long of an even heat as possible, secure the hook on the inside end of the jig. With an even pulling motion, pull and wrap the hot tube around

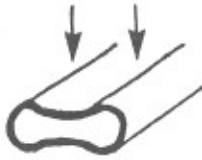


Fig. 8

the jig being aware that the angle of pull is where the tube contacts the jig (Fig. 10). You will have a scroll with

Fig. 9

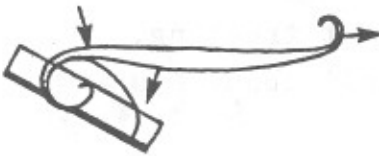


Fig. 10

a beautifully fullered inside and rounded edges outside.

Forming by Fullering

Pipe and tubing can be fullered in the same manner as solid stock. I

prefer to use a guillotine fuller(Fig. 11). A guillotine fuller can be easily

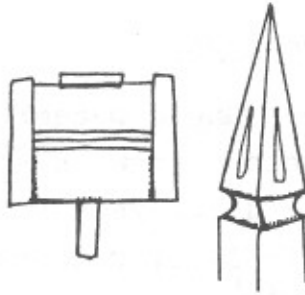


Fig. 11

fabricated and assures a positive blow. A ball is formed by two fullerings (Fig.12). It can also be



Fig. 12

formed by power hammer with a set of top and bottom clamp on dies (Fig. 13). The power hammer must have

good control because the first few blows must be light.

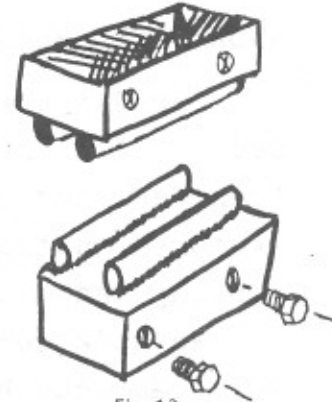


Fig. 13

Tubing with its hot working possibilities has advantages, but will never replace solid iron. The problem of water entrapment and swelling due to freezing, make some outdoor applications undesirable. Don't try to pass it off as solid material, work tubing as its own medium.

DAVE THOMPSON'S DEMONSTRATION IN REDMOND, OREGON, 1988

On July 16th Dave Thompson gave a demonstration on forging tubing in my shop. For those of us who watched Dave for six hours the day was magical. My prior experiences with forging tubing left me feeling that the material was just too undisciplined under the hammer and better off left to the cut and weld folks. With the skill of a master smith Dave, using 'traditional techniques on today's material', fullered, swaged, twisted, drew out and forge welded tubing, transforming it into any shape he fancied. As Dave continuously moved surface steel with sharp shallow blows he stressed the importance of not 'surprising' tubing but rather leaving subtle indications of what's coming. Dave's low key style and great humor made for a wonderful demonstration and I encourage all to see him in action.

- Joe Elliott

NWBA THIRD BLADESMITH WORKSHOP

Our Third Workshop was held December 3rd and 4th at Jerry Culberson's Old Cedar Forge in Allyn Washington. Eighteen students attended. Wayne Goddard and I were the featured instructors with Jerry Culberson doing the cooking and being a gracious host.

Wayne's demos included blade forging, heat treating, wire Damascus billet forging and show and tell about his beautiful custom knives.

My demo used an enlarged version Antler and Iron as a guide. Antler slotting saws, scrapers, spring forging, folder geometry, fitting and finishing were covered.

After the demos, students split about 50/50 to make either fixed or folding knives. Some were nearly completed by the second day. The next workshop should be three days; two just isn't long enough.

Jerry, Wayne says your cabbage soup is the best he's ever tasted.

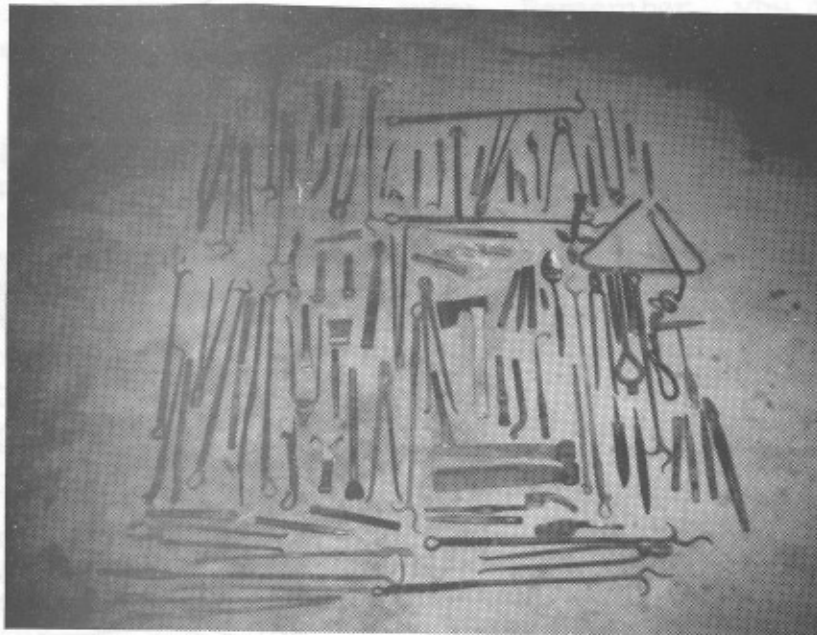
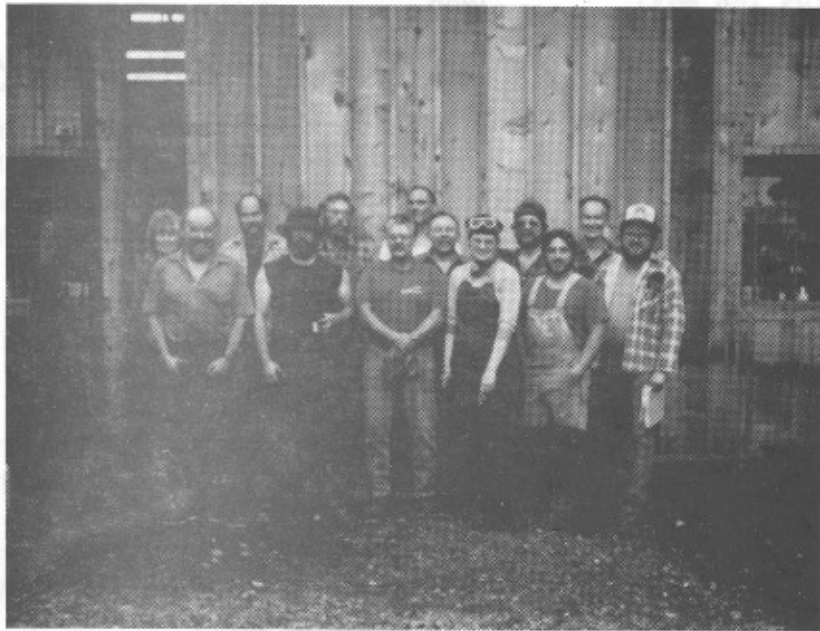
Thanks again to all those attending.

- Gene Chapman

MOVING?

Please let the Editor and the Treasurer know. The Editor can not send the Hot Iron News to members she hasn't got current addresses for. The Post Office just sends the magazine back if it hasn't recieved a change of address. So, Please let NWBA know where you are.

Tool Chest Handle

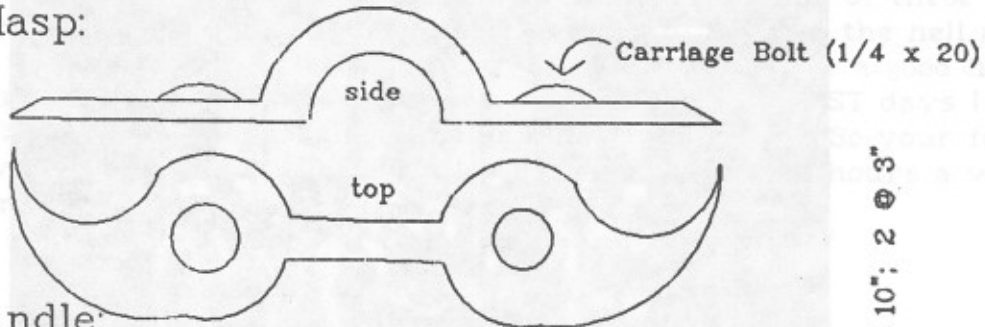


Graduation photo and projects, November 1988 Novice Workshop. (photos by Jerry Culberson)

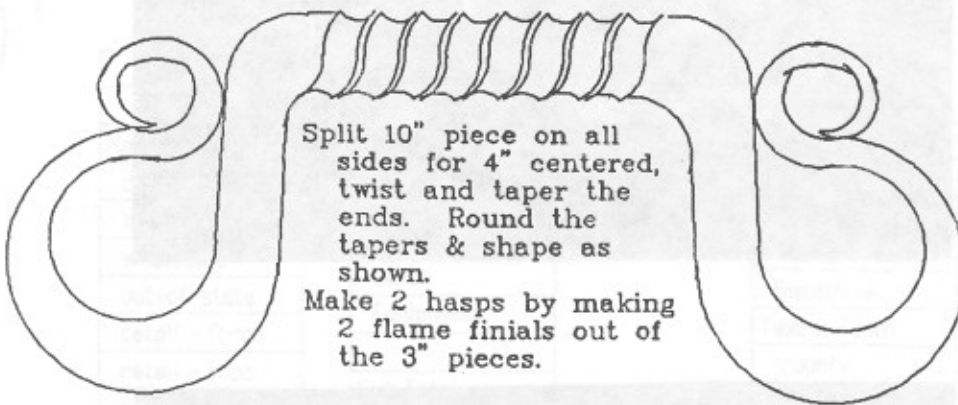
Tool Chest Handle

S.A. Bloom - Iron Flower Forge
1988

Hasp:

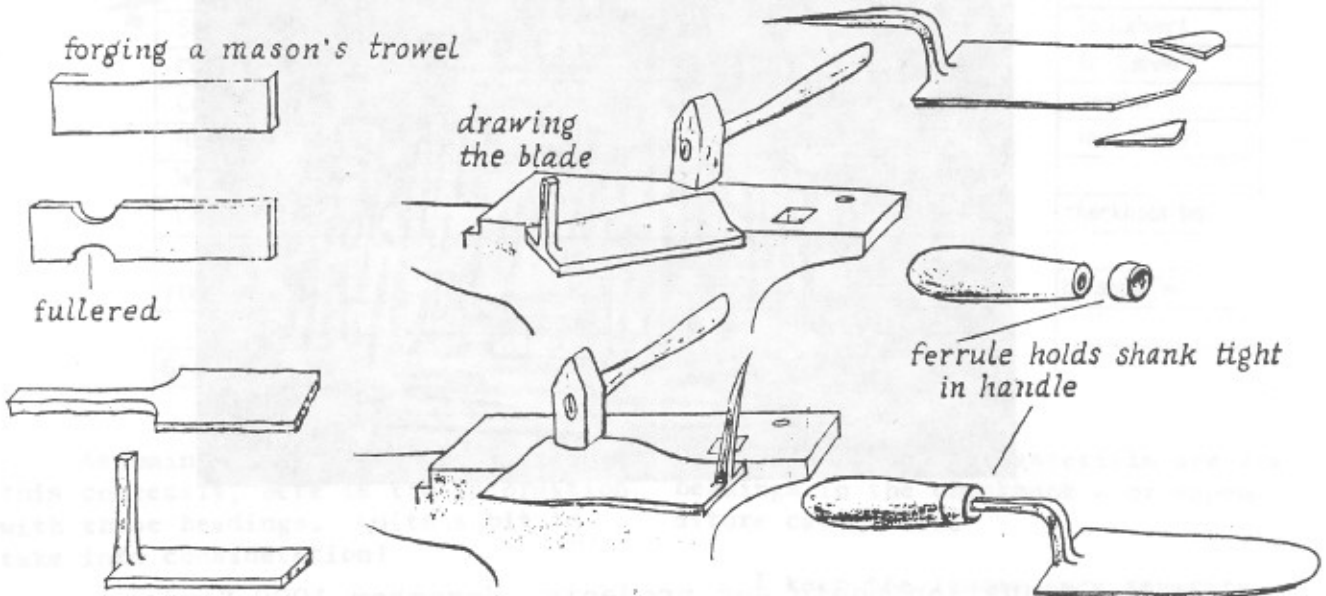


Handle:



Stock: 1 @ 10"; 2 @ 3"

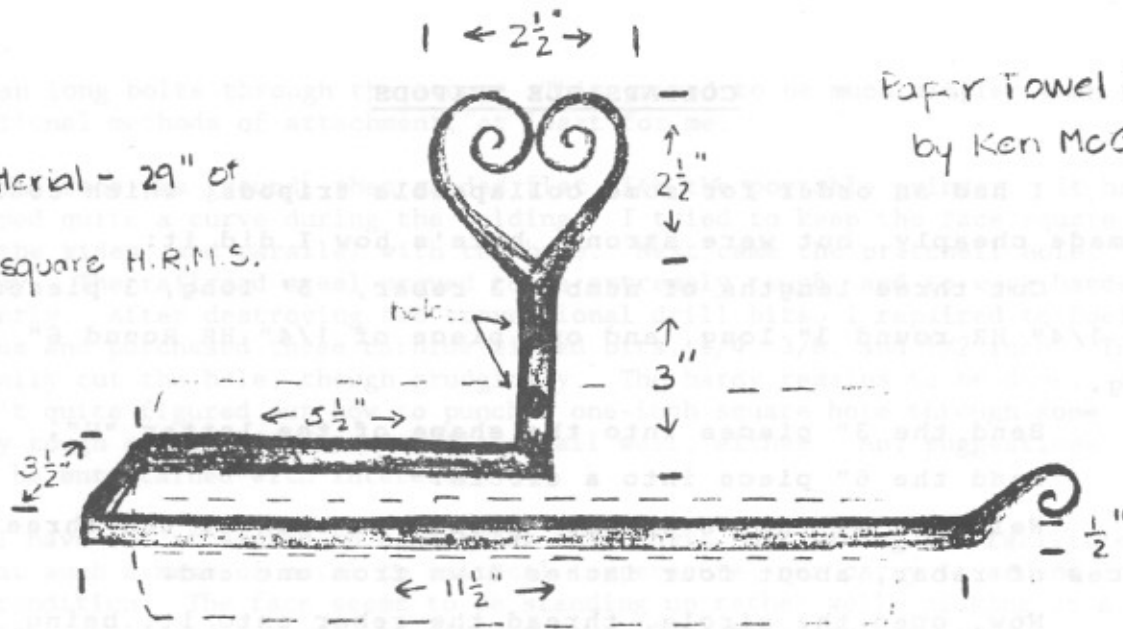
from: The Clinker Breaker, Florida Artist-Blacksmith Association. March 1989.



from: The Forge, Vancouver Island Blacksmith's Association
September 1988.

