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NWBA

CHAPTER OF ABANA

Hot Iron News

-- Voice of the Northwest Blacksmiths Association

DECEMBER

1990

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HOT IRON NEWS is the official quarterly publication of Northwest Blacksmiths Association. Submission of materials for the magazine is eagerly encouraged. Deadlines for submission are February 15th, May 15th, August 15th and November 1st. Other ABANA Chapters, Canadian and Australian blacksmiths associations, and non-profit educational metals oriented groups have permission to reprint material found within the covers of HOT IRON NEWS as long as credit is given to the authors, the magazine and NWBA.

Questions concerning membership should be forwarded to the P.O. Box above, and questions concerning the magazine or its content to the editor.

Cover: CANDLE HOLDER by Bruce Northridge. The serpent's scales were once the teeth of a rasp.

TO THE MEMBERSHIP **10/30/90**

The Fall Conference, again, was a good one. Approximately 85 people turned out even though the weather was in its usual soggy state.

Many thanks to Bruce Northridge and Paul Shelton for their demos, also to Jerry and Ina for the banquet preparation, Bill and Nora Carrell for hosting the show and putting up with all the work that goes into these things and last but not least, to all the folks who brought food and auction items helped with the set up and clean up and the many little things that make these conferences a success.

We are planning two NWBA sponsored Novice Workshops this Spring at Old Cedar Forge, dates are elsewhere in the newsletter.

There will be a Board meeting at Mike Falk's home and shop around the 1st of February. All members that want to, may attend.

Jerry Henderson was voted in as our new Vice-President and Ike Bay is now our Secretary.

We are investigating two different areas for our Spring Conference, Fort Vancouver in Washington and the Columbia County Fairgrounds in St. Helens, Oregon. Full details will be in the next newsletter.

If anyone is interested in getting some of the Wally Yater swage blocks, get in touch with me at my shop, (206) 458-2777, 8 am - 5 pm, M-F. I'm looking at an NWBA group purchase to ease the freight costs. The blocks are 12" X 12" X 4". One has spoon and ladle holes in it along with the normal swage cuts around the edge. The other has a large swell for tapered curves and other holes in it. The last price I got was as of 6/90 and they were $275 a pair FOB from Maryland.

Best wishes for your Holidays,

Smokey Adams
President

PRELIMINARY TREASURERS REPORT

NWBA 1990 FALL MEET

CREDITS		DEBITS	
Attendence Fees *	$2655.00	Demo Fees	$470.00
Auction	1830.50	Travel Expenses (Demonstrators)	503.22
Hat & Shirt Sales	48.00	Food - Meat	170.90
		Food - Misc.	164.29
*98 paid attendees		Supplies - Misc.	65.71
		Video Tapes	26.07
		Sanikan Rentals	167.50
TOTAL CREDITS	$4533.50	TOTAL EXPENSES	$1567.69

CURRENT BALANCE (10-18-90)
$9322.33

Jerry Culberson giving his best to entertain and fill the coffers of NWBA at the Fall Auction.

Photo by Lloyd Hedglin

NWBA NOVICE WORKSHOPS

The Northwest Blacksmiths Association Novice Workshops have always been a popular and important part of the association's educational goals and services. The Board is currently working on 1991's offerings. The first workshop will be in January and the second in February or March.

JANUARY 18TH -20TH, 1991

Where: Old Cedar Forge, Allyn, Washington

Who: The instructors will be Jerry Culberson, Gene Chapman and Smokey Adams.

What: Instruction in basic forging, fires, tools, ornamental techniques, tempering, great food and lots of it, and answers to questions.

What you need: Cotton work clothes, boots, safety glasses, gloves, hand tools if you have them, an open mind and an appetite.

How many: There is a 12 student limit.

Lodging: On-site camping and motels in the nearby towns.

Cut-off date for registration: January 11th

Fees: $120 includes food, fuel, metal, etc.
$60 non-refundable deposit must be paid in advance to secure a space in the class, no exceptions. Folks on the reserve list will be able to obtain a refund if the do not attend. The balance will be due upon arrival.

Registration: Make your $60 U.S. deposit check out to NWBA and send it to:

NWBA Treasurer
P.O. Box 81041
Seattle, WA 98108

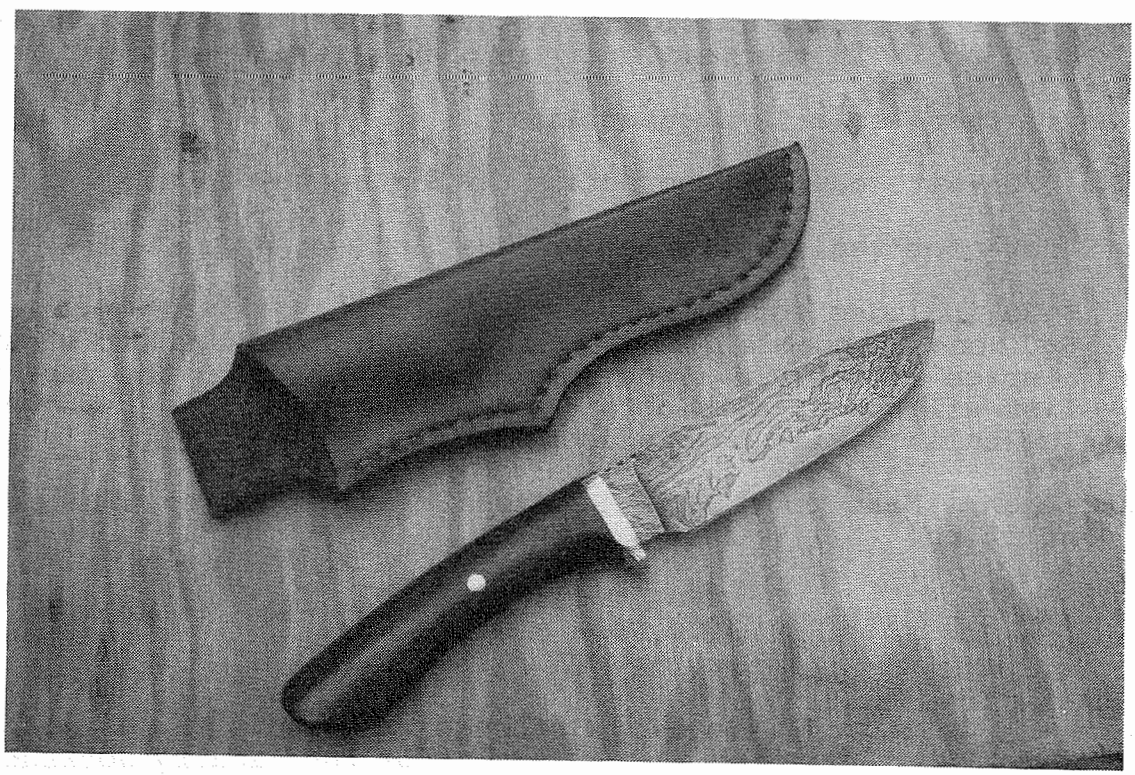
Questions: Contact Ike Bay for information about the workshops, and Smokey Adams for information about the January workshop.

FROM THE EDITOR

Dec. 7, 1990

Hey Folks! I'm elated! You'll notice, with the exception of a very few articles, this issue of HOT IRON NEWS reflects a group effort for the NWBA. Its wonderful to have so many good articles, photographs and drawings come in from the membership and not need to rely on reprinted material to fill the covers. It took a little longer than I had hoped to produce this issue due mainly to the time it takes to get articles written but I think the wait was worth it. I want to thank the Association and especially the contributors to this issue of the magazine for their efforts, support, and assistance. I am proud of NWBA - my brothers and sisters. I wish you all warm fires, peace and love for the winter holidays and the coming new year.

Karen Wagner



KNIFE AND SHEATH BY HUGH EDDY

Photograph by Lloyd Hedglin

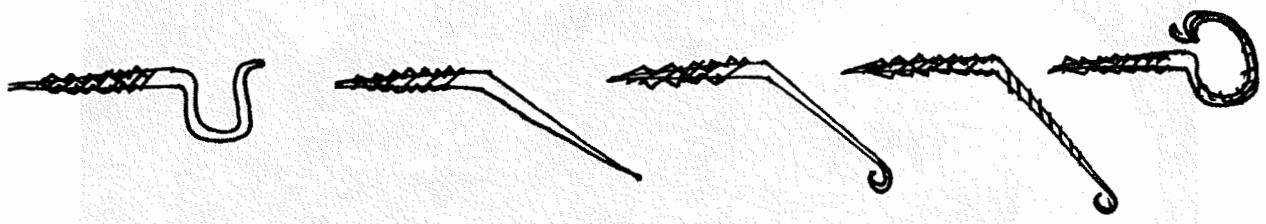
NOTES ON THE 1990 FALL DEMONSTRATIONS

BY HUGH EDDY

I. BRUCE NORTHRIDGE

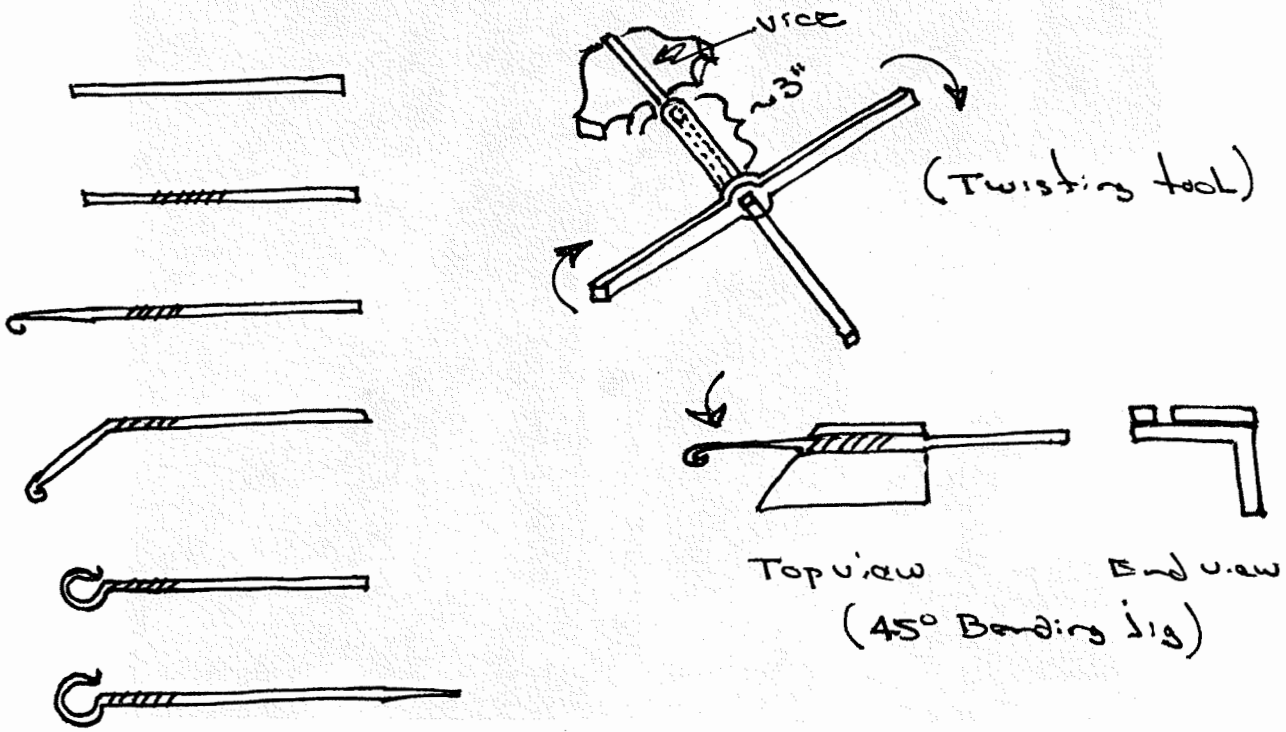
A. Screw-in Hook (transform a 49¢ hook into a $3 hook)

1. Purchase a #2 or #3 hook
2. Soak in muriatic acid to remove zinc chromate finish
3. Heat, straighten and forge a square taper
4. Scroll end
5. Heat, cool scrolled end, place in vise and twist
6. Form hook over horn



B. Skewer

1. 3\16" square stock 18" long
2. Twist cold: five one-half turns using twisting tool
3. Draw square taper and scroll end nearest twist
4. Bend 45 degrees using jig
5. Form eye over horn, being careful to center the eye
6. Draw square taper out for end and quench tip to harden



Above: Bruce and Al Bart demonstrating a twist

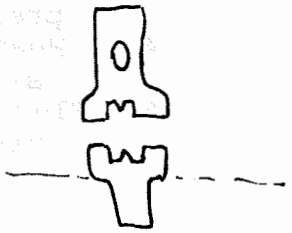
Below: Al Bart and his swages

Photos by Lloyd Hedglin

C. Twists

1. Jewelers twist
   a. 1/4" X 1/2" flat stock + 2 - 5/16" pieces round stock
   b. weld ends and twist

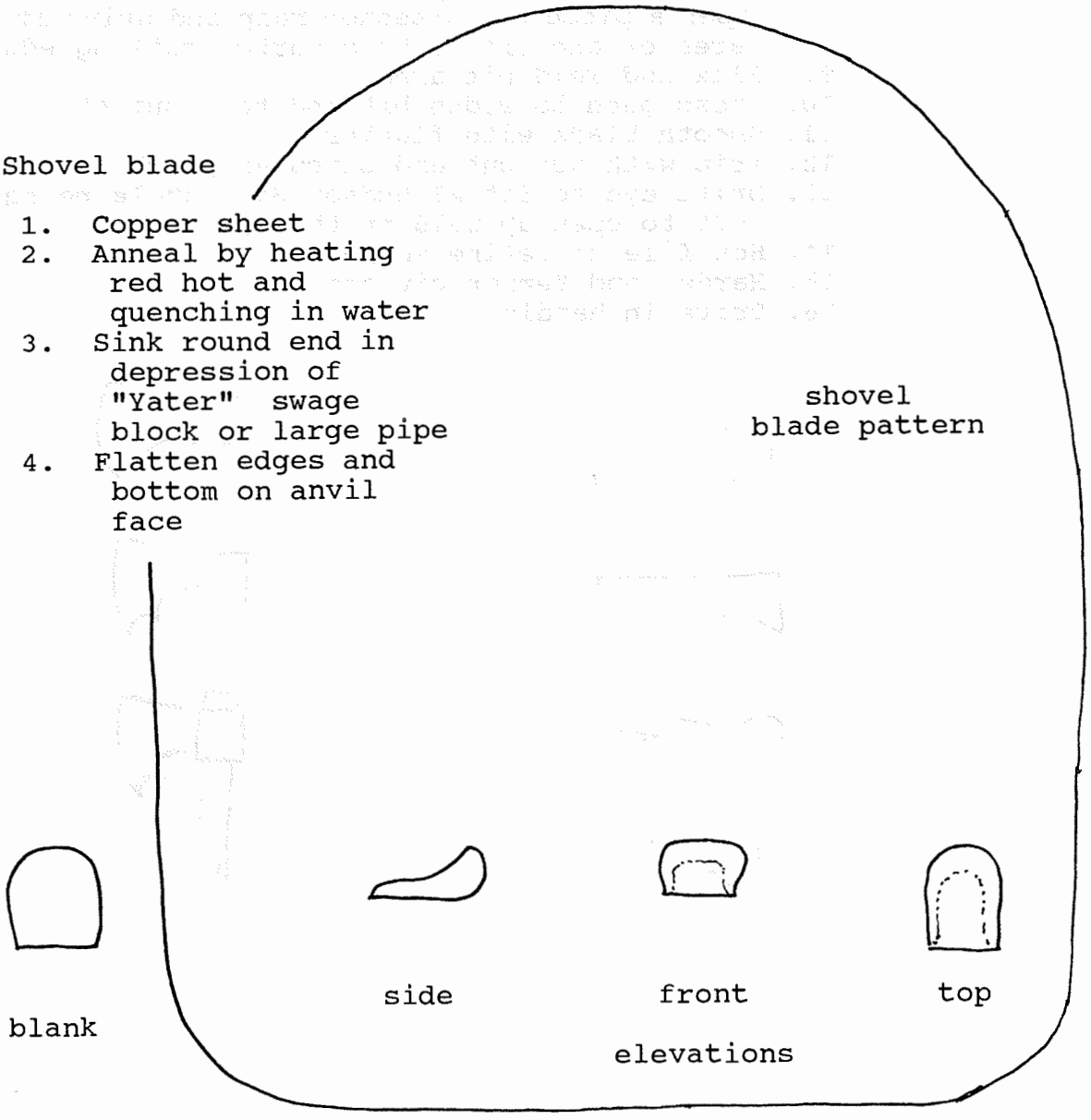
2. Wart twist
   a. Score 4 sides
   b. Twist
   c. Flatten square
   d. Rescore 4 sides
   e. Untwist



Scoring is hastened by using a specially made scoring top and bottom swage

D. Shovel blade

1. Copper sheet
2. Anneal by heating red hot and quenching in water
3. Sink round end in depression of "Yater" swage block or large pipe
4. Flatten edges and bottom on anvil face

