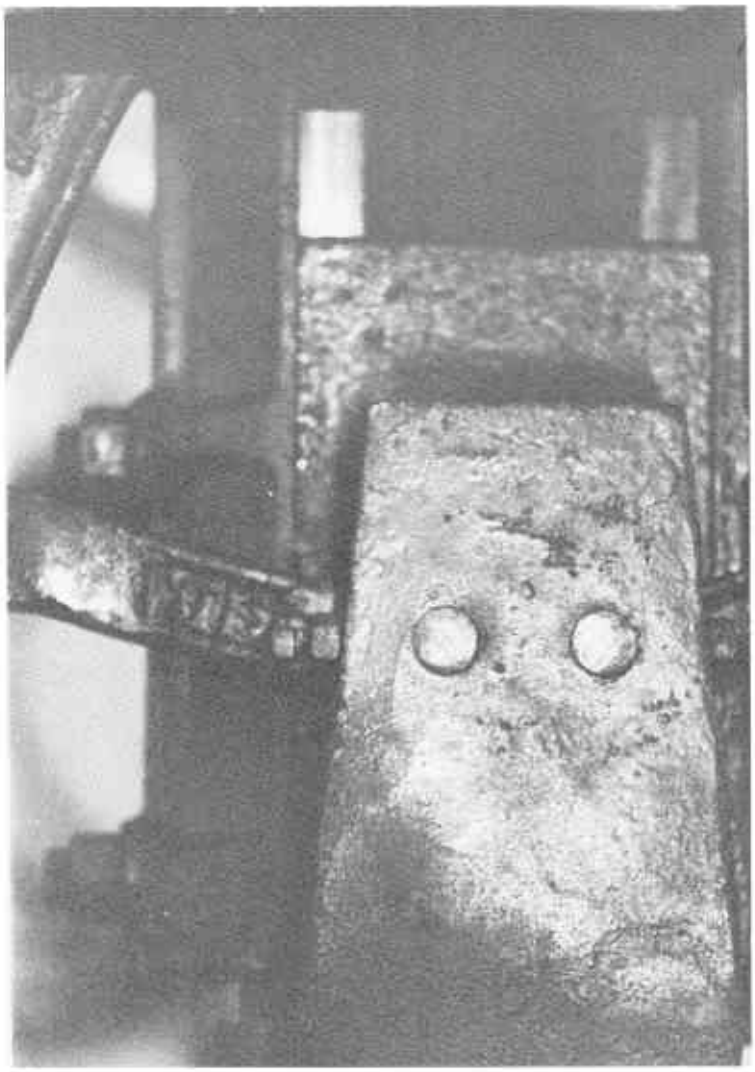
JUNE / JULY 1991

Newsletter of the Blacksmiths Association of Missouri



50# Little Giant

VOL. 8 NO. 3

The Blacksmith's 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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BAM Membership Application

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.
SEND CHECKS TO: Steve Austin
44 N.E. Munger Rd.
Claycomo, MO 64119

Membership Renewals

Be sure to check the date on the label of your newsletter. This is your membership renewal date. We will include a renewal reminder in your copy of the newsletter when your membership is due to expire. If the date on your newsletter label is not correct, please notify Bernie Tappel as soon as possible.

Next Meeting

July 20 at Doug and Bonnie Hendrickson's Lesterville, MO 314-637-2576

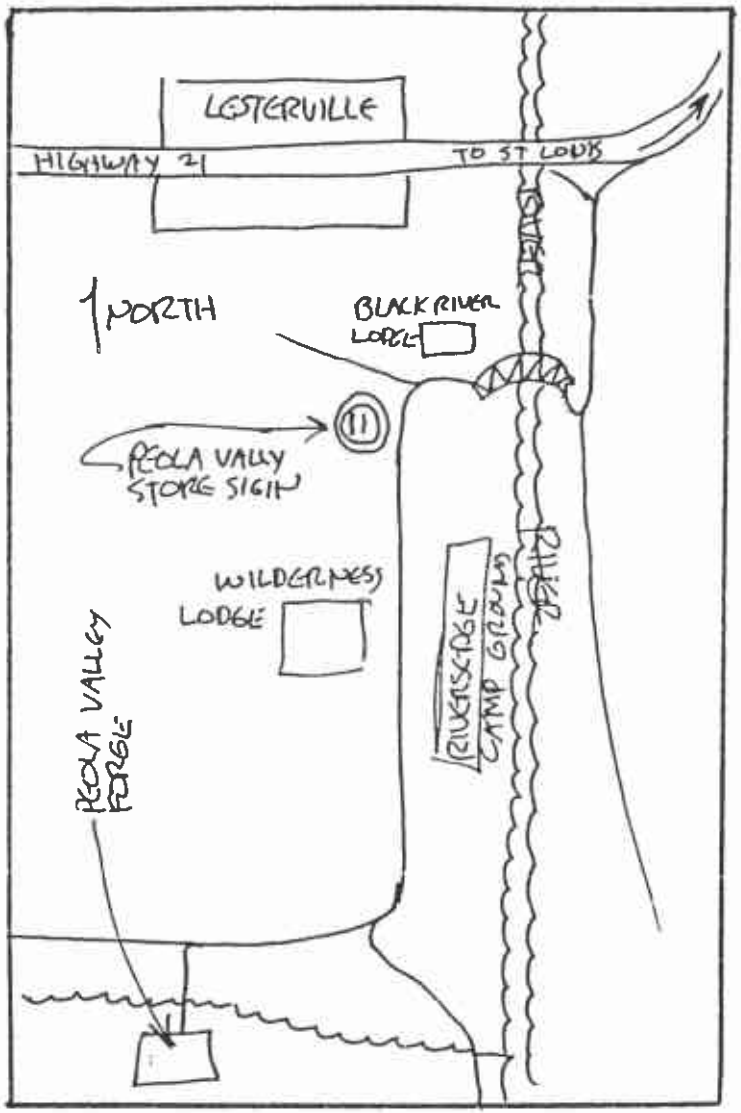
The July meeting has become our annual fun in the sun meet. One year at Vernon and Eunice Fisher's on the Lake of the Ozarks and the next in Lesterville on the banks of the sparkling (now ATV free) Black River. Lesterville is a long way from everywhere in the state so plan on camping Saturday night and floating the Black on Sunday. There is a camp ground and canoe livery 1/2 mile from Doug's forge. Do give him a call if you plan to camp and/or float and he'll make arrangements. The program for the meeting will be hands on beginning blacksmithing. Advanced members will conduct tutor sessions with new and beginning Bammers. Bring your hammers, questions and problems. Hopefully the big guys will have the answers.