Material - 29" of
 $\frac{3}{8}$ " square H.R.M.S.

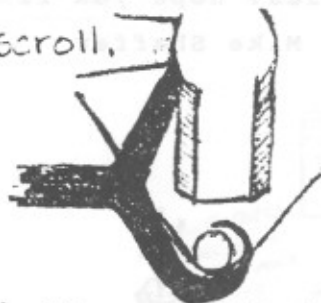
Paper Towel Holder
 by Ken McGaha



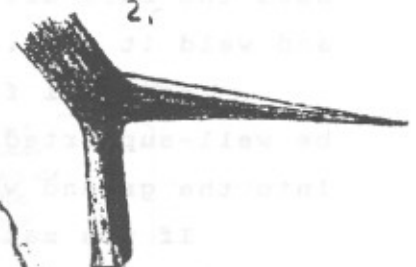
1. Split one end 3 inches

2. Keeping the end square, draw out each end to $4\frac{1}{4}$ inches.

3. Round each side, then shape each into a scroll.



Curl ends around end of anvil horn.



Finish scroll with metal on top of the horn.

4. Bring scrolls together to form a "Moravian Heart."

5. Draw out and form end scroll.

6. Mark inside corners of bends with center punch. Put towel holder in vice to make bends at the edge of the vice. The bends will be tight and sharp and the punch marks will not show.

7. Paper towel roll slides onto bar.

from: Newsletter of Pittsburg Area Artist-Blacksmiths Association, February 1989.

COLLAPSABLE TRIPODS

I had an order for some collapsable tripods, which could be made cheaply, but were strong, here's how I did it:

Cut three lengths of number 3 rebar, 5' long, 3 pieces of 1/4" HR round 3" long, and one piece of 1/4" HR Round 6" long.

Bend the 3" pieces into the shape of the letter "U".

Bend the 6" piece into a circle.

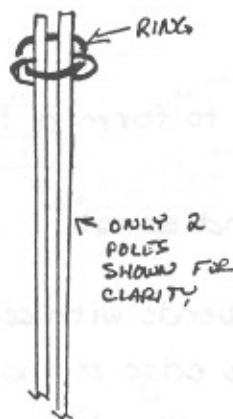
Weld one of the "U-shaped" pieces to each of the three pieces of rebar, about four inches down from one end.

Now, open the circle, thread the rebar onto it, being sure the bars are INSIDE the circle. Finally, close the circle and weld it shut.

You will find that with the bars inside the circle, they will be well-supported in the upright position, and can be easily stuck into the ground where needed.

If you make the tripods shorter, they can be used over the camp fire, or longer, they make great bean poles. Hope you like'em!!

Mike Shaffer



from: The Hammer's Arc, Tullie-Smith House
Blacksmith Guild, November 1988.

Cutler Corner

HOW TO MAKE A RAZOR

by John Sugg

To make an old fashion razor use a steel such as HRS (Hay Rake Spring).

Flatten spring to about 3/16 inch by 7/16 inch.

Fuller in the edge side by using a 1/2 inch fuller.

Forge the finger hole to shape.

Bend the blank edgewise to compensate for the metal spread distortion.

Forge the edge over the edge of the anvil (never let the steel get any hotter than a red heat). Use a smooth face hammer and on the last heat use light blows to remove most of the hammer marks.

Normalize the steel and file to rough shape.

Bring to critical temperature (when a magnet won't stick) and quench in oil.

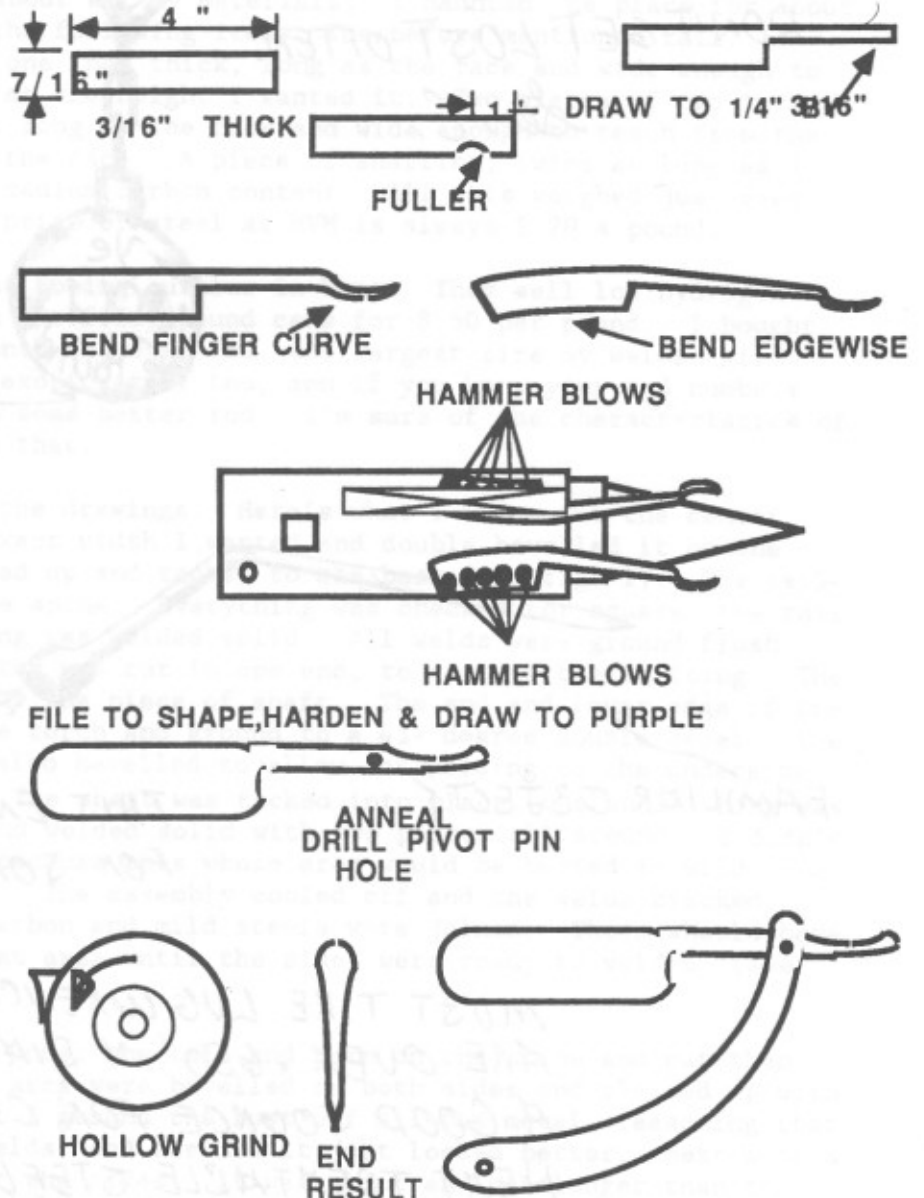
Draw temper to a purple and hollow grind after temper is drawn (dip in water every few seconds while grinding).

Anneal the shank and drill pivot hole.

Your handle is limited to your imagination. It can be two pieces of thin aluminum or exotic like stag or shinbone of a monk that died on Good Friday.

Have fun making one and don't cut yourself shaving.

Source: *American Blacksmithing; Holstrom and Holford. Copyright 1982, by Crown Publishers, originally published in 1876.*



from: Bituminous Bits, Alabama Forge Council, Nov.-Dec. 88.

ANOTHER USE FOR A CANNONBALL

I USE AN ANVIL HOLD DOWN WITH A BIG IRON BALL WELDED ON A CHAIN.

IT WORKS WELL, AND IT DON'T GET LOST OFTEN.

Sen C.



$\frac{1}{4}$ " x 1"

LEARNED THIS FROM DARYL NELSON

NOTCHED OUT TO HOLD ROUND AND SQUARE STOCK.

THIS END GOES IN CANNON,



FAMILIAR OBJECT?

THIS END MUST BE USABLE FOR SOMETHING, BUT WHAT.

MOST TIRE LUG WRENCHES ARE OVER .650" IN DIAMETER. A GOOD SOURCE FOR CHEAP HEAT TREATABLE STEEL.

WELDING THOUGHTS OF JOHN LORD BACON

By Bob Thomson, Loomis, California

Some years ago Al Bart, Yreka, California, told me the John Lord Bacon's *Elementary Forge Practice* was considered a standard reference. I have not seen an original to buy, so when Lindsay Publications offered a reprint, my check was in the mail.

I often trip on welding (no matter how easily I see Jay Burnham-Kidwell do it) and promptly read through Bacon's welding words. The first thing that surprised me was that Bacon makes a number of statements on welding that I have not heard of or read elsewhere. And, of course, authors have varying ways of saying the same thing. So I assembled these thoughts for this article and asked Al for his comments. To my surprise, he said we have different "Bacon's." The "Bacon" reprinted by Lindsay is the Second Edition — 1914. Al's "Bacon" was revised by Carl Johnson in 1935 and is closer to what Al was taught. Al's experience has proven to him that Carl Johnson has better methods.

And so a comparison:

BACON'S 2ND EDITION — 1914

1. "The fire must be clean and bright or the result will be a "dirty" heat; that is small pieces of cinder and other dirt will stick to the metal, get in between the two pieces and make a bad weld."

2. "If pieces are properly heated (when welding wrought iron or mild steel), they will feel sticky when brought in contact." This is a welding heat.

3. "The only way to know how this heating is going on is to take the pieces from the fire from time to time and look at them."

The scarf "tips" particularly must be watched, and it may be necessary to cool them from time to time in the water bucket to prevent the extreme ends from burning off.

A welding heat — when "the iron is so soft that if another piece of iron heated to the same point touches it, the two will stick together."

4. "Just before taking the pieces from the fire, they should be turned scarf side down for a short time, to be sure that the surfaces to be joined will be hot."

AL BART'S COMMENTS BASED ON JOHNSON'S 1935 REVISION

1. The fire must be thoroughly clean, vapors from copper, zinc or lead may coat the coke and remain until the dirty coke is consumed — most of the time not until the next day.

2. Heat quickly, but not so quickly as to burn the iron. Most new smiths heat so slowly that scale tends to form quite heavily before the metal reaches welding heat. The fire must be mobile. In other

words, if heating long narrow pieces the fire should be brought in on the sides, and front and back pulled apart. For wide pieces the fire should be widened and made shorter. We normally consider the center of the forge as being the hottest, but forges differ and may have the greatest heat to one side or the other.

3. NEVER, NEVER, never take the work out of the fire until ready to weld. Never dip any part in water. The work, after fluxing, should always be kept enveloped in the fire, using the poker to make an opening in the bank of red coals to observe the progress of heat. Now to keep the thin scarf tips from burning, push them through the center of the fire and place the thicker part of the work in the greatest heat. With dissimilar sizes, it may be necessary to place the smaller, thinner piece nearer the side away from the center of the fire. In successful welds the heat is brought up as quickly as possible without too much dawdling and with enough time to let the heat soak clear through the work.