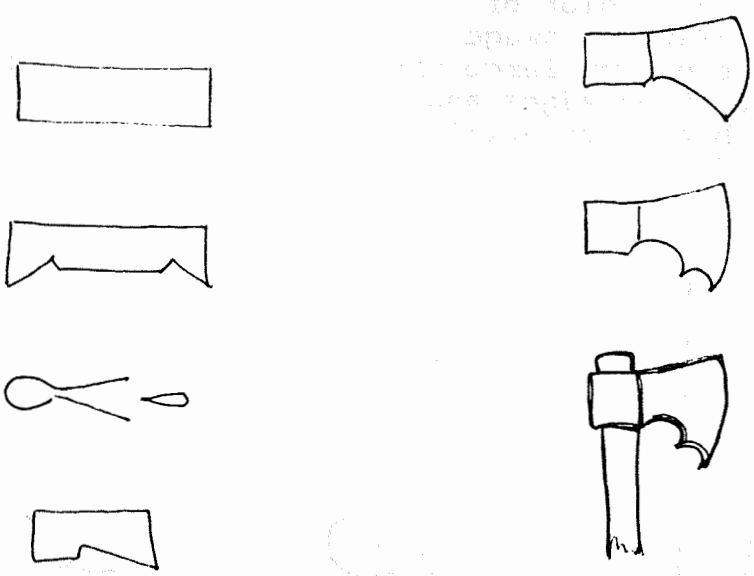


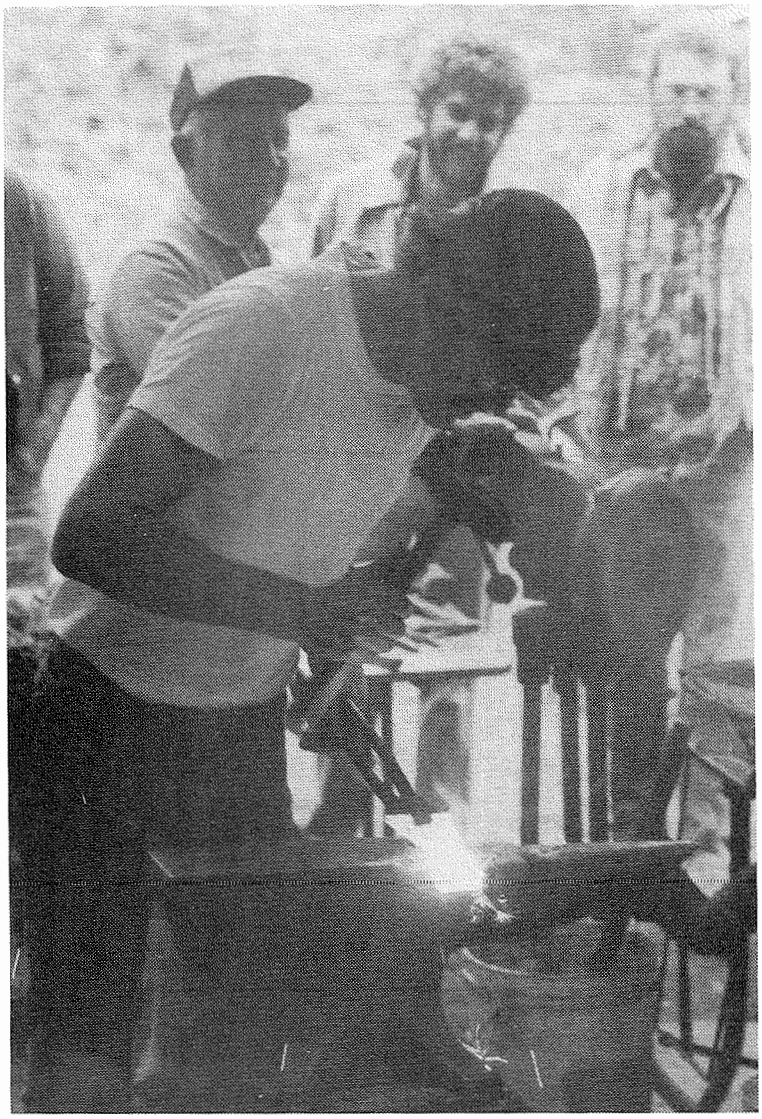
E. Boat Axe

1. 1/4" X 3" flat stock
2. Scribe outline
3. Hot cut pattern out over a cutting plate (Bruce prefers a copper cutting plate)
4. Heat in middle and bend eye: start eye bend by "slapping" over the horn
5. Flux and bring up to weelding heat: be careful to not burn the eye (position in the fire with eye up)

like this not like this

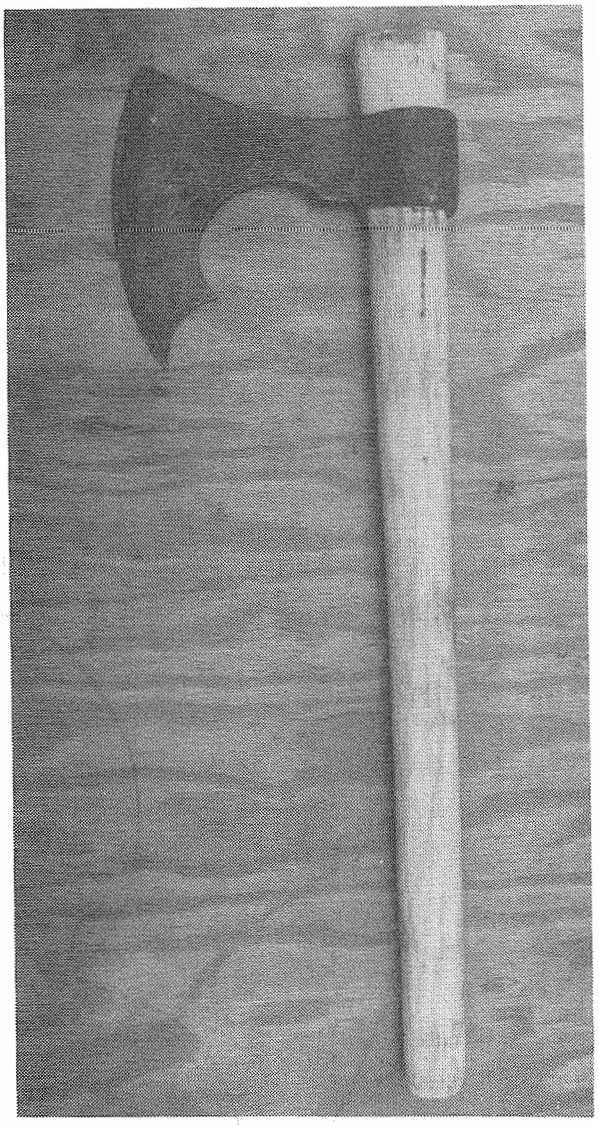
6. Weld eye area over edge of anvil (may take two heats)
7. Test eye weld now by drifting with a 7/8" round drift
8. Taper a piece of horseshoe rasp and drive it into bit area of axe (for a high carbon cutting edge)
9. Flux and weld bit area
10. Cross peen to widen bit end to about 6"
11. Smooth blade with flatter
12. Trim with hot cut and circular punch
13. Drift eye to fit #3 Hudson Bay handle being careful not to open up weld at the eye
14. Hot file to refine shape
15. Harden and temper bit end
16. Drive in handle





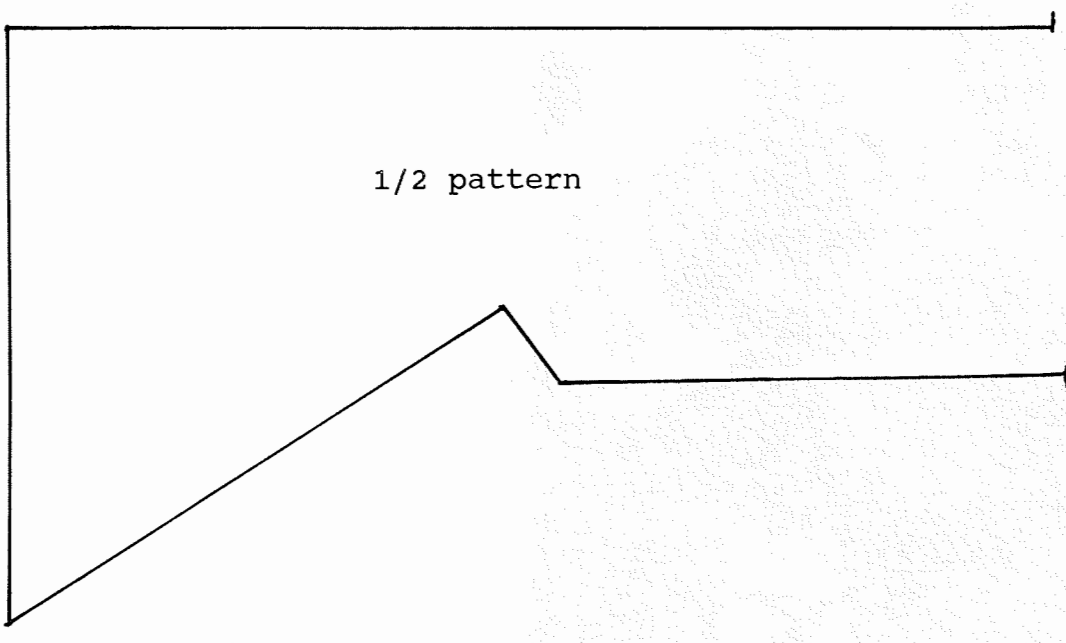
Bruce welding an axe eye

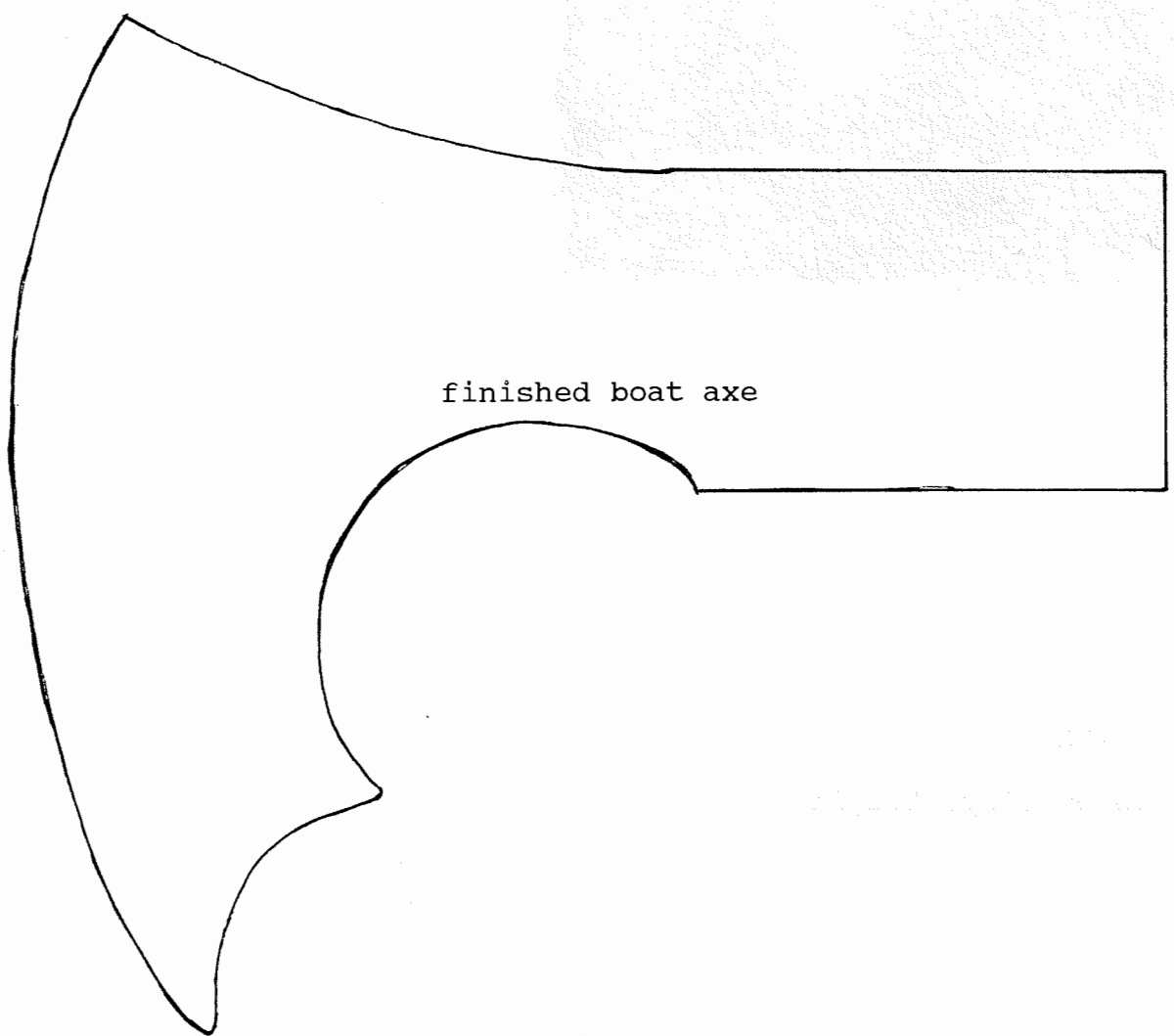
Photo by Bruce Metz



BOAT AXE

Photo by Lloyd Hedglin


1/2 pattern


finished boat axe

WORK BY BRUCE NORTHRIDGE

Photo by Lloyd Hedglin

II. PAUL SHELTON

A. Bidding and estimating

1. By the linear foot
2. By the hourly rate (Paul prefers this)

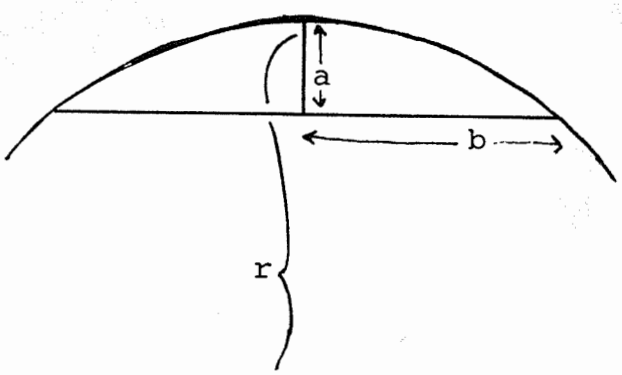
B. Three objectives of project

1. Quality
2. Done on time
3. Make a profit

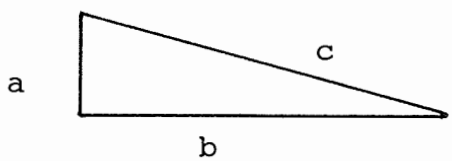
C. Shop math

1. Circumference
   a. $c = \pi d$
   b. $c = 2\pi r$
2. Area of a circle = r
3. Radius of a circle determined from a chord

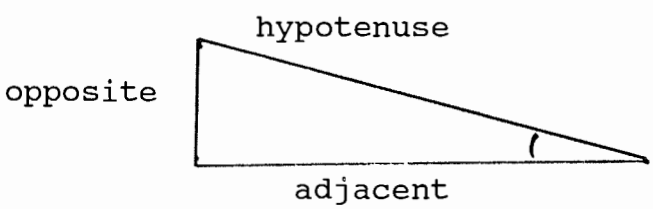
$$r = \frac{a^2 + b^2}{2a}$$

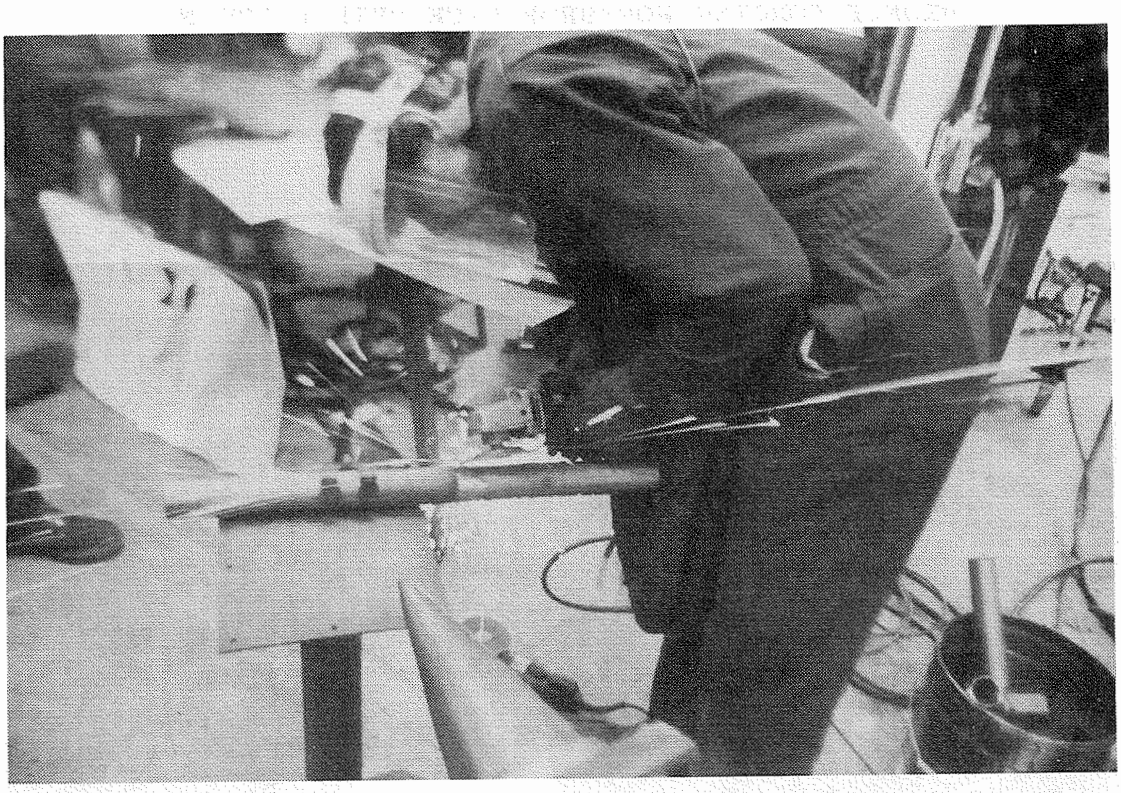


4. Pythagorean theorem
   a. If any two sides of a triangle are known the third can be determined
   b. $c^2 = a^2 + b^2$



5. Three trig functions:
   If you know an angle and one side you can compute the other side.
   If you know two side you can compute an angle.
   a. $\sin = \frac{opp}{hyp}$
   b. $\cos = \frac{adj}{hyp}$
   c. $\tan = \frac{opp}{adj}$





Paul Shelton polishing up a weld in tubing.
Photo by Bruce Metz

III. TIPS

A. For more successful forge welding:

1. Wash coal
2. Clean fire periodically
3. Heat anvil face on cool days

B. Break sharp edges

1. "Straightens" look of work
2. It is more aesthetic
3. It is easier on the hands

C. You can make a hot cut from an old flattened 3/4" hot punch

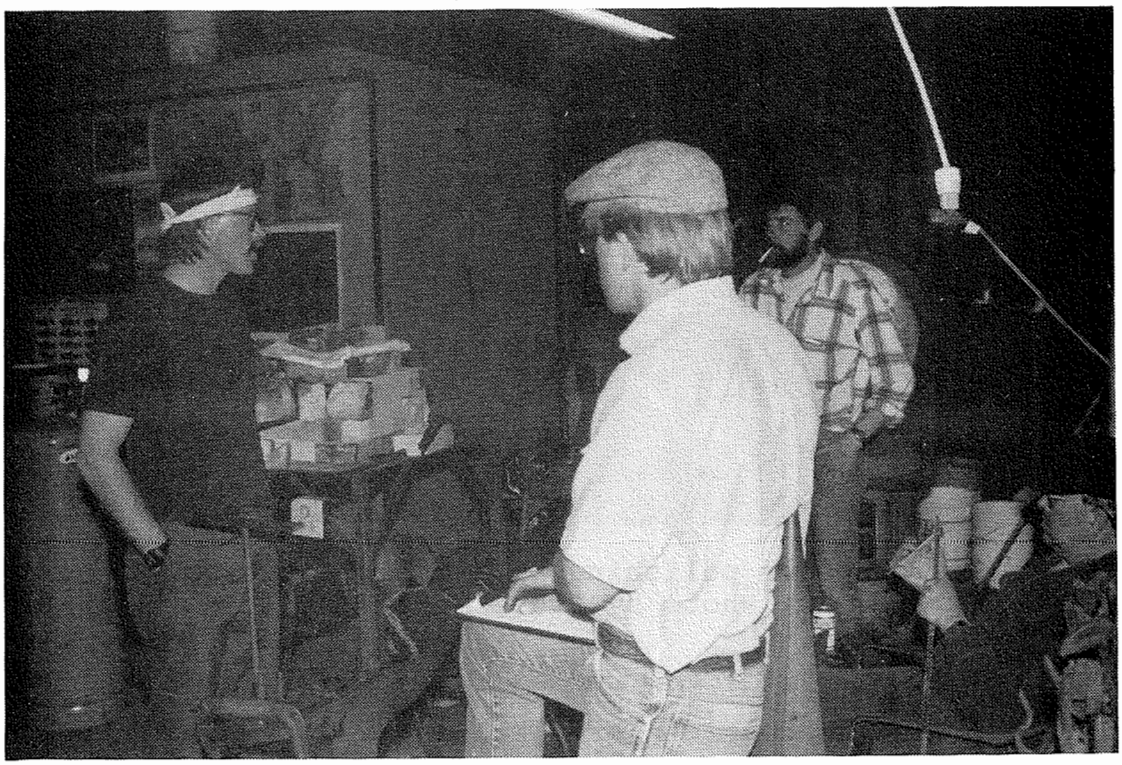
D. A hammer head soaked in anti-freeze won't dry out and loosen as it does in water

E. Copper and steel sell better than brass and steel (Brass tends to tarnish and look dirty

F. You can make "bean money" at fair by stamping names and or dates on old horseshoes that have been tumbled or wire brushed

BRONZE FORGING WORKSHOP WITH PHIL BALDWIN

NOTES BY JOE ELLIOTT



Phil Baldwin at left with students. Photo by Lloyd Hedglin.