The trade item for this meeting will be a door pull or other item of door hardware.

July is elections month, and this year we vote for President and Treasurer, so your participation is especially important.

All you guys with extra tools bring them and all you guys with extra money bring it — maybe you can get together on the tailgate.

Doug & Bonnie's Peola Valley Forge is 3 miles off Highway 21



RR1 Box 160, Lesterville, MO 63054
314-637-2576

ABANA Membership Application

Name: _____

Address: _____

City: _____ State: _____

Phone: ( ) _____ Zip: _____

☐ New Member ☐ Renewing Member

How did you learn about ABANA? _____

_____

_____

☐ Regular Member ..... $35.00 yr.

☐ Family Membership (one Vote) ..... $40.00 yr.

☐ Senior Citizen (age 65) ..... $25.00 yr.

☐ Overseas Membership ..... $45.00 yr.

☐ Contributory ..... $100.00 yr.

☐ Library ..... $25.00 yr.

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 ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Exp. Date (Required) ☐☐/☐☐

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

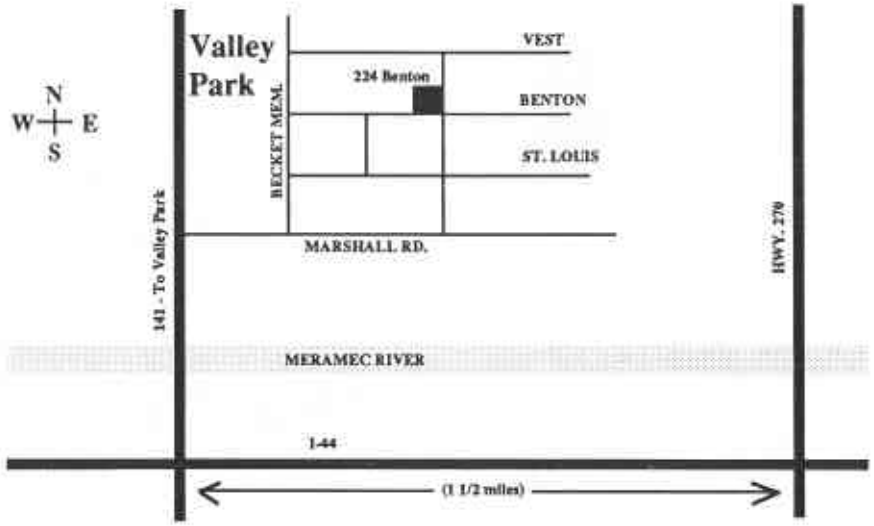
BAM Coal

Dear Bammers,

The coal is at Lou Mueller's place of business: Mueller Industries, 224 Benton St., Valley Park, MO. Benton Park is near the intersection of I-44 and 141 on the southwest edge of St. Louis. Be polite and treat Lou right by picking up your coal during business hours. If you can't make it during business hours give Lou a call, 225-3252 (work) or 225-5492 (home - after 4:00 pm). It might be a good idea to give him a call anyway so he will know when you are coming and be ready for you. The cost per 50 lb. bag will be $6.00. Please have a check made out to BAM Coal and leave it with Lou.

600 50# bags of coal @ $4.00/bag	$2400.00
Plastic wrap to hold bags on pallets	60.00
Trucker's fee	400.00
Mailing	40.00
Total cost to BAM	$2900.00

At $6.00 per bag BAM stands to make $700.00 on the project.



April Meeting at Tom Clark's

If anyone asks, you can tell them Tom Clark knows how to lay a bonfire. He also knows how to put on a BAM meeting. We gathered mid morning for a very enlightening tour of the 25 lb. Little Giant, conducted by Fred Caylor, on "loan" from the Indiana chapter. Fred rebuilds and sells Little Giants, and has about as good an understanding of their workings as anyone I've met.

At lunch we broke for a trip down the road to The Sayler Ranch, a neighboring buffalo ranch where we toured both ranch and house and enjoyed a generous lunch of buffalo burgers and sausages. The house, an expansion of the original homestead, includes a great number of hand-hewn beams held together with hand-hammered brackets, both done by Tom, and a spiral staircase by Jerry Hoffman.

Back at Tom's it was trip hammers again till supper-time, with a bonfire that burnt all night in spite of a brief shower. The dogwood was in bloom, Doug, Fred, and Walt got their instruments (roughly) in tune, and it ended too soon. For me that was about noon on Sunday. Who knows what happened after that?

Forground: Spellbound Bammers.
Background: Hinges at the Sayler Ranch.

The menu: One of Skip Sayler's buffalo.

Fred Caylor and the 25# Little Giant.

Thanks to Patti Tappel -

Thank you, and thank you, and thanks again. Patti Tappel, after God and Bernie only know how many years of typing the BAM newsletter, is giving the flying fingers a little well-earned rest. I guess I'll have to think of another excuse to call her on the phone every other month, now that other duties call her hence. Jacquie and I are going to try to wing it for awhile, so if you notice any unaccustomed lumps in your cream of smithing, hey, we're trying. And if I should call YOU some evening with panic in my voice . . .

Again, Patti, thank you. For a long time it just wouldn't have happened without you.

Walt

More Notes from the Knifemakers' Workshop

John Dearing opened the workshop with a talk on knife design, but he spoke first on safety. Knife making has a number of hazards, not the least of which is that sooner or later the workpiece is going to be very sharp. Long before it can slice that famous one-inch rope, it will be sharp enough to do you real harm, especially if thrown by a heavy duty belt grinder. Beware, too, of the dust in the air: knifemakers are exposed to all manner of toxic substances, including handle materials, welding and soldering fluxes, epoxies, and the steel itself, which is no good when inhaled.