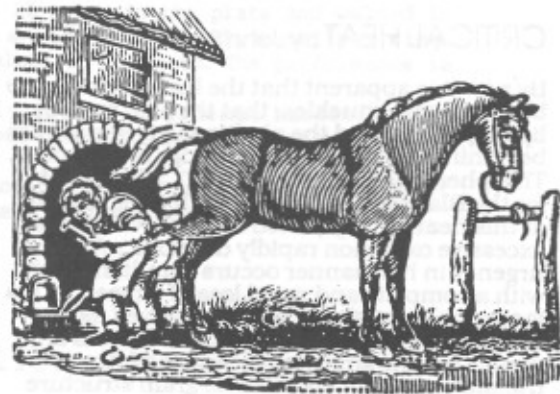
4. I turn the work over and place the scarf side and increase the air slightly for a few seconds. This raises the heat where they are to be welded and also would burn anything on the scarfs. Now, another important thing is to raise the work straight up out of the fire. Too many have developed the habit of dragging the pieces out of the fire across the green coal and thus contaminating the scarf or welding surfaces.

FROM: **California Blacksmith Assoc.**

EDITOR: **Bob Thomson**

8095 Morningside Drive

Loomis, CA 95650



from: Anvil, January 1988

Blacksmith Hints

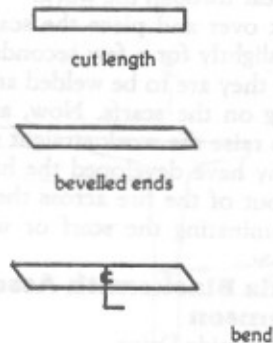
By Francis Whitaker

[Reprinted from newsletter of Appalachian Area Chapter of ABANA]

Hot Collars

After many years of using hot collars in ornamental ironwork, I think I have come up with the most refined method. The start began in Germany in 1923, and as with all things in iron, there is always room for improvement.

First, the collar length. This is a measurement around the pieces to be collared plus 2-1/2 times the thickness of the collar material. This is the length before bevelling the ends. Bevel the ends with the bevel length twice the thickness of the collar material. 3/16" stock is the best for most collars, so the collar length added material is 15/32" and the bevel is 3/8".

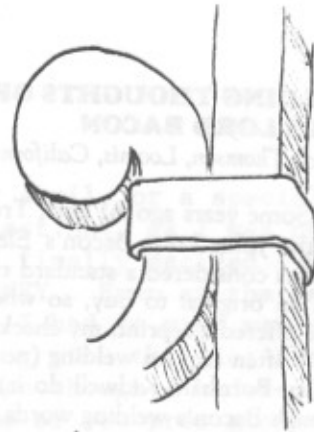


After bevelling allow to cool, then find center and mark off 1/2 the width of the collar on each side of the center.

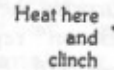
Place the long end in the vise, bend the short end to 90 degrees. If you bend the long end, you will lose 1/2 the metal thickness toward center (wrong way). I make the first bend in a heavy duty brake.

To make the second bend I have a series of blocks 2" wide and thickness from 1/2" to 1-1/4" by 16ths. These blocks are made of the needed thicknesses, welded together, ground off a few thousandths under size, then case hardened using Royal hardening compound. Blocks so treated will hold their edges for a long time.

When making the second bend, check to see that the collar fits the die block tight. Place the collar in position cold, drive material into it tight. If the collar springs open a bit, here is the trick. Use the Acetylene torch, heat the collar right at the corner. squeeze together with tongs. This insures a tight fit at the bottom.



Heat here first and squeeze tight.



Heat here and clinch second

Then heat about halfway down the collar, but not to the bend, clinch over using sliding blows with a cross pein. Repeat on the other half. Controlled heat at exactly the right spot and time results in the tightest, neatest collars ever.

This method allows me to put collars on long railings or large gates working alone, where it would be almost impossible to heat the collars in the forge, get them in place and clinch tight.

from: California Blacksmith, California Blacksmiths' Association. July 1988

CRITICAL HEAT by John Smith

By now it is apparent that the leather gloves are burning your knuckles, that the skin on your lips is peeling, and the plastic safety glasses are beginning to sag across the bridge of your nose. This phenomenon is known as "Critical Heat for the Blacksmith". If the smith is left to soak at this heat for any period of time, evidence of excessive oxidation rapidly develops. A sort of urgency in his manner occurs simultaneously with a complete and rapid loss of temper, as his face runs through the colors observed most accurately in strong forge light. If there is any doubt that the smith is undergoing full transformation of his internal grain structure

at this temperature, just touch a magnet to his forehead. It will be seen instantly that in 99 smiths out of 100, the magnet will not stick there. It is interesting to note, though, that the smith even at full heat, like his steel, will not weld. There is only one course of action to be taken, and that is to quench him immediately in the town's nearest watering hole until his temper colors subside and he becomes quite malleable. By the next morning, all symptoms of excessive grain growth will have vanished and he will be able to stand another day of forging more or less.

From the Illinois Blacksmith Association

from: Forge Facts, Rocky Mountain Smiths. January-February 1989.

FORMULAE FOR CALCULATING AREA
AND LENGTH

AREA = square of diameter

FORMULAE

CIRCLE

Area = square diameter X .7854

OR

= square of radius X 3.1416

Circumference = diameter X 3.1416

Diameter = circumference X .3183

Doubling diameter increases area
four times, tripling diameter

SQUARE

Area = square of side

Diagonal = side X 1.4142

SQUARE INSCRIBED IN CIRCLE

Side of square = diameter of
circle X .7071

OR

= circumference X .2251

Diameter of circle = side of
square X 1.4142

Circumference of circle = side of
square X 4.4429

SQUARE AND CIRCLE WITH EQUAL AREA

Side of square = diameter of
circle X .8862

Diameter of circle = side of
square X 1.128

Circumference of circle = side of
square X 3.545

RECTANGLE

Area = length X width

Diagonal = square root of the sum
of the square of the width
and length

TRIANGLE

Area = base X $\frac{1}{2}$ of perpendicular
height

SPHERE

Area of surface = square of diameter
X 3.1416

Volume = cube of diameter X .5236

CUBE

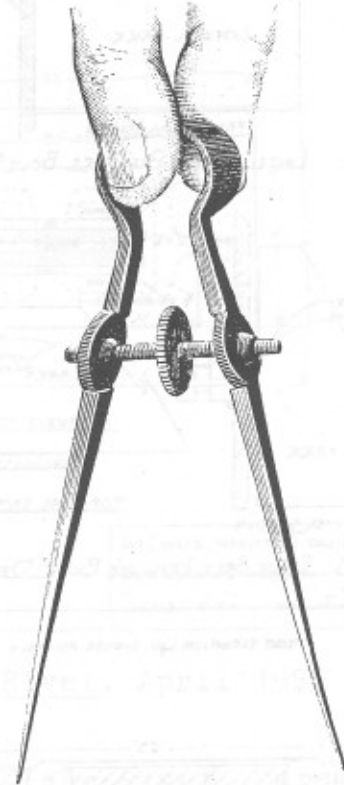
Area of surface = square of side X 6

Volume = cube of side

Diagonal = side X 1.732

CYLINDER

Area of curved surface = diameter X
length X 3.1416



HEXAGON (equal sides and angles)

Area = square of distance across
flats X .828

OR

= square of sides X 4.828

Side = diagonal X .383

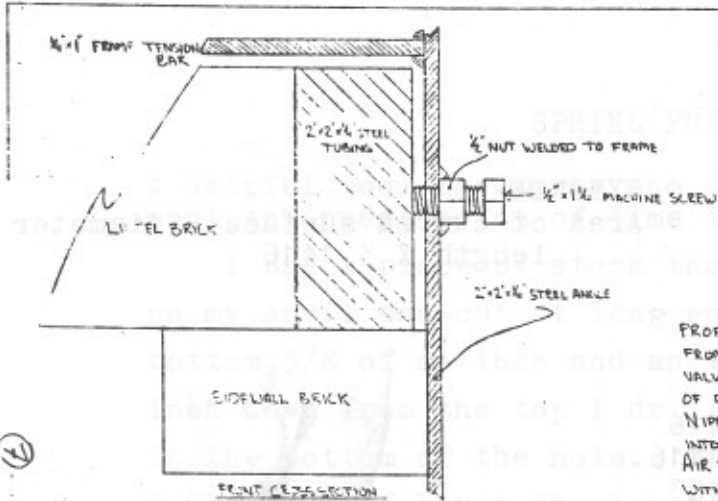
OR

= distance across flats X
1.082

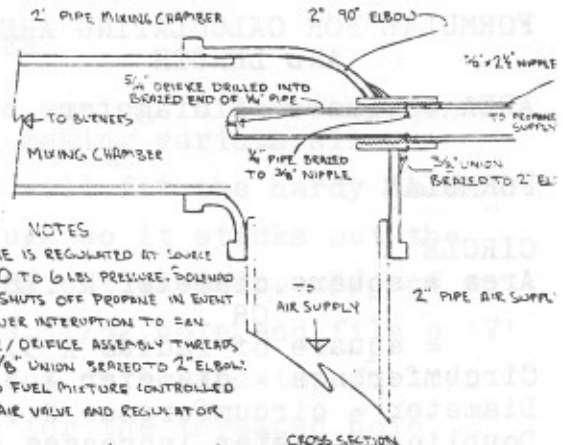
OR

= side X 2.613

from Appalachian Area Chapter
News Letter, February 1988

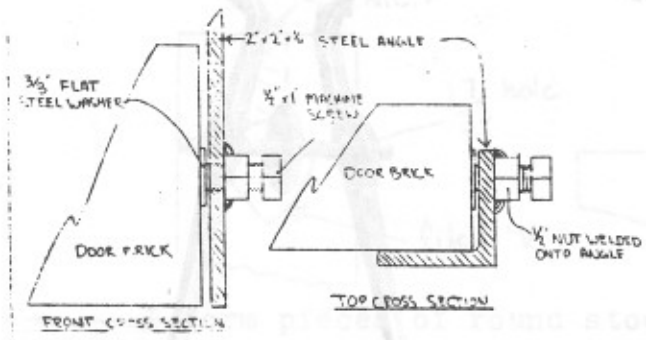


① Lintel Brick Pressure Bolt Detail

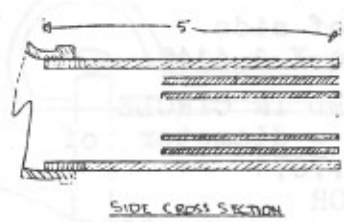


NOTES
PROPANE IS REGULATED BY SOURCE FROM 0 TO 6 LBS PRESSURE. SOLINAD VALVE SHUTS OFF PROPANE IN EVENT OF POWER INTERRUPTION TO SAN NIPPLE/ORIFICE ASSEMBLY THREADS INTO 3/8" UNION BEADED TO 2" ELBOW. AIR TO FUEL MIXTURE CONTROLLED WITH AIR VALVE AND REGULATOR.

② PROPANE INJECTION DETAIL



③ Door Brick Pressure Bolt Detail



BURNER INTERIOR MADE FROM 3 SECTIONS OF 1/2" AND 1" PIPE SPACED CONCENTRICALLY WITH 1/8" WELDING RODS WELDED ON EACH END

END CROSS SECTION
1 1/2" PIPE
1" PIPE
1/2" PIPE

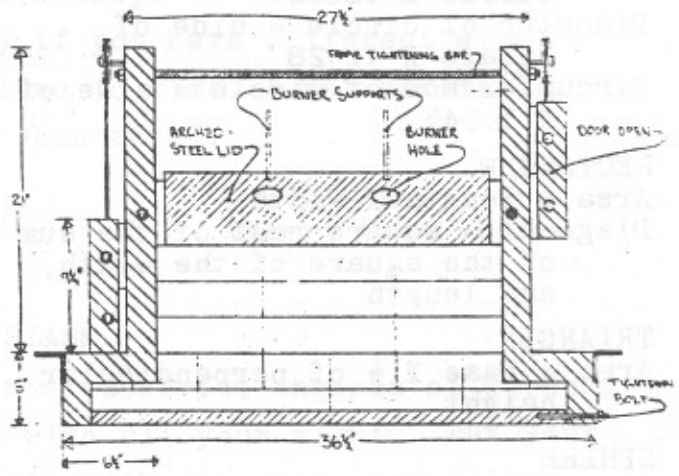
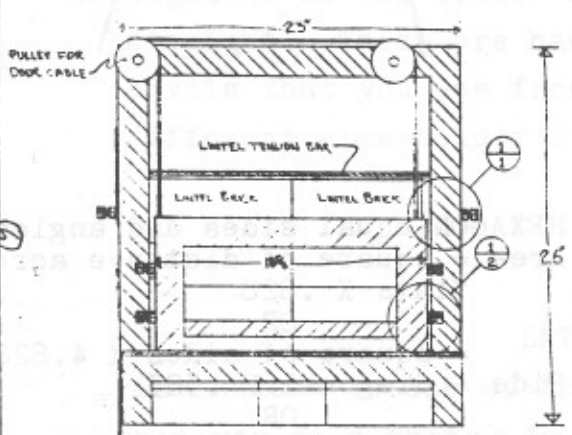
④ BURNER DETAIL

THIS BURNER DESIGNED BY DAVID SECEST ASSURES NO BACK BURNING DUE TO HIGH GAS VELOCITY THROUGH SLOTS, AND IS EXTREMELY QUIET