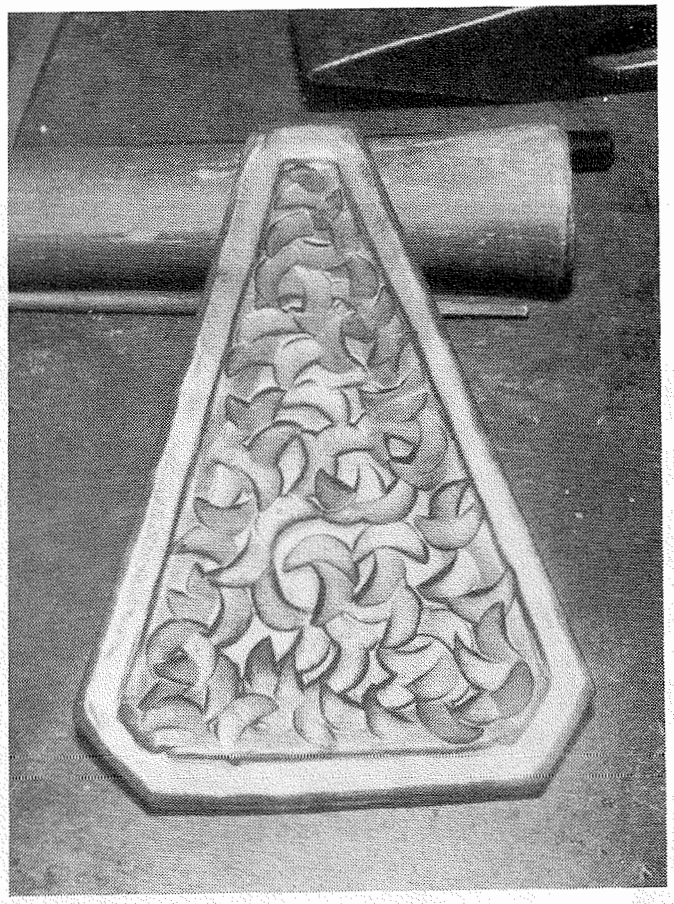
Materials: Forgability

Avoid leaded alloys

Silicon bronze forges easily - dull orange through black

Naval brass forges great - bright red through black

Aluminum brass fatigue cracks easily - forge at dull red and stop at black



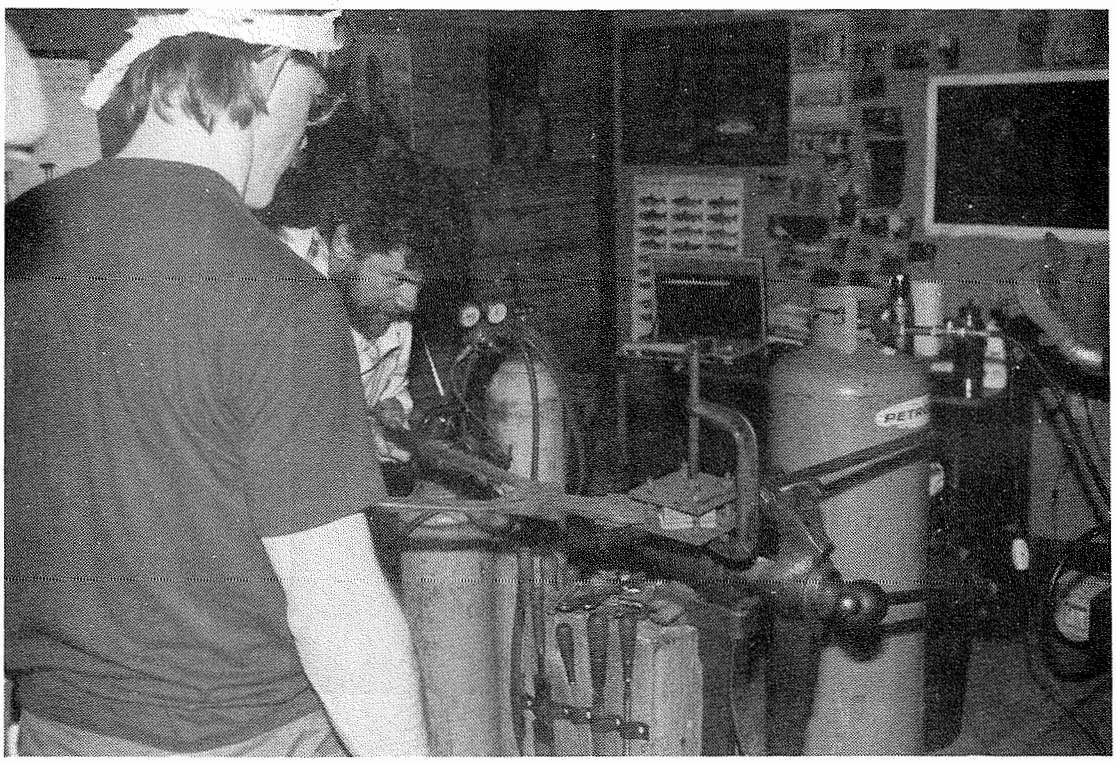
Bronze forging by Joe Elliott. Photo by Lloyd Hedglin.

Mokume Gane

Brass with copper not easy

3" X 3" X 16 gauge

1. Clean all pieces
2. Make sure pieces are perfectly flat
3. Stack alternating material
4. Sandwich stack between 1/2" plates and bolt together
5. Heat in reducing rife minimum 1 hour at bright red head for good fusion
6. Cut bolt and remove billet
7. Reheat and forge billet at dull red heat, using flatter until 3" X 3" becomes 4" X 4"
8. Trim billet sides (bandsaw blade works best at 8 teeth per inch)
9. Pattern development similar to Damascus



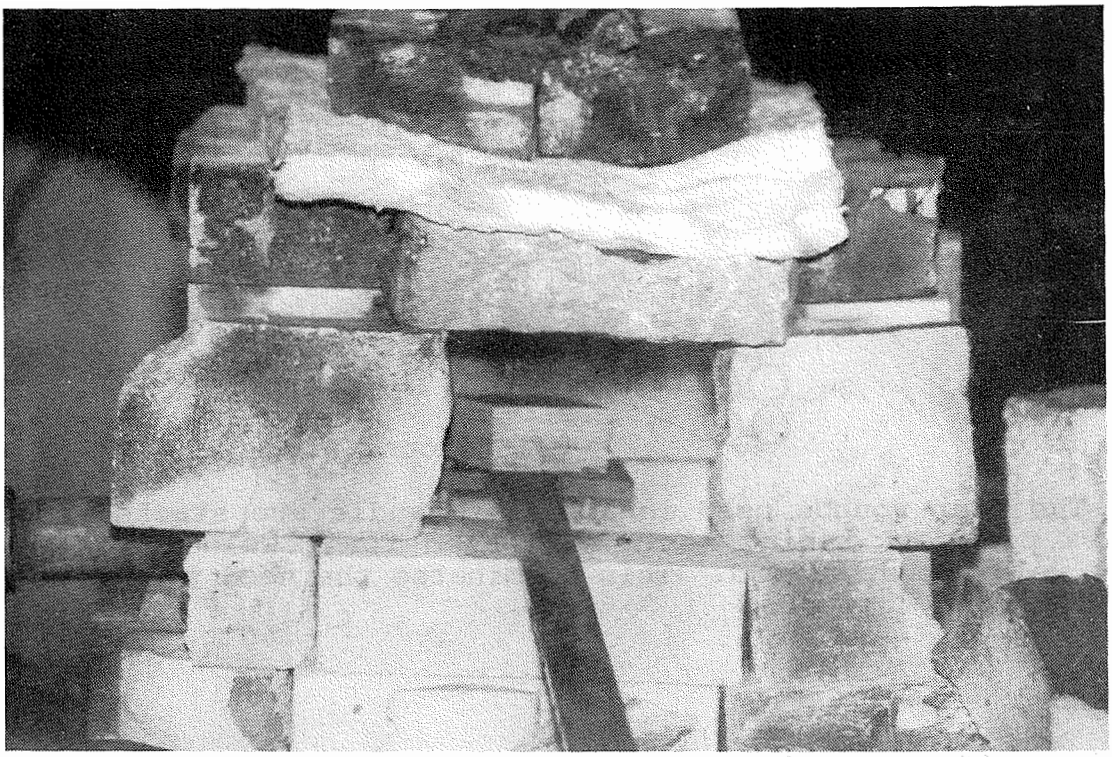
Phil watching as Joe cuts the bolts loose on the Mokume billet. Photo by Lloyd Hedglin.

Patina for copper base alloys

1. Ammonia (pure) + salt + soap + urea (optional) = green through blue depending on mixture and amount of contact time

2. Lime of sulfur (calcium polysulfide) diluted to 1% or less in water = brown/gray/black

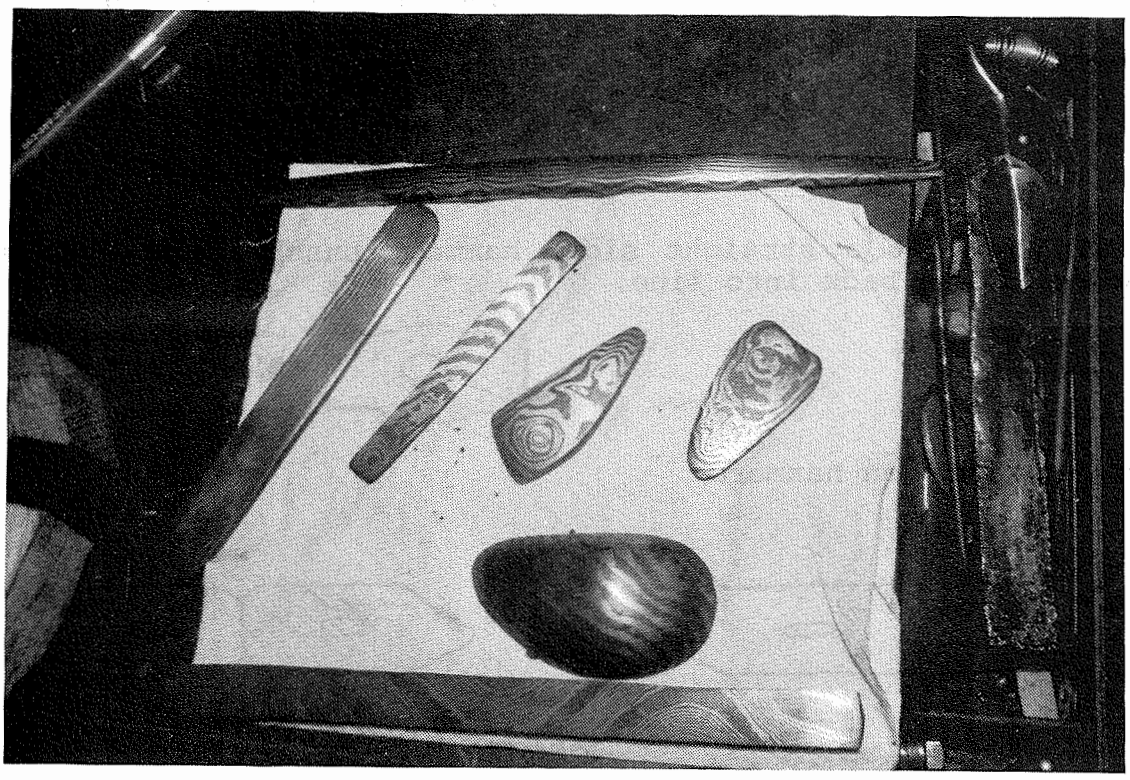
Phil's knowledge of materials and skills at forging are truly remarkable. Our project was to design and forge a door knocker using 1/4" silicon bronze plate, 3/4" round aluminum brass and 1/2" round naval brass.



Above: The billet going back into the fire.

Below: Finished Mokume by Joe Elliott.

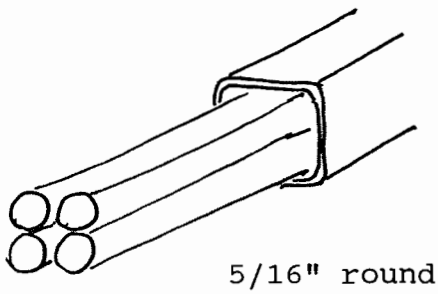
Photos by Lloyd Hedglin.



TROUBLESHOOTING WORKSHOP WITH DARRYL NELSON

NOTES BY JOE ELLIOTT

BASKET HANDLE



3/4" square tubing

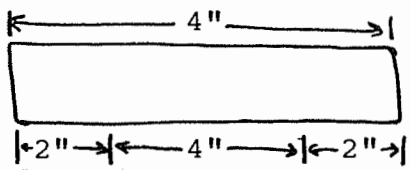
5/16" round stock

The four rounds used in a basket handle are stacked and put into a piece of tubing (thin wall) and forge welded. Flip and forge weld the other end. This eliminates the need to arc weld or wire the ends together.

HAMMERS

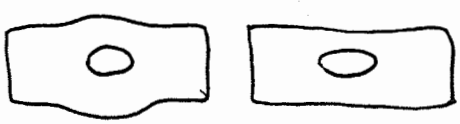
8" of 1 1/2" square 4330

Measure and mark as shown

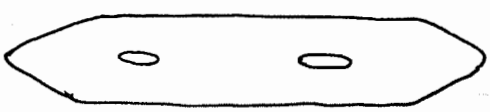


Punch eyes at 2" marks and drift

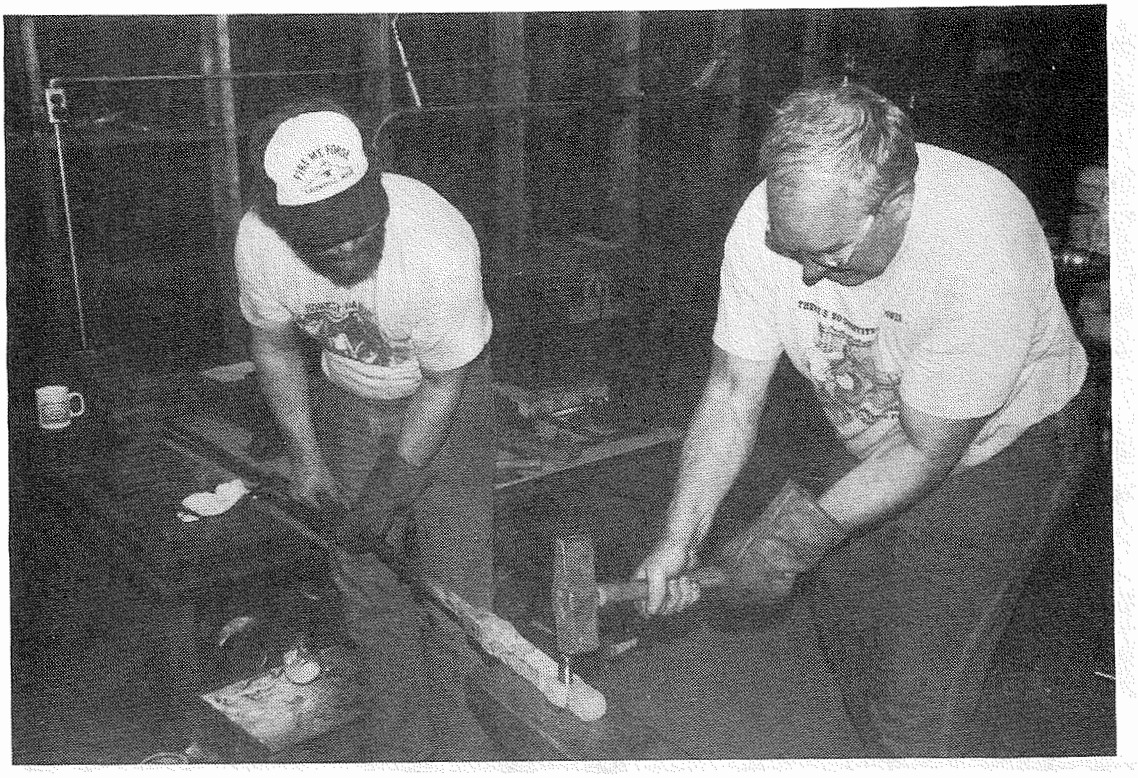
If you want a straight sided hammer, punch round eyes and forge swellings back into line.

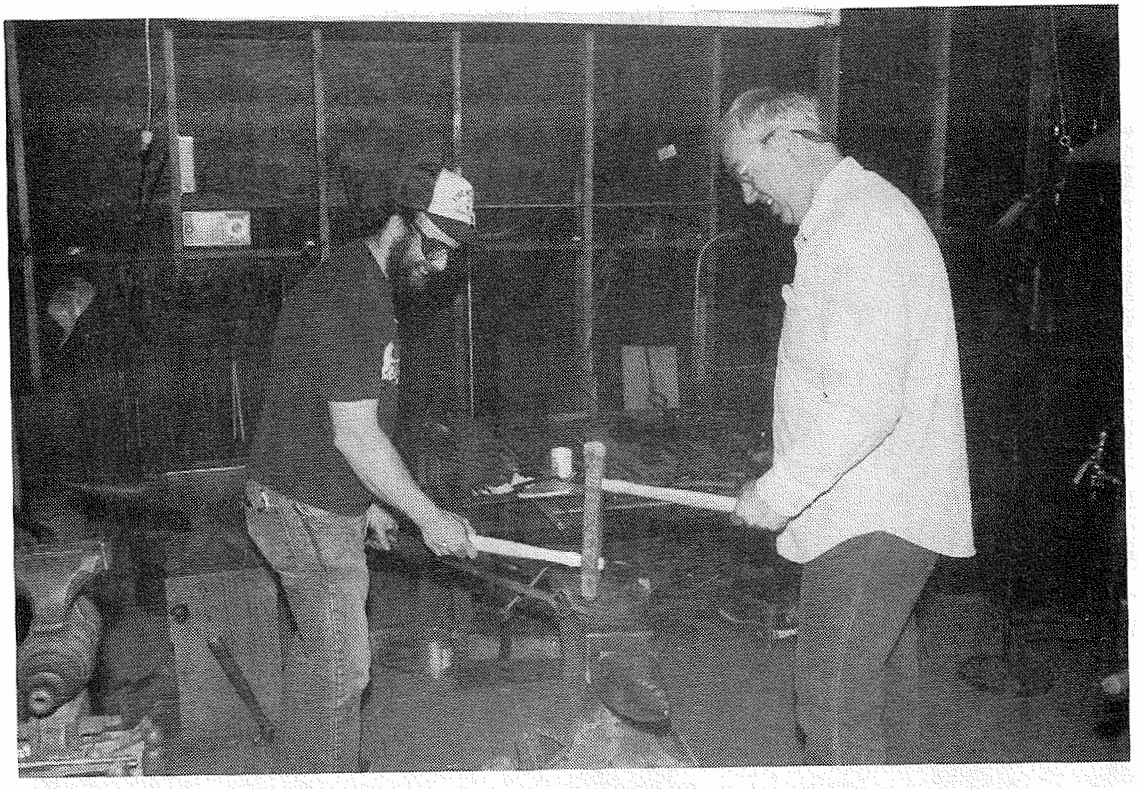


Forge peen ends on hammers



Cut hammers apart, dress faces and temper.