To make it easier to talk about blade design, John first gave us a little nomenclature. Here's what I have in my notes:

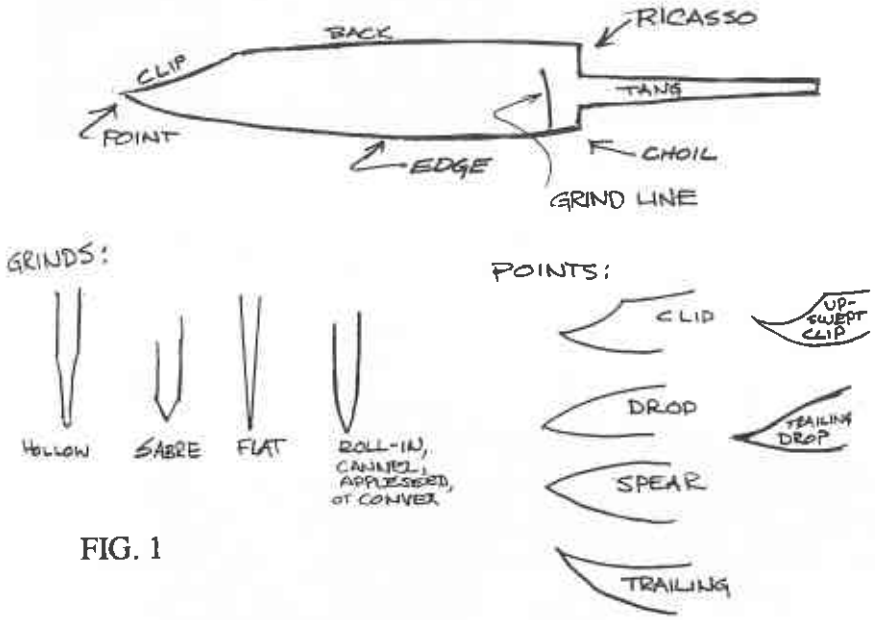


FIG. 1

John emphasized that there is no "perfect" blade, and that different designs have their advantages and disadvantages.

Hollow grinds, for example, sacrifice strength while a sabre and

continued on page 12

Profile:

John Dearing

by Kenny Valdejo

"Design is what makes a good knife. It feels good in the hand, it balances well, not point heavy, not overly heavy. If it just feels good and it performs as it should. That's really what makes a good knife. The artistry involved with the execution of the style and assembly has a lot to do with it as well."

"Ergonomic" is the word that Dearing used to describe his principle theory of design. The form should follow the function of the knife. It should be comfortable to the user as it is put through it's paces. No matter how well it functions, it has to be comfortable to use or it will end up in a drawer somewhere (we all have one of those drawers).

Due to the fact that Lee Iacocca got a 15% raise and Chrysler profits were down 80 some percent, John may take up knife making full time in the future. He plans to go the direct marketing route, through mail order and knife shows.

Dearing prefers to work with 5160 spring steel due to its availability and the forging nature that it displays during the various processes of making a knife.

He started in 1985 with the stock removal method but was converted after an ABS workshop. He beleives that forging makes a truely superior knife. Since 1985 he has used that method exclusively.

John would like to improve the embellishment of his knives. Areas of improvement are file work, better patterns, engraving, and the general artwork.

John got into knifemaking through shooting black powder. He has make quite a study of the design and origin of primitive knives. Some of the old designers have yet to be improved upon.

Dearing has become a serious reenactor of living history. He started as a buckskinner and has now joined Rodger's Rangers. Classed up his act so to speak. (A living history reenactor reenacts history, a buckskinner sits around swilling firewater waiting for someone to buy something from him.)

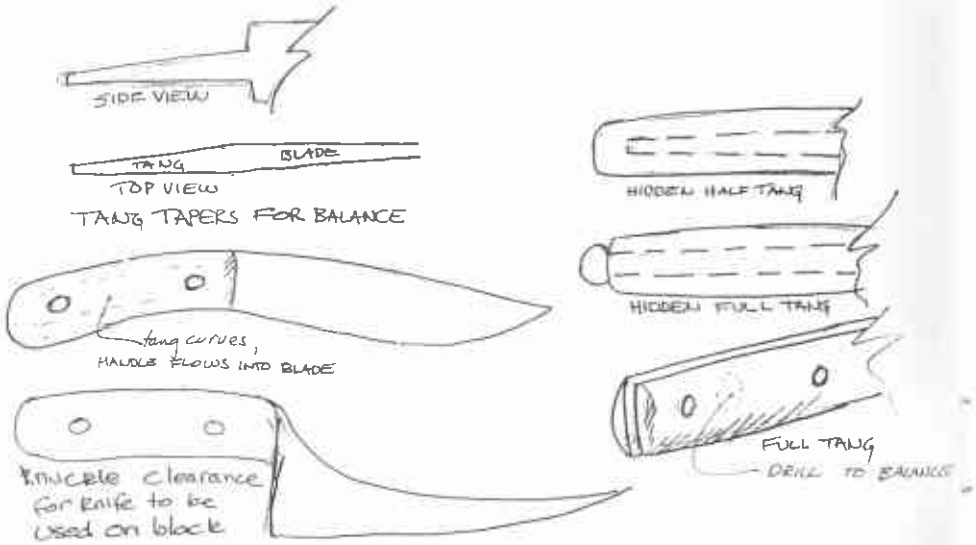
More Notes from the Knifemakers' Workshop

continued from page 10

flat grinds have a "wedge" effect behind the edge that causes the blade to experience resistance as it moves deeply into the material being cut. John favors a cannel grind as having the best combination of characteristics for the type of knife he makes.

He also prefers a subtle point design of the trailing-drop kind, much lower than a traditional trailing point, but with a little upsweep at the end that distinguishes it from a drop point.

John is almost fanatical on the subject of balance and proportion. A blade should be neither too big nor too small. A handle should be the size to fit a hand (4 to 4 3/4"). Tangs should be lightened or tapered to provide balance. The shape of a handle should be comfortable and lead into the blade, so that the knife is a natural extension of the hand.



John forges all his blades. He finds forging more satisfying, more economical of material, and, most important, he believes it gives a better blade. Forging refines the grain and makes the steel tougher and more resilient.

John first forges the basic shape, then draws out and tapers the blade, and then forges the edge bevel. Be sure, he says, not to work too hot or too cold. Gas forges give better temperature control.

He prefers 5160 steel (see last issue), because it is fairly forgiving and forges easily, and because he knows its heat-treating characteristics and can harden and temper it reliably. 1095 and 01 also work well.

National Ornamental Metal Museum Trip

At our last meeting we voted to investigate the feasibility of chartering a bus and taking a weekend trip to Memphis instead of doing our usual 2 day workshop in March. Our treasury is fat right now and the plan is for BAM to pop for the bus. Steve is checking on the cost of a charter, I have called Jim Wallace, director of the museum, and he likes the idea. Jim will help arrange for lodging Saturday night (we'll each have to pay for our motel) and has offered the use of the 5 station smithy at the museum. We could forge something like a sculpture or a park bench and leave it on the museum grounds. More on the trip at the July meeting.