PROPANE FIRED BRICK FORGE
FULL SCALE Jeffrey Funk 2/18/08

FRONT ELEVATION w/o BURNER ASSEMBLY

SIDE ELEVATION w/o BURNER ASSEMBLY

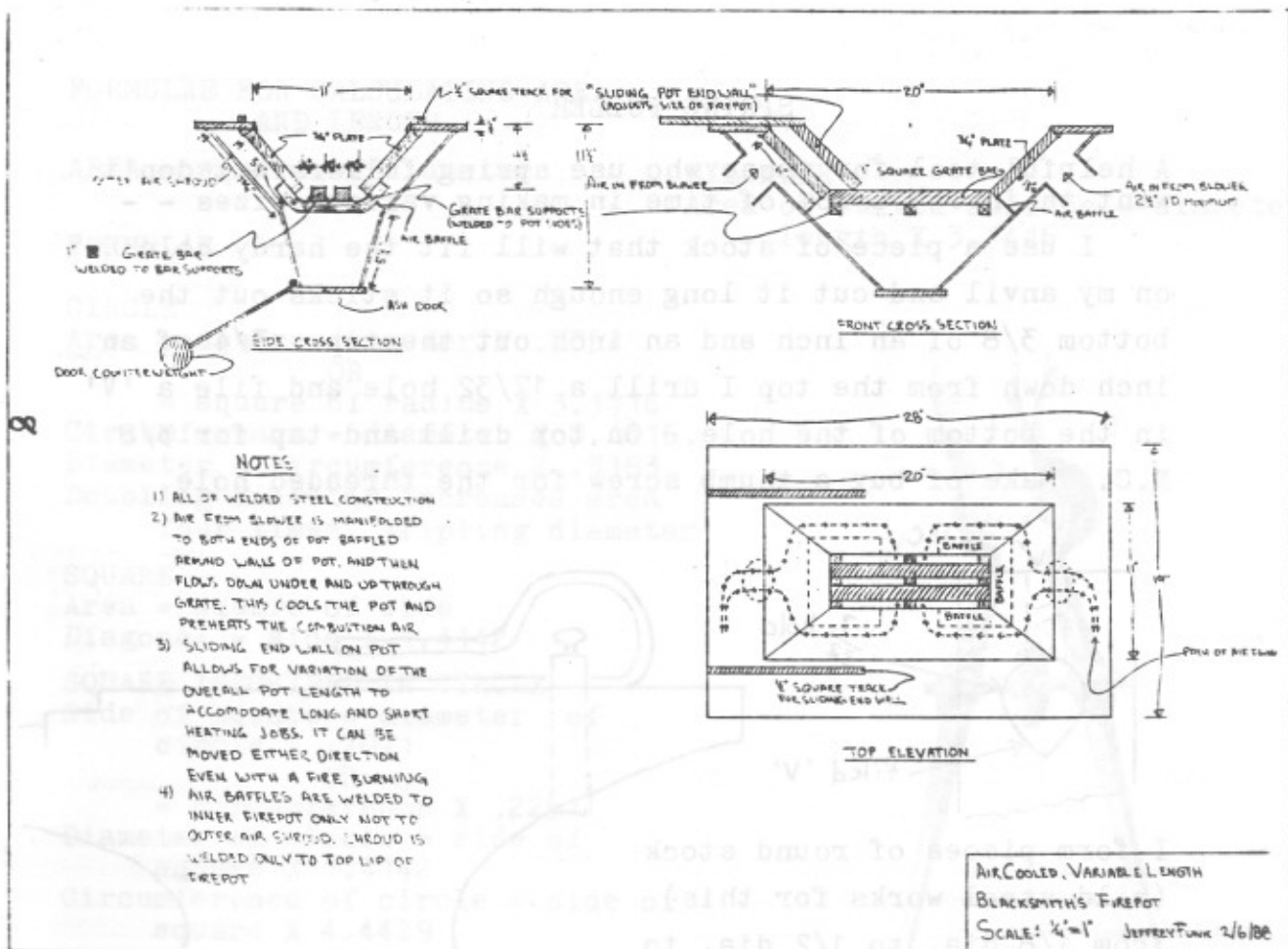


NOTES

BASIC CONSTRUCTION IS OF FIRE BRICK WITH 2x2 1/2" ANGLE IRON FRAME. THE FLOOR IS TWO LAYERS, WITH HARD BRICK LAID OVER SOFT INSULATING BRICK. DOORS, LINTELS AND SIDE WALLS ARE OF HARD BRICK BUT COULD BE SOFT BRICK WITH SOME SACRIFICE IN DURABILITY. THE LID IS CUT FROM 30" STEEL PIPE. OVERALL IT IS 22" x 22" WITH A 5" ARCH. IT IS INSULATED WITH TWO LAYERS OF 1" THICK KAWOOL REFRACTORY BLANKET, WELD TOGETHER AND TO THE STEEL WITH "NYKOL" COLLOIDAL SILICA GEL.

FOR SMALLER WORK THE WHOLE FORGE CAN BE SCALED DOWN. IF USING ONLY ONE BURNER OR SCALED DOWN MODEL REDUCE PROPANE ORIFACE TO 1/16". THIS LARGE FORGE CAN EASILY BE ADAPTED TO SHORTER PIECES BY STACKING A BRICK WALL INSIDE AND USING ONLY ONE PAIR OF BURNERS.

PROPANE FIRED BRICK FORGE
SCALE: 1/4"=1" Jeffrey Funk 2/18/08



from Western Canadian Blacksmiths' Guild The Rivet, April 1988

left: from Western Canadian Blacksmiths' Guild The Rivet, March 1988

THE CHURCH OF THE ANVIL

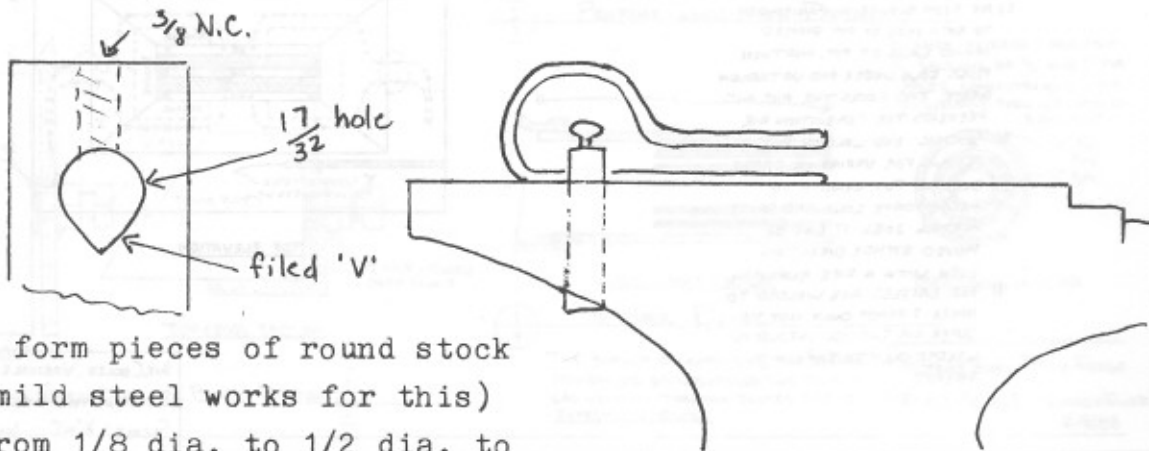
The Reverend Carl Brinkley of the New Bethel African Methodist Episcopal Church of Ormond Beach gave the invocation to open the last Statewide Meeting. Then he explained the special significance of the anvil in the African Methodist Episcopal Church. The Church was founded in this country in the late 1700s by black people who were not able to worship decently in existing churches because the prohibitions of slavery extended to religious services. Making do, they held their first services in a blacksmith shop, using an anvil for a pulpit. The anvil has endured as a symbol of the African Methodist Episcopal Church, and is often displayed prominently.

from: The Clinker Breaker, Florida Artist-Blacksmith Association. March 1989.

SPRING FULLER

A helpful tool for those who use spring fullers but don't want to invest a lot of time in making various sizes - -

I use a piece of stock that will fit the hardy hole on my anvil and cut it long enough so it sticks out the bottom $\frac{3}{8}$ of an inch and an inch out the top. $\frac{3}{4}$ of an inch down from the top I drill a $\frac{17}{32}$ hole and file a 'V' in the bottom of the hole. On top drill and tap for $\frac{3}{8}$ N.C. Make of buy a thumb screw for the threaded hole.



I form pieces of round stock (mild steel works for this) from $\frac{1}{8}$ dia. to $\frac{1}{2}$ dia. to interchange in this holder. A small flat where the screw tightens on the fuller stock helps to hold everything straight. These are handy if you have different size anvils that you use from time to time. Just make a different size holder for each anvil.

Steve Gossett
Cherry Creek Forge

ENTHUSIASM

"Enthusiasm is one of the most powerful engines of success. When you do a thing, do it with all your might. Put your whole soul into it. Stamp it with your own personality. Be active, be energetic, be enthusiastic and faithful, and you will accomplish your object. Nothing great was ever achieved without enthusiasm."

Ralph Waldo Emerson

NEVER FINDING THE PERFECT ANVIL
(For Beginners)

Don Keifer - Wilton, CA.

Three years ago, I changed my lifelong hobby from woodworking to blacksmithing. Do not underestimate hobbies. Hobbies are where your heart is and to be able to identify your appreciations is just like finding life itself. After the initial trauma of this momentous discovery abated a bit, I started preparations.

I obtained some good books on the subjects. Then I located an advisor. In this case, it was Bob Thomson, and believe me, a more helpful and generous advisor would be hard to find. Next, I located my basic tools, or should I say, I tried to locate my basic tools. I found a good cast iron rivet forge and a 400 blower at the Roseville Auction, but I still needed a leg vise and anvil. A friend of mine told me Sanne's Trading Post in Plymouth, California, had a couple of dozen used anvils, plus leg vises. So it was off to Plymouth where I did get a nice 6 inch leg vise but no anvil. It was not that she did not have any; quite the contrary. She had anvils all over the place. It is just that they were all broken up. Some were in half and others did not have a flat surface anywhere to be seen. Needless to say, I did not buy one.

Recently, I was told that all those anvils are gone. Sold, so I hear. However, Sanne buys farm sell-outs and probably still has some from time to time. Weeks went by and no anvil. Finally, I got a line on a little 125 pound Peter Wright. The edges were chipped up badly but the top was so hard that it was not sway-backed. It cost me a whopping \$175, but it was worth every penny of it.

I do not have an arc welder, so I cannot touch up my anvils as such. Even though I now had an anvil, I was still looking for the perfect anvil. Oh, did I ever hunt, and oh, did I always fail. However, in the midst of my failure, I did partially succeed. What I ended up doing was creating a network of people looking for anvils (for me) all over the Western states. Now, that is the key, networking. I am fortunate because being an underwriter, I talk to insurance agents from all over the Western states. I always put in a plug at the end of our conversations. "Don't forget, keep your eyes open for me, and if you see an anvil, call me." Networking pays off and for a short period of time last year, I owned five anvils. I used them all at various times, but much to my surprise, my little Peter Wright was the best of the lot.

One reason that the Peter Wright is the best lies in the fact that its plate is so hard. My other anvils have and had softer plates. Some, in fact, are almost annealed by jerks who were careless.

I strongly suggest that before anyone purchases an anvil that he/she test its face with a light cold chisel. My Peter Wright anvil won't mark at all, and dropping a cold chisel four inches to the face does not phase it. If an anvil is marked by this procedure, it is too soft.

I have not yet tried the hardening process that Charles McRaven and Alexander Weygers discuss in their books. It will not be long though until I make this great experiment.

One of my anvils was 190 pounds of broken face plate. I took it to a friend and had him weld on a half-inch plate of plow steel. Rather than follow accepted practice of simply welding the outside edges, my friend drilled 12 holes in the plate and welded in plugs. I have never seen a replated anvil that 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 the ring is earsplitting.

Now plow steel is too soft for me, so I fully expect to attempt hardening and tempering next winter. It has to be in the winter because that is when the rains fill the vernal ponds on my property.

For me, finding the perfect anvil has been a losing battle. Still the challenge of this elusive goal carried with it a lot of interest and excitement.

from: California Blacksmith, California Blacksmiths'
Association, July 1988

THE HOMEMADE ANVIL

How many times have you wished you had a larger anvil, or a special purpose one, but couldn't come up with the bucks? Last May, as I was chasing my little cast steel Vulcan anvil around the shop, I finally decided I HAD to have a bigger anvil. There was just one problem: MONEY. Even at the very reasonable cost of a buck a pound, the kind of anvil I had in mind was way out of reach, so I decided to make one. I had been toying with the idea for a few years and had a pretty good notion I could do it, even though I had been told it was impossible. Now, this will probably make some of you pros groan and sweat a little, but remember I had a little money and a lot of time. This is what worked for me, this time, under my particular circumstances:

First I obtained a piece of large rail road iron, around a hundred pounds to the yard. It was six inches across the foot and almost an inch through the web at the thinnest part. I cut off a piece of the foot, ground off the torch crud and tested the carbon content by heating and quenching. It hardened up real well. The steel must be in the sixty to ninety point range. I then cut off the part the train runs on, leaving as much web attached to the foot as possible. The cut edge was given a double 45-degree bevel with the torch and cleaned up with the grinder.