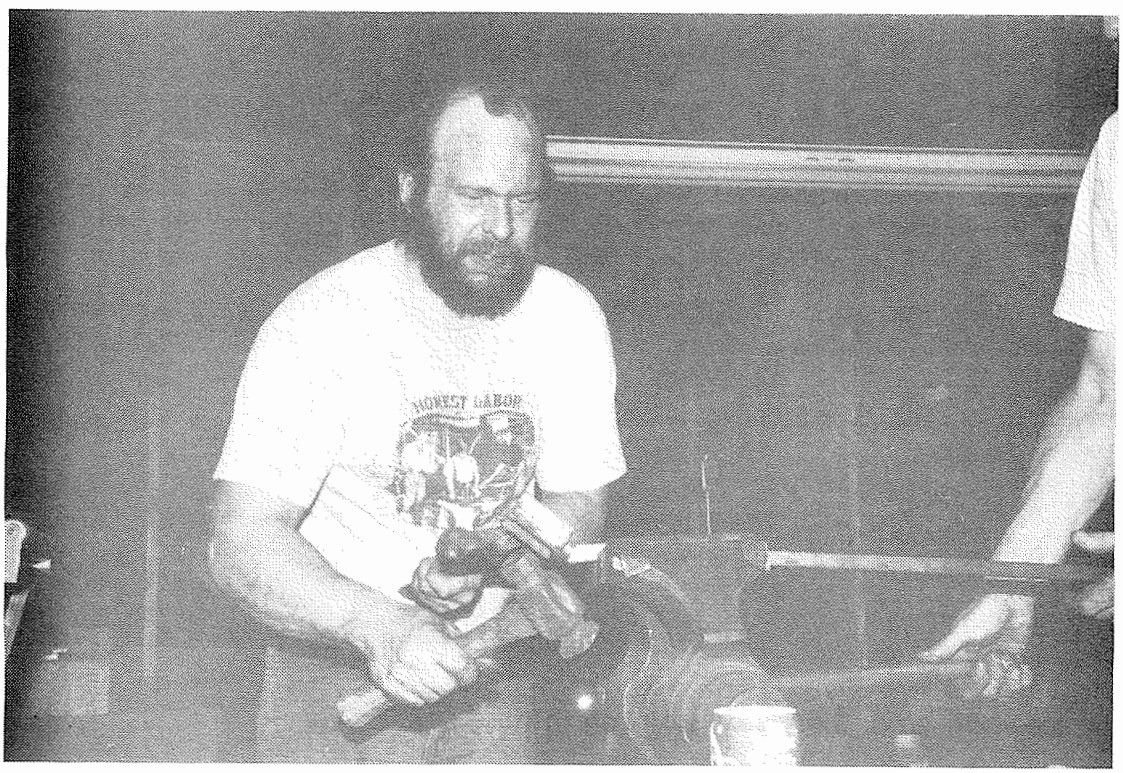


Darryl Nelson and Ike Bay making hammers.

Photos by Lloyd Hedglin

More of Darryl teaching

Photos by Lloyd Hedglin



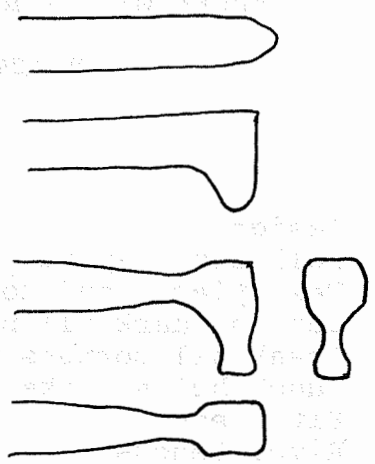
LLAMA HEAD

3/4" square stock

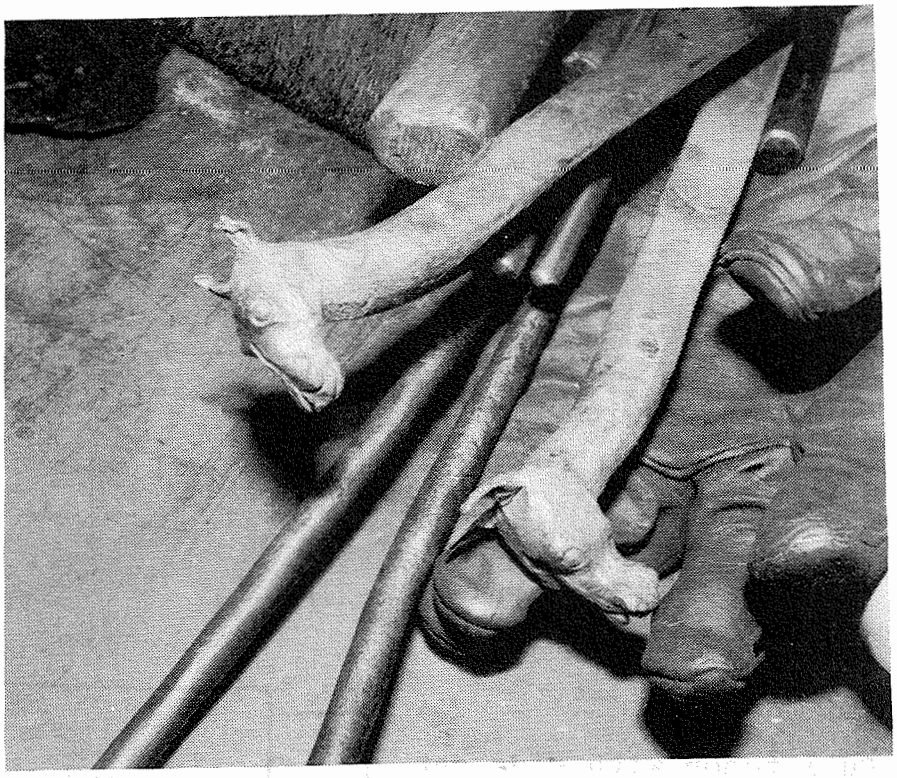
Draw out blunt point

Upset 90 degrees

Fuller and draw down neck
Fuller nose



Push everything away that's not a llama. Add eyes ears, split lip, etc.



Darryl Nelson's

LLAMA

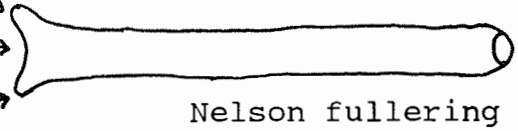
Photo by Lloyd Hedglin

USEFUL PUSHING TOOL

Balls used in mass isolation →

All edges broke smooth →

Ball →



Nelson fullering swage

GARDEN GATE WORKSHOP WITH JERRY CULBERSON

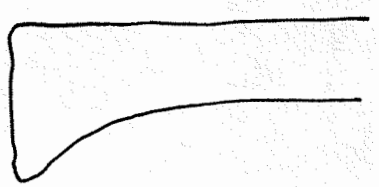
NOTES BY JOE ELLIOTT

PROCESS

1. Design
2. Full size layout
3. Test pieces and tool making
4. Cut and mark all pieces
5. Break all corners using flatter
6. Punch holes, make tenons and twists
7. Fit pieces
8. Rivet tenons
9. Add leaves
10. Wire wheel and wax finish

HEEL BAR

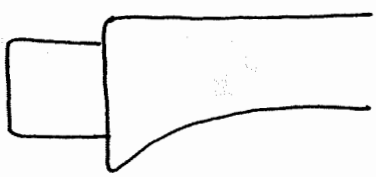
Upset to one side



Cut 4 sides with butcher

Butcher

Pull tenon with side set



Side Set

THE GATE

Photo by Lloyd Hedglin

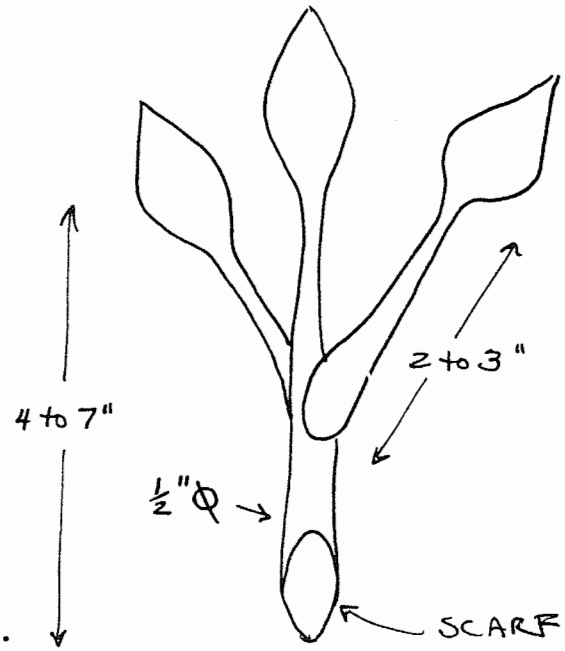
WELDING LEAVES

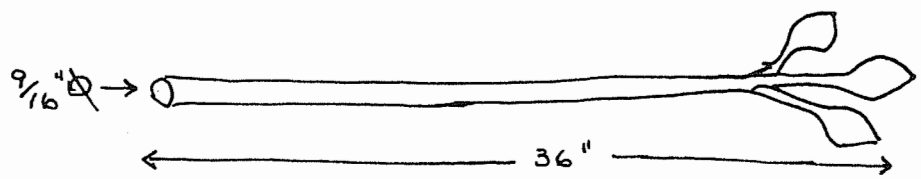
Make up a bunch of leaves - some with 2" to 3" stems, some with 4" to 7" stems. Scarf all ends for forge welding.

Throw away half of the leaves - preferably the bad ones.

Take 2 short stemmed leaves and weld to a long stemmed leaf.

When you have a bunch of 3 leaf clusters, forge a taper on 9/16" round stock with a leaf on the end.





Forge weld two short stemmed leaves to the new long stemmed leaves.

Weld 3 leaf clusters along the long stems.

Articulate with rose bud torch.

Jerry's workshop was hard, hot and dirty work - just like what real blacksmiths do. Our reward was a beautiful garden gate (approximately 3' X 5'). It is simple in design, well proportioned and totally assembled using traditional joinery. Jerry did a great job on quality control and mixing stories with tools.

A PARTIAL LIST OF OVERDUE THANK-YOUS
FROM JOE ELLIOTT

Thank-you Phil for sharing your time, knowledge and remembering.
Thank-you Darryl for making a new friend feel like and old friend.
Thank-you Jerry for making the not so skilled feel like true craftsmen.
Thank-you Ike for helping me get through the many unforseen obstacles.
Thank-you Smokey for believing we could pull this off.
Thank-you Karen for keeping after me (politely) to write all this stuff.
Thank-you to all those who attended and made these workshops real.
Thank-you NWBA for their support.

AND JOE:

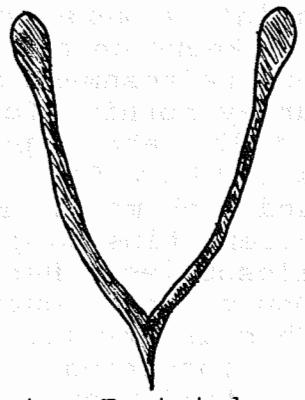
Thanks for sponsoring the workshops, the great notes and drawings, and for having a sense of humor through it all.

Karen and the Membership of NWBA

I THINK I'LL CALL IT A WISHBONE

This is a fun piece I made at the California State Fair. It's a nic-nac, good luck charm, something to put your salt'n'pepper shaker inside, on your table, craddles good luck over your doorway. It can be made from any size round stock.

Len Eisenbeisz
Ironbite Forge, Sacramento, CA



Editors Note: This really is a simple project. Just take a piece of round stock, fold it back on itself until you have a very tight U-bolt shape. Draw out the lower point of the wishbone from the bend like you would the nose of a ram's head. Flatten the other two ends, and finally, gracefully shape the whole thing. Save your next turkey wishbone for a model.

"Art does not reproduce the visible; rather it makes visible."

Paul Klee

POWER HAMMER WORKSHOP WITH GRANT SARVER

August 17 -19, 1990 Apex Forge & Tool, Tacoma, WA

The class arrived about an hour before closing time on Friday to get a tour of the shop in action. After seeing the facilities, including an excellent machine shop, we got to watch some drop forging. An employee was making the blades of asphalt cutter, forming the upset end of a bar of alloy steel between dies. The 1500 lb. Chambersburg stamped them out in a few blows and really shook the ground. After closing time we retreated to a local pub for talk and refreshment.

The next morning, Grant lectured on the general workings of air hammers, then fired up one of his industrial-sized propane forges. Using a Nazel 4B (about a 500 lb. hammer) He forges a large spring swage from 3" round stock. He then used small round stock to make a double-fluted impression and swaged this pattern onto a piece of stock drawn down to 1" square. This piece was then twisted for effect.

Lunchtime found food waiting for us - and unexpected treat. Margaret supervised the feed and it was enjoyed by all.

After lunch, Grant fired up again and roughed out a pair of flat-jawed tongs under a 200 lb. Chambersburg. He had the dies off-set lengthwise, which made squaring the shoulders much easier.

To my surprise, Grant brought out some stock and let us try our own hands at the hammers. Tongs, decorative work and a large anvil stake hit the floor to cool as we eagerly got the 'feel' of the equipment. After a couple of hours of industrial-style 'heatin and beatin' we were grateful for the enormous cooler of lemonade the Grant keeps on tap for his employees. We then finished the day with more refreshment at the pub.

Sunday morning found a blackboard waiting for us. We had a 'chalk talk' about propane forge construction and use, making various holders for upsetting, making and heat treating hammer dies, and much more. By now we had lots of questions and this was an excellent time to get them answered. Grant also shared some of his philosophies. Here are some quotes that stood out:

"Don't limit yourself."

"This is the first generation of smiths in history who have intentionally limited themselves in the name of tradition."

"Use what you can to get the job done efficiently."

"Do it cold when you can, hot when you have to." (Grant has a metal bender made from a hydraulic steering unit from a ship).

On anvils: "For years, my shop never even had an anvil. In industrial forging, if you spend much time at the anvil, you're losing money."

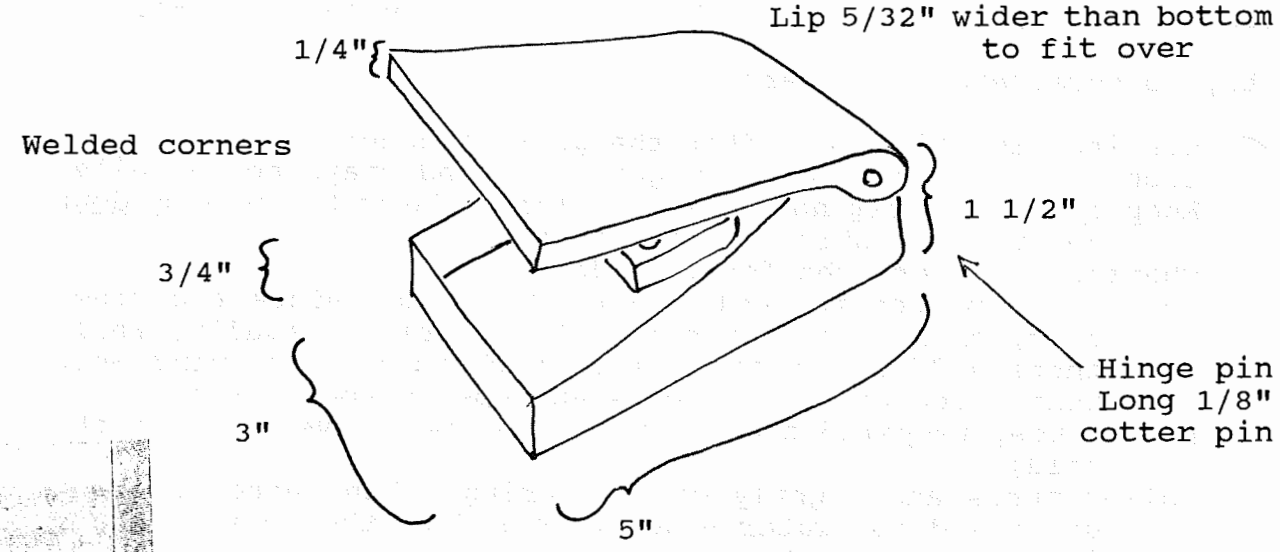
Being in a production shop, with its no-nonsense equipment and streamlined operations, is an inspiration to any smith, regardless of his style of smithing. Our thanks to Grant and Margaret for their hospitality, and for a most inspiring workshop.

