



The Anvil's Horn

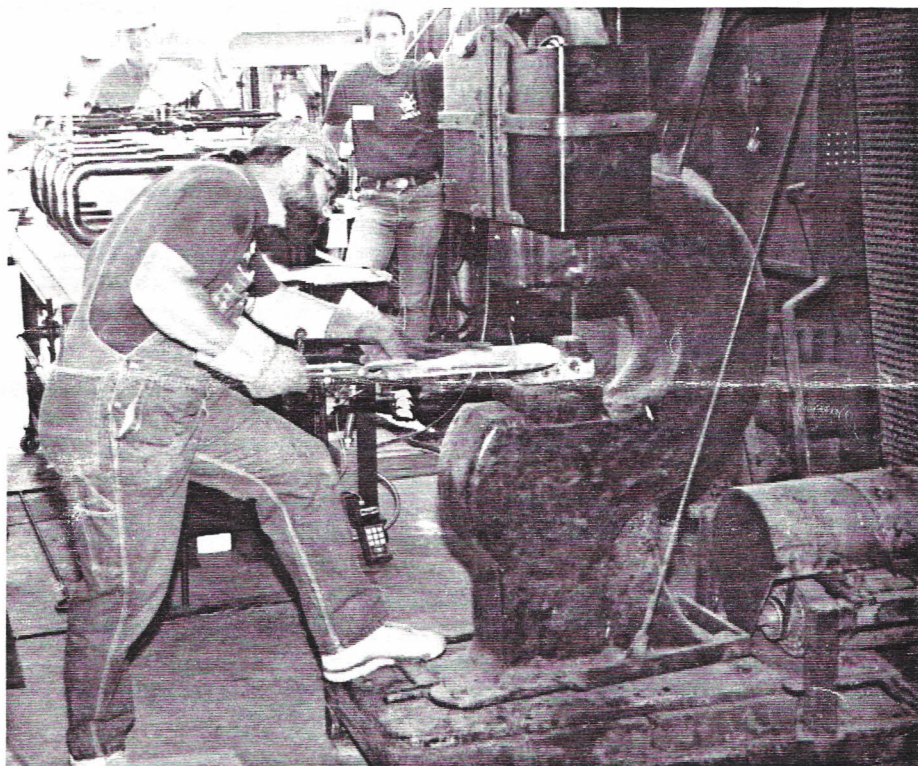


A PUBLICATION OF THE
ARIZONA ARTIST BLACKSMITH ASSOCIATION



Issue NO. 60

MAY 1995



*left:
Tom Yeager
Tuning up the
Big Hammer*

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MEETING:

SATURDAY

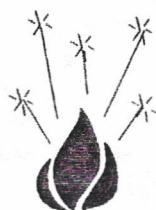
May 20th

PLACE: Gordon Williams' Shop

HC 75 BOX 1598

CAMP VERDE, ARIZONA 85322

PHONE: (520) 567-3681



8:00 A.M. REGISTRATION

9:30 A.M. DEMONSTRATION

12:00 NOON LUNCH

1:00 P.M. IRON-IN-THE-HAT DRAWING

1:30 P.M. DEMONSTRATION CONTINUES

DEMONSTRATORS: Alan Cressey, Gordon Williams, Richard Rozinski

Alan will talk about Western gear, spurs and tack. Gordon will show some basic techniques while forging a rasp rattlesnake with a twist and other simple projects. Richard will demonstrate the finer points of bowl raising.

ADMISSION: \$10 FOR MEMBERS

\$15 FOR MEMBERS & FAMILY OR NON-MEMBERS (FIRST TIME)

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My appologies for the pictures on pages 8 and 9. Since I was busy MARRYIN' off my oldest, I WASN'T ABLE TO ATTEND THE HAMMER-IN, SO THE PICTURES ARE FROM A PREVIOUS MEET. I GOT TO SEE A BIT OF THE ACTION ON DAVE HAWKINS' VIDEO, THOUGH, WHICH IS NEXT BEST THING TO BEING THERE. If YOU MISSED THE MEET, BE SURE AND CHECK OUT THE MOVIE FROM THE library!

YER ed., Mike COOPER

ABOUT OUR DEMONSTRATION

The May Demo will be held at Gordon William's Camp Verde Blacksmith Shop in Camp Verde. Gordon has plenty of room for camping and he encourages you to bring your families. His place has a fenced acre for the kids to play in and your welcome to stay over Friday through Sunday. It's just a short distance to many local attractions, such as Sedona, Oak Creek Canyon, Montezuma's Castle and Well, and Fort Verde. There are also motels and restaurant near by. For lodging contact: Fort Verde Motel(520-567-3486), Super 8 Motel(520-567-2622), or Best Western(520-567-6611). The map below should be a good guide, but just in case, Gordon will have signs out from the highway to his place.

Gordon will be one of the demonstrators on Saturday. He teaches basic blacksmithing at his shop and will share some of what he teaches with the members. He likes to teach by doing a project, so the student goes away with something besides a chunk of iron.

Alan Cressi will talk a little about the western spurs and tack for which he's famous.

Those who have been to any of the exhibitions at the Valley Bank or the Shemer Art Center have seen Richard Rozinski's work. His sculpture incorporates raised metal shapes and bowls and repousse'. He'll show us how to raise a bowl.

Be sure to bring your cameras, video boxes, pencils, paper, whatever you can think of to record this stuff.

This is sure to be a great time, so see you there!

MEETING ROSTERS

Here are the proposed rosters for demonstrations and Board of Directors meetings for 1995:

Demos	Board Meetings
May 20, Camp Verde	April 29
July 15, 16, Flagstaff	June 24
Sept. 16, Tucson	Aug. 26
Nov. 18, Open	Oct. 28

Unless notified otherwise, Board Meetings are at the downtown Ramada, 401 N. 1st. St.

Venues for Sept. and Nov. are still not firm. Watch this space for more info. Contact any Board Member with suggestions or requests.

CORTEST

Entries at the last demo were once again too few to judge. Here's a schedule of future contest subjects.

This schedule will appear in each newsletter to give everyone plenty of lead time to prepare that masterpiece.

May 20	Matching pairs
July 15-16	Kitchen hooks or potrack
Sept. 16	Demons, Dragons, Wizards or Beasts
Nov. 18	Horse around!
	Western or cowboy stuff

Remember, the items must be signed and will be held in the Association's display for 2 years.

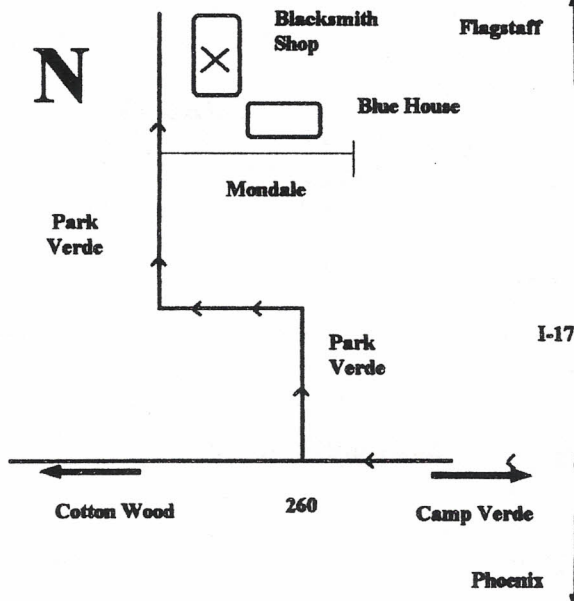
LIBRARY STUFF

Jerry Fuller would like to build the library into a reference for the Association, so he needs contributions.

If you can donate or you know the whereabouts of material that may belong to the Association, please contact Jerry or any Board member.

Dave Hawkins, one of our new Board members, has volunteered to tape each of the demos he attends for the library. When you see him trying to get a better vantage point at the demos, please give him room to work.

Jerry can be reached at: 705 N. Orlando Cir., Mesa, AZ 85205, (602)924-4026.

ROUTE TO WILLIAM'S SHOP:

PHILIPPINE SMITHING ADVENTURE BY BRIAN HUGHES

Recently I had the opportunity to work in the Philippines for one month. It all started when I answered an ad in the *Anvil's Ring* seeking a smith to build equipment and train workers in the "south seas". Before I knew it I was hired by a New Jersey bed making firm to build a treadle hammer and propane forge at one of their sub contractors shops in Mandave City, Cebu Province. Shortly thereafter I was on a plane bound for Southeast Asia wondering what I had gotten myself into this time. My fears were assuaged however, when after 35 hours of travel, I landed safely in Cebu and was greeted by David Klein, the owner of the bed making firm, and his manager, Eduard Ceniza, and Eduard's wife Lori. You couldn't find a nicer bunch of people anywhere. They immediately had me feeling at home. It was just like seeing old friends again.