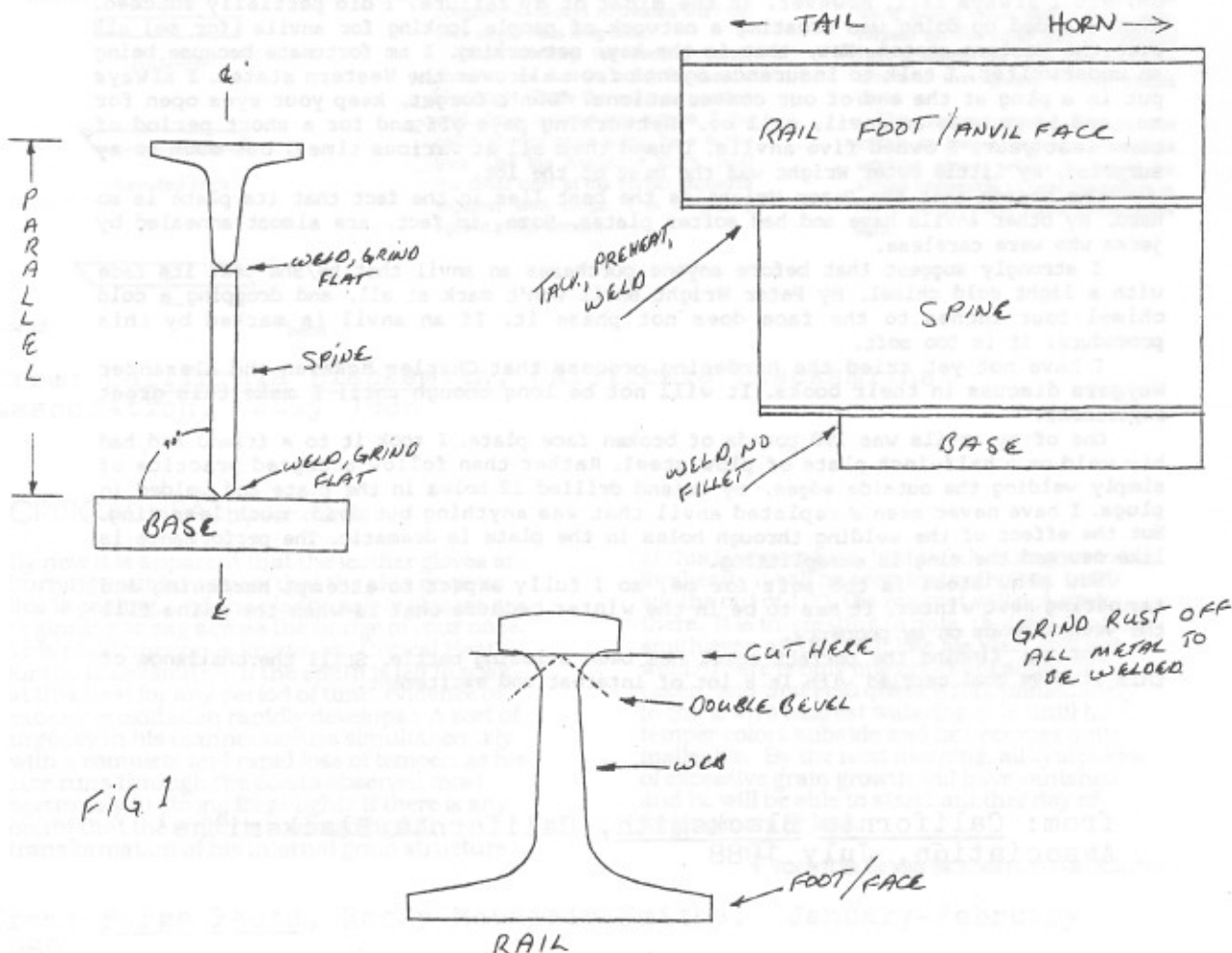


FIG. 1

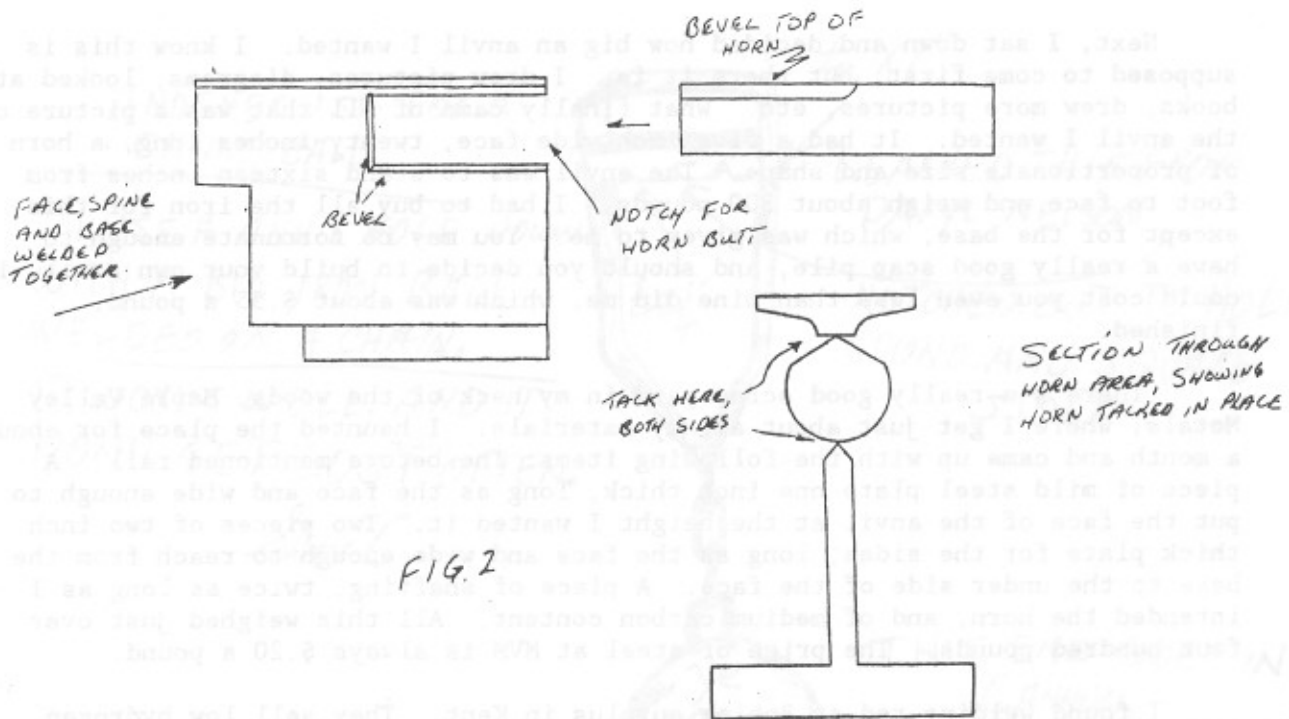
Next, I sat down and decided how big an anvil I wanted. I know this is supposed to come first, but there it is. I drew pictures, diagrams, looked at books, drew more pictures, etc. What finally came of all that was a picture of the anvil I wanted. It had a five inch wide face, twenty inches long, a horn of proportionate size and shape. The anvil was to stand sixteen inches from foot to face and weigh about 300 pounds. I had to buy all the iron for this except for the base, which was given to me. You may be fortunate enough to have a really good scap pile, and should you decide to build your own anvil, it could cost you even less than mine did me, which was about \$.55 a pound, finished.

There's a really good scrap yard in my neck of the woods, Maple Valley Metals, where I get just about all my materials. I haunted the place for about a month and came up with the following items: The before mentioned rail. A piece of mild steel plate one inch thick, long as the face and wide enough to put the face of the anvil at the height I wanted it. Two pieces of two inch thick plate for the sides, long as the face and wide enough to reach from the base to the under side of the face. A piece of shafting, twice as long as I intended the horn, and of medium carbon content. All this weighed just over four hundred pounds. The price of steel at MVM is always \$.20 a pound.

I found welding rod at Boeing surplus in Kent. They sell low hydrogen E7018 rod, still sealed in the fifty pound cans for \$.50 per pound. I bought three cans of three sixteenth diameter rod, the largest size my welder will take. They have a lot of exotic stuff too, and if you know your rod numbers you could probably pick up some better rod. I'm sure of the characteristics of E70XX rod, so I stuck with that.

Now, follow along in the drawings. Here's what I did: Cut the center piece, the spine, to the exact width I wanted and double bevelled it on one long edge. This was squared up and tacked to the base (see fig. 1). The rail foot was then tacked to the spine. Everything was checked for square, the rail was preheated and everything was welded solid. All welds were ground flush (see fig. 1). A square notch was cut in one end, to receive the shafting. The notch was half the length of the piece of shaft. The end and lower edge of the hole were bevelled with the torch and ground to a 45-degree double bevel. The top part of the shaft was also bevelled to allow for welding to the underside of the face (see fig. 2). The shaft was tacked into place, the whole thing was preheated with the torch and welded solid with two passes all around. I didn't try to fill in the bevels because this whole area would be buried in weld metal later. This was a mistake. The assembly cooled off and the welds cracked under the horn where the carbon and mild steels were joined. There should have been only tack welds in that area until the sides were ready to weld on (see fig. 2).

Next, I drew the arcs under the tail and horn on the spine and cut them out with the torch. These arcs were bevelled on both sides and cleaned up with the grinder. At this point I ground the rust off all the metal, reasoning that it would make for better welds, and besides it just looked better. Next a cardboard template was made for the sides. It was about an inch longer than the distance between the arcs so the spine would be completely covered by weld



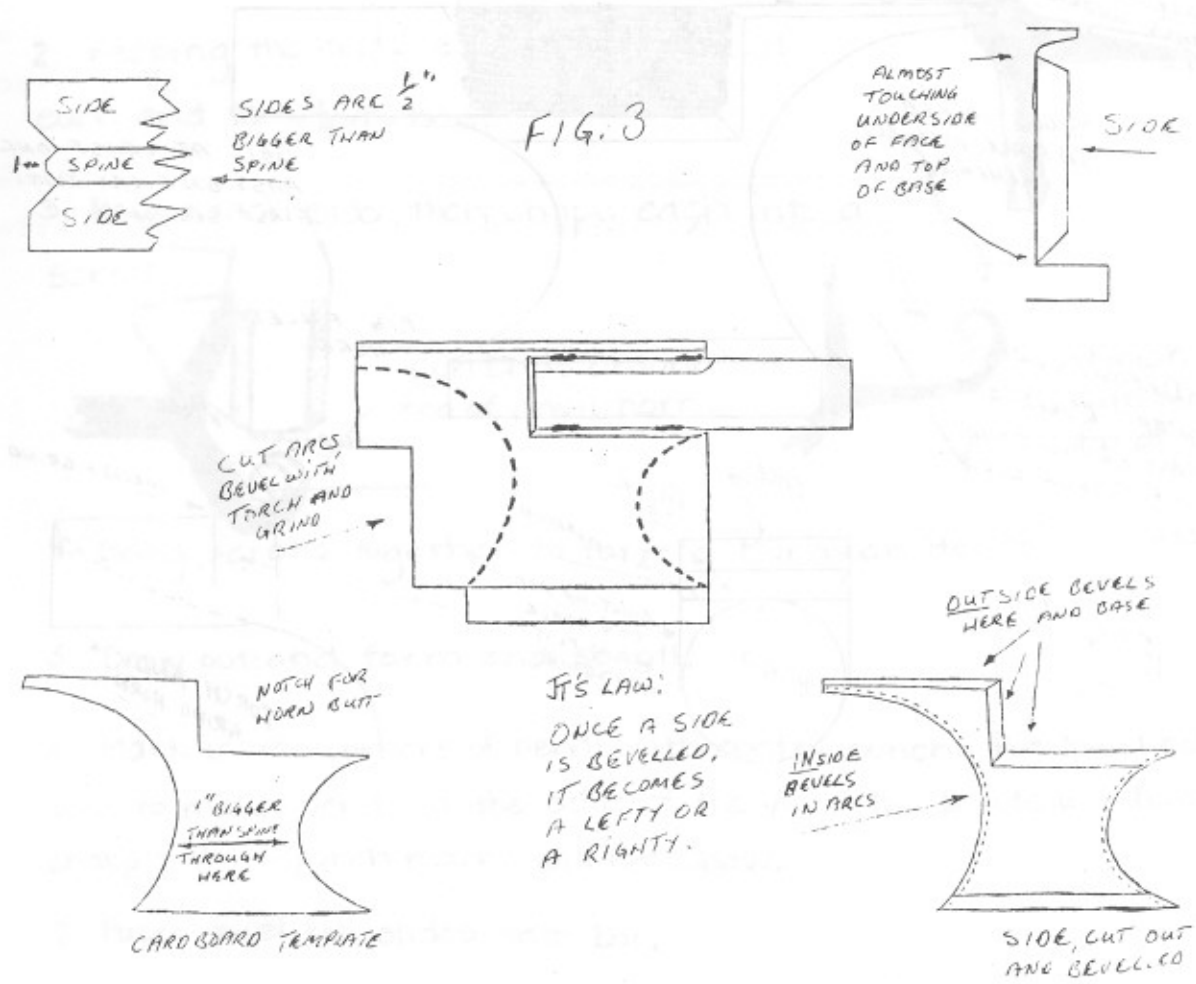
metal (see fig. 3). The side plates were cut with the torch, then bevelled, inside in the arcs, outside around the butt of the horn, under the face, in the base area (see fig. 3). The sides were fitted and fitted again until they could be clamped flat against the spine and almost touch the base and underside of the face (see fig. 3). The sides were then tacked in place and the fun began. I had never done any really heavy fill type welding before, and here I learned the true meaning of mind crushing boredom. Anyway, the whole thing was preheated to around 350 degrees and I proceeded to put a full pass on every joint. I made sure the end of the shaft was covered in one layer of stringer beads before I quit for the day (see fig. 4). Now, this filling process went on for some time. I always made sure the carbon steel parts were hot before I welded on those, preheating somewhat with the torch, adding to the heat by welding on the mild steel parts. The main limiting factor was the duty cycle of my puny welder. At its maximum amperage setting of 230, I had to let it cool four minutes for every minute I welded. That figures out to 20%. That meant I could only burn about twenty rods an hour. I used over 120 pounds of rod. Like I said, I had more time than money. Still do, for that matter.

