

Newsletter <sup>of the</sup>  
Blacksmiths  
Association  
of Missouri

April / May 1992

**inside...**

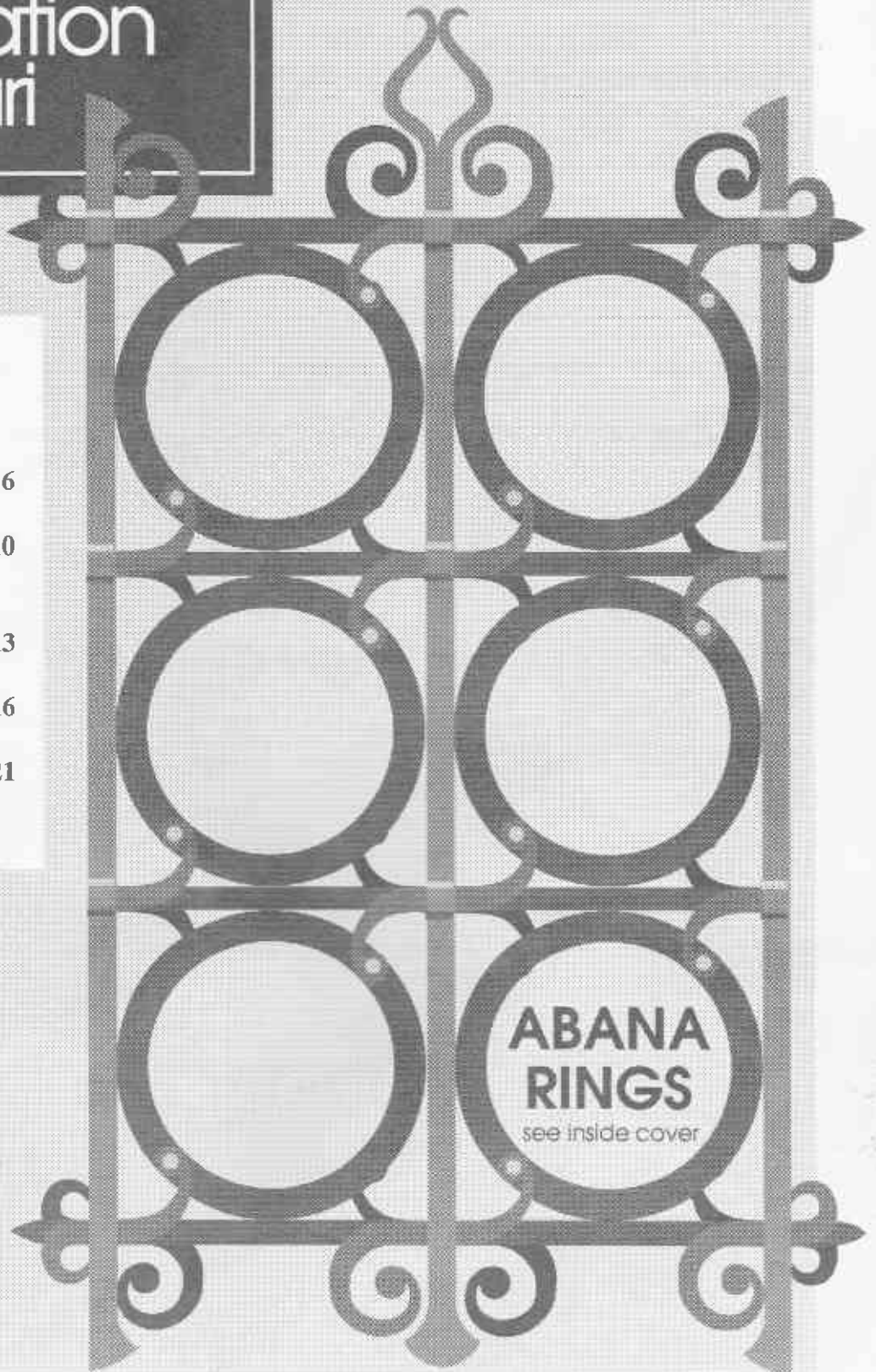
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## ABANA Rings

Excitement over the hosting of the ABANA conference at Washington University in 1994 is running high. Conference chairman Lou Mueller is working hard to lay a foundation for the work to be done in the next two years. The observation team, led by Lou at the conference in San Louis Obispo this year, has already come up with many ideas that should help the '94 conference be one of the best ever.

One of the ideas is an extension of the very successful "rings" project initiated by Doug Hendrickson for the 1990 conference in New York. Doug asked notable blacksmiths from around the country to use the space within a ¼"x 1"x 10" ring to create whatever design they saw fit. The rings were assembled into a collage of designs and sold at the ABANA auction that year for over \$5000.

The new plan, suggested by Tom Clark, would include an assemblage of rings made by each of the ABANA chapters for the 1994 conference. The symbolism of ABANA being united by the rings has been suggested by Tom as the conference theme. The plan is to have each of the forty ABANA chapters work to produce one ring of the highest quality possible. These rings would then become the focus of a project that would run the duration of the conference. Ideas on what to do with the finished piece include placing it in the auction, installing it at the conference site, or finding a patron and making it a commissioned piece.

Our cover represents an effort to display the rings in a suitable manner. This particular design shows some possible joinery and suggests graphics such as a logo or poster. This pattern could be enlarged and further embellished to become a double gate with twenty rings per panel. Whatever we decide, this should be a powerful theme that will add continuity and credibility to the entire conference.

-Jerry Hoffmann

# Newsletter of the Blacksmiths Association of Missouri

VOL. 9 NO. 3

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The Newsletter of the Blacksmiths Association of Missouri is published six times a year and is mailed to members of BAM. The annual fee for regular membership is \$20./yr.; a portion of this amount is for a subscription to this newsletter for one year. Editorial inquiries should be addressed to: Walt Hull, 2043 Massachusetts, Lawrence, KS 66046 (913-842-2954). BAM membership inquiries should be addressed to: Steve Austin, 44 N.E. Munger Rd., Claycomo, MO 64119, (816-781-1512). Occasionally some material included in this publication will be copyrighted and may not be reproduced without written consent by the author. BAM welcomes the use of any other material printed in this newsletter provided the author and this organization be given credit.

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Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_

New Member: \_\_\_\_\_ Renewal: \_\_\_\_\_

Memberships are for one year from receipt of dues. Dues are \$20, which includes a subscription to the bimonthly BAM newsletter. Please make checks payable to Blacksmith Association of Missouri.

## ABANA Membership Application

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_ Zip: \_\_\_\_\_

New Member       Renewing Member

How did you learn about ABANA? \_\_\_\_\_

- Regular Member .....\$35.00 yr.
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- Overseas Membership .....\$45.00 yr.
- Contributory .....\$100.00 yr.
- Library .....\$25.00 yr.

*See reverse*

# BAM

Send this form in an envelope with your payment to:

BAM c/o Steve Austin 44 N.E. Munger Road Claycomo, MO 64119

## OFFICERS

**President**  
Tom Clark

**Vice President**  
Colin Campbell

**Secretary-Treasurer**  
Steve Austin

The Blacksmiths' Association of Missouri is a chapter of the Artist Blacksmiths' Association of North America, and is devoted to the preservation and advancement of blacksmithing and to communication among blacksmiths in Missouri and surrounding areas. BAM's newsletter's goal is to support these aims. Letters to the editor, tech tips, tools for sale, or anything else which furthers these ends will be considered for publication.

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I \_\_\_\_\_ hereby apply for membership in the Artist-Blacksmiths' Association of North America and enclose \$ \_\_\_\_\_ as my annual membership dues for one year.

MasterCard  VISA  Check/Money Order

Card Number 

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Exp. Date (Required) 

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Checks must be in U.S. currency  
SEND RENEWAL TO:

**ABANA**  
P.O. Box 1181

(812) 988-6919  
Nashville, IN 47448

### Dues Distribution:

1 Year Subscription Anvil's Ring: 68.5% \$24.00

Adm. Offices & Other ABANA projects (Conferences, etc.): 31.5% \$11.00

# BAM NEWS

## May Meeting

About 45 Bammers gathered at Steve Austin's shop in Claycomo on May 30. Here are Doug Hendrickson's minutes from Stan's notes.

BAM minutes, May 30 11:00 am

Short discussion of dues policy - no dues, no newsletter.

Next order - Report on 2nd Annual Ozark Conference

Doug Hendrickson (Chairperson) has made some changes and suggestions in conference agenda:

2 Demonstrators (2 forging areas)

1 area BAM member doing basics eliminate Sayers trip

Tim Ryan auctioneer

possible inside demonstration area on grounds

1 free pass to a member of all chapters across the U.S.

Clay Spencer has donated a scholarship to the Campbell School for a BAM member. Selection method undecided at this meeting.

Short discussion on the next newsletter editor. The idea of Jim McCarty was discussed. Jim seemed favorable - nothing definite decided.