I have seen a little bit of the third world so I wasn't completely taken by surprise when I saw how most Filipinos live, but I definitely suffered some culture shock for the first week or so. The living conditions are squalid, there are open sewers and big rats, the pollution is extreme, and there is filth and trash everywhere. The people, though poor, have food and nice big smiles on their faces. The greatest impression of my whole trip by far was the warmth and friendliness of the Filipino people. I never saw anyone angry or uptight and I never heard a quarrel, even in that crazy traffic they all try to drive in. That was a refreshing change.

The first day was spent visiting the shop, meeting the workers, and gathering materials at a local scrap yard, of which there is no shortage. Cebu is the second largest port in the Philippines. I think any blacksmith would feel at home there as it is a make it do kind of place. The people are very

resourceful and industrious, not unlike a good smith is his or her own shop. The shop I worked in was set up to do light fabricating and some hot bending. There are about fifteen guys working there, from ages sixteen to forty. They also live at the shop Monday through Saturday afternoon, only going home to see their families Saturday evening and to church on Sunday. These guys make about 65 pesos a day or about two dollars and fifty cents, so they don't spend a whole lot on bus fares. The shop itself is an open air affair with an attached living area for the owner, Sammy and his family.

Following the basic design of Peter Sevin's most excellent treadle hammer, I selected a 4 inch by 4 inch chunk for the hammer head and several slabs of 1 3/4 inch by 4 1/2 inch for the anvil base. The back stanchion was made from a piece of 6 inch by six inch by 1/2 inch "I" beam. All of the extension springs were hand turned, the flat springs taken from a large truck leaf and normalized, everything completely made from scratch. The whole thing is terribly heavy duty and soon became known as the "Mandave Monster". After seven days of work by myself and assistants Freddie and Rudolfo. The hammer was complete, mounted on it's massive concrete foundation, and operable.

We promptly commenced building the propane forge. Again following Peter Sevin's superior inventiveness, Freddie, Rudolfo, and I quickly put together a ten inch by ten inch, 2 burner unit, complete with Fiberfrax lining, extra doors, and stand. Another half day was necessary to run down miscellaneous plumbing parts, regulator, and propane bottle. By the end of the second week we had this little forge roaring. Of course everybody in the shop really dug it, they had been wondering all week what was going on. I was impressed too, both main objectives had been accomplished in short order and without a hitch. Certainly none of this could have been achieved without the continuous reconnoitering of David and Eduard for all the little oddball problems one runs into. Still it's amazing when you

consider this all came together in a shop equipped with five small welders that run on high only, one crescent wrench, four pairs of vise grips, three bench vises, one oxyacetylene outfit minus the acetylene gauges, one small drill press with no chuck key, four drill bits, three mini grinders, one charcoal forge (and rice cooker!), three lumps of iron for anvils, and fifteen guys with hacksaws. Well hey, I guess what more do you need?

The final two weeks of my stay consisted of making tools for the treadle hammer, hand tools, and demonstrations. Some of the tools made were: a stock stand, flat bit tongs, a couple of flatters, large handled hot and cold cutters from truck axle, a guillotine tool for the treadle hammer with three sets of dies, a tool holder for the hammer like Otto Schmirler's with a block anvil and bending block to fit, a special bottom swedge for punching holes in round bar and a table to hold all of this stuff. Freddie and Rudolfo began forging points and tapers, forming scrolls and spirals. I was impressed by how quickly they caught on, I could literally show them how to do something once and they could do it. I showed these guys how to make punches and chisels then harden and temper them. We moved on to making tenons in the treadle hammer guillotine tool, we punched holes in bars and stuck tenons in there and pounded them over. I demonstrated twists and dragon heads and tong making. It was an intense flurry of activity and most satisfying to see how the guys took to it. These guys are hard workers and that is an inspiration in itself. I learned new things too, like wrapping rod cold around a pipe to form rings using a "Heky", a tool that hooks over the rod to pull it around. The whole experience was grand, enlivening, and fulfilling. I made new friends and saw so many new sights, I feel very lucky to have been chosen to go.

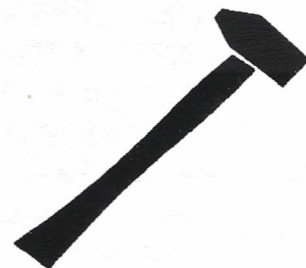
One of the most fun things was discovering their language. They speak Cebuano, a dialect of Visayan,

(Continued on page 4)



AABA

President's Message



I would like to take this opportunity to thank Jay Burnham-Kidwell for his help and much appreciated involvement with AABA. Jay has asked to retire from the board. His involvement at the national level requires more time and attention than most of us realize.

I'm sure Jay will still be around from time to time, his input and revelations have always been appreciated.

Scott Mitchell is moving and has also asked to be excused from the board.

Our rules of incorporation require us to have 15 board members. The next two to be elected from our last election were Gary Hannon, and Read Carlock. Both have accepted, welcome aboard.

Back on my soap box. We need input for demonstrations and demonstrators. Be vocal, talk to your board members and officials. We need more members to fill out the suggestion forms at our hammer-ins.

Work safely, your eyes and hearing are not to be taken for granted.

Ron Kinyon

(Continued from page 3)

the language of the Central Philippines. Here is a translation of some common shop words:

Forge-Pugon	Forging-Dok-Dok
Fire-Kayo	Rivet-Tarogo
Chisel- Cil-Cil	Square-Squala
Bevel-Haboli	Scroll-Locot
Twist-Lubag	Hacksaw-Gabas
Drill Bit-Barina	File-Limbass
Wrench-Katala	Hot-Init
Cold-Bugnow	Little-Gamay
Big-Dako	Please-Palihog
Center Punch-Ponsol	
Rivet Head-O Sa Tarogo	
Tongs-Kimpit	
Upset Tenon-Rematsi	
Shell-Tipay(for marking steel)	
Floor Shear-Para Poto	
Tape Measure-Mitrosan	
Chipping Hammer-Til-Til	
Hammer-Martelyo	
Sledge Hammer-Maso	
Anvil-Dat-Olanan	
Thank You-Salamat	

Brian Hughes is a professional smith and artist and long-time member of AABA.

RESTORATION

Saguaro Ranch Parks' Blacksmith Shop gets fixed up

Ron Kinyon, *Our President*, has been talking to a group of individuals who, with the City of Glandale, are about to undertake the restoration of the blacksmith shop at Saguaro Ranch Park. This west side park and historic site has been under continual restoration for several years, and is host to a number of functions annually. The Association may be involved in assisting in the restoration by contributing, advising, and operating in the shop. The restoration is scheduled to be completed around the end of the year. If you have any reference material or knowledge about the site or the era (around the turn of the century), contact any member of the board.

COAL

What are you burnin'?

We're still looking for a list of coal users' needs. Those needing coal will be asked to pay in advance and provide their own containers and labor when the load arrives. We haven't had much response so if you need some speak up!

WE NEED FUEL!

Your ideas are what keep the Association running

We need your input! The Association needs ideas, articles, suggestions ...HELP! If you have an idea for a subject for a demo, know of someone you would like to see demonstrate, or just have a question, communicate! Help us keep growing by fueling our engine. Your curiosity is what we feed on as an organization. In the past, this newsletter has carried many fine articles by Jay Burnham-Kidwell, Bob Rummage, Rick Dunbar and others. These articles have been interesting enough to be reprinted in other newsletters across the country. The problem is the authors get little feedback for their efforts. If you don't want to see those wells of information dry up, speak up. Write or call any of the board members with questions or suggestions, and if you have a tip or source of supply or idea for a project or tool to pass along, send it. My phone machine has a long tape, so you can call me and dictate it to my robot. Writing works, too.

ABANA

Artist-Blacksmiths' Association of North America



PO Box 1181, Nashville, Indiana 47448

President's Message April 1995

Phone & FAX: (812) 988-6919

For those of us that live in parts of the country where winter brings cold weather and snow, signs of spring are indeed a welcome sight. Spring always brings about a noticeable increase of blacksmith related activities. April and May in particular are months that are favored for regional conferences and other area blacksmith get-togethers. Check all of your information sources and attend the ones you can.

The Election and Nominating Committee (Tal Harris - Chairman, Tim Ryan and Jay Burnham-Kidwell) will soon be sending information to the ABANA chapters concerning the 1995 ABANA Election of Directors. While attending any get-togethers, spread the word that we are looking for good candidates and encourage anyone that you would like to be a director to check out the information and submit the required data to Janelle at the ABANA Office.

It has taken awhile, but I think the present activity of the Electronic Forum Committee can properly be described as "full speed ahead". Look for some good news from Clayton Carr and his committee in the near future, perhaps even before you read this.