Dr. Iron

Rumor Control

In case you heard that Tom Clark cut off his leg with a chainsaw, he didn't. Thelma says he did cut his foot, and the doctor took some stitches and told him to stay off it for 10 days. Tom figured 10 minutes was about right, but decided to compromise on 10 hours before he went back to work. We trust he's healed by the time you read this.

Safety — *by Walt Hull*

The following shop tip has been making the rounds, and it looks good, BUT why in the hell does M. Williams specify galvanized pipe? Plain "black" pipe will work just as well, and you need a really good reason to weld, flame cut, or braze galvinized steel. Vaporized zinc enters your system easily, and it is poisonous — very similar to lead. Don't do it.

POOR BOY SWAGE BLOCK

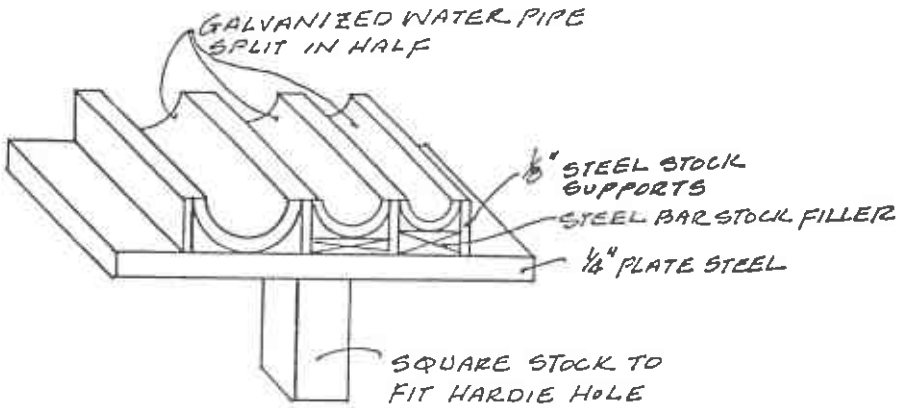
Arden Williams

Enclosed is a drawing of a homemade swage block, built for the purpose of forge-welding cable. Construction is simple and straightforward. All one needs is galvanized water pipe of different diameters, a small piece of 1/4" steel plate, small pieces of 1/8" steel plate, and square stock suitable to fit the Hardie Hole in your anvil.

CONSTRUCTION:

1. Weld or braze stock to the center of a piece of 1/4" steel plate used as a base.
2. Split the water pipe longitudinally, cut into appropriate lengths — 4", more or less.

3. Attach the water pipe halves, separated by 1/8" steel stock for support, to the face of the steel plate — either by welding or brazing.
4. The voids under the pipes can be filled with lead for more mass and weight.



SWAGE BLOCK FOR CABLE WELDING

This swage block has worked well for me, and I hope others can use this idea to simplify their cable-welding efforts.

Special thanks to my friend, Robert Brown, for the drawing since I can't draw a straight line — thanks "Brownie."

Arden Williams

Reprinted from the Florida Clinker Breaker, April, 1990

OMISSION:

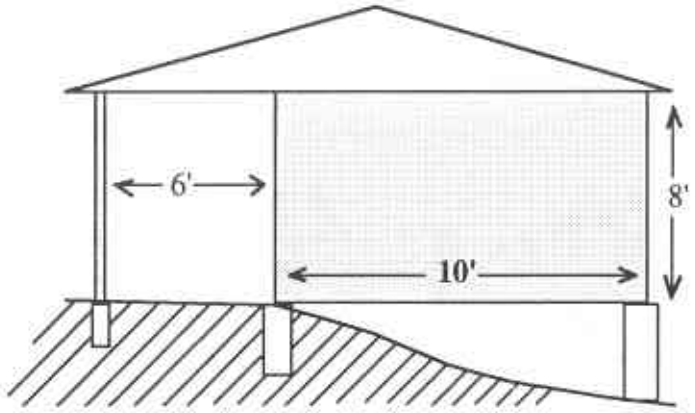
The gas forge design in the last issue should have been credited to Hank Knickmeyer. Thanks, Hank.

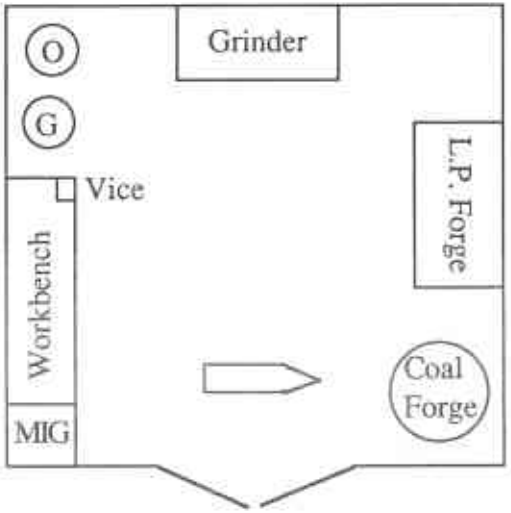
My Shop: Folly Forge

by Al Stephens

When I first became infected with this awful disease called blacksmithing, I had no tools and no place to work at home. For about a year the only time I got to work was on my infrequent trips to Lincoln's New Salem Historic Site where I was doing volunteer work in the blacksmith shop. My first piece of equipment was an old rivet forge that I bought my wife for her birthday, and my first "anvil" a piece of 6" I-beam bolted to a wood frame. These items I strategically placed under the traditional dying elm tree and found out quite quickly that my very close neighbors were somewhat less than thrilled with thick green smoke wafting across their patios. And me wailing away on that I-beam wasn't exactly music to their ears. Their "suggestions" and my mother's loving comments about my mental health has grown into Folly Forge - The Little Shop.

My wife placed several stipulations on my building plans. First I had to contain everything in one place and second, the "stuff" and I should be kept out of the general view of the public. Our back-yard is small and about 60% of it slopes down at about a 450 angle, so to take up the least amount of yard space I decided to suspend the main part of the shop out over the slope. The total dimensions of the shop are 10' x 16', with a 10' x 10' floorspace and a 6' x 10' overhang in front.





I used pressure treated 2 x 6's on 16" centers for the floor framing and 3/4" CDX plywood for the floor. The side and rear walls are 2 x 4" frame on 24" centers with two 3' doors in the front that open up almost all the floor space. The doors face east so in late afternoon when I do most of my work, I'm always in the shade.