New Business:

Walt Hull told of possible exhibit for BAM members at the Ag. Hall of Fame in Bonner Springs, KS. Contact person Tom Alexius.

After lunch Tom auctioned off hats from New York Conference for BAM treasury.

Letter read from Florida.

Raffle tickets sold for Sandia Gas Forge.

Settled up on food money for lunch at Ozark Conference.

Discussion turned to possible gas forge building workshop:

5 days, 6 people - should come in at under \$300 each.

Possible Fred Caylor workshop:

3 days, 6 people? \$150

Tom reported on the newsletter exchange with other chapter presidents - disappointing reception.

Announced workshop in Pontiac, IL June 6-7.

Next topic was the introduction of the Bob Patrick Founders Award. Steve Austin made the motion the we, as BAM, initiate the award. It was seconded and passed.

The 1994 ABANA Conference was discussed. Lou Mueller will be the Chairperson (officially elected). Tom Clark will be the liaison person with ABANA.

Tom explained his conversations

with ABANA (Mike Bondi) on the possibility of ABANA funds to help with the expenses incurred by the BAM study group attending the California Conference. ABANA will not, at this time, make any funds available for BAM.

Lou then gave a brief discussion on his ideas for 1994. Sign-up list for committees was passed around. Explanation of Washington University responsibilities-advertising possibilities.

Tom suggested the theme "A Coming Together." Theme to be decided at a later date.

Decisions to be made after the study of the 1992 conference. An invitation was made to Francis Whitaker for the 1994 Conference.

Special treatment for the founding members at the 1994 Event.

Tom discussed ABANA policies - Letter by David Mathews addressing ABANA concerns  
Candidates for the ABANA Board 1992

Letters and signatures nominating: Clay Spencer, Tom Clark, Tim Ryan

Coal purchase - Doug has reordered. Coal will be \$7.00 per 50# bag.

Tom auctioned off Steve's demo piece for BAM - \$65.

A thanks to Stan Winkler for taking notes for me this month.

Respectfully submitted,  
Doug Hendrickson, Secretary.

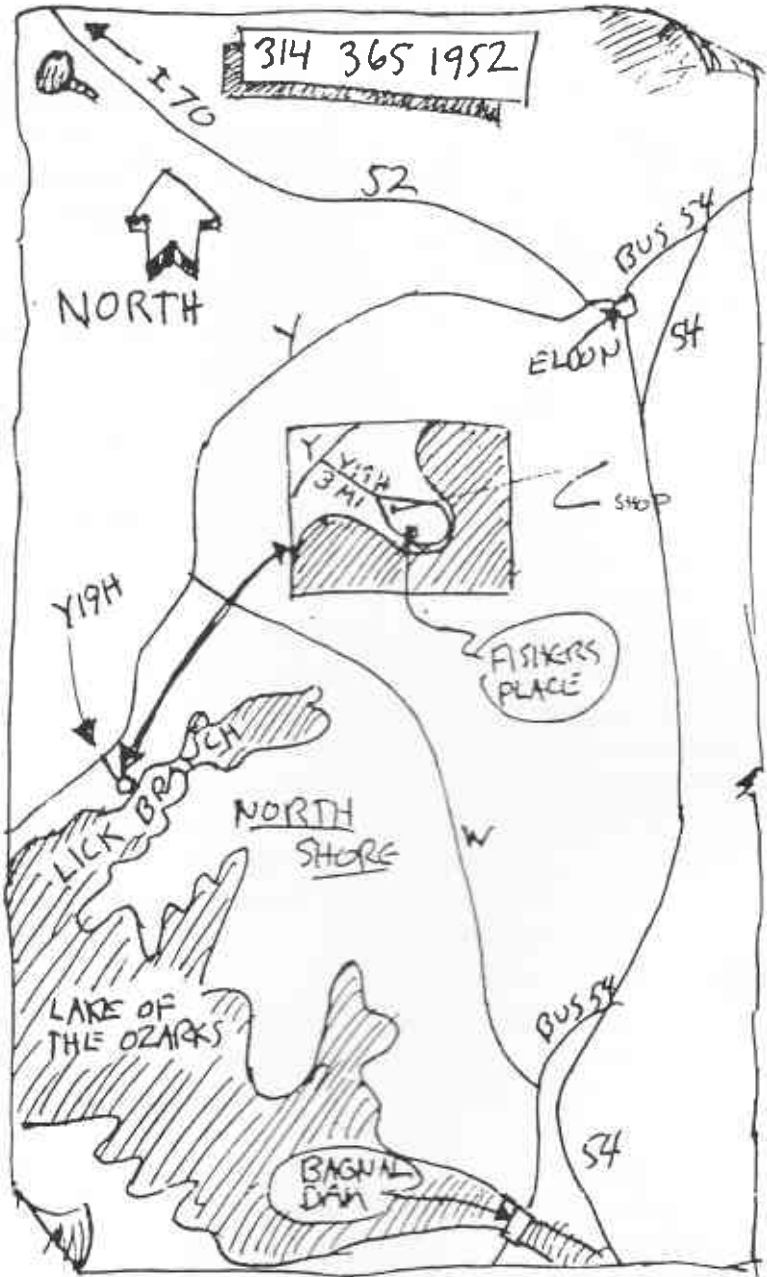
# August 1 Meeting at Vern Fischer's

If you get this issue before Aug. 1, follow this map to Vern Fischer's house. This will be our first change to get together since the '92 ABANA conference and learn what our delegation found out there. Also, fun in the sun as always.

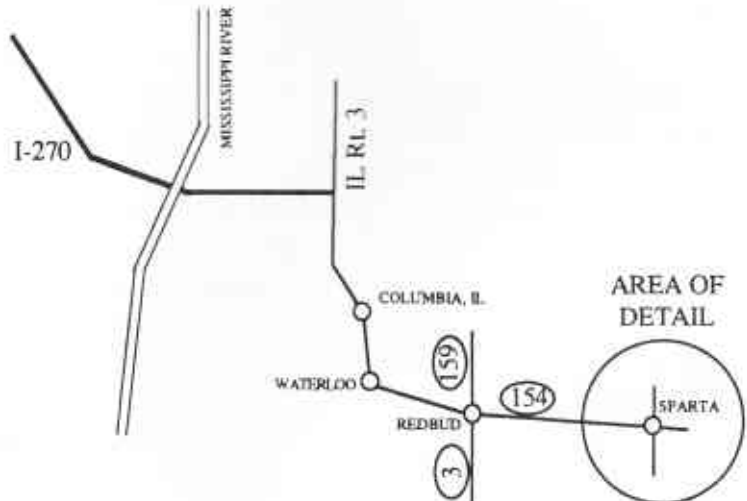
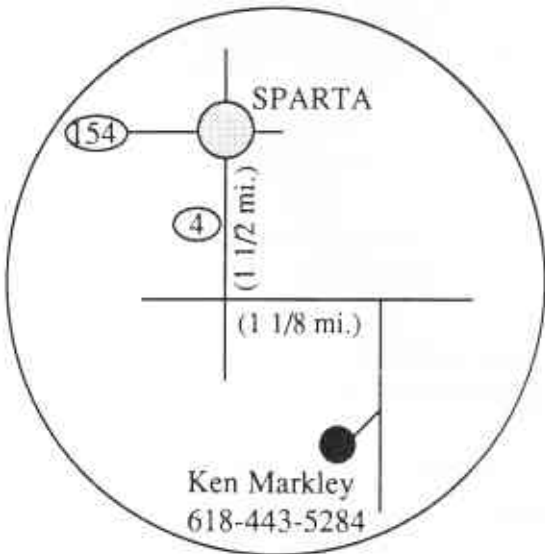
# September Meeting

Our September meeting will be in October (is this starting to sound familiar?) October 3, to be exact, at Ken Markley's shop in Sparta. Trade item is a top tool. Everyone who went to Ken's last year had a great time, so drive that extra mile and you can have one, too.

VERNON AND EUNICE SAY BRING SLEEPING BAGS, SWIM WEAR,



AND MUSICAL INSTRUMENTS. THEY HAVE FLOORS, DECKS, LAWNS, ETC.



## Dear Editor,

Dear Editor

Howdy and wishes that all is well with you. If you have room in any of the forthcoming newsletter, I'd like to put a wanted ad in it for the following items: 1) general purpose swage block, 100# or more 2) floor cone mandrel 3) top swages, just about any type.

Probably won't be at the next meeting, but hope it's a good one. If you can remember it to Lou Mueller or Tom Clark, my family has garage space not far from Washington University should it be needed for storage for the '94 ABANA Conference.

I'd better give my phone number - (314) 644-2599.

Thanks,  
Gary Tash

Dear Editor

Just a few words about the Ozark Conference held on April 25-26, 1992. Except for the weather, at least in my view, everything was a great success. All the demonstrators were superb. The conference was well attended and everyone seemed to enjoy the activities. I was able to learn a great deal from the demonstrations that I watched. Anyone who could not attend the conference surely did miss a good one. I am sure next year will be even better.