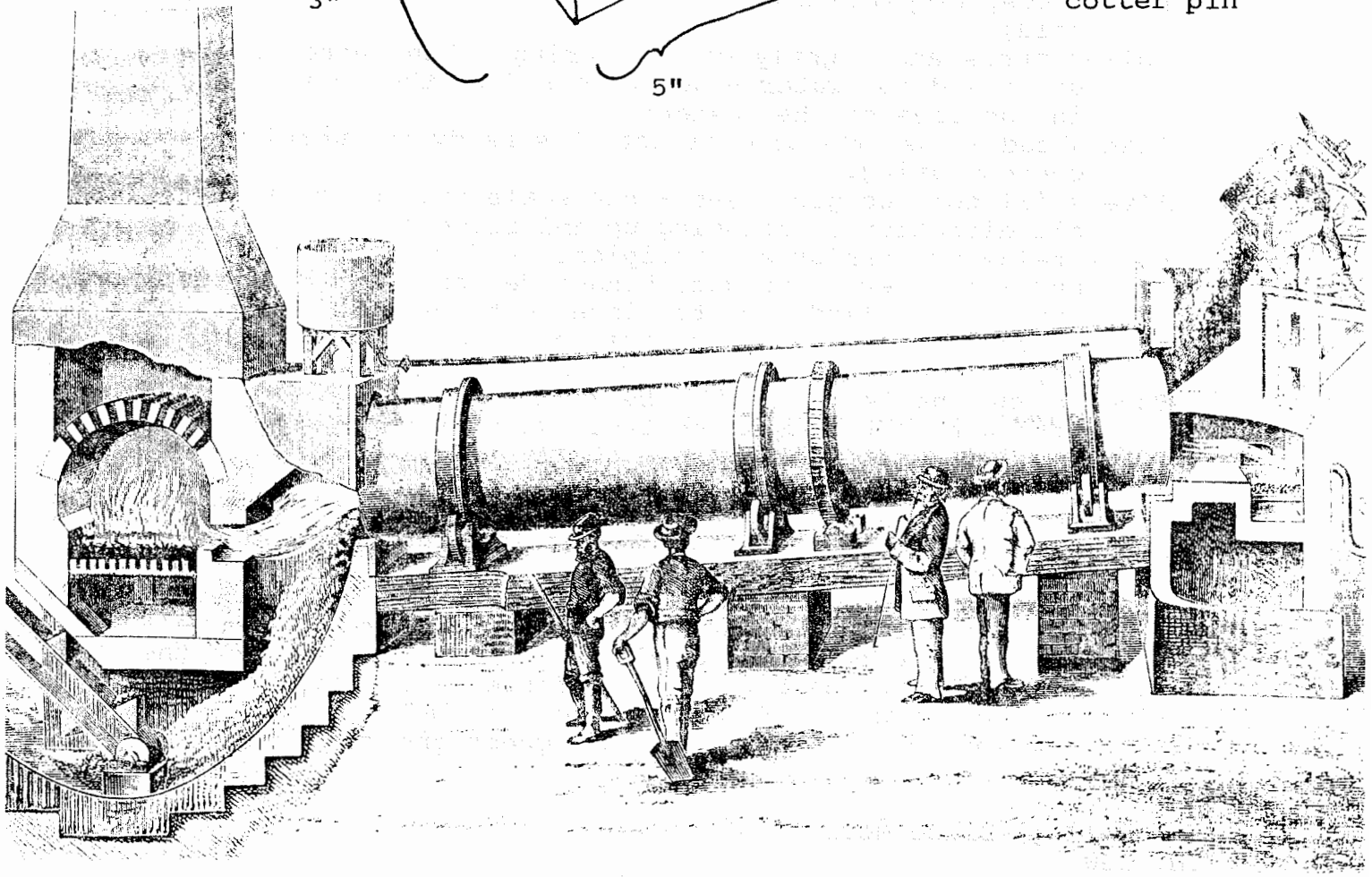
Berkley Tack Rainier, OR

FOOT SWITCH FOR DRILL PRESSES

Nahum Hersom

Use a foot switch on drill presses. I make a 3" X 5" box with a hinged cover, a micro switch inside, and a 6" circle of 1/4" plate bolted to the bottom for weight. Make the box of 18 gauge so it will be sturdy. I put a spring under the cover to lift it off the micro switch.





NOVICE NOTES OR WHAT I SHOULD HAVE LEARNED LAST YEAR

(AND PROBABLY WILL RELEARN NEXT YEAR)

It's been over a year and a half since my novice workshop; this year's work 'though too little has clued me to how much I must yet learn just to be an 'apprentice'. There are many lessons to be learned at my own fire but the things demonstrated at other places, by accomplished smiths, are enjoyable, entertaining and not frustrating; my lesson usually hurt or result in 'ugly iron'.

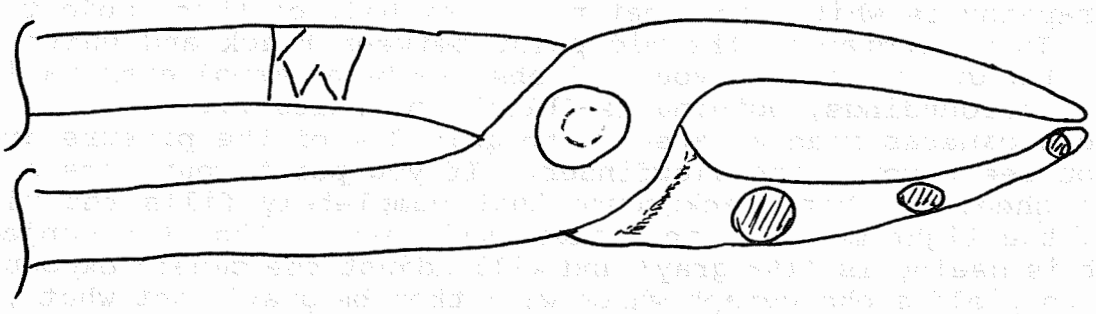
I try to persevere, and learn:

Hot iron is still hot after the glow is gone;
Iron which touches hot iron gets HOT, and stays hot a while;
Keep my hands <u>above</u> hot work usually; scale and flux drop <u>down</u> and usually stick to bare skin;
Chamfer, chamfer, chamfer (Yes Jerry!);
Don't work pieces too cold - quit twisting before the glow goes, or it goes 'snap'; quit hammering, usually, while there's light in the work; punching and stamping work that's too cold dull tools and upsets tool tips;
Better keep tempered tools off hot pieces - save them for the cold;
Hollow tubes and tightly coiled springs when quenched spout steam and hot water - don't look down the bore or stand in the line of the gusher;
Plan ahead - when the iron is hot it's ready for working, not contemplating;
I've still got two good eyes - but scale and hot metal go in all directions, including up and ricochets;
Don't relax my standards - recipients and customers may oooh and aaah over my unique, hand-made work, but admiration shouldn't blind me to imperfections, mistakes and incompleteness. I'll try not to accept my work as others do;
Banging out nails can still be good training - it builds strength, develops control and timing, and the nails will sell and impress the customer;
Tools can be made and found - keep my eyes open, keep looking in the dark, junky places. Even road kill iron is useful, as long as the 18-wheeler behind me doesn't flatten me when I stop to get it;
Don't 'bake' the iron - it needn't sit in the fire forever. Our propane forges get hot enough to weld and to melt iron - I've got the finial of a scroll as blobs on the firebrick at the bottom of my forge as testimony;
Finally, listen and watch and <u>DO</u>; open my eyes, unplug my ears and shut my mouth except for questions to 'them that know'.

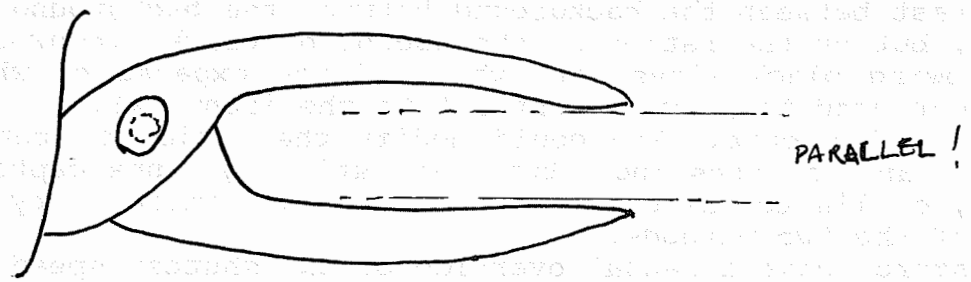
Keep pounding, Bruce Metz
- I.M. New

-- Ken White's Bow Pliers --

There's nothing quite so handy as being able to pinch a little metal 'twixt thumb and index finger, especially when a little tweak here and there would even out the knobblies and wobblies in your latest creation. As most of us are not blessed with heat-resistant hides (Darryl Nelson excepted), some sort of iron intermediary is often required. Having surveyed my usual clumsy attempts at such a tool, and being too polite to mention it directly, Ken White was kind enough to run up a pair for me upon his return to his shop after our 10th anniversary bash. For those who missed the opportunity to fondle the real thing at the Spring and Fall conferences, I offer herewith a tracing of Ken's 'Bow Pliers'.



While a bit clumsy, belying the grace of the prototype, the drawing is fairly accurate as to scale. The extremely subtle reverse curve of the jaws near the tips is difficult to render in a drawing (and probably just as difficult in practice!). Look to your own Principal Digits for an example of what God (and Ken) intended. You'll know you've got it right when the tips of the jaws stay parallel throughout their opening range.



The original is forged of Cast Steel, a material much favored for tool-making in England, but, alas, not readily available here; you can probably make do with whatever is readily to hand, but let 'tough and springy' guide your choice.

Just as a hammer is a natural extension of fore-arm and fist, Ken's Bow Pliers are a natural extension of index finger and thumb; a pair belongs in every 'smith's kit.

-- Jack Slack

SOME THOUGHTS ON THE PHOTOGRAPHY OF IRON...

One of the difficulties of photographing any object of high contrast, such as ironwork, against a white or light background is that the camera's light meter does not 'see' the same thing that your eyes do. While the human mind makes many adjustments to what we 'see' to make things fit our mind'-eye image of what we really expect, the light meter in your camera is not quite as intelligent.

While it reads the light levels very accurately, it is designed to render an exposure where the average of the lightest and darkest sources that the meter sees will be recorded on the film so that as much of the light and dark information present in your subject will be able to be recorded on the film. To do this your camera makes a few assumptions.

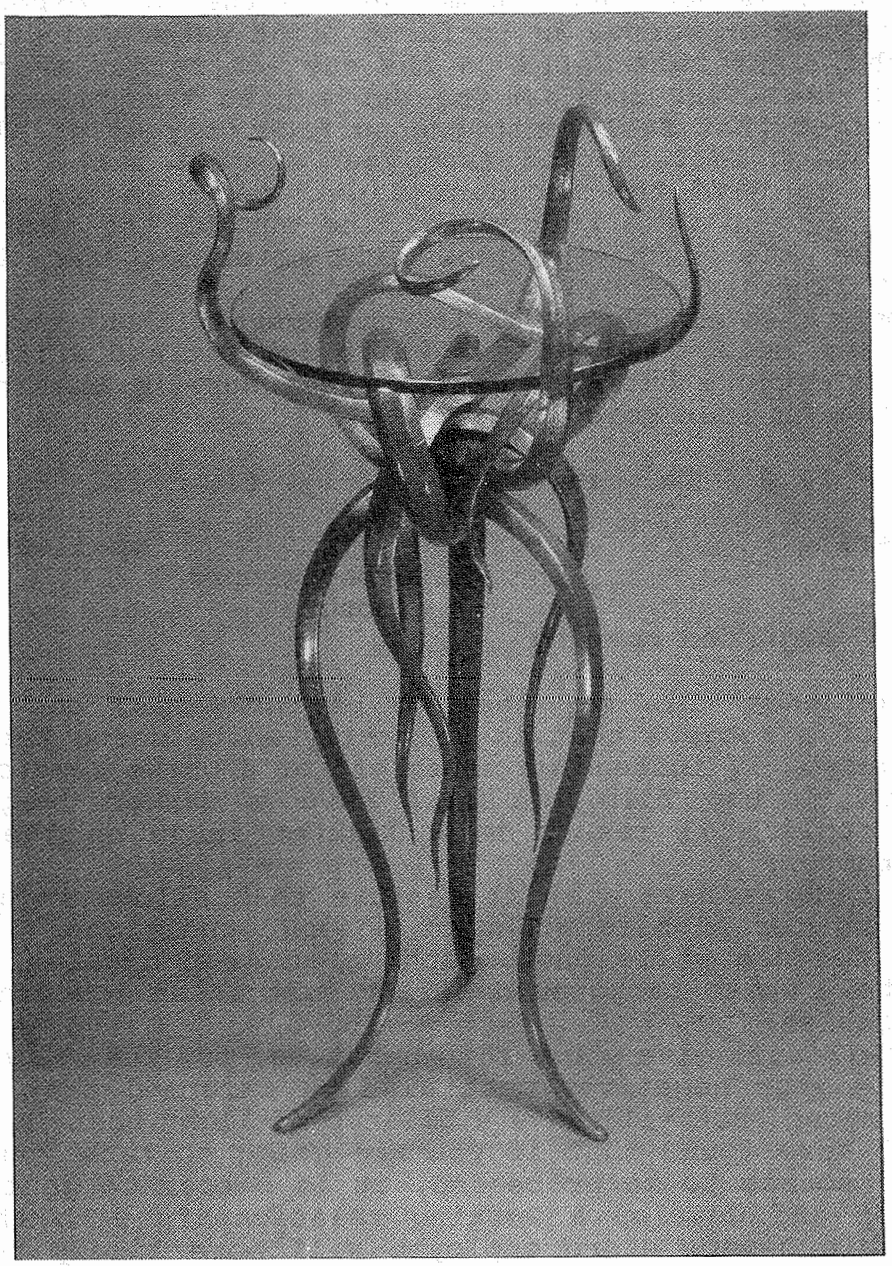
What your camera assumes is that half of what you are photographing is white, and that the other half of this subject is black. In photography, the mid point between black and white is called '18% gray'. But as you will observe by a casual examination of your surroundings, nothing is 'black and white'...

Most cameras read an area of roughly 30% of the picture area that you see through the viewfinder. If you point your camera at a large sheet or white background that completely fills the view finder, the light meter in the camera will assume that the subject that it is seeing is '18% gray' and will adjust the camera exposure system to yield a photograph which will then be gray! Not what you wanted to see, but it's what you will get. On the other side of the scale, if you were to photograph a completely black background the metering circuit in your camera will again try to make the final image gray, but this time the resulting image will be too light in relation to the original subject matter.

By now you may have recognized some of these results in efforts that you may have made to photograph some of your own ironwork. The problem does not result from having too much or not enough contrast between the background between the background and the subject, but on the ratios of the amount of black (ironwork - delicate flowing black lines) and white (large expanse of white sheet or paper used to provide contrast to the ironwork).

Now on to the cure...You could modify the ratio of iron to background, an interesting but artistically unacceptable alternative, or lie to the camera. Lying to the camera is by far the easier of the two methods.

Many cameras have a manual override of the shutter speed and f-stop values, and a look into the owners manual at this time may not be out of order. You can purchase a Kodak 18% Gray Card at many camera shops that cater to amateur photographers and take your light meter readings directly off the gray card. Simply use the gray card by placing it in front of the object you would like to photograph. Bring the camera close to the card, filling the frame of the viewfinder with the image of the gray card. Do not be concerned with focusing the gray card with your camera, the important things to look for are that the card is parallel to the subject that you would like to photograph, and that the camera body is pointing in the same relationship to the work, only closer, that you will use when you back up to take the picture. Also be careful



ALOE VERA, TABLE #2

DAVID THOMPSON

Forged Steel and Glass, 38" X 18"
Photo by Rebecca Thompson

that you do not block the light that will fall on the gray card when you move the subject and the background around to achieve all of these goals.

The other method that you may use is the more expensive one. If you purchase or borrow an incident light meter you will be able to read the light that FALLS ON the subject rather than read the light that is REFLECTED FROM the subject to the camera. If you read the light that falls onto the surface of your display rather than that which is reflected from your subject matter. The only caution is to have the incident light meter facing the camera directly. If you were to draw a line out of the camera to the subject, the axis of the incident light meter must face the camera along that line.

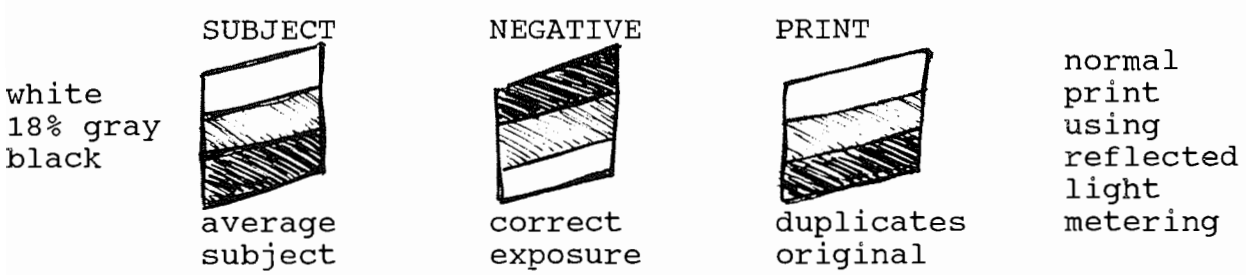
You may also use the meter in you camera without the gray card if you take a meter reading of a white subject and write it down, then take a picture but readjust your exposure by opening up your f-stop three or four more units.

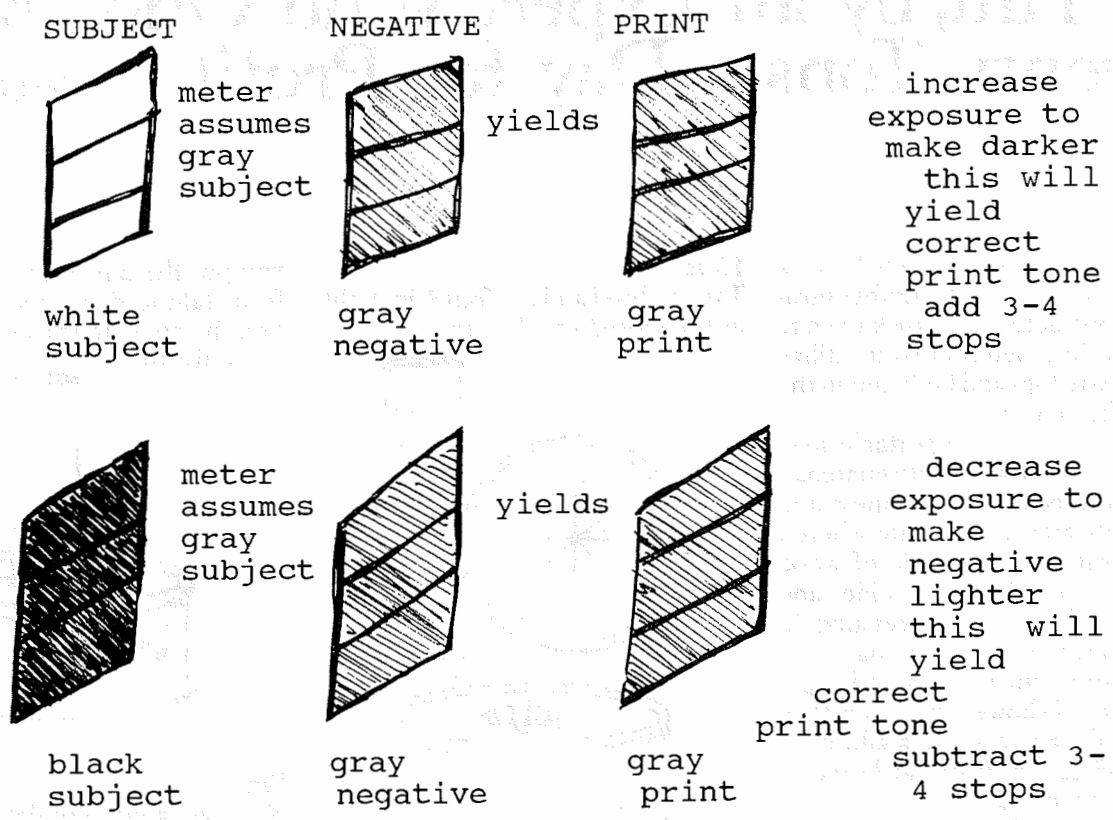
```
f1.4   f2   f2.8   f4   f5.6   f8   f11   f16   f22
                    ^                ^
larger opening      ^                ^          smaller opening
                    ^          white background
                    ^             exposure
            adjusted opening
```

I know that this may seem to be backwards, but the final rendering of a subject that is primarily white using the internal meter is gray. If instead we meter off of a white card and let in more light to the film, we will have a darker image on the negative...this will result in a lighter image on the positive print. Trust me...