I use the space between the rafters for "new" steel storage, and the area under the shed for storing valuable items that less enlighted folks might refer to as junk. I have two 30 amp 110 volt electric circuits running to the shop buried underground in PVC pipe.

When you enter the shop on the left is a 6' x 24" workbench with a vice on the far end. The shelf below and floor provide tool and MIG welder storage. Between the end of the bench and the rear wall is my oxygen and acetylene set. I have a grinder suspended from the rear wall and use the space between the wall studs for sheet metal and flat stuff storage space. On the right I have my L.P. gas forge sitting on an old 7- drawer roll-around tool box. This setup lets me roll the forge up to the door and work outside in hot weather. I have 2 25-lb. LP tanks for the forge and while I know you shouldn't keep them in the building I can't leave them outside for security's sake. In front of the gas forge I keep my coal forge which I primarily use for demonstration away from home. My slack tub consists of a 5 gallon metal bucket that sits between the forges. The anvil sits just inside the doors between the forge and workbench.

From the original rivet forge and I-beam my equipment, other

continued

than hand tools, has been expanded to include the following:

1 112 lb. Peter Wright anvil
1 90 lb. Mankel anvil
1 Victor Firepower Oxygen-Acetylene set
1 cheap pedestal grinder and wire brush
1 Miller Cricket XL 110 MIG welder
1 Forgemaster Blacksmith model LP gas forge

While writing this article and seeing other smith's shops I have thought of several things I would do differently. First I would have poured a solid foundation and walls and filled to a level floor, or added a 5th pier in the center of the shed to take some of the vibration out of it. On more than one occasion things have been shaken off the walls during heavy forging. This adversely affects creative inspiration and heart rate. Next I would have put on a corrugated roof with several translucent panels in it for better lighting. I may in the future add a full ridge vent and some windows to improve air circulation.

I want to take this opportunity to thank the many people in and out of BAM who have helped me along the way. Folly Forge is always open to anyone wanting to drop by.

ABANA

Artist-Blacksmiths' Association of North America

P.O. Box 1181, Nashville, Indiana 47448
Executive Secretary, Janelle Gilbert

Office Hours: 7:30-11:30am & 1:30-4:30pm
Phone: (812) 988-6919

PRESIDENT'S MESSAGE
May 1991

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

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

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

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

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

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

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

Warm regards,

Dorothy Stiegler
President of ABANA

More on Anvil Repair

This article is from the newsletter of the Northwest Ohio Blacksmiths, an ABANA chapter, ". . . as reported by Robb Gunter at the 1990 SOFA [Southern Ohio Forge and Anvil] Quad-State Round-up, with comments by Michael G. Merickel."

For those of us that faced the delightful problem of having too many choices and not enough time to take in all of the demonstrations at this year's Roundup, here is a process reported by Robb Gunter of New Mexico. Mr. Gunter is employed at Sandia Labs, a large government weapons and physical process lab that tests and develops materials for many government projects. Mr. Gunter reports that using the lab's equipment and testing procedures, many combinations of welding alloy and heat treatment were tried before this procedure was selected. He further reports that he has resurfaced over 40 anvils using this procedure with excellent results.

STEP 1: Starting with a sound anvil, grind surface to remove scale, rust, and pits. Grind out all cracks and fractures down to sound metal. The aim is to provide a clean, sound base that will provide a good anchor for the built-up weld that will follow. It is important to provide a smooth undercut or slightly irregular surface so that no uniform shear lines will be present between the welded metal and the anvil. There should be no sharp cuts, cracks, or angles that may serve as a starting point for separations or cracks.

STEP 2: Preheat anvil in a wood or charcoal fire to 400 degrees. When heating an anvil it is important to heat it uniformly, slowly, and completely. Surface heating with a torch is not adequate, and will likely result in internal cracks that will destroy the anvil and cause the newly welded metal to adhere poorly and/or break off. Determining the temperature of the anvil is quite easy if you use tempering crayons. These crayons are available through many welding or metal working supply houses. They come in many temperature ranges, and melt at specific temperatures. Buy a

375 degree, a 400 degree, and a 425 degree crayon. Mark the anvil in a spot you can see easily. As the anvil heats, the 375 crayon will melt before the 400. Ideally, the 425 crayon should not melt, demonstrating that the anvil has reached the correct temperature.

STEP 3: Having made plans on how to handle a 400 degree anvil beforehand, remove the anvil from the fire and wire brush well to remove all scale, soot, and rust. Build up the surface with STOODY 2110 welding rod, making as many passes as needed to build up the anvil. "Peen and clean" well between passes of weld and use a broad flowing pattern to insure good interlock and the absence of voids or inclusions in the weld. STOODY 2110 is reported to bond well to wrought iron and steel, but bonds poorly to cast iron. As welded, STOODY 2110 provides a durable base that will test in the high 40s on the Rockwell C scale.

STEP 5: Profile grind with a disk or slag grinder as needed to establish the profile before applying the hard surface weld that will provide the working surface. Remember, all this is being done while the anvil is hot to promote a better welded bond, and to avoid cracks developing in the body of the anvil from the extreme temperature differences produced by the welding arc.

STEP 6: Hard surface the base welded and profiled anvil with AIRCO 1105 rod. This rod will produce a surface in the high 50s on the Rockwell C scale as welded. It is important that there be no more than three layers or passes with this rod as it will lose its ability to produce a hard surface if it is applied too thickly.

Do not hard-surface the step.

STEP 7: Profile grind and rough finish the surface. Finishing or Blanchard grinding can wait until after normalizing, providing the surface is uniform and without voids.

STEP 8: Reheat anvil to 400 degrees and allow to cool slowly. This normalizing step is important as it will remove any stresses that are present in the anvil due to uneven heating during the welding process.

ABANA

Artist-Blacksmiths' Association of North America

P.O. Box 1181, Nashville, Indiana 47448
Executive Secretary, Janelle Gilbert

Office Hours: 7:30-11:30am & 1:30-4:30pm
Phone: (812) 988-6919

PRESIDENT'S MESSAGE
June 1991

Dear Friends,

Thanks for the calls and letters concerning the fire here at our homestead! Indeed, I am fine now, and except for the black spots on the walls and the burned carpets, you would never know anything happened.