Hans Peot, Chairman of the By-Laws Revision Committee, and the other two Committee members, Pete Brandenburg and Andy Quittner, have been working on some changes to update our by-laws. This, as I expect you know, has been done several times down through the years and requires a vote from the ABANA membership. There will be board approval of the recommended changes before they are sent to you, but you should study them carefully before you cast your vote. A mailing date has not been set, but they will be along in due time.

Enclosed you will find a copy of the desperately needed update of the Directory of Suppliers. This free publication for ABANA members is made possible by the Membership Services Committee (George Dixon - Chairman, Jay Burnham-Kidwell, and John Pollins). This update has been a long time in coming but it was a time-consuming task that required many long distance phone calls and cross-checking of numerous sources. We hope you will appreciate this committee's efforts. If you have any new vendors or changes for this directory, please submit them to the ABANA Office at any time so we may begin preparing for future revisions.

I talked with Charlie Orlando a few days ago about the 1996 Conference. Charlie will be sending information to the chapters on a periodic basis. I urge you to make an effort to put all information that Charlie sends you in your newsletters.

And speaking of newsletters, Tim Ryan sent information regarding the 1995 Joe Humble Newsletter Editor of the Year Award to all our chapters. Last year only half of our chapter editors voted. We can do better than that. I think knowing that all the editors voted would make the award more meaningful to the recipient. Please send the names of the editors of your choice to the ABANA Office by April 1, 1995 on the nomination card sent in last month's mailing.

Bob Elliott, President of the Appalachian Blacksmith Association (ABA), recently sent this message to the ABA members: "A clean shop is a safe shop". If Bob saw my shop right now, I would be in for a tongue lashing! But I agree with Bob and I ask you to heed this and all safety tips.

Sincerely,

Joe Harris, ABANA President

ABANA

Artist-Blacksmiths' Association of North America



P.O. Box 206, Washington, Missouri 63090
Executive Secretary, Janelle Gilbert

Office Hours: 9:00am - 5:00pm
Phone: (314) 390-2133

PRESIDENT'S MESSAGE May 1995

"ABANA is on the move". For quite some time now we have felt justified in saying that figuratively. Now we are saying it literally. The ABANA executive office is leaving Nashville, Indiana and moving to Washington, Missouri. Janelle has spent a lot of effort planning this move and I am sure it will cause very little, if any at all, interruption in the normal flow of information to or from the executive office.

I am sure that John Pollins, as chairman of the Chapter Liaison Committee will have more to say about this but I just had to mention it. There are a couple of chapter applications awaiting board approval. If they are approved, I think they surely will be, ABANA will have fifty chapters. Fifty Chapters, another notable milestone for ABANA.

Clayton Carr has submitted his resignation from the ABANA board to be effective May, 1995. Clayton is going back to school and I admire him for that. Clayton is a past president of ABANA and is presently serving as secretary. He has been a board member for a long time, he will be missed. Early in May, the remaining directors will elect a director to fill Clayton's unexpired term that ends November 1996. At the same time, the board will be electing a new secretary to fill the office being vacated by Clayton. There will also be some changes in committee assignments. We will keep you posted.

In the spring issue of the Anvil's Ring, a half page was devoted to tips and guidelines for submitting material for publication. If you haven't read it yet, you should. I hope the article will result in more material being sent to the AR. And just a reminder --you can also send material to The Hammer's Blow and your chapter's newsletter. Share your knowledge and let us know what you have been doing. We will all fare better if you do.

Once you fully accept the fact that there are many dangers involved in blacksmithing, you may be halfway home as far as safety is concerned. Once you learn what all those dangers are and how to deal with them, you may be three fourths of the way home. Be that as it may, don't let down your guard for even a moment. Insist on safe practices in your shop and at any meets you may attend. As I have said before, it pays big dividends.

Sincerely,

Joe Harris
ABANA President

SHE'S GOT GREAT PROPORTIONS! (or-Boy, I'm going to catch it from the feminists)

I thought I would talk a little about using the concept of proportion to solve problems relating to blacksmithing. Aside from the male testosterone approach to proportions, we need to understand the mathematical concept of proportion. To understand this concept we need to understand ratios and to understand ratios we need to understand fractions. Before you give up on this article because you hate (don't understand) fractions please bear with me.

Let's go back in time-way, way back-back to the time of say - troglodytes. No-that's too far back. Fast forward a bit to the time of...cave man and yes, cave women. No- that's still too far back. Ah, yes. Back to the time of say, Adam and Eve. Although I'm not a biblical scholar, I think the first arithmetical operation mentioned in the Bible was multiplying. Now, multiplying is a fast way of adding so people then must have known about adding, OK? Now, the opposite of adding is subtraction and a fast way to subtract is to divide. So you say, what's this got to do with proportion? Hang on - I'm getting there.

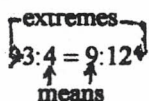
We don't really know when subtraction became a working mathematical concept but the Egyptians and Babylonians experimented a bit with it before Christ. Fast forward to the time when the Hindu-Arabic cultures started to influence European Civilization, say about 800-900 AD. Fractions are now starting to make a major impact on math concepts.

So what does a fraction mean? First, let's look at how a fraction is written. Using the digits 3 and 4, we can write a fraction as $\frac{3}{4}$. Now we all have been taught to think it means 3 is divided by 4 and that is true. But what it really means is "How many times can you subtract 4 from 3?" The fraction $\frac{3}{4}$ has another name. It is called a decimal equivalent

and is 0.75. We can always find a fraction's other name (decimal equivalent) by dividing the top number (numerator) by the bottom one (denominator). This will always be a terminating decimal ($\frac{3}{4}$) or a repeating decimal ($\frac{2}{3}$). Fractions can be classified as simple, such as $\frac{1}{3}$, $\frac{3}{4}$, $\frac{5}{6}$, etc., or they may be complex, such as

$$\frac{2}{1\frac{1}{4}}, \frac{1\frac{1}{2}}{4}, \frac{3\frac{1}{2}}{5\frac{1}{3}}, \text{ etc.}$$

OK? Here we go! When we compare one number to another we call that a ratio. We get that name from rational numbers (reread Aug. 94 Anvil's Horn). If we want to compare 3 to 4 we write 3:4 or $\frac{3}{4}$. What? That's right-we write ratios just like a fraction. So what does a ratio have to do with a proportion? Well, a proportion is the comparison of two ratios. When we compare two ratios in an equality statement we have a proportion. Let's write a proportion now. 3 is to 4 as 9 is to 12 or $3:4 = 9:12$ or $\frac{3}{4} = \frac{9}{12}$. The 3 and 12 are extremes and 4 and 9 are the means. See fig. 1.



In order for this statement $3/4 = 9/12$ to be true the product of the means must equal the product of the extremes. In other words 4 times 9 must equal 3 times 12 or by cross multiplying:

$$\frac{3}{4} \times \frac{9}{12} \quad 3 \cdot 12 = 4 \cdot 9$$

How can we use this? Well, if we know any three known quantities we can compute the 4th(unknown). For instance, let's say you have a table

with a given length of 5 and width of 3. You want to make a table that has the same proportion but with a width of 2. What would the length be? Writing this as a proportion we have $3/5 = 2/X$ or $5/3 = X/2$, so:

$$3 \cdot X = 2 \cdot 5$$

$$3 \cdot X = 10$$

$$X = \frac{10}{3}$$

$$X = 3\frac{1}{3}$$

OK, another example. I know when I want to make an 8 in. round bowl I have to cut the material 8 1/2 in. in diameter. When I sink it the bowl shrinks to 8 in. Now I get an order for a round vessel 32 in. in diameter. The problem is what size do I cut the material?

Well, let's see:

$$\frac{8}{8\frac{1}{2}} = \frac{32}{X}$$

Cross multiplying I get:

$$8X = 8\frac{1}{2} \text{ times } 32$$

$$8X = 272$$

$$X = 34$$

Just remember to compare equal with equal:

Finished bowl (8)	Finished bowl(32)
Mat'l cut out (8½)	Mat'l utout(unknown)

There are many, many applications of the proportion concept. One of my respected college professors said 75% of all math problems could be solved by proportions. A slide rule (you do remember them) computes using the proportion concept. So add this concept to your math skills-you wouldn't regret it.

Touch Marks

Part 2 of 2
by Rick Dunbar

As the background, style and application of touch marks was described in Part 1 of this article, I will, in this part, describe only the actual making of the touch mark tool or stamp.