Some cameras have a shift feature that allows adjustment of the exposure for highlight and or shadow conditions. Using the highlight feature while photographing an iron display against a predominately white background will result in an acceptable image on the negative.

All this will give you a fine negative, but the lab or service that prints your negatives must also be informed that your film contains images that will have a balance of light that is highlight biased. I have found that if you are going to take your film to an outside source to be processed, it is better to go to a local camera shop and develop a working relationship with them. The knowledgeable camera store employee will more likely be able to help you achieve the results that you want than some kid behind the counter at K-MART.





I hope that this information will be of some use to you. If nothing else it will highlight some of the problems that you may have experienced and suggest a remedy to you...of course you may always call in a professional photographer to record your portfolio, but you may attain very good results by yourself. Remember, All camera meter that are built in will always try to make a black and white print average to gray. Similar results occur with color film ar regards exposure, but color reproduction varies considerably with over exposure (tolerable) and under exposure (unsatisfactory).

Paul Sperbeck

Reprinted from Upper Midwest Blacksmith Association newsletter, UMBA, September - October 1990.

I argued with the proprietor at a fair demo that our dog should be allowed to stay because in fact, he is also a blacksmith. He said, "Oh, how so?" I told him, "I shot him in the butt 'n' he made a bolt for the door."

Len Eisenbeisz

How to Make Charcoal in a Barrel for Fun, by an Expert Who Once Made Twenty Tons a Day for Profit

by Gerald Jolin

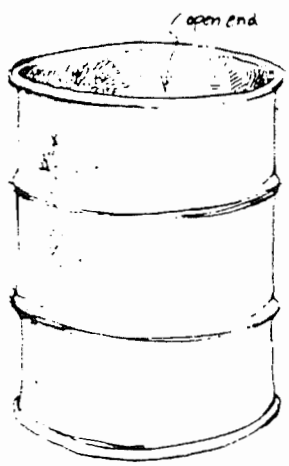
MANY YEARS AGO, when I was a young man in the timber business, I contracted a disease known as ecologitis and determined to utilize all the waste tops and limbs left in the forest after logging.

So I invented some portable steel kilns to burn the wood into charcoal. This developed into a business and eventually grew to the point where I was burning, daily, a pile of wood four feet high, four feet wide, and more than five hundred feet long, to make twenty tons of charcoal.

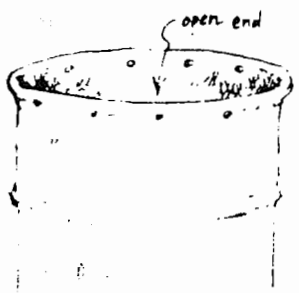
My four young sons wanted to get in the act so I showed them how they could make and operate a kiln from an old 55-gallon drum, at home in the back yard.

That's how I became an expert.

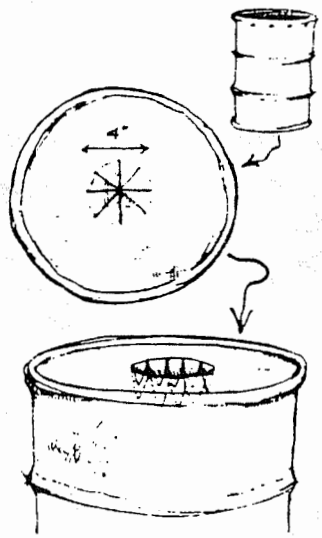
First:
Find a 55-gallon drum with one end open like this:



Second:
Pound nail holes or drill holes around rim (about a dozen will do) on open end like this:

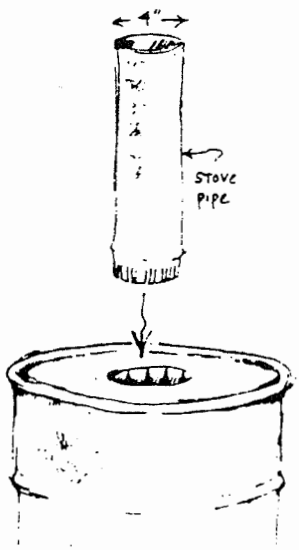


Third:
Take a chisel and cut four 4-inch slits in the closed end like this:

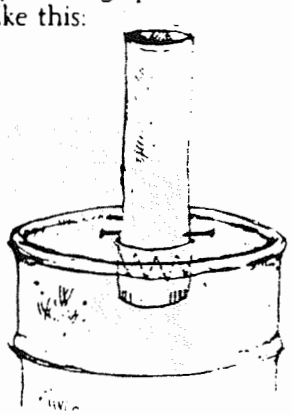


Bend the sharp ends of the pie-shaped cuts down into the barrel. (This will help keep vertical the four-inch stove pipe you are going to put in the hole.)

Fourth:
Get a three-foot piece of four-inch stove pipe and fit it into the hole so it looks like this:



You can poke two spike holes in the pipe about three inches from the end you stick in the drum. Later, when you put the pipe in, you can keep it from falling down too far into the hole by sticking spikes in from two sides like this:



Fifth:
Now, get a piece of flat metal about ten inches or so square, or a round metal can-cover about eight or ten inches in diameter.

- ◇ Next, get some old wire—about twelve feet of it.
- ◇ Find a sandy or gravelly place—with *no grass*—where a little smoke won't bother the neighbors.
- ◇ Have some reasonably fine sand handy—about a five-gallon pail full will be enough.
- ◇ Find your shovel and a brick.

Now you are ready, except for the wood.

About the wood:
You can make charcoal out of any kind of wood, wet or dry, thick or thin. The process just goes faster if the wood is drier. Also, you get more charcoal if all your wood is reasonably close to the same diameter.

So, use whatever wood you happen to have—say up to four-inch diameter, so long as it is partially dried and all about the same diameter. Tree limbs, two by fours, old boards, scraps of any kind will do.

Next, take the chimney off and turn the barrel upside down, so the open end is up. If your wood consists of long pieces, stand them on end in the barrel—just so they don't stick over the top of the barrel.

If your wood is cut into short blocks, just pour them in loose, so there is some air space between. (Not too much air space, though.) In order to get a bushel or so of charcoal you have to get three bushels of solid wood into the barrel. If you char it pretty well, and don't burn up too much of the wood completely to supply heat, about one sixth of the dry weight of the wood you put in should come out in the form of fairly high-carbon-content charcoal. The theory of charring wood is that by burning it in a closed vessel with insufficient oxygen for flaming combustion, you are supposed to burn off in gaseous form the lignin, alcohols, sugars, methanols, resins, and other chemical components of the wood, leaving pure carbon crystals. (Technically, this is called destructive distillation.)

When you have filled the barrel with wood, lace the wire back and forth through the holes to hold the wood in place when you tip the full barrel over. Next, stuff oily rags—just a handful—under the wire at one place, and gingerly tip the loaded kiln (because that's what the barrel of wood has now become) over onto a flat place on the ground. Then pry up a corner of the drum and stick a brick under it.

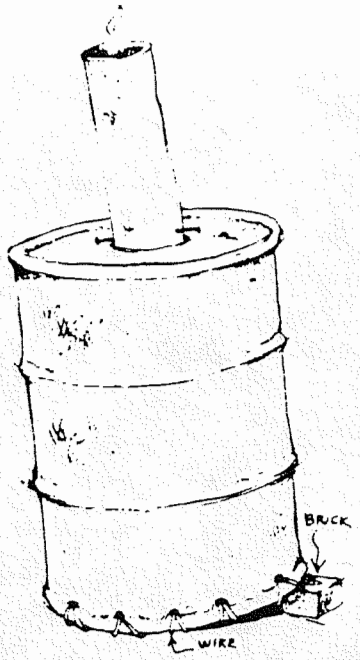
The drum should then stand like this, letting air enter only beneath the one side.

courtesy of

Barry Berman, Goleta

&

Geoff Davis, Zenia



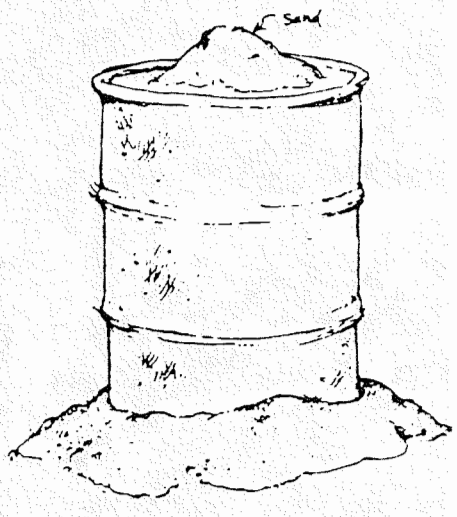
Insert your stove pipe in the four-inch hole. Put in the spikes to hold up the pipe.

Light the oily rags and let the fire burn until the smoke turns blue and a little wispy. (At first it will be yellow, moist, and thick. When it turns blue and wispy, you are completely burning up some wood on that side.)

When the smoke does turn blue and wispy, move the brick around to the other side and repeat the process. You might try one of the other sides also, but if the wood is reasonably dry, only two moves are necessary—three at the most.

Fire burns *down* to the source of oxygen—not up to the chimney, as is commonly thought. In a "kiln," smoke outlet is limited in relation to the size of the fire, so that the wood is kept in a "blanket" of carbon-monoxide or -dioxide; the carbon, or charcoal, doesn't get hot enough to turn to gas and go up the chimney.

When you get only blue, wispy smoke no matter where you raise the edge of the drum, the charge is finished. Now, kick the brick out, pull out the smokestack, and put the flat plate or can-cover over the smoke hole.



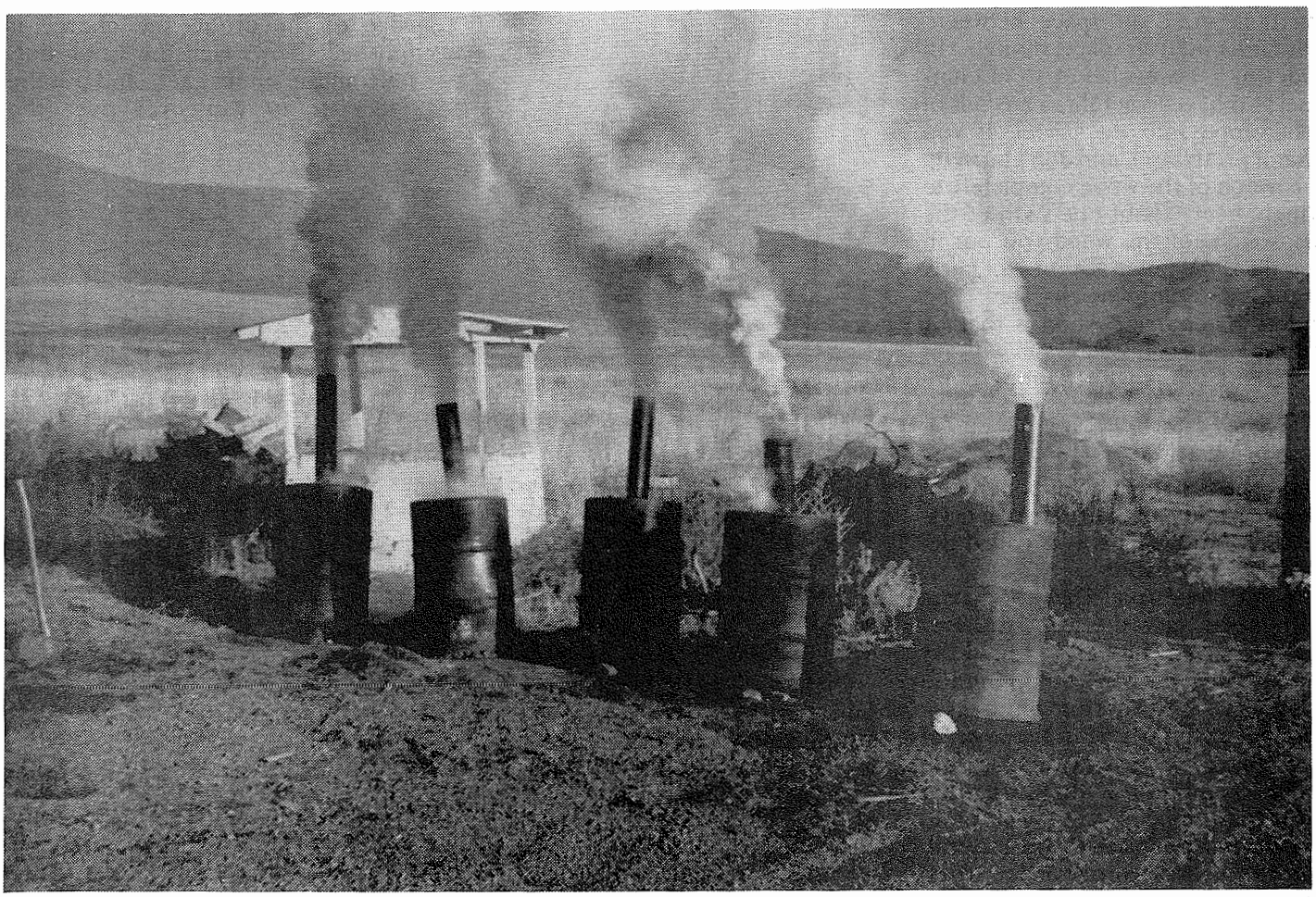
Then, heap some sand over the plate, and pile sand around the bottom of the barrel. Let it stand like this until the barrel is really cool—overnight is best.

In the morning snip the wire loose, tip the barrel over on its side, and see what you made. Just in case there are still a few hot coals left, shovel the charcoal into a metal can for storage.

Total cost of equipment = peanuts. Total return in fun and conversation value = a jillion bucks. ◇

GERALD JOLIN, a former trial judge, is a tax consultant and woodcarver. He is currently building the first commercial solar-heated lumber dry kiln in the United States.

Article submitted by Al Bart. Reprinted from the 24th issue of the CBA newsletter, California Blacksmith. See Al's commentary on the pages that follow.



Al Bart's charcoal making barrels in operation. Photo by Al.

MAKING CHARCOAL

The charcoal article is quite complete, however I have been making charcoal for four years now and have learned a few things that I would like to emphasize. First, we all know that the drier the wood the better and second, that if the wood is too long it makes it more to load and not all of it will char. It's best to cut it shorter, about a foot or less. The time in cutting will be saved in loading and burning. Place the brick or rock around in four spots to check if it is done all around. Sometimes the fire will channel to one side.

When I first started, I used to place two barrels at the back of my lot. After lighting I would work in the shop and glance out occasionally to see how the barrels were doing. It generally takes anywhere from 45 minutes to an hour before the first move of the brick, depending on how dry the wood is. After the first move the next moves would be 10 to 15 minutes. The cooling period could be

as short as three hours, meaning that if the barrels were lit early in the morning, they could be emptied, refilled and relit that afternoon. On opening the barrel that quick, I keep a bucket of water nearby and if I find an ember still hot I just drop it in the water. It does no harm. If some are charred only a little over half I still use them by placing them on each side of the fire where they will burn and give heat. I used to wait for a rainy or snowy day of a heavy fog to cut down the smoke, however they have built three new houses around me so now I have to make charcoal at the school or at my nephew's place out of town.

Tipping the barrel over and picking up the charcoal must be done gently and easy. There are no clinkers in charcoal, if any occur it is because of the impurities picked up with the charcoal. As the article states, find a good place to set up the barrels. A shovel may be used gently and hand pick the last little bit.

Everyone making charcoal may have different experiences and it would be good to write about them so others can learn. When using charcoal not as much air is needed, the fire starts quicker and burns cleaner. Handle the fire correctly and there is no smoke. It does take a little longer to bring iron up to heat so plan accordingly.

Happy burning,
Al Bart

WHAT TO DO WITH THOSE OLD SILVER PLATED SPOONS

...that were almost useless to us except for hooks and rings.

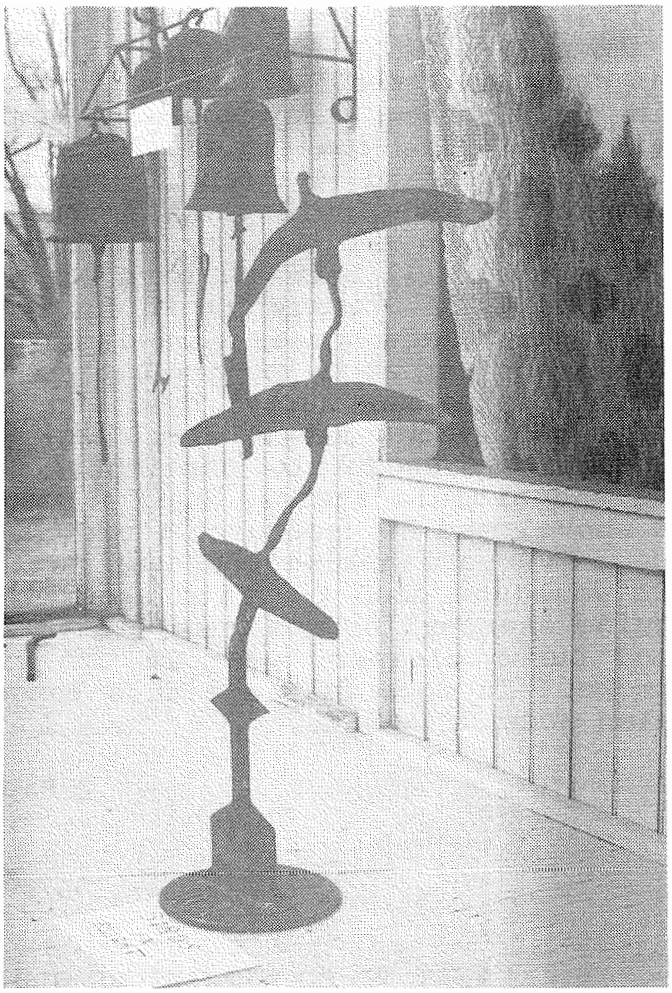
There is still a significant amount of silver left on old silver plated spoons that can be used for burnishing. Utilizing the surface of the back of the spoon, really like and anvil, you can use every surface side of the spoon for burnishing silver highlighting on ironwork. It look great on peened surfaces, twisted strands, even rough finishes. Like a contrasting Damascus appearance, it also looks better in contrast such as I do by hot dipping in old black motor oil which really lays on a durable, very black finish. Then, with the spoon, strike and rub (or burnish) on a light silvery highlight to a bright shinny contrast with an assortment of patterns, concentrating on your primary texture. This also works on brass and better on copper. It takes a hot wax finish without dulling, not like a hot brass brushed patina which will dull. I must mention that this is a cold application, which is the beauty of it. You can revitalize old work and maybe apply it to your stock on hand or shelf that is not moving well. Have Fun! This method has been around since metal. The source of the spoons are without mention.