VisionGroup International Post Office Box 27524 Tempe, Az 85285, is considering a television series on Blacksmithing. It will be a little like This Old House, but about blacksmithing. Your Chapter will be hearing from Eric Sperstad in the near future regarding this excellent opportunity for advancement of the trade. At the moment, the prime concern is in funding. Mr Spersted will be sending each chapter a detailed proposal and will probably be seeking chapter support as well as individual support for this idea. Please watch for his mailing and contribute in any way that you can.

The Atlanta Historical Society of Atlanta, Georgia is in the process of building a new museum. Within this project is to be a memorial to Alex Bealer, one of the founders of ABANA. At this time they are in the process of preparing a design concept for the memorial that can incorporate as many of us as we wish to participate. We all remember the combined effort for the beautiful gates at the National Ornamental Metals Museum, and although this may not be a gate, the idea is the same. I will keep you as informed as possible so that everyone is given the opportunity to contribute and in our own way, forge a lasting and fitting memorial to a truly wonderful man.

PLEASE SEND YOUR NOMINATIONS FOR THE ABANA BOARD OF DIRECTORS ELECTION A.S.A.P. We have not received any nominations at the time of this mailing. The deadline for nominations to stay on schedule is (noted in Spring issue of The Anvil's Ring) June 15, 1991.

Directors who are leaving are as follows:

Ward Brinegar - Chairman of the Chapter Liaison Committee, member of the Canadian Liaison Commitee, and member of the Conference Planning Committee.

Randy Calhoon - Member of Conference Planning Committee, member of the Library Committee, and member of the Chapter Liaison Committee.

Bill Callaway - Treasurer, member of the Election & Nominating Committee, member of Long Term Planning Committee, member of Conference Planning Committee, and member of the Finance/Audit Committee.

David Norrie - Chairman of the Canadian Liaison Committee, member of the Library Committee, and member of the Membership Committee.

Mark Smith - Member of the Anvil's Ring Committee, member of the Conference Planning Committee, and member of the Chapter Liaison Committee.

We are looking for those of you who would like to work on the ABANA Board of Directors and serve on committees. Please contact the ABANA Office if you have someone in mind but don't know the details of making the nomination.

Warm regards,

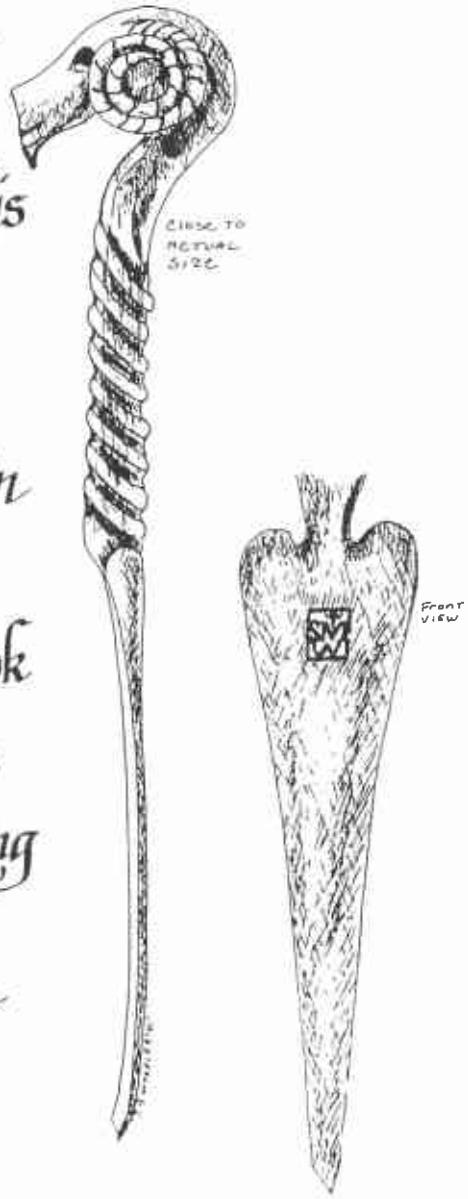
Dorothy Stiegler
ABANA President

Wanted

During the 1990 Blacksmithing days this rams head knife was stolen from the Building Museum in Washington DC.

Please be on the look out on your journeys.

If you know anything about this please call: Steve Wheeler (301) 592-5646



Hammers

Here comes a potful of notes on the care, repair and use of Little Giant power hammers. Your reporter has an embarrassing wealth of notes and a paucity of organization, and has finally decided to just let fly. I have notes on Fred Caylor's and Brent Bolton's remarks at the April meeting and some extras supplied by Dr. Iron, I also have the good doctor's notes from a 5 day workshop with Clifton Ralph and some Clifton Ralph notes from Bituminous Bits, the newsletter of the Alabama Forge Council, which I will print next month.

Fred spoke to us at Tom Clark's from the perspective of a mechanic approaching a used (and very likely abused) machine with an eye to putting it in the best possible condition. Brent, who is production manager for Stone County Iron Works, is interested in keeping a large number of hammers hitting hard and often in a production setting.

FRED CAYLOR:

If you're looking at a used hammer to buy, a lot of oil and grease is a good sign. It shows that the hammer has been kept lubricated. But for a thorough inspection, gunk it and wash it. Grease, oil, and dirt can disguise play between parts, and you want to know how sloppy it really is.

When tearing down a hammer, mark every part with a center punch so that it goes back the same way. Parts that were symmetrical when new may not have stayed that way. Use whatever system you like, but write it down.

Fred prefers the old style hammer. Says they hit harder and are easier to live with.

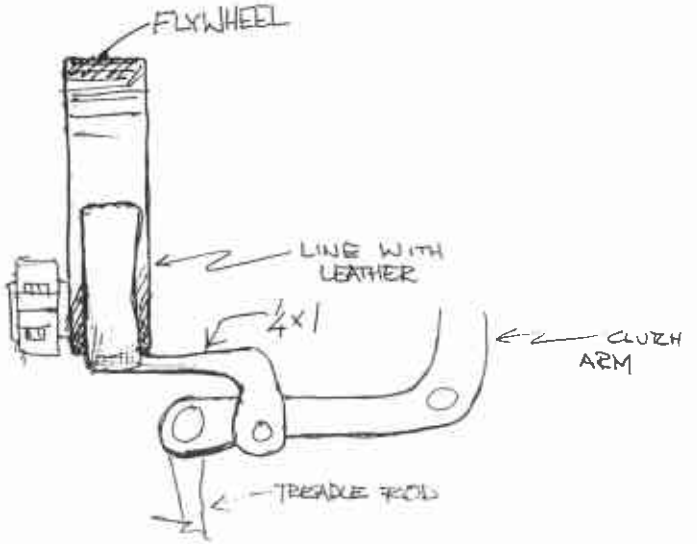
Often old dies will have been dressed so many times that there is too much clearance. It is very important to have a range of space between dies from touching to lots of space.