The filling eventually got done, a table got welded on the horn and the grinding began. I used a straightedge and DYKEM machinist's dye to mark the high spots on the sides. These were ground off and the low spots were filled in. I eventually reached a balance between function and aesthetics before the sides were perfectly smooth. If this proves to be a problem I can always try for perfection at a later date. I torched the excess off the edges of the face, using a piece of angle iron for a straightedge, then ground the cut edges smooth and flush with the sides. The horn was torched to shape and ground smooth, leaving what is proving to be too much belly near the point. I had left the base of the anvil square, so I just drilled a hole on each side

and ran long bolts through the stump. This proved to be much simpler than the traditional methods of attachment, at least for me.

The face was ground, then sanded flat with the portable grinder. It had developed quite a curve during the welding. I tried to keep the face square with the sides, and parallel with the base. Next came the pritchell hole. Not so easy. The railroad steel proved to be extremely tough, and to work harden instantly. After destroying two conventional drill bits, I repaired to Boeing surplus and purchased three carbide-tipped bits, 1/4, 3/8, and 1/2 inch. These gradually cut the hole, though grudgingly. The hardy remains to be done. I haven't quite figured out how to punch a one-inch square hole through some pretty tough steel. It doesn't file at all well, either. Any suggestions would be entertained with interest.

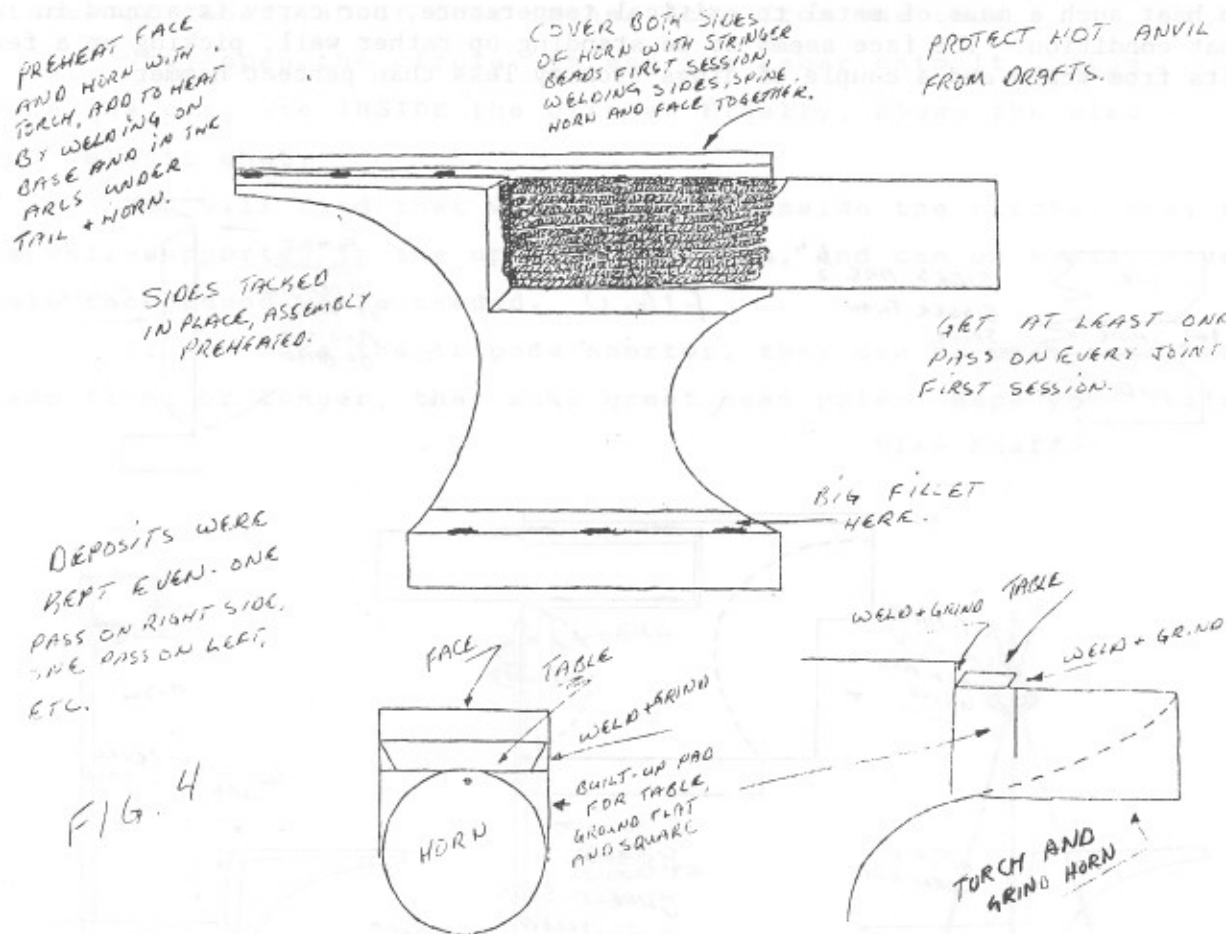
I have not attempted to heat treat this anvil, not having the facilities to heat such a mass of metal to critical temperature, nor carry it around in that condition. The face seems to be standing up rather well, picking up a few pits from scale and a couple of dings from my less than perfect hammer



technique. It stays put under any hammer I can bring to bear upon it, up to six pounds so far. The face is wide enough for me. It fits me. It's the only custom anvil I've ever had and the only one I could ever afford. Make one for yourself. You might like it.

As I said at the beginning, this worked for me, this time, under my particular circumstances. I can't guarantee it will work for you, or for me the next time I make an anvil. We'll just have to see when I wear this one out.

JT SIMMONS



BLACKSMITHING AS A BUSINESS some food for thought

from Nol Putnam

White Oak Forge

Items of possible use: (and in no order)

-when starting a business, keep two SEPARATE checkbooks. Shoeboxes gotta go folks! Discipline in your work - in all areas of your work - and that means keeping good records. How do you know how to price anything if you don't know how much time you spent and what things cost????

-I printed up a whole bunch of time sheets, every half hour for the whole day. Then fill in who and what you are working on. Very instructive. Do this for a year.

-I use the "one write checking system" - that's got the strip of carbon on the back, you write it and you've got a record.

-I bid a job by figuring out how many hours it will take. I get the hours by writing down all parts of the job, including cutting the material, going to the hardware store, that extra journey to the site, assembly, painting, then multiply that by 20% for shop profit and replacing all those drills you broke. Take that figure and multiply it by your hourly shop time (we'll get to that in a moment). Sleep on the figures for a night. I charge installation extra and drawings are extra. Remember, you don't lose money on the job you don't get!

-Shop time. This is a most confusing figure and ranges all over. But in your area all lawyers, doctors, psychologists and the like have an agreed range of shop time. I don't know how they figure theirs, but mine goes something like this: What kind of a salary do I need in a year? How many weeks am I honestly going to work to get that - you must be hard nosed and realistic. Don't forget a week for when you dropped the hammer on your foot. So you come out with how many hours you will work and how much you need to live on. So you need \$20,000. You will work 1920 chargeable (ah, another term that needs defining) hours, that is 48 five day weeks. So you will earn about 10.41 per hour. Now your overhead -- what does it cost you to open the doors every day -- phone, mortgage, water, sewer, tools, oxy-aceytelene demurrage, coal, telephone, insurance, show fees, education and so on. Add your costs for a month, divide by your working hours - you will be horrified by how much all this junk costs. Let's say it comes to \$30 an hour. Your shop time is now \$40.41 per hour. So you figured that chandelier at 15 hours, plus 20% = 18 hours x \$40.41 = \$727.38, plus tax. Surprised? DO NOT SUBSIDIZE YOUR CUSTOMER! ONLY THE DEFENSE INDUSTRY AND FARMERS GET SUBSIDIES - THE REST OF US WORK.

"Chargeable time" - the 1920 hours above did not count the time you'll need for experiments, working things out, going to the hardware for the 6th time, phone time, goofs, book keeping, record keeping, etc. Of these market development is perhaps the most important - what the hell are you going to sell? Hooks are great, after 17 years I still like a good hook, but not for 17 years straight. Then too, on my absolute BEST days I can only get about 6 hours of forging time or chargeable time. So your forty hours a week to get your \$20,000 will become more like 60 hours a week. Ain't business fun?

More Food For Thought from Nol Putnam

pg 1

	Fixed Expenses
	Rent
	Telephone
Net Sales	Electricity
commission	Water
labor	Sales Tax
wholesale	Labor
out-of-state	Equipment
retail - forge	
retail - shop	Sub Total
sales tax	
	Insurance
TOTAL:	Shop Tools
*	Business Costs
Steel	Mailing
Materials	Advertising
Coal	office/print
Hardware	dues/publication
Welding Gas	Travel
Commissioned W	Leasehold
	Education
TOTAL	Show fees
Gross Profit	

pg 2

Salary-Nol	Other Income
-Patrick	tool sales
FICA	miscellaneous
Transportation	teaching
Donations	
Taxes: Town	Net Profit
:county	
:st.-witholding	to Calvert
:st.-unemployme	fr. Calvert
:st.-corporation	capital
:F.-witholding	loan repay.
:F.-unemploymer	
:F.-corporation	checkbook bal.
Medical pay.	balance fwd.
*	
Sub-Total	
Total Expenses	
Operating Prof	

Assuming that I have translated this correctly, here is the information with these headings. Quite a bit to take into consideration!

But between the asterisks are the headings in the checkbook - or expenditure categories.

I keep the income on a separate sheet with headings above. Example on enclosed sheet.

This is my spread sheet cumulative for the year - Jan., Feb., Mar., etc.

(See next page.)

Still More Food For Thought from Nol

Jan. 1989

Prepared By	Initials	Date
Approved By		

	1	2	3	4	5	6	
date	Name	labor	whisk	out of state	Forge	Shop	sale
	Sun Jan			100 -			
	Cathedral			2000 -			
	Truss				350		1575
	Doc					250 -	1125
Totals							
then entered on spread sheet							
for month.							

Nol Putnam is the owner and operator of White Oak Forge located in The Plains, Virginia. Over the course of the last seventeen years he has learned a good bit about being in business for yourself and staying in business for yourself. He must have picked up a few things about the art of blacksmithing along the way too, for he has a gate hanging in the National Cathedral in Washington, D.C. Nol is also a Board Member of ABANA.

From: Newsletter of Pittsburg Area Artist-Blacksmiths Association, February 1989.

IRON

DOROTHY STEIGLER

Forging Flowers > In this class we will learn how to make roses, iris and daffodils from light weight sheet steel, 20-22 gauge. I will demonstrate a method of forging a stem or hip from 3/8" round stock, cutting petals into appropriate shapes and tenoning the flower onto the hip, raising petals into desired shapes. We will then add leaves forged on 3/4" stock or cut from 20 gauge steel, depending on style.

DOROTHY STEIGLER studied with Frank Turley and has been a blacksmith since 1974. She has been a demonstrator at three ABANA conferences, has been on its Board since 1978 and President since 1987. In 1980, she attended the Blacksmithing Conference in Hereford, England. She has been teaching at South Puget Sound for the past ten years and conducts three or four out-of-state workshops annually.

Tuition: \$195

May 15-19

IRON

JOSEPH PEHOSKI

Contemporary Blacksmithing > This course will play respectful flirtations with blacksmithing traditions while building a relationship with contemporary aesthetic issues. The course will be forward-looking and explorative with an emphasis on color, form and texture. During cool mornings and evenings we will work at the forge and during the warm parts of the day we will work with colors and models. I will share my experiences with marketing, collaborations, design and work ethics. Students should have a working knowledge of basic blacksmithing and welding techniques. The goal is to foster the potential of the student/artist through an increased dialogue between the student and the medium.