Len Eisenbeisz
Ironbite Forge, Sacramento, CA

IN MEMORIUM

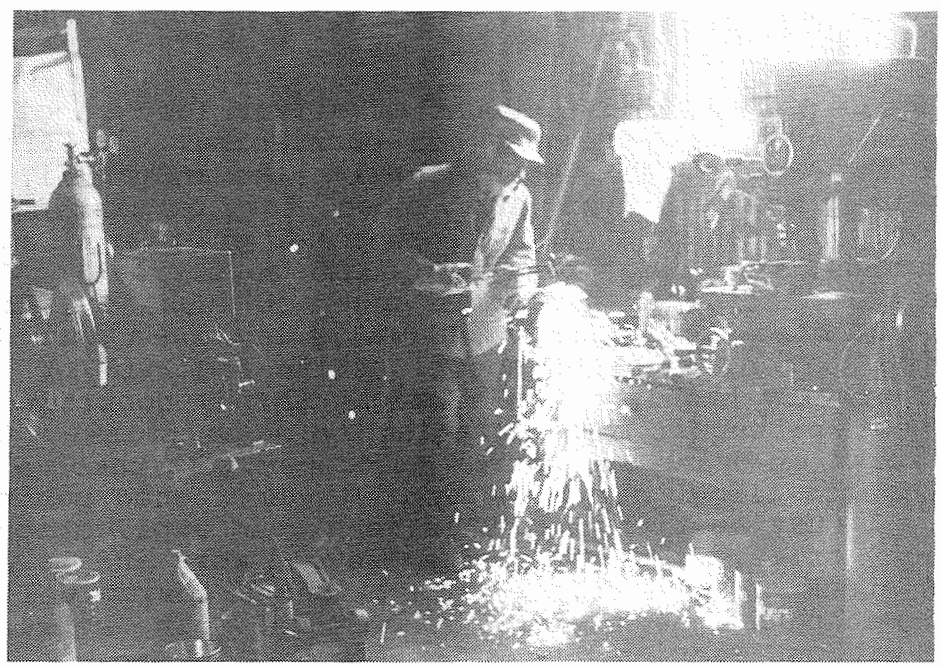
R.V. Thompson, a long time active member of NWBA passed away on October 3rd, 1990. Ron had owned and operated R.V. Thompson's Blacksmith and Machine Shop in Dufur, Oregon since 1947. His shop will continue to be operated by a long time friend. We'll miss his presence and ageless wisdom. May Ron's forged bells toll until eternity.

Dave Thompson

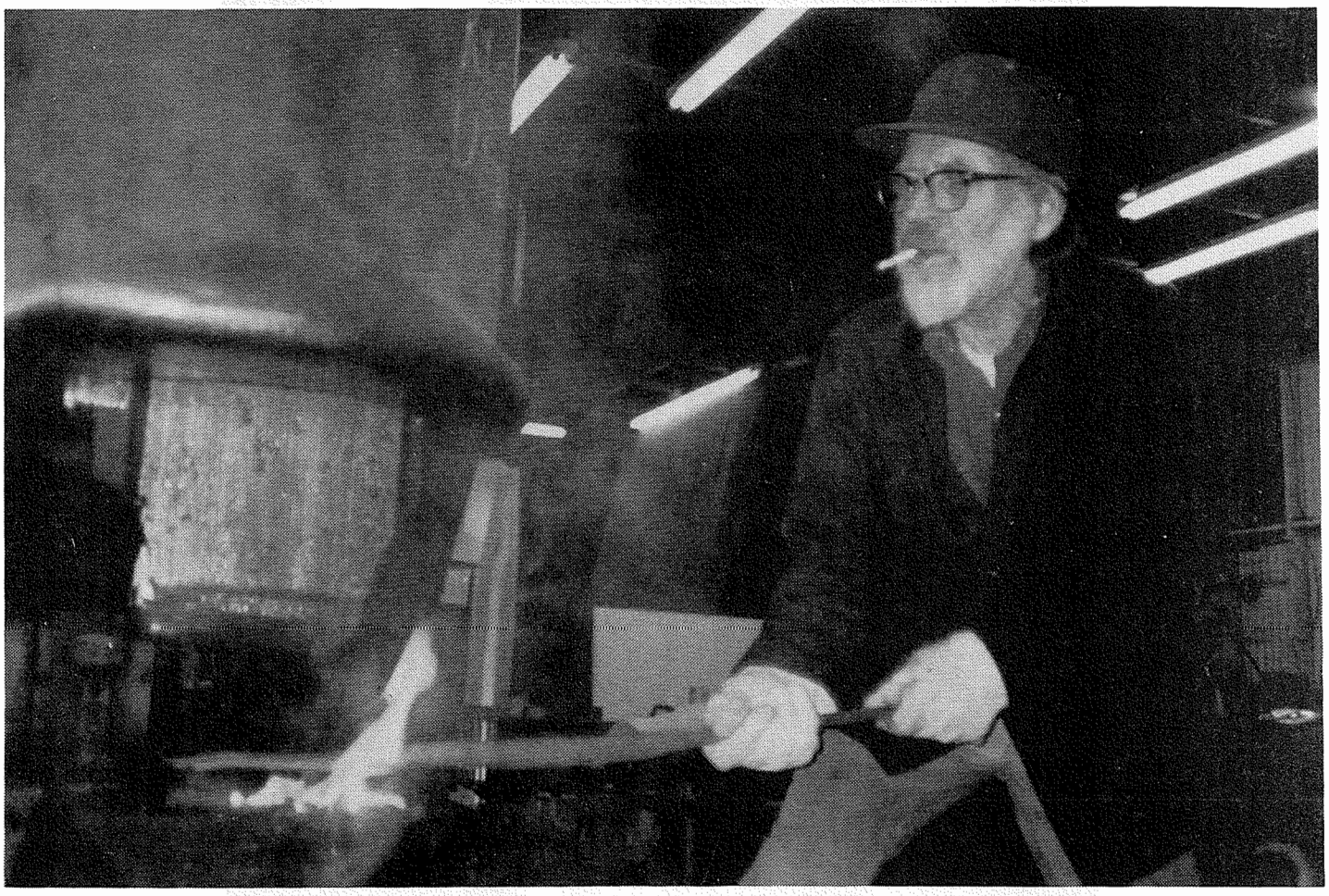


Ron's Bells and Birds in Flight

Photo by Thompson



Ron at work
Photo by Eric Ziner

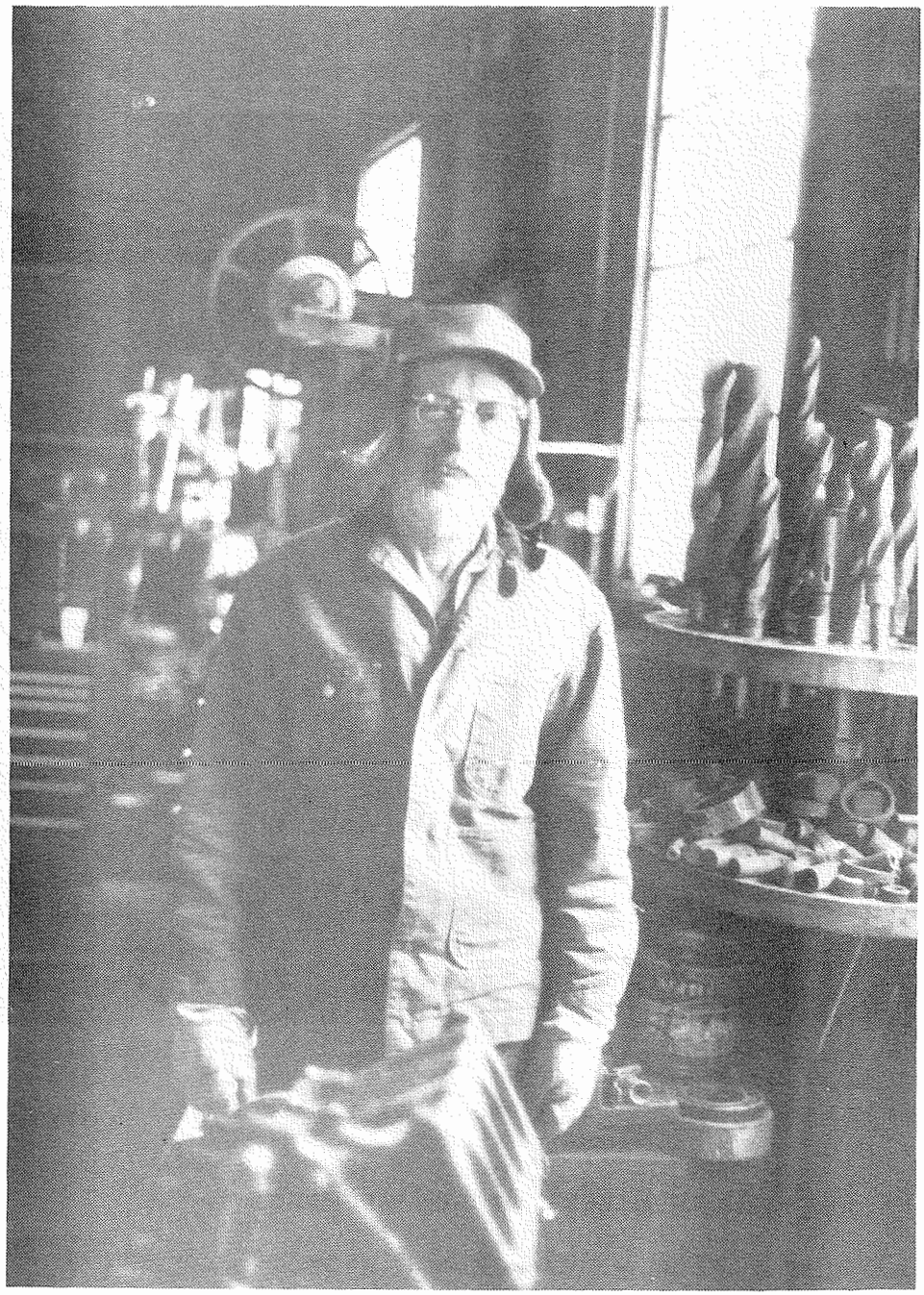


Ron Thompson. Photo by Eric Ziner.

IN MEMORY OF RON THOMPSON

With a pull from his smoke,
He'd listen to whom just spoke
Then draw from his well of knowledge and skill,
While listening to him I remember such a thrill
Candidly colorful honest and true,
Whether facts or a tale he related to you
His reasons were clear, his voice still near,
In passing he goes I'll forget
It's more conversations I'll live to regret.

Eric Ziner

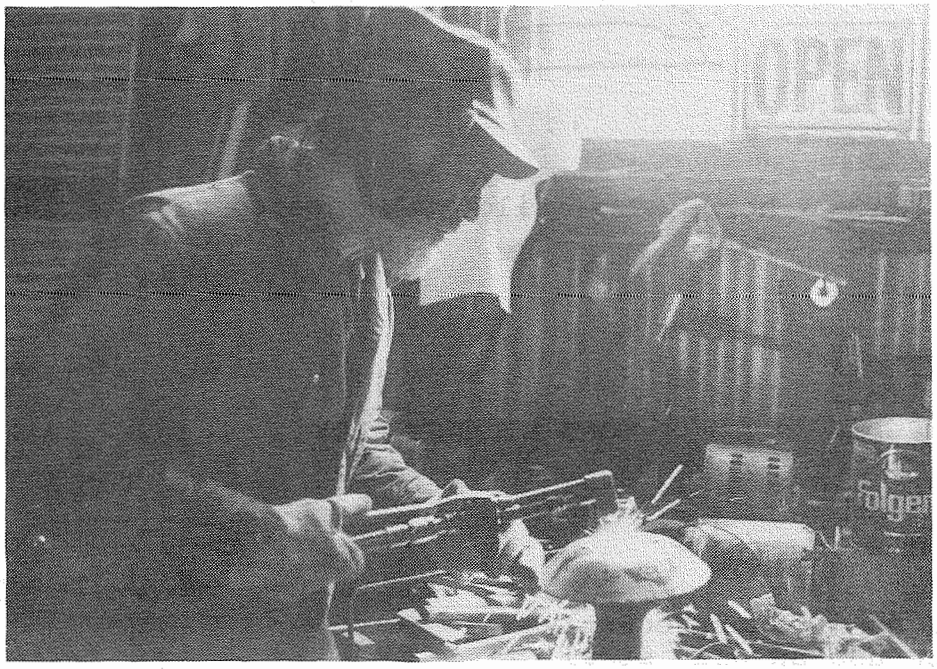


Ron Thompson in his shop. Photo by Eric Ziner.

A WINTER VISIT

I remember a visit to Ron's one winter, it was really cold and Ron was fixing up his trailer of old engines. The hit or miss he'd just gone through was finished except for a muffler. He disappeared around a corner to look for something and I remember listening to the wind howling and all around me were tools to work metal, so many in fact, that I felt as if I was in a cavern: I

beams and chains, hydraulic rams and giant drill bits, tanks of compressed gas and electric tools all polished from handling, big saws and buckets of bolts, wrenches and lathes, hoists and work benches overflowing with threaded and riveted tools. I knew at that time I was in the shop of someone who had touched the lives of thousands, maybe millions. He's fixed the plows of agriculture and reworked the motors of countless trucks. He'd weld the impossible and not give it a second thought. Axles, shackles, cams and more... There wasn't anything he couldn't get going. Why, once a drill press frame looking as perforated as they get, plucked from an 'Iron in the hat' was given a new life. Ran smooth as a clock before my very eyes. I was sure it'd be a mailbox. The challenge to make man's metal move, and the years spent moving the metal. To many, a man like Ron Thompson will be remembered as that metal wizard with the magic touch.



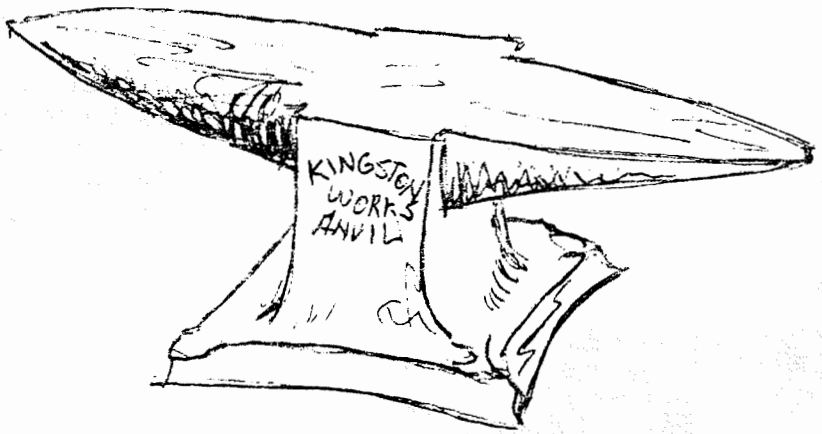
Ron Thompson. Photo by Eric Ziner.

Back he came, holding a wheel from a trailer hitch. With a gleam in his eye he said this was perfect. I couldn't really see what was so perfect about it, in fact, I was at a loss to know how he could use that at all. Pop went the torch and for once things looked brighter, the heat felt good and the sparks jumping all over made for an exciting show. Sure enough as soon as he was right into it some guy comes in and started talking about springs and things. Well it wasn't ten minutes later and they're talking like gear heads in the thousandths you know and like a kid Ron winds up this motor and my ears are ringing. Blue smoke surrounds this bucking contraption and Ron winds it out to show off. I could barely make out their figures through the smoke. I can't remember what happened after that, but up 'till I'll never forget!

Eric Ziner

PORTABLE ANVIL

I built this 33# Rendezvous anvil for demos in the woods. It works great!



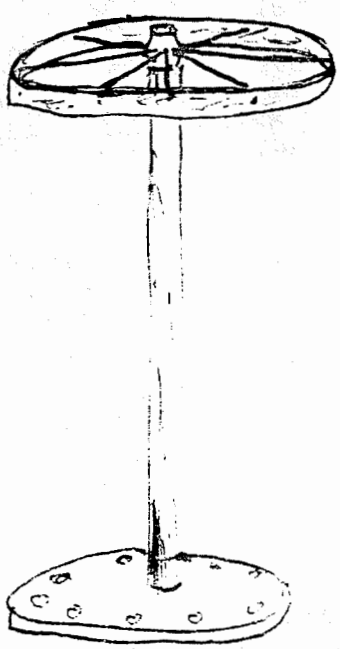
3" X 3" face, 7" horns, 33#, mild steel heated red and quenched in the slack tub.

Gene Chapman

TONG STORAGE RACK

I cleaned up my shop recently and put to use an old, steel wheelbarrow wheel. The wheel turns on the upright made from 36" of 2" pipe. The base is 1/2" plate.

Gene Chapman



UNDER THE CHESTNUT TREE

Being a short treatise on the fauna often found lingering about the Shop, with suggestions for Our Mutual Defense.

Esteemed colleagues: I submit for your edification a catalogue of those fauna which appear unbidden, as vultures to a carcass, at any Blacksmith establishment which is open to the General Public. Their countenance is collectively most hideous, and while you may in time enure yourself to the sight of them, the usually inexperienced Customer, being un-accustomed to the type, is often found to recoil in horror upon encountering one.

1) The WISTFUL GAZER, or WG for short:
The least obnoxious of the lot, these often appear in groups, standing at the rail with a look of stoney-eyed rapture upon their faces, as if drawn to the forge fire by some moth-like tribal
memory. Rarely uttering a sound, they have been known to rust anvils with their gaze.

2) The WOOD BEE, and its close cousin the USTA BEE:
A highly exciteable creature, its call is usually of the nature "I WOOD BEE a blacksmith, too, but I've got no place to set up a shop" or, in the case of the latter, " I USTA BEE a blacksmith". If pressed, the latter will admit to once having taken a high-school class in metal shop.

3) The MUNCLEWAS:
Kin to the above, its call is "MUNCLEWAS a blacksmith", which phrase being delivered with much head-bobbing and a grin usually described in less learned circles as 's--t eating'. A highly mutated species, some variant cries are "MANTWAS...", MADADWAS...", MAGRAMPAWAS...".

4) The DYUSHOO:
A particularly stupid specimen, its call is limited to "DYUSHOO horses?" repeated several times in succession and often punctuated with a maniacal laugh. The effort seems to exhaust it, after which it will usually drift away quietly.

5) The WATCHAMAKIN:
Easily the most obnoxious specimen, its cry of "WATCHAMAKIN MISTER?" is best replied to with the phrase "Noise and Dirt". This seems to frighten it, thus rendering it mute.