Removing the sow block to work larger stock may be dangerous. If you miss a lick, the die can come down too far, letting toggle arms hit ram guide.

Toggle arms should be same length with adjustment on each end.

Check play in machine by prying against linkage with a bar and watching to see what moves. Main bearings may have more play than you realize.

Brake lining on clutches is a bad idea. Leather or wood is much better. Clutch must slip and not grab. Keep well oiled.



BRAKE FOR OLD STYE HAMMER

The treadle should move at most 1" before the clutch starts to drag. The clutch push rod should be stiff and have a turnbuckle for adjustment.

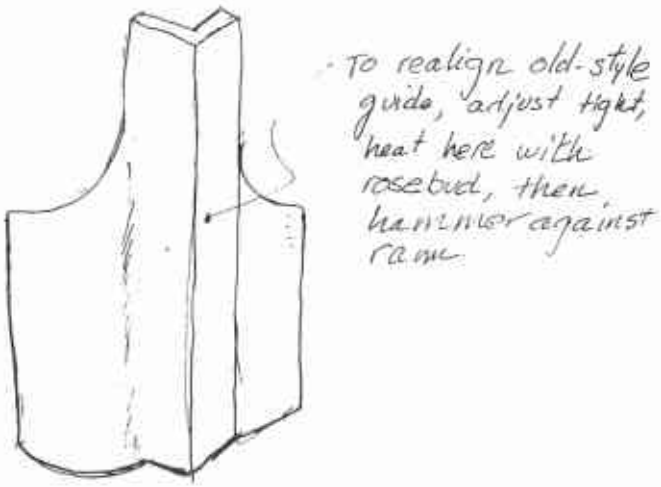
Use chainsaw bar oil on moving parts. It stays on better.

When installing dies, wedge goes in at the back of the die, from your left as you face the hammer.

Toggle arm pins may be oversized only once. Then plug and redrill.

If it is necessary / advisable to weld dies, use 300 series stainless. It is not affected by heat treating.

Be very careful when adjusting the ram guide to keep the surfaces parallel. Otherwise the ram will develop a "rocker" as it wears. This is hard on all parts and difficult to correct.



Old style guide may be relined with 1 x 1 x 3/16" angle iron.

If your hammer is in good shape and well lubricated, it will be quieter.

Lubricate. Lubricate. Lubricate.

Springs lose their spring. A weak spring will get out of synch and "flubber," hit erratically, etc.

Fred feels most hammers are run too fast. He likes 325-340 RPM for the 25#, 215 to 225 for the 50#. RPM of flywheel equals the motor RPM times the motor pulley diameter divided by the clutch pulley diameter.

Be sure to use wicking in the main bearing oilers to deliver oil slowly and keep the dirt out.

To remove clutch:

1. Remove main shaft with clutch from machine. If you try this with the shaft in place you will damage your babbitt.
2. Stand on crankwheel end on wood.
3. Find a pipe to clear the shaft.
4. Drive clutch forward 1/4" by driving on pipe, exposing end of key (heat as last resort).
5. Drive out key with special tool.

BRENT BOLTON

Lubricate! At Stone County they lubricate their hammers three times every day.

Ram ways may be grooved for oil and fitted with oil cups.

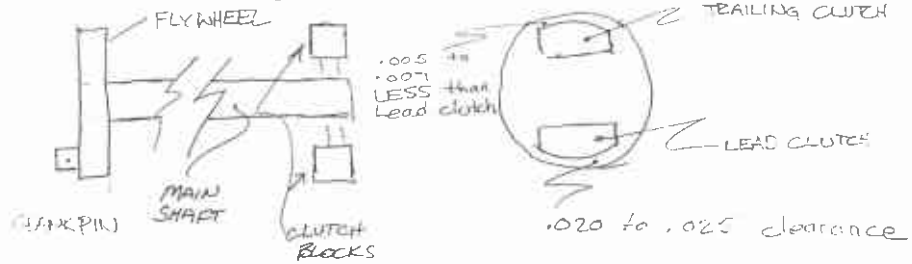
Clutch bushings will last much longer if hammer is driven from the side, not the top.

Stone County is experimenting with "Nylatron" for clutch bushings.

Put a cable through your spring. Sooner or later you'll break one. It's not necessary to lead the cable around the toggle arm.

Brent is very fussy about clutch adjustment. If your clutch starts to stick, first clean it thoroughly with WD40, getting all the grease out, then relubricate with bar oil.

Since the clutch blocks turn with the shaft, one is always aligned with the crank pin. Brent calls this the "lead" clutch, and the other the "trailing" clutch.



They try to keep their operators spoiled. There's one man whose main job is to service hammers on demand.

Home-Brewed 3 Phase

In response to interest expressed by a number of BAM members, I'd like to discuss the workings of my three phase converter. It's a very simple and reliable way of powering industrial grade machinery with three phase motors.

First, two things: 1) Thanks to Hank Knickmeyer, who gave me some info that provided the basic design for my machine, and 2) if you build a similar device, follow all standard electrical safety rules and if you have any doubts, GET AN ELECTRICIAN!!

It would be beyond the scope of this article to analyze the differences between single phase and three phase power. For our purposes it's enough to say that horsepower-for-horsepower, three phase motors are smaller, lighter, cheaper and simpler than their single phase counterparts. Also, single phase motors are generally 1725 or 3450 rpm, whereas three phase motors are made to run as low as 950 rpm for high torque, hard starting applications.

Basically, a converter consists of an "idler" motor which is used as a generator, and a small "starter" motor which is used to bring the idler up to full or "synchronous" speed. This converter is more properly called a synchronous induction generator. The starter motor spins the armature shaft of the idler motor (through V-belts and sheaves) up to its synchronous speed (in this case 1725 rpm), then the starter motor is shut off, and the spinning idler is energized by applying single phase 220V power to two of its three hot wires. It will continue to run on single phase, and the third wire will now be "hot" with the generated third phase being produced inside the idler. Thus, to utilize three phase power, you connect one wire to each of the two input single phase wires, and use the third wire from the idler. Thus, three hot wires.