JOSEPH PEHOSKI, a professional smith of twenty years, received his training under Frank Turley, Francis Whitaker, Vaclav Jaros in Prague and through numerous field trips in this country and abroad. He

specializes in custom ironwork in the designer, corporate and liturgical markets. He is the author of *Blacksmithing for the Home Craftsman* and part owner of "Razz Ma Tazz," an Austin gallery that deals in unique forged objects.

Tuition: \$510

June 19- July 7

METALS/IRON

GLENN ZWEYGARDT

Mixed Media Fabrication > This will be an intensive class emphasizing possibility thinking. The focus will be on the fabrication of steel, mixed metals and stone, as well as porcelain enameled steel. There will also be lectures on techniques and concepts that are involved in creating sculpture and ideas. The course includes complete lectures and discussion on welding techniques, from stick to inner shield — and lots of practical "hands on" experience with the new motorized handheld cutting torches and other new equipment. This information will help improve the sculptor's accuracy and control in making the transition from idea to materials as enjoyable and exciting as possible. It is my hope that a sharing community will develop around various sculpture projects.

GLENN ZWEYGARDT is Professor of Sculpture and Chairman of the 3-Dimensional Department at New York State College of Ceramics at Alfred University. He has a BFA from Wichita State University and an MFA from the Rinehart School of Sculpture at the Maryland Institute of Art. His work is in many public and private collections, and in 1988 he received a purchase award for a large outdoor sculpture from the University of Tennessee/Knoxville.

Tuition: \$355

May 22- June 2

IRON

JAMES A. RUBLEY

Traditional Hand-Made American Knives > In an intensive session, participants will study the hand-forged

American Knife from beginning to end: design through finished product. This will include choice of materials, blade, furniture, handles. We will pursue the American shapes and their derivations from European styles with constant reference to the relationship of technique to design. The designs will be kept within historical and regional context, and the knives will be studied and built according to specific American geographic origin both functionally and cosmetically. Working techniques will be those of the traditional American blacksmith until the 1850's. Technically we will deal with the metallurgy common in the 18th and 19th centuries, and the processes will be kept well within the working skills of the basic blacksmith: all hardening and tempering done by eye. We will also study the potential problems facing the smith; the development of the knives will include the choice of tangs and how to deal with natural handles. This course requires a working practical knowledge and skills basic to the American blacksmith. **JAMES A. RUBLEY** has been considered a master cutler in the most traditional sense for many years. He has been an educator in the museum and craft worlds and a student of the American Trades. He often works as a historical consultant to museums and national projects and has worked nearly ten years independently as a cutler/blacksmith.

Tuition: \$355

July 10-21

IRON

JAY BURNHAM-KIDWELL

Crossover Smithing > This class is an exploration in blacksmithing techniques for the jeweler/metalsmith, with emphasis on both tool-making and object-making. Scribes, chasing and repoussé punches, chisels, hammers, tongs, stakes and jigs will be explored. This will be a legitimate journey onward, with a sense of wit and humor welcomed. **JAY BURNHAM-KIDWELL** teaches Jewelry and Silver-smithing, Metalsmithing and Blacksmithing

at Mohave Community College in Kingman, Arizona. In addition, he works on commission metalsmithing from architectural pieces to diamond setting. He has a BA from the University of Delaware and an MFA from the University of Georgia. He recently returned from a six month sabbatical at the International Teaching Center for Metal Design in Aachen, West Germany.

Tuition: \$355

June 5-16

IRON

WILLIAM W. HARSEY

Toolmaking > The tool, since the beginning, is how we shape our environment to our needs. A tool designed to fit the hand and do the work makes the connection from mind to hand much smoother. As a class, we will explore what is important to us and make, by design, a tool to fit both your hand and the job. We will go from concept to drawing and into the technology of handling different types of tool steels — by forging, laminating, filing, grinding, heat treating and finishing. Handle design and attachment will be done — as well as different types of sharpening techniques — for greatest possible sharpness according to the tool's use. All this is done because I believe that a good tool is a very personal and important part of life as well as making our work better or a bit easier. Probably the key to toolmaking is the selection of steel and the heat treatment. I will introduce water, oil and air hardening steels, and will demonstrate some hardening and tempering techniques for optimum performance. **WILLIAM W. HARSEY** is a noted designer and maker of knives. His work has been or is being used in Japan, Australia, Europe, Africa and all over North America. He is consulted by industry on tool steels, blade geometry and handle shapes.

Tuition: \$455

July 24- August 9

IRON

DOUGLAS E. WILSON

Blacksmithing > This session will focus on contemporary interior furnishings.

The class will explore design and execution of projects through drawing, discussion and direct forging. Special emphasis will be placed on the visual character of hot forged steel resulting from process: punching and drifting, riveting, splitting, forge welding. Each student will have the opportunity to design and make individual projects. Experience of basic forge practice is helpful.

DOUGLAS E. WILSON has been a metalsmith for 15 years. For the past seven years he has operated his forge on Deer Isle, Maine, during which time he has concentrated on private and public commissions, producing architectural and functional work and sculpture. He has taught numerous workshops at colleges and universities in New England and at Haystack. His work is often represented in national publications including *The Anvil's Ring*.

Tuition: \$355

August 14-25

IRON

ROBERT OWINGS

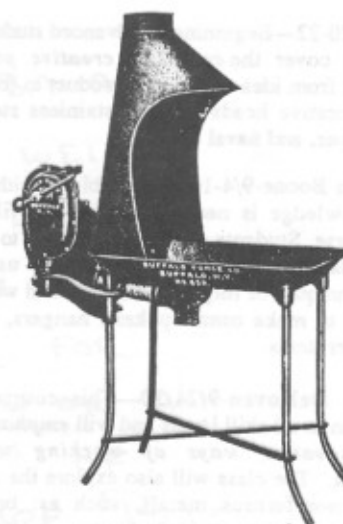
Design and Marketing > This will be an intense one week session focusing on these two areas necessary to your successful blacksmithing. We will cover these on a personal and cultural basis. Rather than a hands-on, this will be a *brains-on* session. In the design area, we'll explore current trends and the opportunities opening in iron and metal in response to contemporary themes: How to evolve your designs to meet the challenge of your clientele. Art, Design and Craft will be defined as separate processes, and then we'll look at when and how they merge and when they conflict. Marketing will be oriented to pragmatics: dealing with architects, interior designers and galleries, finding the decision-maker in a project, presentation of your work and yourself, when to sell art and when to sell hardware, making a more professional image and profitable future. There'll be time for discussions and questions, as well as some free time at the forge to explore and create. This workshop will establish within you a clearer focus on your work's direction and how to obtain it. **ROBERT OWINGS** began working as a metal artist in 1973 and in 1974 began a year

and a half of study in blacksmithing and metal design at the Fachhochschule Design in Aachen, Germany. In 1980, as part of the invited American delegation, he attended the international conference "Forging Iron" in England. He has taught at SummerVail and Penland and is presently serving as the editor of the *Anvil's Ring*.

Tuition: \$195

August 28- September 1

No. 201.



John C.

Campbell Folk School

Brasstown, North Carolina 28902
Call 1-800-562-2440

BLACKSMITHING

The Blacksmith Shop, with over 2,000 square feet of space, is one of the most comprehensive teaching facilities in the nation. There are thirteen forging stations, a large selection of hand tools including individual kits, a power hammer, drill press, and grinder. In addition to the new metal shear, built in 1985, new work tables were donated in 1986 by the Gainesville Iron Works. Basic skills and specialty classes, as well as two courses in advanced techniques, are offered in weekend, one- and two-week courses. Elmer Roush is our Resident Blacksmith.

The combination of good facilities, the building's unique atmosphere, and the continued strong support of Master Blacksmith Francis Whitaker and others adds up to an exceptional blacksmithing program at the John C. Campbell Folk School.

Jim Batson-5/21-27—Beginning to advanced students will learn *basic skills, design development, and creative processes* to make finished iron projects of student's choice.

5/26-28, 10/15-21—Beginning to advanced students will have demonstrations, individual instruction, and participation in the *forging of steel into tools for all crafts*.

10/20-22—Beginning to advanced students will cover the *complete creative process* from idea to finished product to forge decorative heads in iron, stainless steel, copper, and naval brass.

Dan Boone-9/4-10—Basic blacksmithing knowledge is needed for this fun-filled course. Students will be introduced to the *whimsical side of blacksmithing* using techniques of forging, twisting, and welding to make ornate pokers, hangers, and other items.

Ira DeKoven-9/24-30—This course is open to all skill levels and will *emphasize innovative ways of working with iron*. The class will also explore the uses of non-ferrous metals, such as: brass, bronze, copper, and aluminum.

Charlie Fuller-3/26-4/1, 8/26-9/1—This class is for beginning to advanced students and will *cover all areas of blacksmithing* from upsetting and drawing out to forge welding.

John Kierbow-12/3-9—*Basic blacksmithing techniques* for beginning to advanced students will be taught in this course. Tool construction and selection skills will also be covered.

Kelth Kilby-7/23-29, 7/30-8/5—Beginning to advanced students will be presented with *forge techniques needed to make high quality forged knives* out of high carbon steels. Advanced students may work in damascus techniques.

7/28-30—Beginning to advanced students will receive hands-on instruction in *basic forge techniques*, tool selection, use and construction in this class.

Paul Lundquist-3/12-18—Beginning to advanced students will study *basic blacksmithing techniques* and should complete several small projects.

Randy McDaniel-6/4-10—This course is for the experienced blacksmith who wishes to "forge" ahead to *design and make*

animal, insect, dragon, and human heads and incorporate these designs into his work.

Joe Miller-3/5-11, 8/13-19—*Beginning blacksmithing students* will learn the techniques of drawing, upsetting, bending, twisting, quenching, splitting, heat treating, and forge-welding to make hooks, fireplace tools, hangers, candle holders, tools, and other items.

Jud Nelson-7/16-22—Beginning to advanced students will study *basic techniques in blacksmithing* and should complete several small projects.

Charles Orlando-5/28-6/3, 11/26-12/2—Beginning to intermediate students will learn *basic forging techniques* for tool-making such as tong-making, forging, hardening, and tempering, joinery, making leaves and flowers, and will complete several projects.

Chuck Patrick-3/19-25, 5/7-13—Beginning to intermediate students will study *basic steps in smithing* leading to intermediate projects. Dexterity with some manual exertion necessary. Course is to stimulate personal interest and explore traditional blacksmithing methods.

4/16-22, 9/10-16—Students with a year of smithing or a great desire to learn *knife making* will learn proper forging of high carbon steel, as well as cable and pattern welded Damascus. Hardening and tempering of certain steels, handle styles, and finishing will be used to finish a knife.

Nol Putnam-11/5-18—Students should be proficient in all basic forging skills, as this is an *advanced course in art and architectural smithing* which will focus on the design, drawing, and forging of a piece of work. Business aspects of smithing will also be studied.

Jay Reakirt-8/20-26—The making of basic hardware with an eye towards *saleability* and entry into the wide world of blacksmithing will be covered in this class for beginning to advanced students.

Peter Renzetti-4/2-15—Intermediate to advanced students will cover techniques used to design, forge, assemble, finish, layout, and install various types of *hardware and ironwork for residential structures and restoration techniques*.

THE NATIONAL ORNAMENTAL METAL MUSEUM IS PLEASED TO PRESENT



ECCLESIASTICAL METALS



March 14 - May 14, 1989

Museum members are cordially invited to attend a preview reception for the exhibition. Please feel free to bring guests. Refreshments will be served.

Sunday, March 12, 1989

3:00 - 5:00 P.M.

"Ecclesiastical Metals" surveys the role the metalsmith has played in the ornamentation of places of worship and in the creation of ceremonial objects through the ages. In addition to contemporary commissioned liturgical works by members of the Society of North American Goldsmiths, the exhibition will feature non-Western religious artifacts. Lending institutions include Southern Illinois University, Carbondale; The Egyptian Institute of Art and Archaeology at Memphis State; The Bead Museum, Prescott, Arizona; St. Peter's Catholic Church, Memphis; Temple Israel, Memphis; and The Memphis Pink Palace Museum. Works on paper depicting the use of metal objects in religious ceremonies, stained glass panels, and richly embroidered vestments will augment the exhibition.

The Museum receives operating support from the Tennessee Arts Commission and the Memphis Arts Council.



Northwest Blacksmith's Association

P.O. Box 81041

Seattle, WA 98108

MEMBERSHIP APPLICATION: NEW () RENEWAL ()

Annual dues are \$15.00. Please make check payable to NWBA.

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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 TO THE CHAPTERS MARCH 1989

It's nearly Easter and I'm just recovering from Christmas! ABANA's Finance Committee Chairman, Joe Harris, tells us we look pretty good as we close the gap on the first quarter of 1989. However, as Joe points out it has taken us almost two years to recover from a long line of less careful financial planning, therefore it's going to be imperative that we watch every cent and keep in close order the business transactions of ABANA. As a non-profit organization answerable to the IRS, we often run into situations whereby we have to clarify more closely and account more clearly for expenditures. With the help of our accountant Ed Hirrold and hard work of Bill Callaway and finance committee, we have been learning what some of these ramifications entail. As we move into 1990, we will be rewarded by ABANA's ability to apply for grants through organizations similar to the NEA. It is our hope that we can help all members look forward to receiving grants in the future.