Sincerely,  
Maurice Ellis

P.S. I am now keeping the membership list. Anyone who would like to make changes or additions please send them to me.

Dear Editor

I just wanted to drop a note to let you know how impressed I was with your February/March newsletter — an excellent job!

I regret that I did not learn about your Ozark Blacksmiths Conference until after our deadline had passed. Please put me on your mailing list so that I can publicize future BAM events.

In the meantime, I am giving you a complimentary subscription to *Fabricator* (if you don't already have one). My hope is that we can establish a communication link with one another.

Incidentally, what is the latest about BAM hosting the 1994 ABANA conference? I would definitely like to help promote the conference and even attend.

Sincerely,  
Todd Daniel  
Editor

Dear Editor

We thought you might like to have these pictures taken at the Ozark Conference in Potosi.

Kevin McCrackin took the pictures. People who see the pictures of the anvil shoot are amazed.

We really enjoyed the conference, except for the weather!

As ever,  
V.J. McCrackin

Dear Editor

I really appreciate the invitation to your conference but 1 weeks notice is really not enough for me to drop and run. Sorry.

I must admit I am very impressed with your newsletter. I wish I lived a little closer to you. I really enjoyed it.

Thank you,  
Leroy Schindler  
New Lebanon, OH

P.S. Let me know sooner next time, will try to put it into my schedule.

## Last Issue

This is my last issue as editor of your newsletter. I think that the newsletter has grown with every infusion of new blood, largely because those who went before have not vanished completely but hung around to lend a hand. I hope to continue the tradition by offering my support to the next editor as Doug and Jerry have to me.

It's not official yet, but it looks like it'll be Jim McCarty. Help him out folks. Send him those tips, ads, pictures, letters. If you do, you can see your newsletter get even better.

I'm going to miss working with Jacquie, Jerry, Tom, Maurice and Bess, but we'll be in touch.

Guys, it's been grins.  
Later,

# The First Annual Ozark Regional Blacksmiths' Conference

If anyone tells you that Potosi Missouri is the new center of blacksmithing in the United States, he might be exaggerating.

He might be Tom Clark.

He might be right; who knows?

The first annual Ozark Regional Blacksmiths' Conference had

about everything going against it you could think of. The weather was cold and rainy, with a forecast of snow. The organizers had got the word out late. A featured demonstrator showed up with crushed fingers. The air hammer couldn't be set up where it belonged. And, dammit, we just hadn't ever done this before. But we also had some things in our favor. One was great demonstrators. The hard part here was knowing which one to watch. Clay Spencer's treadle hammer tooling and techniques are what you need to see is what you are interested in is forging, just pushing the metal where you want it to go. Even working at "about 40%," due to having crushed his fingers in a treadle hammer not long before, Clay is something to watch. I am not going to even try to recap any of the demo's — there was too much to assimilate and I gave up trying to take notes. My central impression of

Clay was, "this is a straight ahead kind of guy. He gets from where he has to start to where he wants to go with a minimum of fuss." I particularly remember him stealing a

little heat from the famous Sandia forge flue during Robb's demo to brass brush the dogwood bloom he'd forged earlier.

Robb Gunter is Mr. Precision. If I were going to forge a rose, I'd probably go look at a rose. Robb disassembled "about 200 roses" in his shop. This is why you'd rather have his rose than my rose. I might try to make just a rose — Robb would try to make a particular rose. The man approaches everything this way.

Robb's son Chad accompanied him, and together they gave us as good a show as smith and striker as I've ever seen. Chad told me they work together every day, and I guess they'd have to, to be that quick and that smooth. I watched them draw the stem on a leaf, and you could see the metal get hotter as they worked it.

Our own demonstrators did pretty well, too. I missed some of these, but caught Stan Winkler's tomahawk, a little of Bob Patrick's damascus gun barrel, and Doug Hendrickson's stress fracture.

If all that wasn't enough (and it would have been) Tom Clark made good on his promise of a bonfire to remember, Floyd Daniel made an anvil go *waaay* up in the air and a lot of people say "Holy Sh..." all at the same time, Tim Ryan pulled money out of people's pockets and made them like it. Did I mention the log hewing? The craft booths? The cube forging contest?



Chad Gunter striking for Robb



Clay, iron, steel



## Cube Forging Contest

It was Robb Gunter's idea to have a cube forging contest. The challenge was for two man teams, using only hammer, anvil, and flatter to forge a piece of 1 1/4" round stock, 3" in length, to a cube 1 1/2" on a side (actually, it computes to almost 1 9/16 but you'll lose some to scale). Teams were given 30 minutes to finish and entries were judged on accuracy of angle and dimension and angle and quality of finish. Two forging stations were set up so two teams could work at once.

First up were Robb and Chad at one station and Dr. Iron, and Nurse Winkler at the other. The doctor and his assistant wore scrubs (I thing Stan wore the bottoms and Doug the tops) and masks and brought white tools in a sterile (maybe) stainless steel tray, obviously meaning to give us a demonstration of surgical precision. Both teams acquitted themselves well, producing quite cubical cubes, and Robb and Chad decorated theirs with letters of the alphabet. The crowd seemed to favor the home team a little, but it was close.

The second heat set Tom Clark and Hank Knickmeyer against Jerry Hoffman and Don Asbee. Tom and Hank put on the best show. Tom set two short stumps in front of the anvil and stood on them to strike, showing a form developed over years of making big pieces of oak into little ones. Hank brought the piece out very hot, and it was awe-inspiring to see how quickly Tom upset it. For a moment it looked as though he were going to forge a 4 5/8 diameter by

1/4" thick disk in the first heat, but Hank turned the piece in time and a cube emerged after all. Tom and Hank stamped their cube with the date, name, and location of the event.

Meanwhile, Jerry and Don were too busy with their own cube to be daunted by this display. Don hit hard and well and Jerry controlled the work with his usual accuracy. They decorated their cube as half-a-pair of dice, putting all the spots in the right places.

Finally a pick-up team of John Murray and Walt Hull decided to give it a go and after considerable effort were able to come up with an object with approximately the right number of corners.

In the judging the home teams did well. Hoffman/Asbee took first, then Hendrickson/Winkler, the Gunters, and Knickmeyer/Clark with Murray/Hull capturing the booby prize, a broken anvil which they generously let Tom store for them until next year's conference. The word is out that Murray has already lined up a new striker, so let the competition beware.

## Ozark Regional Auction

I'm not going to tell you that the auction was **the** high point of the conference, but that's just be-

cause the conference was all high points, so that it was just not possible to pick out any single thing. Nevertheless, the auction alone would have been worth the trip, and it made the difference for BAM between losing and making money. Our thanks go to Tim Ryan, one of the finest auctioneers you'll see, and certainly the most fun, and especially to those of you who found or took the time to make or donate something for the cause.



*Floyd Daniel before the anvil shoot.*



*That's an 80# Trenton on top.*

# ABANA NEWS

## President's Message

June 1992

Dear Friends,

Conference time! Can't wait to see you again. This is going to be a great event and you aren't going to want to miss it! The conference committee has worked long and hard to cover every base to make this truly an international event. There has been special attention given for the family programs and San Luis Obispo will prove to be a memorable experience for anyone in attendance.

Due to serious illness in my extended family, I have decided not to re-run for the ABANA Board in the coming election following the Conference. The By-Laws clearly indicate the President is to be elected after the general election - ours is in the Fall. Since it is the end of my term as both president and board member, this would leave the 1st Vice President, Clayton Carr, at an extreme disadvantage suddenly chairing the ABANA budget meeting at that time. It makes sense to make the transfer of duties well enough in advance for Clayton to have a firm hold of things going into the big budget meeting.

Therefore, I have decided to step aside, as President, in June at the board meeting we will be having before the Conference. This will give all of you conference-goers an opportunity to know Clayton as he heads up the formalities, filling the officer position as ABANA President. Additionally, it will give Clayton the lead time he needs to prepare for the Fall meeting while allowing for a smooth transfer of duties.

I will remain on the ABANA Board until the Fall meeting to finish out my term and lend assistance on committees. I will always be a blacksmith, continue teaching, demonstrating, and attending conferences in the future. And of course, I will always be an ABANA member!

It has indeed been my pleasure serving you for over a decade and I am excited to know I am turning over the reins to a very capable person who has spent lots of time and effort in the membership and chapter service areas of ABANA. It tickles me that after all these years, through thick and thin, we've stood together to bring ABANA to the forefront of the blacksmithing industry. The organization is stable and viable. What better timing for me to step aside, on a good note, with a big week-long conference party to boot! See you there!

As always - warmest regards,

Dorothy Stiegler  
President of ABANA

Hey, Chapters, here is a quick reference on who is already in the ABANA Demonstrators List. Do you see anybody missing? Rattle a few cages, let's add a few names to the list!