6) The CRAFT MAULER:
Closely related to the Jackass, which they mostly resemble, these above are the one group in which sex-differentiated behavior seems to occur. The male is usually tacit; its behavior is generally limited to rolling your work around in its fore-paws with a bemused expression on its face, as if amazed that such an object as it is holding actually exists. After a suitable interval the object is replaced, although

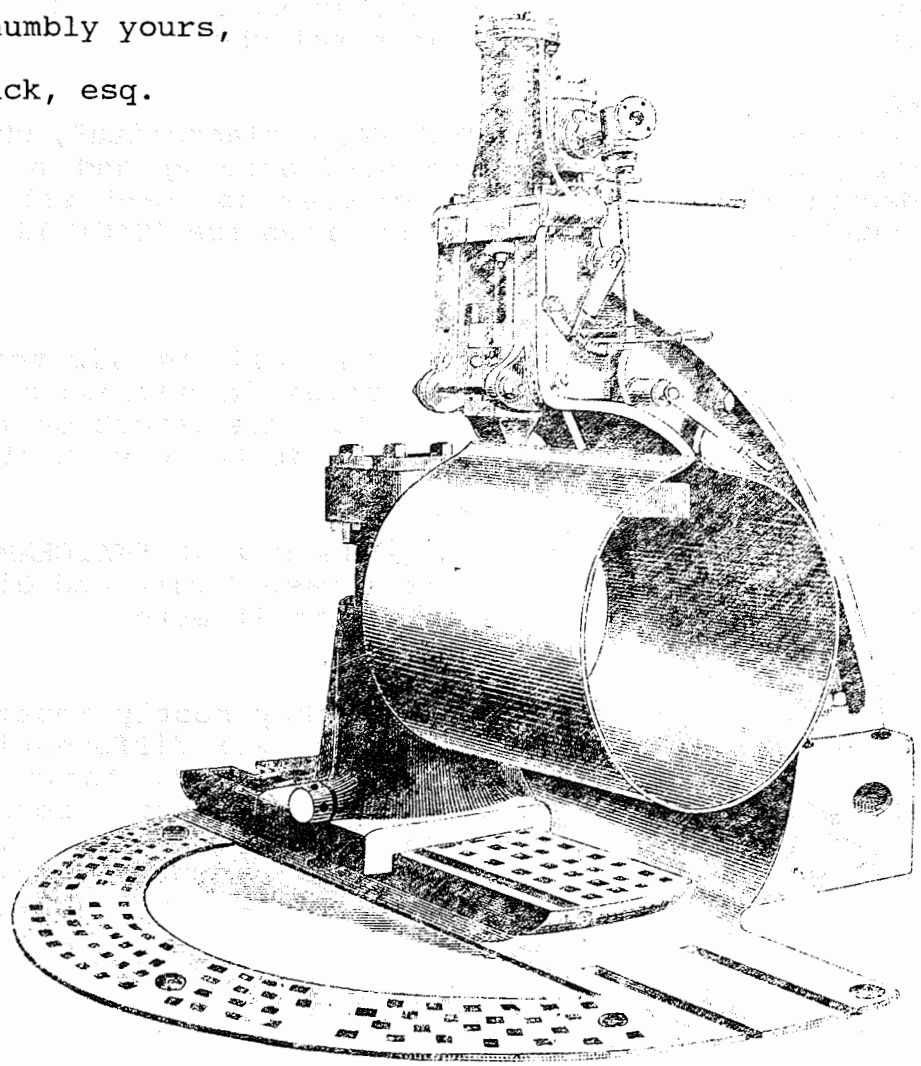
never in its original orientation; this behavior is known in the Trade as "trashing the display". The female, while exhibiting similar behavior, is however far from silent. Being rather hard of hearing, it naturally assumes everyone else is too. Its cries, delivered in stentorian voice, are usually of the order "Oh, sure - EVERYBODY needs one of THOSE" or "Ya, but where would you PUT it" or, most annoying of all, "SHOOT - I could get Uncle Harry to make me one of those".

As discharge of a firearm within the confines of a public space is usually frowned upon, one's defensive strategies are necessarily quite limited. I have personnaly discovered that the usual aggregation of coal dust and sweat accumulated on the skin will, if left undisturbed, soon acquire a lovely patina which is most useful as an insulator against the barbs and venom cf the above species. One slight disadvantage is, of course, the concommitant odor which soon arises. Although important to your defense, it can be most distressing to Decent Folk. One useful technique is to endeavour always to stand down-wind of potential Customers. Tugging your fore-lock, if you are fortunate enough to have one, is also a most reassuring gesture.

I hope this may prove to be of some small service to my Friends and Colleagues. Thanking you for your kind consideration, I am,

Most humbly yours,

J. Slack, esq.



AN EDITORIAL COMMENT

FROM THE MYTHICAL STATE OF JEFFERSON

These are some thoughts I've had for some time, and returning home from the fall meet in Hobart at Bill Carrell's shop, I put in some time thinking and reviewing many things. I enjoyed the meet and meeting old friends and making new ones. The person who was not there and who I consider a friend and who's work I admire was Darryl Nelson. I had read his comments in the last issue of the 'Hot Iron News' and it disturbed me greatly. I do not criticize his resentment against the act of plagiarism, which should not be done, but the fact that he says he will not continue to pass on the craft.

Here, if I may act as an elder statesman, I will express some of my thoughts. First, I am 75 years old and started my apprenticeship in 1935, serving my four years. I then moved on into construction at a time when blacksmiths were needed there, repairing and learning to operate construction equipment. After the was, I wanted to get back into blacksmithing and in 1949, with my brother, we opened a blacksmith shop in Yreka. In 1952, I bought my brother out and continued the business alone.

In the early 1950's, the government started the soil bank paying the farmers not to raise anything. The hydraulic backhoe came in and mattocks were no longer needed to clean irrigation ditches. The laws became much more stringent which meant the loggers and the log trucks had to be much better and didn't suffer as many breakdowns. The miners quit mining, waiting for gold to go to $100 and ounce.

What all this meant was that the demand for the traditional blacksmithing died down so I went back into construction, welding, repairing and operating as needed. I moved my shop to an addition at the end of my garage and did all the blacksmithing that came in on weekends. Many of my friends asked why I didn't stay with welding, but damnable pride kept telling me that I was a blacksmith. Yes, I did learn welding, both gas and electric in my apprenticeship. Health problems forced me off tractors and equipment, and I did weld and fabricate in mills for almost four years. I worked two more years in a small engine repair shop before I retired.

When I would do blacksmithing on weekends, friends of my son would watch and be amazed at what I accomplished. A full generation had grown up not knowing what the blacksmith could do. Hoping to spread a little knowledge, in 1970, at the Yreka Fair, I put up a booth and demonstrated the art. This was received quite favorably. A change in managers prevented me from doing it again until 1976, but since 1978, I have demonstrating every year. At one time, I did six fairs in one year. Joining the C.B.A., I did demonstrations and taught classes whenever asked. At home, I accepted anyone who wanted to come.

This may seem a lengthy explanation, but I had to get out how I feel. At fairs and demonstrations, I see so many young men and women stare and ask to learn. These are the ones that we should reach out to and bring them into membership. Not all will make it

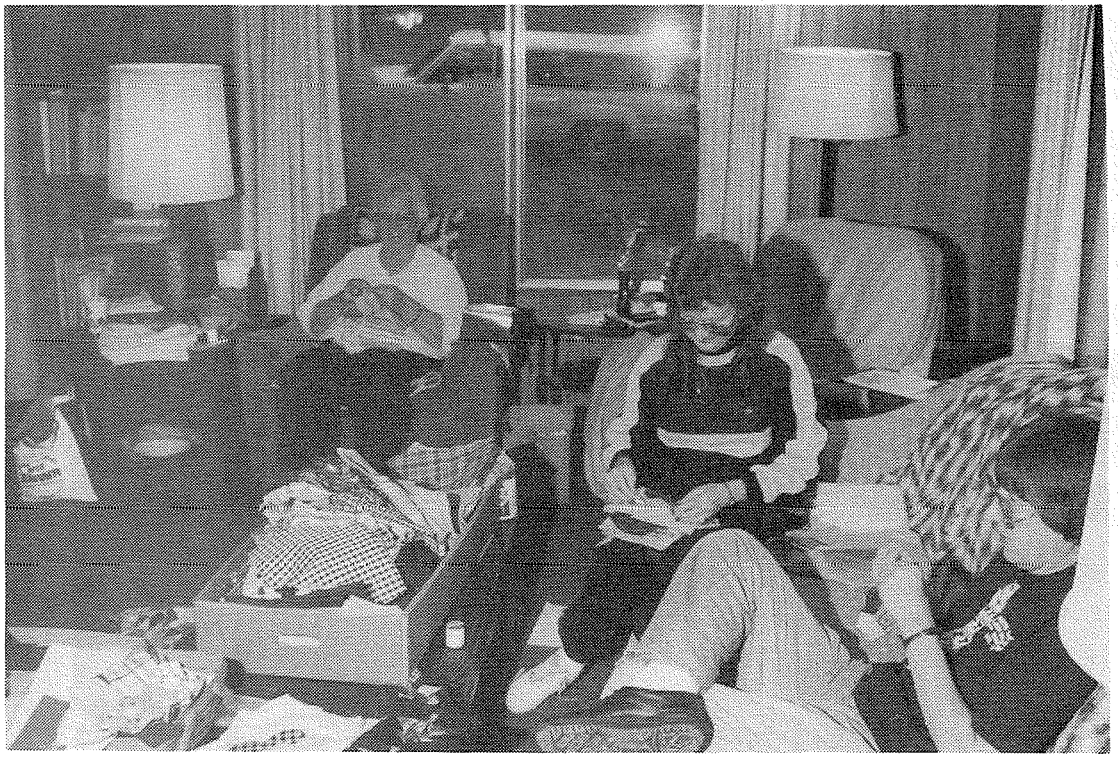
Jody Schmidt, Al Bart's Star Pupil at Yreka High School. She's made a ram's head poker, a straight peen hammer, a long horn steer shovel and an anvil. Al is very proud of her. Photo by Al Bart.

we know, but they should be given the chance to learn the basics.

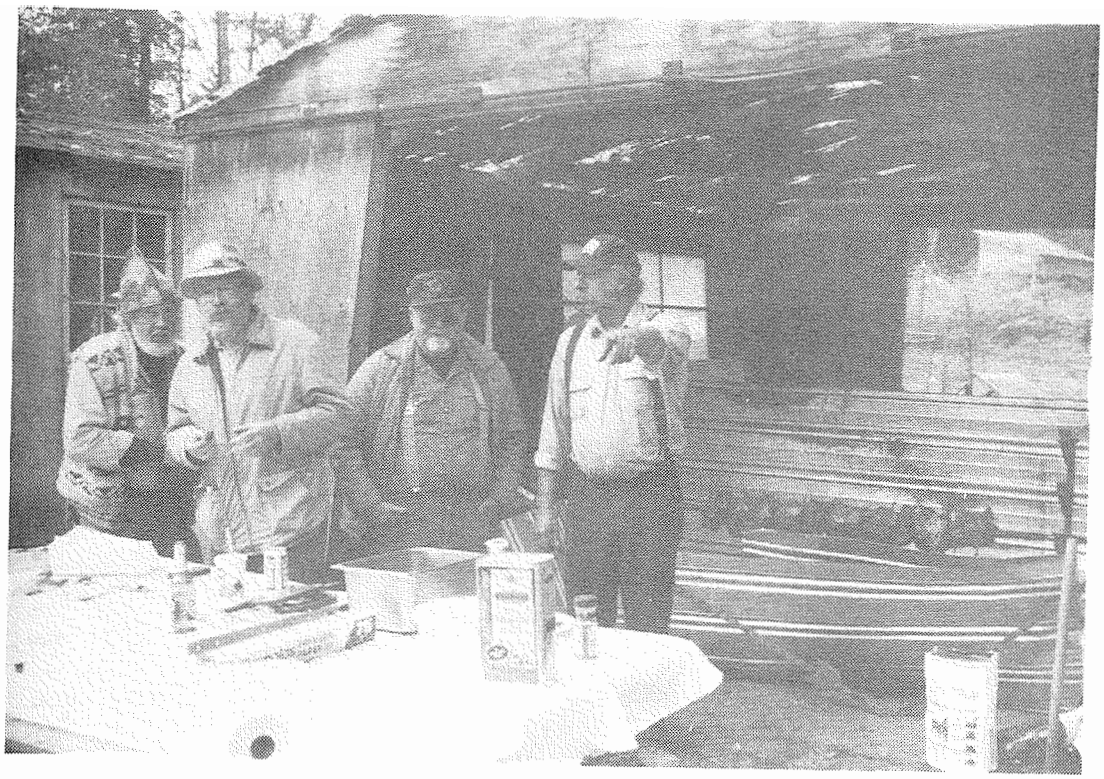
This brings me back to the subject I wanted to bring out, and that is BASICS. People want to learn and they should be taught. The blacksmiths organizations should concentrate on the beginning blacksmiths only. Once they reach journeyman status, they should be on their own. To advance further, is up to their own ability and ingenuity. Organization that give grants to send smiths to Europe for lessons when they don't have the knowledge here on the West Coast do a disservice. Unless we continue to attract and teach young beginners, this craft will die and disappear as I have already seen once.

Al Bart

"Knowledge withheld is the worst form of Avarice." Lord Acton



Nora Carrell hosted a quilting class with Charlene Finney for the NWBA LADIES during the Fall Meeting. There's more to come! The ladies are planning a NWBA friendship quilt. Watch for the pattern for your block coming soon! Photos by Lloyd Hedglin.



Remember the great food we had at the Fall Meet? Well, the cookbook is still in the works. More later but please think about recipes for your favorite pot-luck dishes, and drawings, photos and recipes for food related ironwork. Above: Before. Below: Eat!
Photos by Lloyd Hedglin.

FOR SALE:

Kao-wool. Contact Jerry Henderson at (503) 397-4537. Jerry also has a new product similar to Kao-wool but better available.

WANTED:

Tire bender and bolt header (free standing). Contact Ike Bay at 13085 N.W. Ridgetop, Portland, OR 97229 or call (503) 645-2790.

WANTED:

Articles, announcements, pot luck recipes, photographs, drawings and advertisements (free to all NWBA members). Send them to the Hot Iron News Editor, Karen Wagner at 711 Taylor St., Port Townsend, WA 98368 or call (206) 385-0256 after 7pm or leave a message on the machine.

FOR SALE:

Buffalo Commercial Forge, part #832R, $50. Champion Blower Forge Tuyere #10.400 Whirlwind, $125. Champion Blower Forge Blower #400 with stand, $125. OR All three to one buyer, $250. Contact Al Bart at 1107 North St., Yreka, CA 96097 or call (916)842-3938.

WANTED:

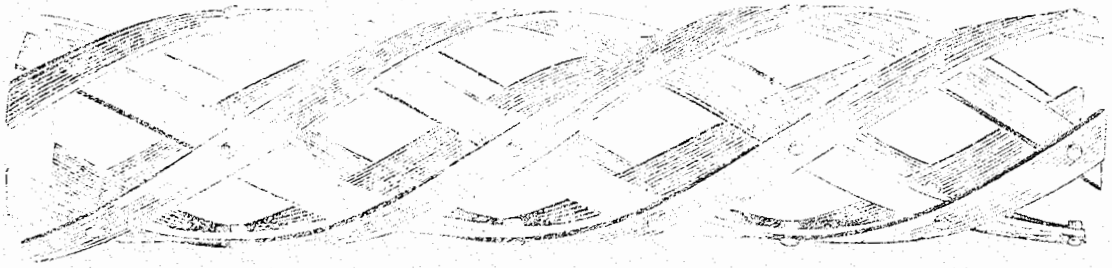
Front and back style guide for 100# Little Giant Hammer. Contact Randy Unger at 14250 Pioneer Way S.E., Olalla, WA 98359 or call (206) 857-7711.

FOR SALE:

50# Little Giant in good shape with one set of dies, no motor, $900. Contact Daniel Stevens at 34601 S.E. Compton Rd., Boring , OR 97009 or call (503) 663-5535.

FOR SALE:

50# Little Giant, $1175. Contact Ben Atherly at Rt. 1, Box 425M, Kettle Falls, WA 99141 or call (509) 684-8701



HOT IRON NEWS

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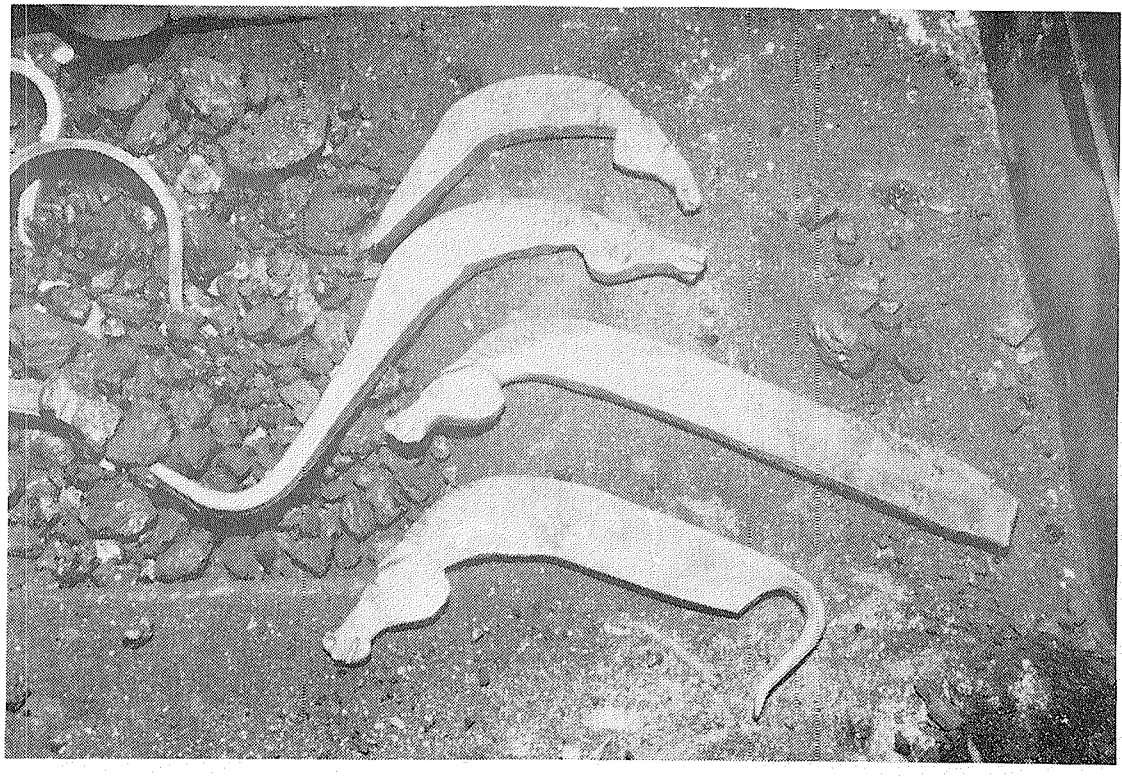

HOOF PICKS by Darryl Nelson
showing the stages of forging.