Both finished touch mark stamps and process tools used in stamp manufacture must be of hardened tool steel. If only cold stamping is intended, oil hardening or air hardening steel, such as O-1 or A-2 will give excellent service. These steels are tough, and are relatively stable (low warpage and distortion) during heat treatment. If stamping hot iron or steel, water hardening steel is preferred, such as W-1 or 1095. This is because the stamp can be intermittently water quenched during use (to preserve temper) without danger of cracking from thermal shock. Special hot work steels, such as a H-13, may be ideal, but are expensive and difficult to work by hand methods. Likewise, shock resistant steels, such as those used in commercial stamps and chisels, would, theoretically be superior, however experience shows that the special properties of these materials are unnecessary, especially for hot work. Square stock is nice, both for ease of holding when making the stamp and for registry during use, but round stock (drill rod) is much more easily obtained. Simply forging round stock to square or rectangular form, followed by post annealing, is probably the way to proceed. Water hardening steels are, by the way, far easier to anneal, without access to sophisticated furnaces, than are any of the alloy tool steels.

The Stamp Making process can be outlined as follows:

1. Make in-process matrix stamps.
2. Prepare stamp body and set in matrix.
3. Form outside shape of stamp.

4. Harden

PREPARING MATRIX STAMPS

Since images included in the sunken field of the touch mark are raised, a corresponding intaglio image must be provided in the finished stamp. Direct carving or engraving into the stamp body is relatively easy, but getting the images to an even depth is almost impossible. Therefore, matrix stamps must first be made and later used to impress the intaglio image into the stamp body. Common coinage is made exactly this way. Since, through the entire stamp making and stamp use process, the image will be twice reversed (from matrix stamp to the touch mark, and from touch mark stamp to the work piece). The matrix, as viewed from the working end, will look exactly like the finished touch mark element. I recommend making each letter, numeral or geometric figure as a separate stamp.

Select or prepare a round or square rod of tool steel about 2" long, slightly larger than the individual figure being prepared. File one end perfectly flat and square to the tool body. Polish the end to about 220 grit. Draw or apply the desired design to the polished end. The design can be applied directly with a soft pencil, or the end can be coated with white artist's pigment and drawn upon. Coating the end with layout ink (Dykem) or magic marker, and drawing with a scribe, is another method of applying the design. Use files to create as much of the figure as possible. Internal forms, such as the internal pocket in the letter "A", must be punched or cut with a chisel. Although the outer surfaces of the punch should be cleared with long, gradual tapers, to improve working

visibility, the actual working section should be between 60 and 90 degrees included taper, as shown in fig. 1.

Lightly file the top surface to re-establish a flat plane at the figure surface, and touch up the shape, as required, to achieve a clean figure. Repeat the above procedure, until matrix punches are made for every

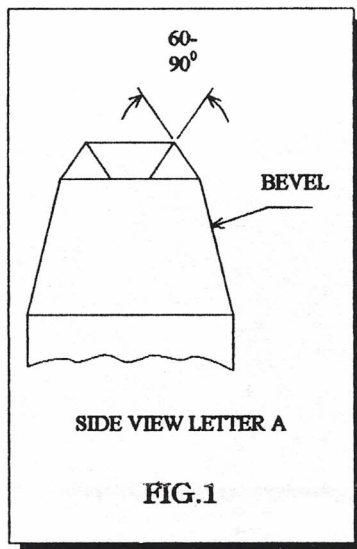
figure required in the finished stamp. Lightly crown the hammer end of punches, to direct blows paraxially. Harden punches by coating the working end with silver brazing flux, and heating with a torch or in the forge or furnace, to critical (non-magnetic) temperature, and quench in brine or oil, as appropriate to the steel used. Polish the sides to view the colors. Draw temper from blue, at the hammer end, to light straw, at the

working end.

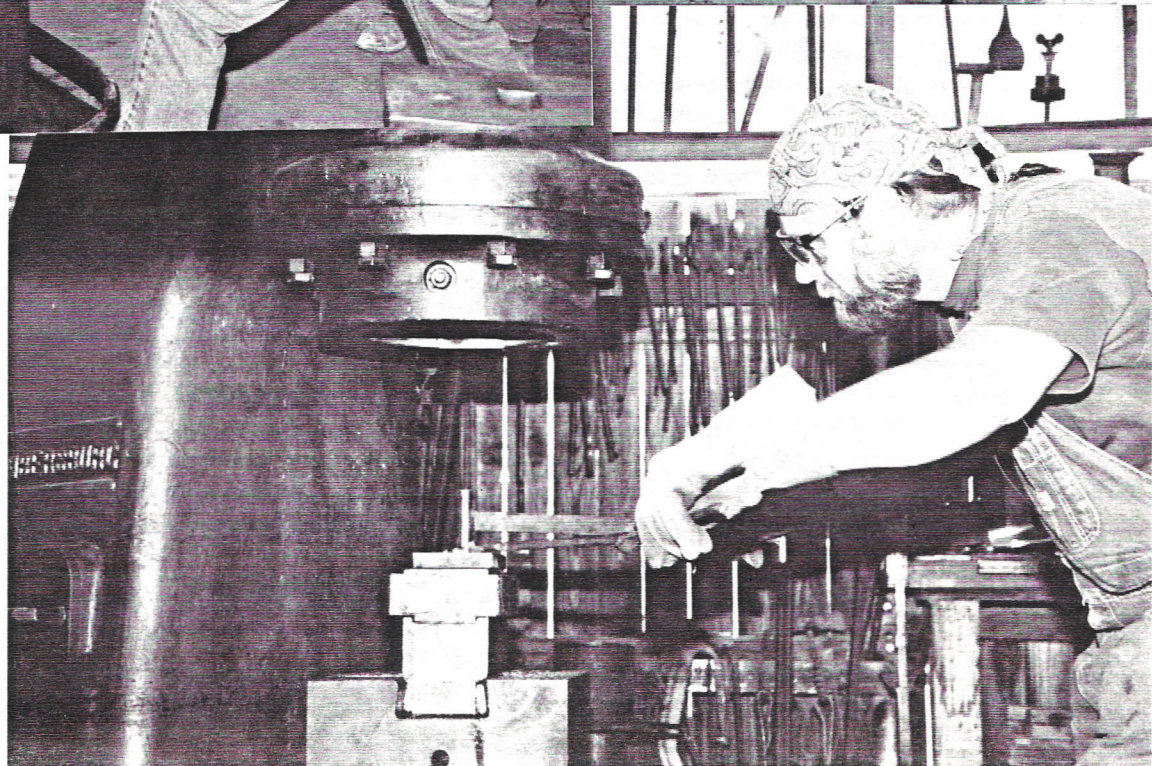
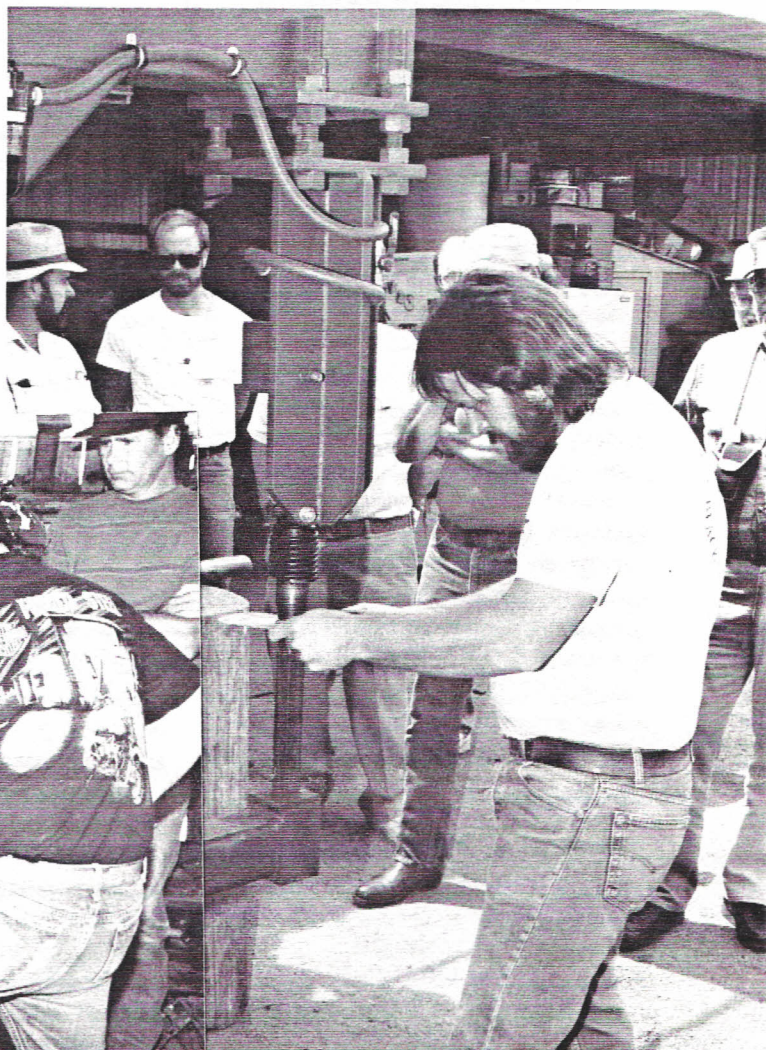
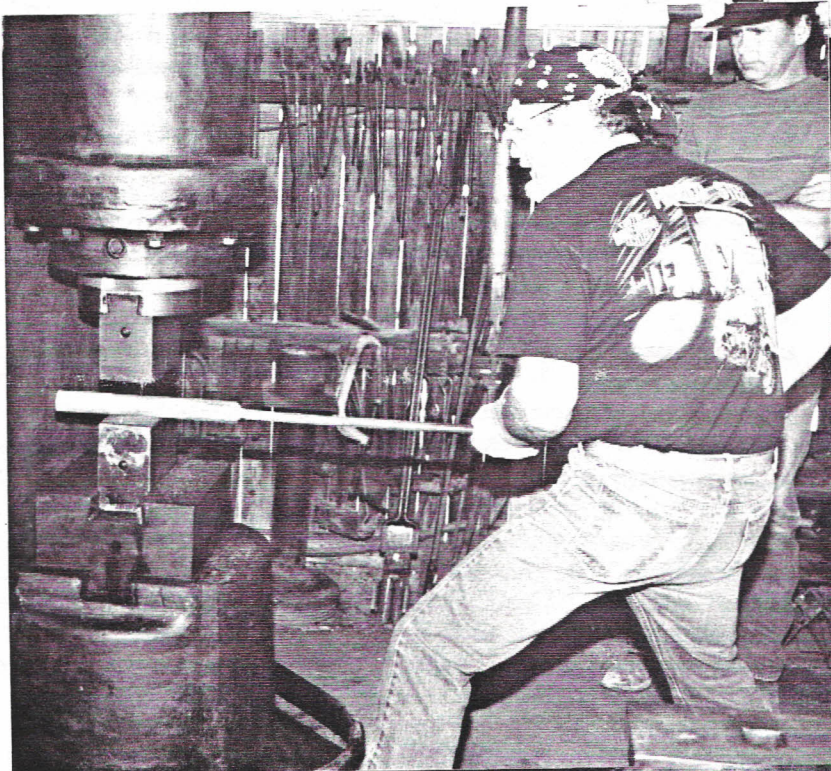
PREPARING THE STAMP BODY