Jack Andrews  
Phil Baldwin  
Dr. James Batson  
Ward Brinegar  
Jack Brubaker  
George Dixon  
Joe Elliott  
Bill Fiorini  
Wayne Goddard  
Edwin Grove  
Robb Gunter  
Peter Happny  
Frank House  
Hershel C. House  
Bryan Hughes  
Steve Kayne  
Dan Maragni  
Randy McDaniel  
David Norrie  
Hans G. Peot  
Clifton Ralph  
Jim Rich  
Ray Rossi  
Michael J. Saari  
Carol Sakowski  
William F. Senseney  
Brad Silberberg  
Cleston S. Sinyard  
Clay Spencer  
Dorothy Stiegler  
Russ Swider  
David Thompson  
Frank Turley  
Nick Vincent  
James Wallace

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# ABANA Chapter Liaison Committee

May 1992

Dear ABANA Chapters,

I want to take this opportunity to thank you for your continued support of ABANA as well as to bring everyone up to date on what the Chapter Liaison Committee is doing.

We will be making our "Spring Calls to the Chapters" in May to discuss with the chapter presidents any suggestions or concerns they may have regarding their chapter or ABANA. We will, of course, accept compliments and decent jokes! Be sure and communicate to your executive board any topics you would like covered in these calls.

The Liaison Committee is compiling a list of companies that offer liability insurance that the chapters can contact. The final draft of "Guidelines for a Successful Conference" is being compiled and should be completed soon. Other projects we are working on are: Chapter/ABANA Guidelines, By-law Guidelines and Updates, How to Apply for 501 Status. Bulk Mailing information, Chapter sales item suggestions, Liability Waiver samples, Demonstration Guidelines, and the Demonstrator/Schools List updates.

In addition to these services, ABANA offers free video rentals for chapter meetings, ABANA sales items for fund raising, and the Supplier Directory for your resource information.

I hope to see all of you at the ABANA biennial conference held in San Luis Obispo, California: June 17-21.

Forged in Friendship,

Ronald C. Porter, Chapter Liaison Committee Chairman

June 1992

Dear Chapters

Due to family problems, Dorothy Stiegler must step down as ABANA President. We wish her all the best during these difficult times in her personal life. Dorothy has been a pillar on the ABANA Board of Directors. She was instrumental in keeping ABANA afloat during our worst crisis a few years back. Dorothy has our complete support in whatever she decides is necessary. Dorothy will remain on the Board of Directors until her term is up in November to ensure ABANA's continued smooth operation. As first Vice President, I will be assuming the position of President until the next election in November. This shift in responsibilities will occur at the June Board meeting in San Luis Obispo at the ABANA Conference.

Regrettably, I must curtail my work on the Chapter Liaison Committee due to this shift in responsibilities. As most of you know, I have been on the Chapter Liaison Committee practically since I joined the Board of Directors years back. I have been an advocate for the Chapters from the word "go", and have many friends across the continent as a result of my association with all of you. I want to take this opportunity to thank you for including me on your mailing lists. It has given me the chance to share a little bit about everybody with everybody and has improved communication between ABANA and its Chapters immeasurably. I have spoken with many of you personally, and share your concerns about what is truly the greatest blacksmithing association on the planet.

The monthly Chapter Liaison Letter will continue, but beginning in August the Letter will be produced by Chapter Liaison Committee Chairman Ron Porter. Ron has done an outstanding job in his capacity as Chapter Liaison Committee Chairman. There will be no interruption of service to the Chapters as a result of changes in responsibilities on the Board. Please, route copies of your newsletters to Ron. We remain committed to continuous improvement of this vitally important part of ABANA. Ron's address is; Ron Porter, R.R. 1, Box 64, Bunker Hill, Indiana 46914.

I have enjoyed my association with you all while I've been on the Chapter Liaison Committee and look forward to continued service on your behalf while acting as ABANA President. Feel free to write or call me with any concerns you may have. I promise you will be heard.

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

# Old Files & New Knives

by James Kelly

Reprinted from the May, June '92 issue of California Blacksmith.

The following article from *Muzzleblast Magazine*, a publication of the National Muzzleloading Rifle Association, was submitted by Dick Rightmyer. It gives some history of hardening steel, file-making history, and tips for those who would like to use old files as a source of steel for knife blades. I have always heard this steel was not a good source for knife blades because it could not be tempered properly, but this article proves otherwise.

Used files are the handiest source of high-carbon steel available to the home craftsman. Treat them right and they'll make wood chisels finer than any on the market, as well as excellent knives. But, if you forge them like mild steel and heat-treat carelessly, the result can be brittle tools with crumbly edges. Doing it right means forging and hardening from controlled, moderate to low temperature.

First, some light background in steel metallurgy. Most of you know that steel is hardened by heating to red heat, then quenching in oil or water. Do this to low-carbon steel and nothing much happens; it will remain rather soft, because steel must have a certain amount of carbon in it before it will harden. Roughly speaking, the higher the carbon, the higher the heat-treated hardness and wear-resistance, but the lower the toughness.

Some examples: Commonly available cold-drawn steel is generally AISI 1018. The "10" means plain carbon steel, the "18" means a nominal 0.18% by weight carbon. Heat this steel red-hot, quench in cold water and it will harden a little, but not enough to be useful. Normally, the only heat-treatment done to 1018 would be to case-carburize it. Common machine shafting, axles, and some modern shotgun barrels are AISI 1035 (nominally 0.35% carbon). This steel responds to heat-treatment. If small pieces are water-quenched, and then

tempered peacock blue, they will attain a spring hardness (but no, this does not mean that 1035 is a useful spring steel). AISI 1060 (0.55 to 0.65% carbon) is used for sledgehammers and cold chisels, which must be hard, yet take a beating. As the carbon content of steel increases, the as-quenched hardness also increases, up to a level of about 0.6% carbon. Above this, higher carbon increases hardness; that is, resistance does continue to improve with still higher carbon, above 0.6%. The excess carbon can form many fine, hard iron carbide particles which help retain sharp edges and resist abrasion. Common wood saws and older power lawnmower blades are AISI 1070 to 1080 (0.7% to 0.8% carbon). Axes are 1086 and star drills are 1095.

A 1095, with carbon ranging from 0.90 to 1.03%, is the highest carbon steel you can find in steel warehouses. Since the beginning of this decade, Nicholson/Black Diamond files have been 1095. The 1095 steel makes good general purpose knives, daggers, fire steels and woodworking tools.

Back to files. Obviously, file teeth must be extremely hard and wear-resistant to stay sharp while cutting metal. For centuries, files have been made either of soft iron, which is then case-hardened, or of high-carbon steel. Even high-carbon steel files may be coated with some mixture to lightly case-harden them. Thus the razor-fine cutting edge doesn't burn off when heated cherry red to harden it.

In *The Thirteenth Book of Natural Magick* 1589, G. B. Della Porta describes "Ways whereby Iron may be made extreme hard." To harden files, he says:

"Take Ox hoofs, and put them into an Oven to dry, that they may be powdered fine; mingle well one part of this with as much common Salt, beaten Glass, and Chimney-soot, and beat them together, and lay them up for your use in a wooden Vessel hanging in the smoke; for the salt will melt with any moisture of the place or Air. The powder being prepared, make your Iron like to a file; then cut it chequerwise, and crossways, with a sharp edge

tool: having made the Iron tender and soft, as I said, then make an Iron chest fit to lay up your files in, and put them into it, strewing on the powder of course, that they may be covered all over: then put on the cover, and lute well the chinks with clay and straw, that the smoke of the powder may not breathe out; and then lay a heap of burning coals all over it, that it may be red-hot about an hour: when you think the powder to be burnt and consumed, take the chest out from the coals with Iron pinchers, and plunge the files into very cold water, and so they will become extremely hard. This is the usual temper for files; for we fear not if the files should be wrested by cold waters."

This 400-year-old process is metallurgically correct. The chimney soot, of course, is a nearly pure source of carbon to carburize or case-harden the surface. "Ox hooves," along with carbon, provide nitrogen which further improves sliding wear-resistance. Salt and glass melt the whole mess together to provide intimate contact with the iron. They also probably catalyze, or speed up, the high temperature chemical reactions which get the carbon into the iron. And, even today the "usual temper for files" is just as they come from the quench, with no further reheat (or draw).

Until recent years, when the EPA became overly concerned, modern practice was to coat high carbon steel files with a roughly similar mixture before hardening from a protective lead bath. The modern version of Ox hooves is potassium ferrocyanide,  $K_4Fe(CN)_6$ . This is mixed with flour and bone black, and all are boiled together in salt water. Both files and rasps were coated with this "cyanide loaf." Rasps still are, as it is necessary to case-harden the 1035 steel from which they are made.