The single phase neutral wire is continued through the system as an equipment ground. This may sound illogical, but it's really quite simple. Hopefully the schematic will clear it up.

This system needs two switches. Any type of on-off switch will work for the starter motor. For the idler you'll need a manual motor starter, magnetic starter, or fused disconnect switch. The incoming single phase wires should of course be provided with fuses or circuit breakers, and the output three phase hot wires should be fused as well.

Some important considerations:

1) Idler motor size - the horsepower rating of the three phase idler

should be 1 1/2 times the HP of the largest motor you intend to drive. For instance, if you want to drive a 5 HP motor, your idler should be 7 1/2 HP.

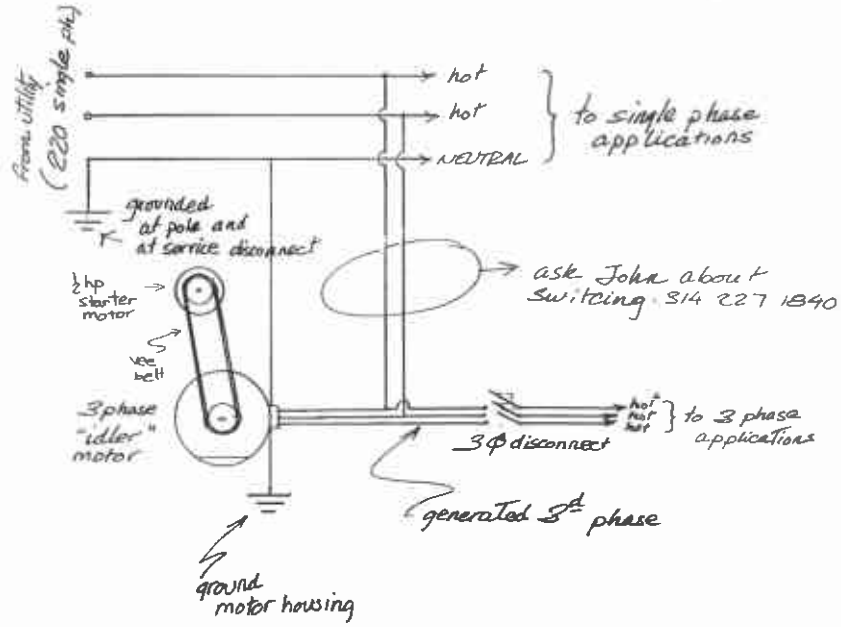
2) Several three phase motors can be run simultaneously from one converter. The total cumulative HP being driven can be much greater than the idler HP, as long as the largest motor being driven is no more than 2/3 the HP of the idler. For example, my 15 HP idler will power a 10 HP, 7 1/2 HP, and two 5 HP motors simultaneously, but it probably wouldn't run anything bigger than 10 HP efficiently.

3) A small idler can be started with a pull-rope, like a lawnmower, making a starter motor unnecessary.

4) Use wire, switches, fused, etc. that are adequate for the HP and amperage of your idler and driven equipment.

5) Feel free to call me with any questions. There are a number of refinements that can be added to this system, in fact it can be made to start and stop automatically when you touch the "on" button on any of your three phase machines, but the system I've described is the simplest and most basic configuration.

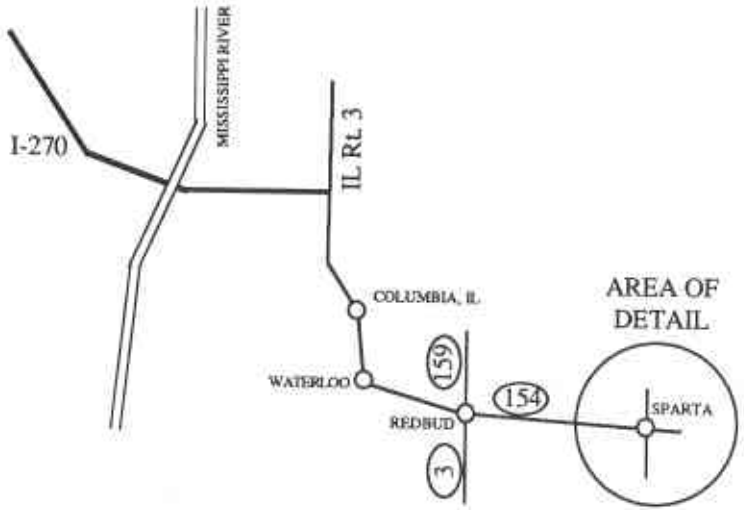
Good smithing.

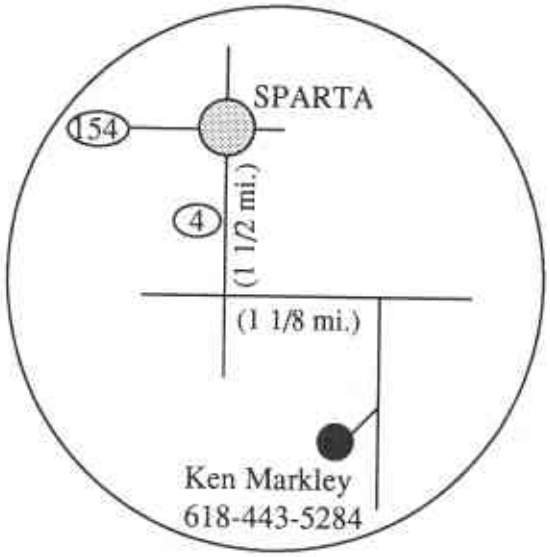


Good reference book: H.P. Richter, Practical Electrical Wiring, McGraw Hill

Future Meeting

Sept. 28th meeting is at Ken Markley's.
Trade item will be an item of jewelry.





Bye-Bye Patti

The only Bammer that has served our membership longer than Patti is our treasurer for life Steve ("Hell, we got lots of money") Austin. Patti has corrected spelling and English, grammar and typed our newsletter for 3 editors. Many of our members have donated their time and talent organizing workshops, bi-monthly meetings, and demonstrating, but no single person has been there like Patti to get the grunt work done on our newsletter. Thanks Patti.

Sincerely,
BAM

A Poem to Patti

by a former newsletter editor

There was a young lady from Henley
Who typed our newsletter so friendly
She got the word out
To Bammers tall, short, or stout
About scarfing and welding and bending

Authors note

When reading this poem keep in mind it has the same meter and rhyme of the familiar limerick which begins "There was a young man from Nantucket . . . "