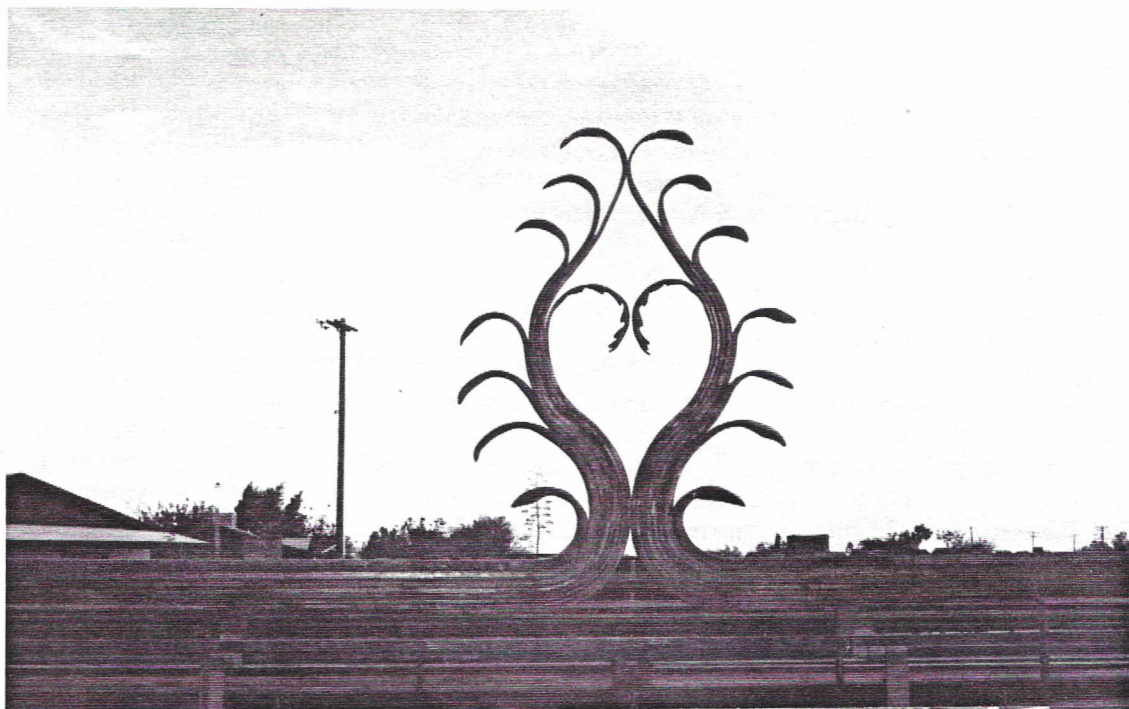
Select suitably sized tool steel, or forge to shape, larger than finished size requires. Stamps for cold work should be about 3" long. Hot work stamps should be about 8" to 9" long or made in a manner to set into a long handle. Anneal (if forged), file and polish the end flat. Bevel the hammer end. Draw the shape of the final outside punch contour onto the face. Sketch in locations of internal figures. Clamp the blank upright in a vise, with a block of aluminum, brass or steel under the hammer end to absorb blows. Stamp in, very lightly, all figures. Study the layout, and re-stamp, lightly, as desired. Deepen impressions by rapidly striking, with a light hammer (6-12 oz.), while rocking the punch in four directions, to slowly and smoothly sink the image. Lightly file or stone the surface, to eliminate upset raised by the

(Continued on page 10)



Yeager's Demo covered architectural forging. He demonstrated gigs and fixtures for both hand and power forging of large pieces, like *viga* supports, a vine shaped pot rack and a bathroom set. His tree limbs and other organic shapes impressed everyone.





(Continued from page 7)

stamping. Strike the punch into lead, and closely inspect to determine if all of the figures are at the same height, stoning off upset as required.

FORMING THE OUTSIDE TOUCH MARK SHAPE

After a lead proof-strike shows the internal stamp figures to your satisfaction, redraw the outside punch contour. File and carve the outside contour as desired, leaving about a 20 degree bevel all the way to a sharp edge. Apply decorative detail cuts or molding, if desired. Stone or polish the face of the punch to a 280-320 grit finish. Proof strike, in lead, to view the finished work. Harden as described in the matrix punch section.

Use the punch by holding it firmly on the work and striking a single, sharp blow with a relatively heavy hammer. A four pound hammer is appropriate with a "to 5/8" diameter stamp used on hot iron. Cool the stamp in water immediately after striking hot iron. Hammer weights and techniques, when stamps are used in cold, non-ferrous metals, vary according to the temper and thickness of the material, and the solidity of the back-up. Experiment until your desired results are achieved.

RICK DUNBAR is a professional smith, machinist, and gunsmith. His shop Bisbee Metalsmiths is located in Bisbee. You can contact him at P. O. Box 4424, Bisbee, AZ 85603, (520)432-4332.

SAFETY NOTE **THE POUNDERS PRESS** **MARCH-APRIL 1995**

Some of you may be using heavy duty hand held drills for the first time. We are talking about 1/2 inch or larger chucks, ten or more amps and a speed around 450 RPM. Older ones had a little button to lock the trigger on. This feature may be outlawed now, but I cannot find out. This thing is a torque-happy dude!

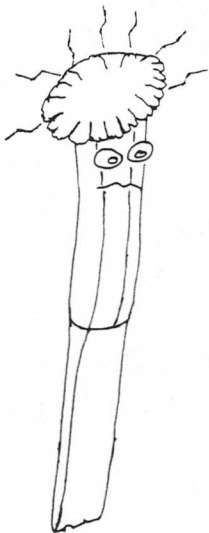
Added to that is the fact that the armature is spinning darned fast, so when you release the trigger, that rotary momentum is going to spin those reduction gears with considerable force for a few seconds.