While the currently used 1095 processes into a very good file, I suggest you get hold of pre-1980 files to make the best edge holding tools. These older files will be of 1.2 to 1.4% carbon steel, which is higher carbon than can be found

anywhere else. Other than your memory, there are a couple of ways to tell which are the older files. One is that files marked only "Black Diamond" were made in 1975 or earlier, and are definitely 10130 (1.3% carbon) steel. After that year, the manufacturer stamped Black Diamond on one side and Nicholson on the other. The other distinction is the tang. It used to be that to save metal, the tangs were hot-rolled from the file blank with little waste. By 1978, it was more economical to use a longer blank and shear off metal to form the tang. A sheared tang will appear obviously different than a hot-rolled tang.

The ultra-high carbon of these older files makes the steel capable of taking and holding a razor edge and suits it for the finest of wood-cutting tools. This high carbon also makes the steel more tricky to forge and heat-treat than, say, an AISI 1070 spring steel. If you overheat and coarsen the grain of your file steel, it will not be capable of taking the finest edge.

That old Nicholson file in your scrap box was heated for about five minutes in a molten lead bath at 1440°F, quenched in brine to get maximum hardness, and then not tempered at all.

**L**et's do the simplest job first, and make a straight wood chisel or wood-turning tool out of that old file. Most commercially available wood chisels are not really meant to either take or hold a fine edge. The best on the market these days are, sad to say, Japanese such as Oiichi or Iyoroi. Well, you can match these chisels. Just grind your file to the shape you want, usually with a 25° to 30° bevel. Use plenty of water so not to soften it or, worse yet, crack it. The best bet is to first scrub off all old oil and grease. This is necessary for domestic tranquility as you are about to temper the thing 350°F in wife's oven, for a good hour! This will relieve a lot of internal stress (like taking one small glass of wine) and prevent the fine edge from chipping. The safest thing to do is temper before you grind it to shape, so it is less likely to crack in grinding. I suggest 300-350°F, which is a very light straw. After tempering for an hour, the straw may deepen somewhat. Do not trust temperature settings on kitchen ovens, try a scrap piece first and go by the temper color, or by a Tempilstik.

You now have a wood chisel which will hold as good or better edge than anything on the market today.

This choice of steel and temper will not make a good bowie knife, although it would be great for a skinning knife. That 350°F temper still leaves the metal rather too brittle to handle the rough use of your average camp knife. A skinning knife must hold a good edge through a lot of cutting. Hopefully, you won't use your skinning knives to chop wood, bone, and tin cans as well.

For bowies, daggers and fire steels, I'd first suggest using a post-1980 file of 1095 steel. This will still hold a good edge but be a little tougher than the older 10130 steel. Temper a bit before grinding to shape. For most knives, I suggest tempering 500°F -- a mottled brown to purple temper color. I'd use the household oven for about an hour. And don't trust the temperature setting on that dial.

We have about come to the point where we have to get serious about temperature measurement. Pyrometers, thermocouples and electronically controlled electric heat-treat furnaces just aren't in your budget, are they? Do forget about judging temperature, at red heat, by eye. Even professional heat-treaters can be off by 200°F when checked against cold, unfriendly pyrometers. Well, there is hope for the low budget shop. That is, an inexpensive and very accurate method of temperature measurement called a Tempilstik. This thing is a calibrated crayon. Let's say you spring S6 or so for a 500°F temperature-indicating crayon. First, mark your workpiece with this crayon. Heat the metal. The crayon mark will change color; that means nothing. But, as soon as the metal reaches 500°F, that dry opaque mark will change to a distinct melted mark. Really, you should also mark it with a 525°F Tempilstik so you know if it got too hot.

These things are easy to use and they are accurate. The 500°F Tempilstik is accurate to +/-5°F. Above 700°F or so, the procedure is to stroke the hot metal with the Tempilstik now and again during heating. When the metal reaches temperature, the crayon will leave a liquid smear. The cost of Tempilstiks is currently \$5.90 in quantities from 1 to 9. They are carried by welding supply distributors, or may be had direct from: Tem-

pil Division, Big Three Industries, Inc., 2901 Hamilton Boulevard, South Plainfield, NJ 07080, (201) 757-8300. Minimum order is three Tempilstiks; do include postage.

Back to files. It is more fun to forge a blade to shape than to grind it, so let's get into the nitty gritty.

**F**orging high-carbon steel is a different matter from working mild steel. Yes, you blacksmith types know it is easier to burn high-carbon steel. But even if you don't burn it, forging a 1.3% C. file from white heat and SLOW-cooling it can coarsen the grain and make it rather brittle at any temper. One problem is all that carbon. When steel contains more than 0.8% carbon, it is easy to get a brittle carbide network. Huh? Well, the excess carbon can form a brittle iron carbide layer around each grain. Should I back up further? All metals, including steel, consist of millions of tiny crystals all stuck together. Imagine a pile of grapes that have been pressed together without breaking the skin. Each grape is roughly the same shape as a metal crystal, or "grain." If you overheat and slow-cool a file, the "skins" of each little "grape" will be hard and glass-brittle. That translates into a cutting edge that easily becomes ragged or crumbles.

I suggest forging that file, especially if it is the old 10130 steel, as though it were a true Damascus (Wootz) steel. That is, heat to a much lower temperature than usual. This means more muscle, but it will also keep the metal fine-grained, which is most important. Damascus, which could be as high as 2% carbon, is forged, starting at 1550-1600°F and finished at a blood-rod, about 1200°F.

You cannot really judge a 1600°F starting temperature by eye. If you are serious about fine work and don't like throwing hours of your time into the scrap bin, invest in a couple of Tempilstiks, rated say, 1550°F and 1600°F. Once the blade has been forged, you should always anneal it to reduce chances of warping and cracking during the hardening operation. The safest way to do this is to heat 1300-1400°F for a while, then bury the thing in ashes or lime to cool slowly.

Most steels are annealed from a higher temperature. I am suggesting this lower anneal to keep the fine grain struc-

ture and fine carbide distribution you got by forging that old 1.3% carbon file down in the cherry to blood-red range.

**N**ow that you have forged and sort of annealed the blade, grind it all over to near final shape. You **MUST** grind off the scaled, decarburized surface or it will crack in heat-treatment. Shall I back up again? When you heat in the forge, some of the iron oxidizes to a blue-gray scale. That is obvious. But, some of the carbon also literally burns out of the steel's surface. This is just the opposite of case-hardening. If you leave that thin, soft low-carbon skin on the blade, paradoxically enough it **WILL** crack when quenched in water or brine.

To harden that file steel, heat to 1440°-1450° for about 4-5 minutes and brine quench. Again, invest in a 1425° and a 1450° Tempilstik. **DO NOT** over-heat it.

The quench is important. If you want to be really traditional, you could use the urine of a three-year-old goat, fed only ferns for three days. However, today there is a better way, particularly for apartment dwellers and other urban folk. That is, salt brine. Mix just 13 ounces of common salt in a gallon of fresh water. That makes a 9% salt brine. This brine will quench twice as good as water. It reduces the chances of cracking and warping and makes a harder part. Brine is, of course, less fragrant than the aforementioned animal product. Keep your brine cold or room temperature.

Don't quench file steel in oil. It won't harden well at all.

How you dunk the knife in the brine quench is important. If you belly-flop it in, it is guaranteed to warp, and it may crack. Plunge the hot knife straight into the brine and it will come out reasonably straight. It will be more straight if you quench in brine than if you quench in water. This is because brine quenches the steel more uniformly all over. Move the knife in a "figure 8" motion while it sizzles in the brine. This gives a more uniform quench. Remove it while still warm and temper as soon as possible.

Tempering quickly is important, lest the metal decide to crack while resting quietly on your workbench. The word "temper" these days means to reheat a quenched part to make it softer and

tougher. For knives of file steel, I would temper at least 450°F, preferably 500°F.

If you forged a fire steel out of an AISI 1095 steel file, I would temper 500° to 600°F. You might temper first at 500°, then try striking fire. If it seems too hard, re-temper at 600°F (blue, beyond purple).

If a knife blade is crooked, temper it first before you try to straighten it. Then heat it up 300-400°F again (straw to brown) and straighten while it is hot. **DO NOT** heat the steel a beautiful blue and try to straighten it at this temperature.

Steel has a peculiar brittleness while it is in the blue (550°-600°F) color-temperature range.

That covers chisels, knives, and fire steel made from files.

Rasps, incidentally, are another animal entirely. A Nicholson wood rasp is not high-carbon steel, it is usually AISI 1035 (0.35% carbon). The rasp is case-hardened lightly by covering it with cyanide loaf before heating it in a lead pot to harden it. This case is only a few thousandths deep. Old rasps are worthless as far as making edge-holding tools or fire steels. They are the greatest, though, for making a throwing knife. Throwing

knives needn't hold a fine edge, but they must be tough so not to break.

This toughness, by the way, is important in a farrier's rasp. When shoeing a horse, I understand it is occasionally necessary to get the beast's attention. This is accomplished by rapping him on the hoof. High carbon farrier's rasps tend to break during this endeavor. Hence, they are made of tough 1035, lightly cased.