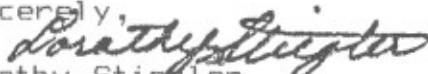
Library Director, Joe Pehoski has done a fantastic job getting the library squared around. There's still an awful lot of work to be done, however Joe tells me in the near future it is his goal to have the rental fees for videos and slides substantially reduced. While we don't want to count our chickens too soon, I'm sure that before the year's out we will be able to do this for our members.

Executive Secretary Janelle Gilbert tells me that the sales of the Sears Roebuck catalogues and cast anvils were a rousing success. Unfortunately they are all gone now and those chapters who were able to take advantage of this terrific offer made out like bandits. Janelle tells me that we have a supply of baseball caps left over from the Sloss Conference. As soon as they are sufficiently inventoried and the board can decide on a fee, it's hoped that we can offer these caps at substantially reduced prices so they can be used as a fundraising item. More on that next time.

It is not too soon to be thinking about who you would like to nominate for the five positions on the board of directors which will be coming up in the fall elections. If you have any questions on the nomination procedures, please contact Janelle at the ABANA Office.

Please take advantage of the benefits of the Chapter Liaison Committee headed by Ward Brinegar. Ward will be working very hard to update relations between the chapters and ABANA. He is a direct link to the board and is accessible at all times. You may contact Mr. Brinegar at: 1709 West Charles' St. Grand Island, NE 68803, phone - (308) 381-7817.

Sincerely,


Dorothy Stiegler
ABANA President

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DES/jrg

BOOK REVIEW. Unless you are one of those independent souls who believe: in all work and no plagiarism, the book called "Antique Iron" is one you should take a look at for ideas - especially if you are interested in traditional work. The subtitle is "Survey of American and English forms, fifteenth through nineteenth centuries."

The introduction is an interesting and well-illustrated description of the production of pig- and wrought-iron in the colonial period, from Jamestown up to the Revolution. There is particular emphasis on the Saugus and Hopewell iron works that have been completely restored by the National Park Service. These, incidentally, are well worth a visit if you ever have an opportunity.

There is hardly any text following the introduction. The remaining 310 pages are pictures of iron work - mostly photographs with a few drawings. Each illustration has its title or purpose, origin, date, and museum where now located. The more interesting or unusual pieces have a brief paragraph of explanation. There are sixteen chapters of pictures, from Architectural Hardware to Weathervanes, including such topics as Armament, Conestoga Wagon, Kitchen Utensils, Lighting, Miscellaneous, Tools and Toys. Although practically all of the pieces are in museums, the quality of work ranges from rough-and-ready to highly artistic; there is something here for everybody.

("Antique Iron," Herbert, Peter and Nancy Schiffer, 1979.
Schiffer Publishing Ltd., Box E, Exton, Pa 19341
Library of Congress catalog no. 79-89202. ISBN: 0-916838-26-9)

from: The Texas Forge Review, Texas Artist-Blacksmiths'
Association. January 1989.

BLACKSMITHING AND DECORATIVE IRONWORK BOOKS

Write Norman A. Larson for his latest catalogue. He lists over 100 books on all aspects of ironwork.

Norman A. Larson
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Lompoc, CA 93436

Books

The Woodwright's Workbook,

Roy Underhill, The Woodwright's Workbook. The University of North Carolina Press.

For those who are interested in Peter Ross' blacksmith's shop in Colonial Williamsburg, Roy Underhill's book devotes nine pages to the reconstruction of the James Anderson Blacksmith Shop. It takes you from the foundation to the roof with lots of good pictures.

Steve Gossett
Cherry Creek Forge

Werk und Werkzeug des Kunstschmieds, by Otto Schmirler.

This book is one of four that Otto

Schmirler wrote. Three of the volumes deal primarily with design and bespeak the output of a lifetime of smithing. They are handsome and useful additions to any library. However, his book on tools is a gold mine. Many of the illustrations are in color, taken from water color renderings. The text is in

German, French and English, and is sparse. As for the pictures, the details speak volumes. Often the tool is shown along with the result of its being used, and then shown again to scale with all that you need to make your own. There are pages showing details of leaf work, inter-sections, possibilities for joinery, and punches galore.

This book will not be in print forever. If you want to pursue

artistic smithing, buy it now or lose out later! This is my choice for one of the cornerstones of any smithing library.

Nol Putnam
White Oak Forge
The Plains, VA

This book is available from:
Norm Larsen, 5426 Highway 246, Lompoc, CA. 93436 & Centaur Forge, Ltd., PO Box 340, 117 N. Spring St, Burlington, WI., 53105

from: The Pennsylvania Striker, Pennsylvania Artist-Blacksmiths Association. Winter 1989.

NEEDED:

Parts and information on Champion 400 blower and 401 portable forge, especially the air grate and cast brackets holding blower to frame. Call or write Jim Lovelace, 3340 S. Canal Blvd., Redmond, OR 97756 (503) 548-4632.

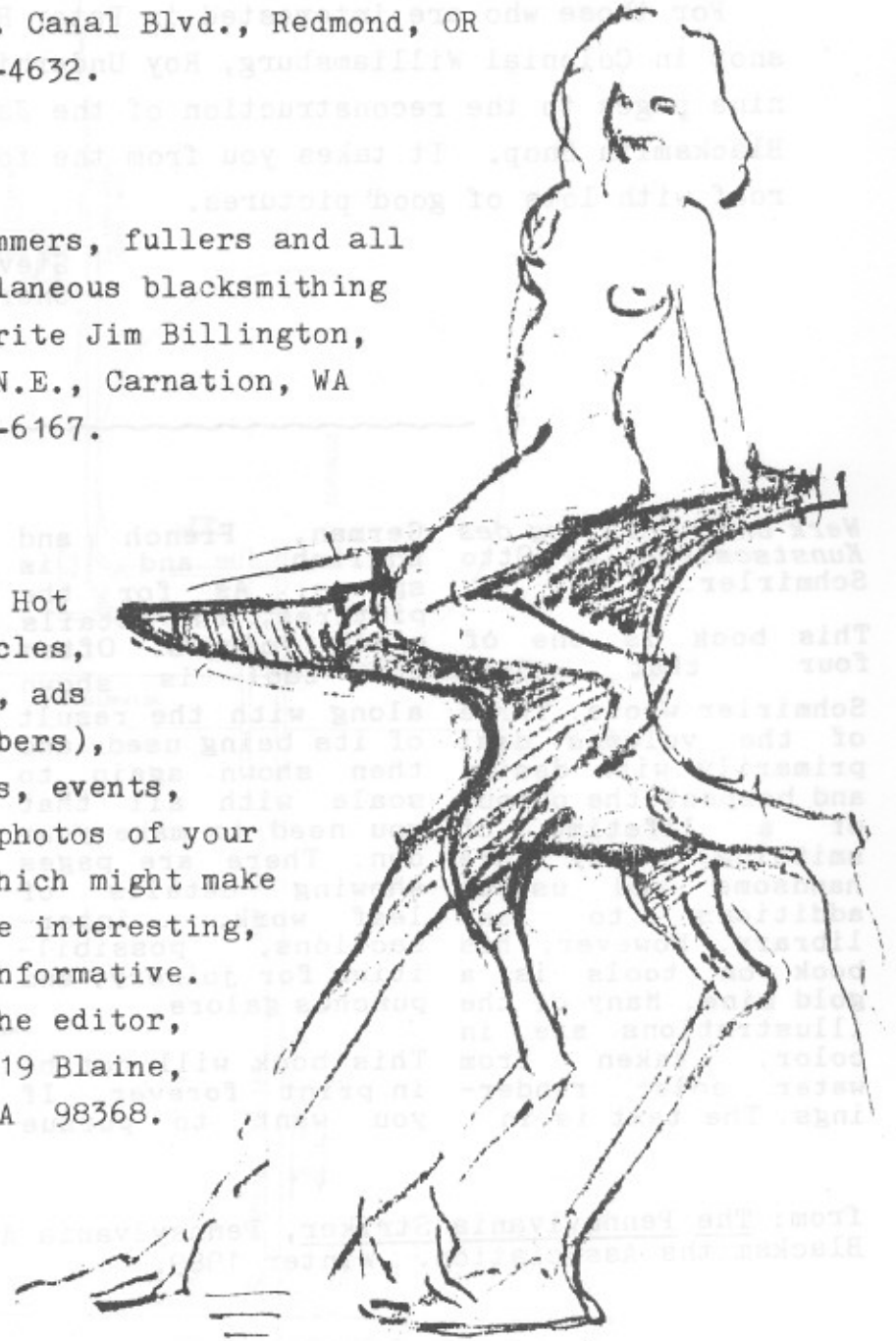
WANTED:

Hardie tools, hammers, fullers and all manner of miscellaneous blacksmithing junk. Call or write Jim Billington, 4739 326th Ave. N.E., Carnation, WA 98014 (206) 333-6167.

WANTED:

Material for the Hot Iron News. Articles, comments, photos, ads (free to all members), how-tos, cartoons, events, business cards, photos of your work, anything which might make the magazine more interesting, attractive and informative. Send it all to the editor, Karen Wagner, 1119 Blaine, Port Townsend, WA 98368.

Drawing by an anonymous NWBA member, 1984.





Classified Ads

Blacksmith Apprenticeship. One year. General, all round blacksmith shop makes gates, handrails, furniture, work in iron and bronze. Handforming, power hammer and modern metal working techniques. Contact Craig Kaviar at Kaviar Forge, 147 Stevenson Ave., Louisville, Kentucky 40206. Telephone (502) 561-0377.

The Appalachian Blacksmith's Association is proud to offer the 1909 Champion Blower and Forge Company Catalogue-Collector's Edition Reproduction. This rare and excellent catalogue is 8 3/4" x 11" and has 36 pages with a plastic spine. Included are blowers, forges, firepots, post drills, upsetting and welding machines, tire and axle shrinkers and more. To get your copy send \$6.50 (postage paid) to:

Bob Wagner, Secretary
 Appalachian Blacksmith's Association
 Rt. 1 Box 9A
 Old Fields, WV 26845

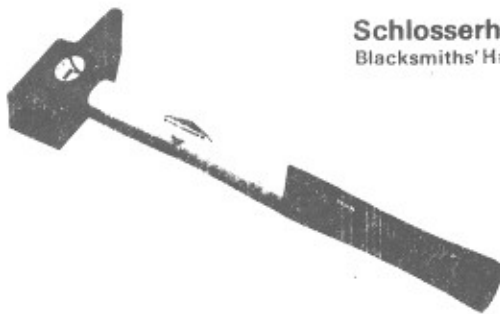
All proceeds go to the ABA treasury.




Robert Owings Metal Design





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Gas forges, Peddinghaus hammers, top and bottom tools and anvils, hammer dies, Berger hammers.



Schloserhammer
 Blacksmiths' Hammer, French pattern


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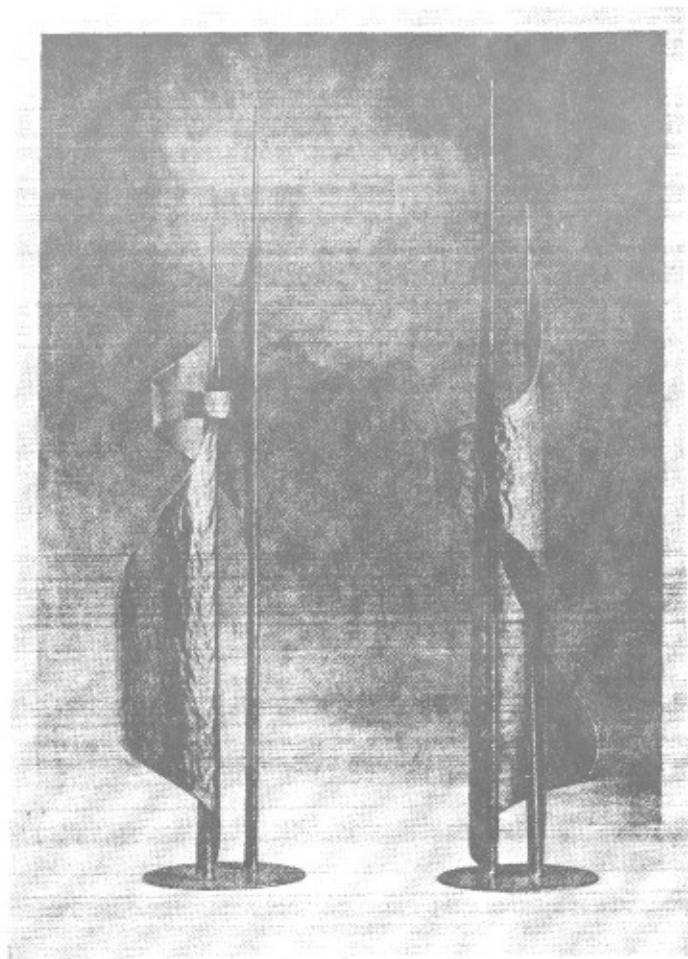
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1/2	225	1 3/4	790
3/4	340	2	900
1	450	2 1/2	1100
1 1/8	500	3	1350
1 1/4	565		

Hot Iron News

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