This is all fresh in my mind because I recently needed to enlarge a 3/8 hole to 5/8 in a brass insert in a tool base too big to take to the drillpress. You are way ahead of me, aren't you? Brass, big drill bit, lots of power. I knew better, but I was behind schedule

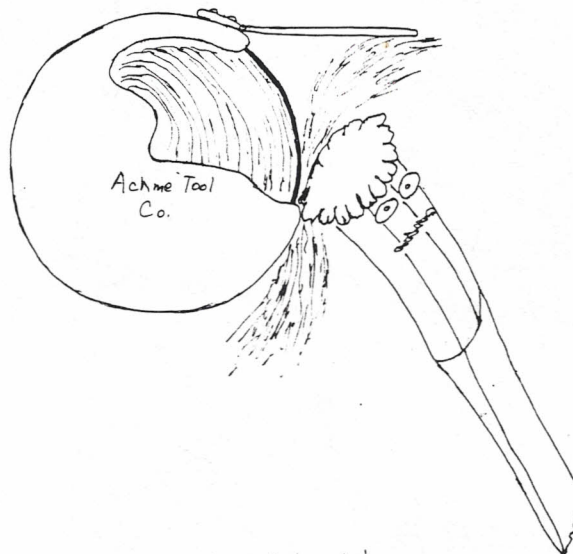
and I dived into it, so I nursed a couple of sprained wrists for a while. You need to alter your drill bit to cut brass, especially when enlarging a hole. A drill sharpened for steel wedges under the chip, raises it up, a cutting action. For brass you need a scraping action. Lightly grind the tip of each lip so the face of the lip meets the brass at a 90° angle. You never need to take more than 1/16 inch off, so later you can quickly re-sharpen it for steel. Or you could save it for another use. If you have to drill large holes in steel, you can use a regular bit until the tip peeks through and then break on through with the special bit.

Most of these drills come with a screw-in pipe side handle. **USE IT!** Then watch the way you grip the main handle. Make sure you can maintain a firm grip while releasing the trigger. If it has a trigger hold-down button, be sure you will not accidentally engage it. Practice these movements several times before drilling. There is a real panic situation when you're afraid to let go and you're still mashing down on that trigger. Another caution is to let the drill come to a complete stop before you withdraw it from the hole and make sure that pipe handle cannot throw your hand against a fixed object. Have fun!

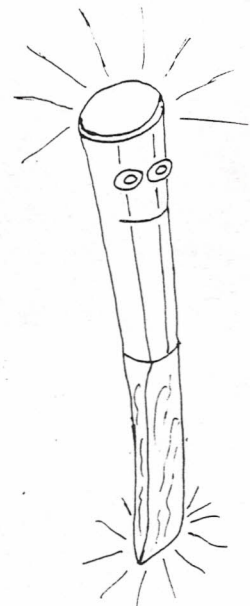
Adventures of Charley Chisel



*is mushroom is giving me
a headache*



*Do the Foot while you
at it*



STEEL DAM FROM THE ARIZONA REPUBLIC

Here's another jewel from Bruce Birtiel. He sent in a newspaper clipping from *The Arizona Republic*, July 4, 1993. The article is entitled "Rail reservoirs a well-kept secret".

Between Ash Fork and Williams on I-40, Steel Dam Lake and a sister reservoir, Stone Dam Lake were constructed by the Santa Fe Railroad in 1898 to supply water for steam engines. The lakes are now used only for recreation.

Steel Dam was the first of its kind in the world when it was built. Designed by F. H. Bainbridge, its unique structure is of prefabricated curved steel plates angled 45 degrees downstream. Rigid and loose panels riveted in place alternate for its 300 foot length to provide for expansion and contraction. The downstream face is supported by massive iron beams. The only corrosion protection available when it was manufactured was two coats of Detroit sulfite paint consisting of dry red lead and boiled linseed oil. The dam gets repainted every 10 years and is in excellent shape with no leaks or rust despite the lack of a spillway.

Located in Johnson Canyon, the way in is steep and rough with the last stretch a foot path. For more information contact the South Kaibab National Forest office in Williams, (520) 635-2681.

HARD WATER from the Upper Midwest Blacksmith Assoc.

The ancient lament goes, "Sad is the smith in winter". Not only is this reference to the typically unheated, save for the forge, smithy, but the innate contrariness of the block of ice occupying the slack tub. We all know that UMBA stands for Unbelievably Malevolent Blizzards Arriving, or should. Though I'm definitely in the "lower" Upper Midwest, last winter my

shop saw -20F more than once, enough to harden up the slack tub and my disposition.

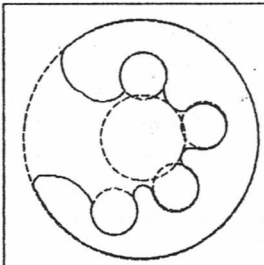
The traditional solution for the "I can't stick no iron in no big block 'O' ice" blues is to salt the tub, which while working reasonably well, has the unpleasant tendency to rust everything in the shop but your backside. Conscious of this, I messed around with a number of different antifreezes (don't even for a minute think about using automotive antifreeze- ethylene glycol; it's sweet tasting and poisonous which isn't so good for kids and dogs) before trying RV antifreeze (propylene glycol-the pink stuff) which is non-poisonous and doesn't leave your hands feeling yucky. A 30% mix pulled me through the above temperatures with just a touch of slushiness at -25F. After a year of use I'm happy to report that not only are there no negative side effects, but the lost tongs I just fished out after a year's marinade emerged devoid of corrosion!

Jeffery D. Knight

TONG RINGS from the Ontario Artists & Blacksmiths Assoc.

The Newsletter of the Southwest Artist Blacksmiths Association, in the U.S.A., showed a drawing and gave instructions on how to make this interesting gadget. This retaining ring has several positions to hold the reins (handles) of your tongs tightly together.

The instructions called for the ring to be cut, drilled and filed from 1/4" plate. However, using the drawing as a pattern I made a ring out of a 1" washer as shown in the drawings below. First I drilled 3/8" holes as indicated in the drawing. Then I cut and filed it to shape. This saved a lot of work.



FILE HANDLES from the North Carolina Chapter of ABARA

Using hand files and rasps with out a handle on the end is tough on even the most calloused hands. Buying wooden or aluminum handles can get expensive and switching handles among tools takes time and is boring. An inexpensive alternative is to use old golf balls. If you are not a golfer you probably know someone who is and can get what you need by just asking.

The solid two piece balls drill a little easier than the wound balls, but I've had success with either type.

1 Drill an undersized hole completely through the ball.

2 If the tang needs to be at less of an angle or shorter, file or grind before inserting the ball.

3 Set the ball over the hardy hole and drive the file tang into the hole with a brass headed hammer.

DO NOT USE A STEEL HAMMER to drive in the file or rasp. You will have to resurface your hammer face or dig steel chunks out or your own!

I haven't had one come off yet and they take all of a minute to install. they are cheap enough that every file and rasp can have a handle of it's very own.

Note: Corn cobs are another cheap alternative. They can be burned after the handle gives out to add a little warmth to those cold winter days.

GOLD EYES from the Indiana Blacksmithing Association

If you are looking for gold mirror safety glasses, (suggested for reduction of UV and IR), contact Airstream, PO Box 975, Elbow Lake, MN 56531 or call (800)328-1792. They also can provide Racal powered filter for breathing air face masks.

COLOR YOUR WORLD

Put Patinas on metal from the Blacksmith's Assoc. of Missouri

Editor's Note: This article came from a meeting I believe was held in North Carolina and was downloaded off the Internet through the ArtMetal mail list.

by Rand Esser

The patinas demonstrated at the March 12 meeting were copper sulfate solution, Black Topaz, and Rusty Red.

I mix my own copper sulfate solution by mixing copper sulfate crystals with water, a little at a time, until the water will no longer dissolve the copper sulfate. Copper sulfate is available at Southern States Stores.

Black Topaz and Rusty Red are sold by Sur-Fin Chemical Corporation. Sur-Fin will send you a finish kit including seven six ounce bottles of their finishes for \$50 (they also sell patinas for other metals). Larger sizes from one to fifty gallons are available.

These finishes result in a variety of effects depending on strength of the solution, reaction time, relative humidity, temperature, surface texture, and type of top coating.

The Rusty Red and copper sulfate solution create similar effects. The Rusty Red seems to be a bit more red and the copper sulfate is a bit more orange. I prefer the copper sulfate solution. It is more beautiful and less expensive than the Rusty Red.

Tips for patinas on steel

The surface to be finished must be completely clean. Remove all scale by sandblasting or wire brushing. Different surface textures will create different results. Sand blasted surfaces tend to be more dull and require a shorter reaction time. Wire brushed surfaces will be shinier, but require a longer reaction time. I sandblast first to remove the scale and then wire brush to

create a shiny surface.

Remove all grease, oil, and dirt with mineral spirits. Surface must be white glove clean for best results. Different concentrations of the finish solutions give different results. Sur-Fin recommends diluting the Black Topaz 1:10 with water. I have used the Black Topaz at 1:5 with a very brown/black result. Different reaction times give different results. I usually leave the solutions on for just a few minutes. The Black Topaz ranges from a jet black with a short reaction time to bluish, greenish, black with longer reaction times to brown/black with very long reaction times. The Rusty Red and copper sulfate solutions range from a light copper plating effect to light rust to a dark crusty rust depending upon reaction time.