You can forge the rasp steel from high temperatures without embrittling it. When you're finished, take the forging and normalize it by heating 1575°-1650°F and air-cool. This refines the grain which may have coarsened in the forge. It is very important that the steel be fine-grained. Fine-grain steel is remarkably tougher than coarse grain. All steel forgings should be annealed or normalized to improve their toughness.

To harden that rasp steel, heat 1525°-1600°F and quench in cold brine. For a tough throwing knife, temper about 700°. This discussion holds for American-made Nicholson or Black Diamond rasps. If you want to purchase Asian products, I suggest you contact an Asian metallurgist regarding how best to treat them. □

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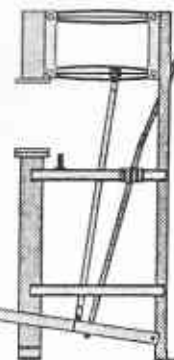
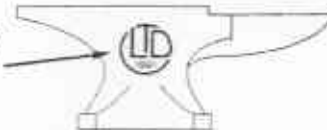
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# Making A Signature Stamp

*For those of us whose senses of vanity, responsibility, or marketing make us want to sign our work, here are a couple of takes on how-to:*

## ROBB GUNTER

### Making your touchmark

Robb Gunter gave this demonstration on Friday, May 17 at the 1991 Southeastern Regional Blacksmiths Conference, Madison, GA. I took a lot of notes and hope this article will give a complete sequence of Robb's touchmark making.

The touchmark is made from a 1/2 inch Allen wrench. The bent leg can be straightened or cut off, depending on the length you want.

A jig for the touchmark transfer is made up of a base plate, a bolster block, a 1/2 inch Allen screw, and two 3/16 inch or so Allen screws.

The purpose of the jig is to hold the Allen wrench stock firmly and consistently in place for the multiple heatings and strikings required to produce a quality stamp.

### 1/2" ALLEN SCREW

The Allen Screw used is modified to act as a guide for the Allen wrench touchmark. The screw is cut off with a hacksaw so that the part of the head that the Allen wrench goes into is separated from the balance of the screw (Fig. 1). What you want to have is the upper part of the screw with an opening on top and bottom. The Allen

wrench can pass through it.

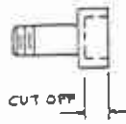


Figure 1

### BOLSTER BLOCK

Drill two holes in opposite corners of the bolster block for the 3/16" Allen screws. The bolster block can be 1/4" or 3/8" mild steel 2" by 3" (Fig. 2).

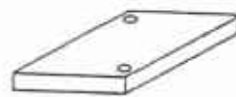


Figure 2

Drill a hole in the center of the bolster block of a size for the cut off Allen screw head to fit in. Weld the screw head in place. The bottom of the screw should not extend beyond the bottom of the bolster block (Fig. 3).

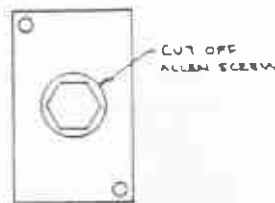


Figure 3

### BASE PLATE

Robb said he likes to use CRS. I would use 3/8" by 2" by 3". Drill and tap a hole in two opposite corners of the base plate for the 3/16" Allen screws (Fig. 2). Use a transfer punch to assure an accurate lineup with the bolster block holes.

Assemble the bolster block and base plate with the two 3/16" Allen screws (Fig. 4). Mark the base

plate to outline the area for your touch-mark. You can do this with a scribe or spray paint through the Allen screw head.

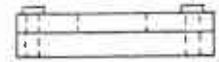


Figure 4

### TOUCHMARK DESIGN

Take the jig apart and start making the design in the marked area (Fig. 5). If you are using letter stamps, start with the middle letter. This is done cold. Carefully go over the punch several times. If the punching operation raises the steel, flatten the surface with a belt sander or a small sandpaper grinder.



Figure 5

To make designs - an anvil, for example - use an engraving tool. You can make one with W1 steel forged and filed into a diamond shape.

You can see how deep the design is by pressing lead against it in a vise. Be sure to get any scale or steel shavings out of the letters or design.

Anneal the base plate.

### TOUCHMARK

The touchmark is made from the 1/2" Allen wrench that you straightened or cut off. Remove

*continued*



some of the stock on the end. Be careful not to remove so much that the touchmark is sloppy in the bolster (Fig. 6).

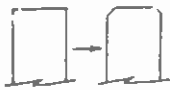


Figure 6

Heat the stamp steel with a torch. This is done because you want the shortest possible heat. Use a fully normal flame and get a yellow heat. You want a short heat so that you don't upset the stamp in the bolster. Even so, the stamp may upset some and you'll have to take the jig apart to remove the stamp (Fig. 7).

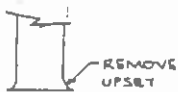


Figure 7

The care that was taken in making the jig will allow a perfect line-up when the jig is reassembled. Take several heats. Use a belt sander to remove any upset on the sides of the stamp. A belt sander can be used to finish the shape of the touchmark.

Robb says to ALWAYS anneal the stamp when finished. Everyone he made and did not anneal has failed. It should be placed in lime over night. He uses his gas forge to bring the annealed stamp to 1500°F. When the temperature drops to 1475°, he quenches the entire stamp in oil and holds it there until cool. This produces a Rockwell of 54-55. He uses a scrap hammer with the stamp since the entire stamp has been hardened.

Russ Afflerbach 1991

## TOM LATANE Stamp Chasing Workshop

In the stamp chasing workshop I described two approaches to making stamps for marking one's work.

I showed examples of stamps that press my initials into the metal to be marked and one that presses a ground down leaving my initials raised in the middle.

After hearing about problems, I've had sometimes when designing too much ground around initials, so that no metal fills the cavities of the letters, all participants chose to start off with the style which leaves a negative letter impression (though not all chose to use their initials)

I took a selection of chasing tools and everyone tried them on clay to determine the shape into which the end of the stamp had to be forged. This experiment was helpful because I've never figured a way to mark letters on the end of a stamp before doing the hot work. Participants had to have a good enough feel for placement to work by eye.

The idea is to depress the interior spaces between the letters and to saw and file away the outline. I've never beveled letter faces but have made them with serifs. On the reverse type of stamp the letters are pressed in and the pattern of the ground filed around the outside.

Andrew Townswick, Mark Nichol's helper who joined the class, cut a coil spring of 5/8" round material apart for us and each participant straightened out a section. We cut off the burned

ends with a home made hot cutter Monty Bygd brought along.

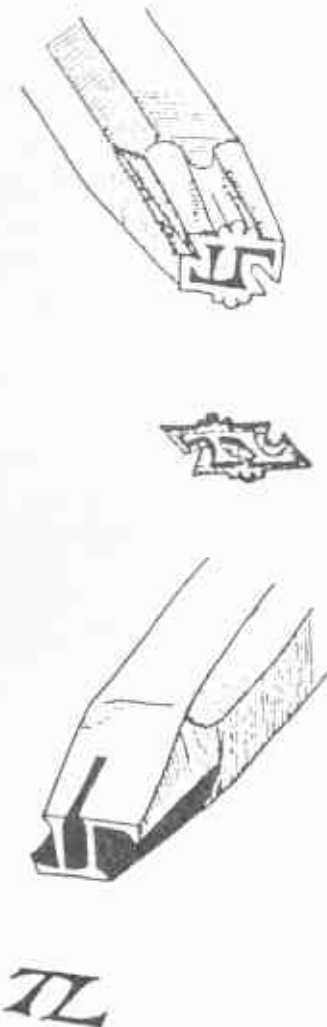
The ends of the stamps that will be struck were tapered a little to keep the force of the hammer blow centered.

Stamps were heated and held in a vise for chasing the areas between the letters. **Everyone remembered to chase the letters backwards so the stamps would produce readable letters!**

The initials TL are about as easy as they come. For years I marked my initials in work with four chisel blows. It could only have been simpler had I been named Isaac Isenberg.

I was concerned about the fel-

*continued*





lows with curvy initials — Sam Campbell and Peter Stanaitis, and made some new chasing tools with them in mind. I also took along some roughly forged and hardened tools for participants to grind to whatever shapes they needed.

Sam combined his initials neatly into a monogram and Pete worked until he got his P and S on the end of the stamp.

Fred Peterson worked on a geometric design, an effective alternative as a touchmark whether or not one has impossible initials.

Dan Flory found a larger bar of mild steel and worked three initials on the end to be used for burning his signature onto wood projects.

Andrew Townswick fit all three of his initials on the end of the spring steel. Monty Bygd used only the B and formed it so top and bottom were symmetrical. Because it could be reversed, then, by inverting he was able to make a second stamp to produce raised letters in a depressed ground, by driving the first stamp into the face of the second.

I enjoyed the day and was pleased to see so many different approaches to the project. When leading workshops in which participants produce duplicates of something which I designed, I've always started dreaming about the production potential of a shop with employees. More exciting is the type of workshop, such as this was, in which each participant gets creative with the basic techniques I introduce.

Tom Latane  
Pepin, Wisconsin

## WALT HULL Raised Letter Stamp

After making a couple of stamps that worked (sort of) I decided to try one that makes a raised signature rather than an impression. This turned out to be much easier than I had expected.

I started with a sketch of my logo as I wanted it to appear:



Then I decided about how big I wanted it. I do more larger pieces than smaller, so I decided that about 5/8" square would be right, and I forged a piece of old jack-hammer point to that size.

Next I made some teeny-tiny chisels. For this design I got by with three.

End-on they looked about like this:



I annealed my hammer point and stood it up in the vice and marked it, cold, first with a lead pencil, then with my chisels:



Then I did it again, hot, taking several heats and not hurrying. I rounded the edges of the die with a sanding disc:



and quenched in oil and drew to blue.

It is a good idea not to make a stamp of this kind too big, as it takes a lot of force to drive the blunt die into the metal. I find the 5/8" square stock to be plenty big. I cut it off short so I can hit it with the power hammer. It's not necessary to drive the little chisels too deep; a few thousandths stands right out.

Walt Hull

P.S. When making a stamp it's a good idea to grind it flat on one side of the shaft so you can feel with your thumb if you have it turned the right way when you use it.

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	Phil Green	1106 Yale Ave	St. Louis,	MO	63117
	Jack Grimes	P.O. Box 91	Monaca,	PA	15061
518-465-8559	Patrick J. Grossi	3 Providence Place	Albany,	NY	12202
	Bill Hale	5334 Woodson	Mission,	KS	66202
314-474-9687	Vicki Hardcastle	RR 6 11211 St. Charles Rd.	Columbia,	MO	65202
	David Hartman	449 Sherwood Dr.	Webster Groves,	MO	63119
314-942-4251	Earl Hawkins	3 Deepwoods Lane	Barnhart,	MO	63012
409-597-4847	Sharon Heathcock	P. O. Box 218	Dobbin,	TX	77333
	Larry Helton	General Delivery	Etterville,	MO	65030
314-637-2576	Doug & Bonnie Hendrickson	Rt. 1 Box 16D	Lesterville,	MO	63654
314-423-3933	Hirschfield Welding Service	3636 Marshall Rd.	St. Louis,	MO	63114
314-629-4061	Jerry Hoffmann	Rt.1 Box 189	Lonedell,	MO	63060
601-636-9491	Grady & Clarissa Holley	613 Egan Ave.	Vicksburg,	MS	39180
913-649-6127	David Hoopes	7645 Rainbow Dr.	Prairie Village,	KS	66208
	Steven C. Hope	453 Lakeshore Dr.	Cuba,	MO	65453
606-624-1327	David C. Hufford	101 Rosemary Circle	Richmond,	KY	40475
913-842-2954	Walt Hull	2043 Massachusetts	Lawrence,	KS	66046
	Larry Isbister	P. O. Box 201	Imperial,	MO	63052
602-966-4451	Dan Jennings	2522 W. Loughlin Dr.	Chandler,	AZ	85224
314-458-2480	Ted Joerding	515 Woodmoor Ridge Ct.	Ballwin,	MO	63011
	George Kaulf	105 N. 8th	Lawrence,	KS	66044
713-358-8551	Dr. W. A. Kimbrough	1542 Green Oak Place	Kingwood,	TX	77339

314-938-6248	Todd Kinnikin	8356 John McKeever Rd.	House Springs,	MO	63051
314-285-3210	Hank Knickmeyer	6300 Crosscreek	Cedar Hill,	MO	63016
314-892-2527	Gary Kobermann	2337 Whitshire	St. Louis,	MO	63129
	Raymond H. Kovar	P.O. Box 9	Snook,	TX	77878
205-734-7764	Allan Kress	889 Co. Rd. 1464	Cullman,	AL	35055
	Jerry Kunkle	1249 Circle Dr.	Neosho,	MO	64850
314-937-0550	Mark Laiben	P. O. Box 79	Crystal City,	MO	63019
	Mark Laiben	10933 Bailey School Rd.	Festus,	MO	63028
504-469-7817	E. J. Lancaster	4106 Platt Drive	Kenner,	LA	70165
	Cliff Larson	64 Wallace Dr.	Rockaway Beach,	MO	65740
	Roger Lewis	Hwy 32 & Science	Flat River,	MO	63601
	Marlin Libby	1321 Hudson Rd.	Ferguson,	MO	63135
618-756-2331	John R. Lovin	Route 2 Box 31	Belle Rive,	IL	62810
618-549-1954	Andrew MacDonald	401 W. Kenicott	Carbondale,	IL	62901
	Jim Mangels	12823 Canterbury Farm Dr.	St. Louis,	MO	63128
615-367-3193	Bill & Jane Manley	Rt. 1 Box 197 A	Kingston,	TN	37763
618-443-5284	Ken Markley	Rt. 1 Box 346C	Sparta,	IL	62286
314-732-5219	Thomas Marlen	Rt. 2 Box 144	Bourbon,	MO	65441
	David Mathews	Rt. 73 Box 427	Mountain View,	AR	72560
	Jim May	Rt. 2 Box 191	Auxvasse,	MO	65231
	Pat McCarty	Rt. 1 Box 247A	Washington,	MO	63090
314-897-4111	Jim McCarty	Rt. 1 Box 20	Loose Creek,	MO	65054
	V. J. McCrackin	3720 Hess Rd.	House Springs,	MO	63051
314-285-2640	John McHenry	6365 Crosscreek Rd.	Cedar Hill,	MO	63016
314-378-5019	Jack McMurtree	R. R. 2 Box 160	Versailles,	MO	65084
341-334-6821	Dan McNair	1530 Bertling St.	Cape Girardeau,	MO	63701
417-869-1644	John Merrell	1414 N. Summit	Springfield,	MO	65802
	Bob Miller	236 Ramsey Lane	Ballwin,	MO	63021
314-838-5975	Bill Miller	810 Derhake	Hazelwood,	MO	63033
	Larry Milligan	Rt. 2 Box 2045	Mountain View,	MO	65548
	W. C. Mitchell	Rt. 4 Box 1205	Gravois Mills,	MO	65037
	Steven P. Mojonnier	1666 Deepgrass Drive	St. Charles,	MO	63303
	Bill Moody	P. O. Box 67	Seymour,	MO	65746
501-448-2279	Dale Moody	H C 89 Box 209	Marshall,	AR	72650
	Thomas Moroni	Rt. 2 Box 100	Oran,	MO	63771
314-225-3252	Louis Mueller	224 Benton	Valley Park,	MO	63088
913-262-0510	Walter Murphy	4436 Cambridge	Kansas City,	MO	66103
314-828-4640	John Murray	Box 103	New Melle,	MO	63365
812-448-2828	Don Neuenschwander	R. R. 12, Box 548	Brazil,	IN	47834
816-796-4193	Jeray Norman	Rt. 2 Box 31D	California,	MO	65018
816-322-4094	Danny O'Brien	1816 E. 135th St.	Grandview,	MO	64030
314-239-5456	Richard D. Obermeyer	1418 E. 5th St.	Washington,	MO	63090
314-725-7307	Jack Oonk	7125 Forsyth	St. Louis,	MO	63105
314-298-0037	James M. Ossie	11330 Prospect Ave.	Bridgeton,	MO	63044
	Chris Padelford	P.O. Box 673	Mt. View,	AR	72560