Some interesting effects can be created by using two or more finishes on the same piece. The Rusty Red and copper sulfate solution will work on top the the Black Topaz finish. The Black Topaz does not seem to work on top of the others. I often begin with the Black Topaz and drizzle, drip, or brush a pattern on specific areas of the surface, leaving other areas bare. I then allow the Black Topaz solution to react until it is dry.

Then I come back and coat the entire piece with the Black Topaz solution and quickly rinse the piece in water to stop the reaction. The areas treated first will have a different tone than the areas treated later. I then come back over the piece with the Rusty Red and/or copper sulfate solution and brush, drip, or drizzle it in specific areas to create copper or rusty highlights. The entire piece is then thoroughly rinsed with water to stop the reaction.

Top coating

Once you have stopped the reaction by rinsing with water, allow the piece to air dry or speed up the process by heating it with a torch. At this point the piece is not very pretty. You will not know what the piece will ultimately look like until you apply the

top coat.

I usually heat the piece with a torch until it is barely hot and then apply wax with a lint free cloth. I have heard that linseed oil also works well. At this point the patina will reveal itself in its final state. By applying more wax and rubbing I can usually remove some of the more rusty spots revealing coppery areas. Additional coatings of wax will create a shinier finish with more depth.

Safety

These chemicals are poisonous. They will irritate your skin and eyes. Wear rubber gloves, goggles, protective clothing, and a respirator. Read the labels on these products and dispose of properly. Keep them away from your kids.

Persistence

It takes time and experimentation to get good results with these chemicals.

Your finishes are likely to look different from mine due to the many variables involved. I am continually experimenting with different finishes on metals, steel in particular. I would like to compile a data base of information on this subject to share with other metalworkers.

If you have information that you would like to share please let me know.

Rand Esser
302 Glascock Street
Raleigh, North Carolina 27604
or send e-mail to :
esser@artmetal.pdial.interpath.net

Addresses for Pre-Mixed Patinas:

Sur-fin Chemical Corp., 1530 Spence St., Los Angeles, CA 90023 (213)262-8108

Chemicals for mixing patinas

Briant Laboratory, 1101 Fifth St., Berkeley, CA 94710, (800) 367-3141
Supplier of Brass, Copper, sheet, plate, bar, etc.
Metal Supply Co., 4001 G. St. Philadelphia, PA 19124 (800) 638-2521

UPCOMING EVENTS

Here's a schedule for the National Ornamental Metal Museum.

Metalwork of Thailand April 23-June 18. Religious artifacts, tribal headdresses, knives, opium tools, and jewelry will be featured.

Artisans in Silver: The Vase June 25-August 13. A touring exhibition by members of the Society of American Silversmiths, focusing this year on silver vases.

Three Centuries of Chinese Cloisonné: The Adler Collection August 20-October 8. The first public exhibition of Chinese cloisonné enamels from the Adler collection.

European Coffers: The McNeal Collection 15th century coffers, chests, and locks from Western Europe.

Bruce LePage: Master Metalsmith October 15-December 5. Exquisitely engraved and inlaid flintlock shotguns and other forged and engraved objects.

EISENFEST, Mid September, an all metal fair in the AMANA Colonies covering everything from Aluminum to Zinc, Amana, IA. Write to P.W.P., Box 198, Amana IA 52208, (819) 622-3100.

Quad State Round-up, Tipp City, Ohio, late September 1995. The event is being moved to the Miami County Fairground, about 15 minutes from the Studebaker Homestead. They probably have the best selection of tool sales in the country. Contact Richard Kern, P.O. Box 284, Xenia OH 45385.

15TH ANNUAL BLACKSMITHING ASSOCIATION CONFERENCE June 3 & 4 at Tipton Indiana, 4-H Fairgrounds. Demonstrators will be Bob Patrick (Damascus gun barrel), Pamela Jean Schrimsher (Garden Gate construction using limited number of tools), Billie Merritt (Damascus forging using different steels including chain saw blade).

"Colonel" Tim Ryan (Auctioneer). Contact Fred Oden, Conference Chairman (219) 223-3508 or Paul Moffett, President, (317) 253-0843.

MOUNTAIN SMITHS BLACKSMITHING

CONFERENCE: August 17th through 20th at the Francis Whitaker Blacksmithing School in Carbondale Colo. Featured are Francis Whitaker, Michael Saari, Nana Schowalter, Corky Storer, Nol Putnam and Nahum Hersom. Non members \$125.00. Lodging at CRMS incl. meals, 3 days \$100.00. Limited to 85 attendees. Contact MSBC Registrar Dan Nibbelink, 800 SE 4th St., Loveland CO 80537, (303) 667-6749 or MSBC Chairman John Hoffmann, 12205 Perry #114, Broomfield CO 80020, (303) 438-0963.

ANNUAL CONFERENCE OF MISSISSIPPI FORGE COUNCIL May 27 & 28 at Pealahatchie Shore Park, Ross Barnett Reservoir, near Jackson MS. Contact Ray Robinson, P.O. Drawer 1049, Laurel, MS 39441, (601) 362-9068.

II INTERNATIONAL CONGRESS "BLACKSMITHS '95" The Union of Blacksmiths will convene II International Congress "Blacksmiths-95" a conference, exhibition, competition and auction in Moscow, Russia May 31 thru June 10. Contact Yuri Zimm (095) 463-6707.

INTERNATIONAL FACHVERBAND GESTALTENDER SCHMIEDE The International Technical Association of Designer Blacksmiths will present an exhibition of contemporary ironwork at the Ulm City Hall, Ulm Germany, June 3 thru 25. Contact Dudrun Tischler at standplatz 2, 24610 Trappenkamp, Germany or by FAX at (043) 23-41-71.

BIENNALE NAZIONALE D'ARTE FABBRILE August 31 thru September 3, Stria Italy

BLACKSMITHING CLASSES

ABANA publishes a list of classes offered across the country. Here's an excerpt.

THE FORGERY SCHOOL OF BLACKSMITHING Rob Gunter teaches a fifty hour basics class approx. monthly, the next starts 6/6/95 at The Forgery, 13 Innaha Road, Tijeras, New Mexico 87059, (505) 281-8080. Cost is about \$400.

TEXARKANA COLLEGE offers bladesmithing and other courses at 2500 N Robinson Rd., Texarkana, TX 75599, 903) 838-4542. Courses are taught by Doug Hendrickson, Jim Crowell, Wayne Goddard, et. al.

TURLEY FORGE BLACKSMITHING SCHOOL Santa Fe New Mexico. Frank Turley teaches basic techniques and tools. Next course runs from 8/28/95 thru 9/15/95, cost is \$1500.00. (505) 471-8608.

COLORADO ROCKY MOUNTAIN BLACKSMITH SCHOOL By arrangement and acceptance, students can work with Francis Whitaker in the forge at CRMS. Students must submit a portfolio or record of previous work, send a drawing of a project they wish to complete and include a list of materials required to complete it. The students are limited to intermediate and advanced smiths. Call (303) 963-2562.

JOHN C. CAMPBELL FOLK SCHOOL Brasstown, NC, (800) 365-5724. This well known school offers a wide variety of craft courses. For example, Douglas Merkel will teach a basic smithing course, 6/4/95 to 6/10/95, for \$225.00.

PETERS VALLEY CRAFTS CENTER, Layton NJ, (201) 948-5200. Toolsmithing and hardware, with Frank Turley, 6/2/95. This is another large craft school offering a variety of courses.

"CLASSIFIEDS"

INFORMATION PLEASE:

I do everything the hard way. That is to say, I run a demonstration type shop which depicts the pre-1900 period. In talking to the public, I try to tell them the date when everything was invented. For instance, when did the Buffalo Forge come into being and when did they go out of business? When were all the old tools in common use? Here I'm talking swages top and bottom, cutters, punches, leg vises and so on. If you know or have any information regarding early blacksmithing, I would sure like to hear from you. Contact "Yellowhand", Dale Shadle, P.O. Box 1464, Snowflake, AZ 85937-1464

TUMBLER PIPE FOR SALE: 2' O.D. X 1/4" thick. I have one 4' piece and a 9' piece in excellent condition, \$25.00 a foot. I have built two tumblers. If you have questions please call. Contact Vance Stewart, 3311 N. Schevene Blvd., Flagstaff AZ 86004, (520) 527-3383.

GAS FORGES: Three gas forges, \$300 ea. Includes hose, regulator, everything but the tank. Contact Gordon Williams, Camp Verde Blacksmith Shop, HC 75 Box 1598, Camp Verde, AZ 86322, (520) 567-3681.