	George T. Park	1000 McClurken Ln.	Sparta,	IL	62286
618-587-3061	David J. Park	Box 222	Tilden,	IL	62292
314-442-6668	Mike Pate	3901 Woodrail on the Green	Columbia,	MO	65203
	Bob Patrick	H C 73 Box 427 Hwy 66 West	Mountain View,	AR	72560
713-526-2590	Bill Peck	98 Dennis	Houston,	TX	77006
615-691-4196	Dan Peters	1401 Buckeye Rd.	Knoxville,	TN	37919
	Willard Phelps	63 Chartley Ln.	Bridgeton,	MO	63044
314-547-6091	Gerald Pingel	Box 215 Rt. 2 Hwy. 61 S.	Perryville,	MO	63775
314-394-1337	James T. Piper	382 Village Creek Dr.	Ballwin,	MO	63021
	Timothy Potier	P. O. Box 711	Oberlin,	LA	70655
	Mark Powell	225 Vida Ave.	St. Louis,	MO	63125
816-668-2371	Ken Rehmer	Rt. 3	Cole Camp,	MO	65325
	Gary Reifsch	6 Creek Bottom Ct.	Wentzville,	MO	63385
314-583-5247	J. K. Reynolds	P. O. Box 452	Union,	MO	63084
816-259-4009	Jack Reynolds	2121 South St.	Lexington,	MO	64067
816-484-3372	Morton Rice	Rt. 1 Box 76	Richmond,	MO	64085
314-341-3423	Dave Rink	Rt. 2 Box 579	Rolla,	MO	65401
	James Rink	Rt. 2 Box 579	Rolla,	MO	65401
314-687-3507	George B. Robb II	1451 W. Creed Rd.	Sturgeon,	MO	65284
407-283-2611	E. Ray Roberts	6260 S. W. Markel St.	Palm City,	FL	34990
	Francis W. Roberts	Rt. 1 Box 804	Seligman,	MO	65745
	Tim Ryan	Rt. 1 Box 83	Gordonsville,	TN	38563
314-341-3425	Eddie Sanchez	305 N. Olive	Rolla,	MO	65401
	Fabian Schilly	6512 Moss Hollow	Barnhardt,	MO	63012
606-384-4122	Roger Scott	P. O. Box 180	Union,	KY	41091
816-584-3770	Al Scott	Rt. 1 Box 124	Higginsville,	MO	64037
616-228-6616	Christopher Sherling	2995 E. Kasson	Cedar,	MI	49621
	John Sherwood	4552 Schumacher	High Ridge,	MO	63049
	Melvin Shoptaw	11 S. Dellwood	Dellwood,	MO	63135
816-231-6633	Dan A. Siglar	315 S. Lawn	Kansas City,	MO	64124
314-734-2668	William C. Skaggs	Rt. 1 Box 462	Ironton,	MO	63650
	Al Smith	2420 Burns Ave.	St. Louis,	MO	63114
	Tony G. Smith	2424 Florent	Maplewood,	MO	63143
518-374-7563	Ryk P. Spoor	1052 Brierwood Blvd.	Schenectady,	NY	12308
314-474-5955	Scott Stager	5440 E. Teton Dr.	Columbia,	MO	65201
	William C. Stauss	1651 Burley Rd.	Festus,	MO	63028
816-763-4450	Steve Steffan	3700 Main, P. O. Box 269	Grandview,	MO	64030
	Al Stephens	P. O. Box 115	Exton,	PA	19341
913-441-0009	James R. Stevenson	R. R. 2 Box 64A	Bonner Springs,	KS	66012
913-342-9133	Pete Stiglich	2731 N. 31st. Street	Kansas City,	MO	66104
314-285-5515	Fred J. T. Stock	6195 N. Lakeshore Dr.	Hillsboro,	MO	63050
	Harry Stoekle	2226 Sheperd Blvd.	Columbia,	MO	65201
	Billy M. Stone	2017 Willoughby	Kennett,	MO	63857
	Stone County Ironworks	H C 73 Box 427 Hwy 66 W.	Mountain View,	AR	72560
402-873-6603	Harlan "Sid" Suedmeier	424 Corso	Nebraska City,	NE	68410

417-833-9601	Kirk Sullens	Rt. 20 Box 225	Springfield,	MO	65803
314-496-3793	Bernie & Patti Tappel	11112 State Rd. H	Henley,	MO	65040
314-644-2599	Gary Tash	3229 Tennyson Sq.	St Louis,	MO	63143
412-733-3938	George Taylor	R. D. 3 Box 168	Export,	PA	15632
	John F. Templeton	1503 Lakeside Ln.	St. Louis,	MO	63138
	Richard Terry	R.R. 2 Box 318K	Sullivan,	MO	63080
314-782-3433	James A. Thomas	Rt. 1 Box 102A	Lohman,	MO	65053
	Charles Thompson	RFD 3 Box 128	Fayette,	MO	65248
	Carl L. Turner	3260 Collier	Indianapolis,	IN	46241
314-583-5598	Eugene F. Tyler	R. R. 1 Box 897	Union,	MO	63084
314-427-3127	Tim Underwood	2528 Sims Ave.	Overland,	MO	63114
817-626-5909	Verl Underwood	613 N. Bailey Ave.	Ft. Worth,	TX	76107
314-729-6578	Jack Vail	Rt 5 Box 458	Salem,	MO	65560
	Ken Valdejo	1121 St. Bartholemew	Cahokia,	IL	62206
801-965-1142	Paul L. Venema	3729 Brandy Buck	Bennion,	UT	84118
314-422-3505	John Vessman	HCR 71 Box 16	Vienna,	MO	65582
	Charles B. Wagner	Box 33	Rolla,	MO	65401
314-942-2529	Jim Waller	5651 Heads Creek Rd.	House Springs,	MO	63051
	Roy A. Warden	R 2 Box 138-2	Union,	MO	63084
618-677-2262	Jack Weekley	2010 S. 4th. St.	Fayetteville,	IL	62258
209-897-3807	Vern West	3320 Ave. 393	Kingsbury,	CA	93631
	Francis Whitaker	1493 County Road 106 c/o CRHS	Carbondale,	CO	81623
816-941-3243	William J. White	625 96th St.	Kansas City ,	MO	64131
314-869-9992	Dan Whitmore	RR 1 Box 2698	Old Monroe,	MO	63369
	Michael A. Wicklund	P. O. Box 397	Doniphan,	MO	63935
	John Wilding	523 W 9th	Herman,	MO	65041
	Mark Wilhm	P. O. Box 477	Cotter,	AR	72626
314-546-2415	Ralph & Joyce Wilkins	Rt. 1 Box 367A	Ironton,	MO	63650
314-888-3569	Lewis Wilkison	120 Pool St	Kennett,	MO	63857
	Deward Williams	2130 Lake Dr.	Arnold,	MO	63010
	Preston Williams	Box 272 A	Madison,	MO	65263
	Melvin Williams	1120 S. Jefferson	Mexico,	MO	65265
	Bryan Willis	Rt. 1 Box 132	Rosebud,	MO	63091
314-696-3329	Steve Willsie	15020 Hwy. 63 N.	Sturgeon,	MO	65284
314-883-7670	Stanley Winkler	175 S. Third St	Ste. Genevieve,	MO	63670
913-262-5640	Charles Wise	5721 Horton	Mission,	KS	66202
314-334-9406	Bob Woodard	2748 Oakshire Circle	Ste. Genevieve	MO	63701
517-879-4504	Michael Yascolt	422 W. Kitchen Rd.	Pinconning,	MI	48650
813-955-2845	Tom Younkman Sr.	2541 Hillview St.	Sarasota,	FL	34239
203-589-0453	Roy Zurell	37 Hartford Ave.	Bristol,	CT	06010

# Happenings

## CONNECTICUT SCHOOL OF WROUGHT IRON DESIGN

- Training in basic Blacksmithing
  - Training in Architectural Iron Work for Blacksmiths
  - Seminars & Training programs for architects, designers, building specifiers, and formal schools of Architecture & Engineering
- Call for a list of classes offered, Box 8116 Buckland Station, Manchester, CT 06040, (203) 646-8363

The **MOUNTAIN SMITHS BLACKSMITHING CONFERENCE** will be held at the Francis Whitaker's Blacksmithing School. The School is located in the town of Carbondale, Colorado, a short distance from Aspen, Colorado.

The conference will be held the 27th thru the 30th of August. The demonstrators thus far include:

- Francis Whitaker - Sea horse fireplace tools, miner candle holder, split cross.
- Frank Turley - Forging bolt

tongs, branding iron letters and character shapes, tool heads with eyes.

Joe Anderson - Animal heads and contemporary designs.

Rob Gunter - Forging signature or logo stamps and hollow forging.

Will Perry - Tool forging on a 500 Lb. hammer.

There will be demonstrations during the day and there will be open forging in the evening. The demonstrators will be on hand in the evenings to give helpful hints.

There will be a Blacksmithing Art Show that will be open to the public.

Conference fees before August 2, 1992:

R.M.S. Members - \$95.00

Non-members - \$120.00 which includes R.M.S membership Lodging and meals at the school will be \$100.00.

Camping and motels also available.

Any person interested in complete conference information, please contact Steven L. Titus, 7815 Maverick Road, Colorado Springs, CO 80908 in writing.

The **ALLISON'S WELLS SCHOOL OF ARTS & CRAFTS, INC.**, and Artist's Incubator Center is accepting applications for tenancy, a unique opportunity to participate in the Artists' Incubator Program. A residency of up to three years is designed to prepare the artists for full-time professional studio work in their area of concentration. Intensive studio activity will be the core of the Incubator Program. Also to be included are courses in design, business practices, marketing and craft history. Artists applying for tenancy should be prepared to work independently without instruction, yet have the capacity to interact and cooperate with fellow residents. Applicants are required to submit a portfolio, including 15-20 slides of completed works accompanied with an identification sheet, to the screening committee for evaluation. Applicants must be willing to commit themselves to developing their creative talents into a business. For further information, please contact: Ron Hill, Founding Director, or Bonnie Staffel, Program Director, PO Box 950, Canton, MS 39046-0950 or call 1-800-489-2787.

Congratulations to the  
**CALIFORNIA BLACKSMITH**

and its new editor, Bob Thomson, on a very, very impressive magazine. Thanks, too, to Jere Kirkpatrick, outgoing editor.

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