The following ads are from *Fire and Iron*, the newsletter of the Northeastern Blacksmith Assn.

PERIOD WEAR: Historically correct patterns or made-to-order costumes for every period or activity. Call Peter McComb at (519) 675-0464.

FLY PRESSES: New fly presses, T. Norton of England still makes them in several models and sizes. For information contact Kenneth A. Kohut, 30 Olive St.; Danbury, CT 06810. Phone; (203) 744-3758.

FRY PAN BLANKS: Heavy duty fry

pan blanks (steel). Add your own handle for a custom fry pan. Approximately 9" dia. with 2" sides, 12ga. (.095") thickness. Has two 3/16" holes for handle. \$6.00 each or 12 for \$60.00. Shipping \$3.00 plus \$.50 for each additional pan. Upper Mississippi Valley Mercantile; 1607 Washington St.; Davenport, Iowa 52804.

FLUX: Draconite flux, 1 pkg. will make one gallon of liquid flux. Supposed to be very good for forge welding Damascus and minimizes the corrosive effect of flux on the ceramic lining of a gas forge. On pkg. is \$3.95 plus \$3.00 shipping. Includes eight page instruction manual. Wyvrn Industries, 229 Flounce Rock Dr., Prospect, OR 97536.

BENCH PLATES: Cast iron bench plates; unbreakable nodular iron 7-1/2" X 29-1/4" copied from an old plate \$199 plus shipping. 35# UPS Robert Leonard- Tinsmith; 1909 Lex-Ontario Rd.; Lexington, OH 44904 (419)884-0285

BLACKSMITH'S JOURNAL: An excellent publication. Subscription is \$28 per year, you receive about 12 loose leaf pages a month with great drawings and how-to ideas. They also provide a variety of printed logos and give workshops. Contact them at *The Blacksmith's Journal*; P.O. Box 193; Washington, MO 63090.

BLACKSMITH'S GAZETTE: Resuming publication after a five year hiatus. This was an excellent publication and is oriented to "how to" articles. Subscriptions are \$30 per year (12 issues), \$50 for two years and \$70 for three years. *Blacksmith's Gazette*; P.O. Box 1131; Stanwood, WA 96292.

WROUGHT IRON: Single and double refined in a variety of sizes. \$2 per lb. cut in small quantities, FOB Shepherdstown, WV. Independent Trade Shop, RFD 1, Box 833, Shepherdstown, WV 25443. Phone (304) 876-6907.

WALT SCADDEN'S BUSINESS

TAPE: This tape has received excellent reviews in newsletters across the country. The information applies to all types of crafts people and is presented in a forthright no nonsense manner. Copies of Walt's tape "12 Ways to Help You Survive in Business as an Artist, Craftsmen of Creative Person" are now available from him at PO Box 8118 Buckland Station; Manchester CT 08040; about \$12.

MINI TIRE BENDER PLANS:

Plans are available for \$5 from Ed Grove; RR #1, Box 527, Brownfield, ME 04010.

SQUARE HEADED BOLTS: Plated or unplated square headed bolts are available from A&A Bolt and Screw Inc., 1110 Batavia Farm Rd., Baltimore, MD 21237-0120, (800) 838-4540.

COMPACT BENDING TOOL:

Bender and other metalworking tools are available from Shop Outfitters, 605 S. Adams St., Laramie WY 82070, (307) 745-5999

ZINC RICH COLD GALVANIZE:

Sprayon is a high tech. epoxy primer equal to hot dipped galvanizer for exterior work. Available from MSC, call (800) 934-3008 for a catalog.

BLACKSMITHING TOOLS:

Tools and books are available from Bill Gichner, Iron Age Antiques, Rt. 1 Box 169 Central Ave., Ocean View, DE 19970, (302) 539-5344.

HELP WANTED

BLACKSMITHS, power and hand forgers. Send resume to; Ironworkers Local 455; 40-05 Crescent St.; Long Island City, NY 11101.

HELP WANTED:

Temporary fulltime help. Contact Tom Yeager at (602) 853-0506

10. 10. 10. 1944 10. 10. 1944 10. 10. 1944

MAKE CHECK PAYABLE TO: AABA

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PROFESSIONAL BLACKSMITH HOBBYIST FARRIER

INTERESTED IN THE ART _____ TEACHER _____ OTHER _____

PLEASE CHECK ONE: REGULAR MEMBERSHIP (\$15)

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SEND TO: MIKE COOPER
3533 W. BANFF LN.
PHOENIX, AZ 85023



Includes a subscription to the *Anvil's Ring*
and *The Hammer's Blow*

Primary ABANA Chapter Affiliation

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ADDRESS(street) (PO Box)

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Indicate type of membership applying for:

☐ **NEW MEMBER?**☐ **RENEWAL MEMBER?**

<input type="checkbox"/> REGULAR MEMBERSHIP	\$35.00
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<input type="checkbox"/> SENIOR CITIZEN (65+)	\$30.00
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DOVERSEAS AIRMAIL	\$70.00
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<input type="checkbox"/> OVERSEAS SURFACE MAIL	\$50.00
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☐ FULLTIME STUDENT \$30.00

<input type="checkbox"/> CONTRIBUTORY MEMBERSHIP	\$100.00
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☐ PUBLIC LIBRARY \$25.00

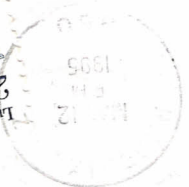
☐ CHECK OR MONEY ORDER ENCLOSED (WRITTEN ON U.S. BANKS ONLY)☐ VISA☐ MASTERCARDEXP. DATE (REQUIRED)

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Don't know milk, juice, bread, feeding accessories

Member thru 12-31-95
Read Carlock
103-C E Palm Lane
Phoenix AZ 85004



ADDRESS CORRECTION REQUESTED

THE ANVIL'S HORN
3533 W. BANFF LANE
PHOENIX, AZ 85023

SOURCES OF SUPPLY

Bob Trout makes and sells a number of smithing accessories. He has side draft hoods, fullers and will custom make most anything you want at very reasonable prices and excellent quality. You may reach him at 229 Lake Rd., Ontario, NY 14519, (716) 265-2339.

Bob Cerny makes and sells a very nice swage block with deep ladle depressions and a floor cone. Bob also does custom machining. R.D. 3 Box 141, Valley View Rd., Bainbridge, NY 13733, (607) 563-2445.

Anvils, swage blocks, fire pots and cone mandrels are available from Laurel Machine & Foundry Co., P.O. Box 1049 810 Front St., Laurel, MS 39440 (601) 426-0541.

Arizona Specialty Metals, 4020 E. Washington, Phoenix AZ 85032 (602) 276-8407, has a pile of H13 tool steel for sale cheap. In a special arrangement with Tom Yeager, they'll sell H13 rems for \$1.00 a pound. This is high temp, air hardening steel that's great for

hammer dies and anvil tools. See Jim or Allison and say Tom sent you or identify yourself as an AABA member to get the special price.

Marks Bolts, 7617 N. 76th Ave., Phoenix, (602) 939-9312, is a surplus store that has a great selection of black square headed bolts that are so hard to find these days. They also have left hand thread bolts and all thread (for making turnbuckles?), tarps and new cast iron anvils (about 150 lb.).

Centaur Forge, P.O. Box 340, Burlington, WI 53105, has a complete line of books and tools. Send for their catalog.

Jim Bomba of the Red Pepper Forge is starting a monthly production of "The Blacksmith of the Month". It will include a professional 8X10 color photo of a noted blacksmith plus an info sheet consisting of 18 questions that the blacksmith has answered. Individual photo and info sheet

\$12.00
Binder for 2 yr. of sets. \$12.00
1 yr. subscription rate.

\$120.00 (Savings of \$24)
Send check or money order to:
The Red Pepper Forge
PO Drawer C
North East, MD 21901
(410) 287-7851

The Anvil's Horn is the official newsletter of the Arizona Artist Blacksmith Association. Published every other month preceding the bimonthly meetings of the Association, the newsletter is oriented toward anyone interested in blacksmithing and related forms of metal work. Membership is available at the rate of \$15 for individuals and \$20 for families and includes a subscription to *The Anvil's Horn* for one year. Every attempt has been made to ensure the accuracy of information appearing here, but no liability is assumed by the Association or its officers for errors, damages, or injuries resulting from any design use, construction or application of said information. Uncopyrighted material may be used freely by other similar organizations provided proper credit is given. Any copyrighted articles appearing herein should not be reproduced without permission of the author. Matters relating to membership, newsletter submissions, corrections, etc. should be addressed to the editor:
Mike Cooper
3533 W. Banff Ln.
Phoenix AZ 85023 (602) 938-1495